

DISTRIBUTION OF MERCURY IN SEDIMENT OF COASTAL WATER OF KUALA
TERENGGANU

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FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
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**DISTRIBUTION OF MERCURY IN SEDIMENT OF COASTAL WATER OF KUALA
TERENGGANU**

By

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the requirements for the degree of
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**DEPARTMENT OF MARINE SCIENCE
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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

Distribution of Mercury in Sediment of Coastal Water of Kuala Terengganu oleh Farizan binti Ahmad, No.Matrik UK11892 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Marin sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda Sains (Sains Marin), Fakulti Pengajian Maritim dan Sains Marin, Universiti Malaysia Terengganu.

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ABSTRAK

Kandungan kepekatan merkuri dikaji dalam sedimen perairan Kuala Terengganu yang meliputi kawasan Marang ke Merang. Kepekatan merkuri juga dikaji didalam tisu otot ikan. 9 sampel sedimen dan sampel biota dijalankan dengan menggunakan Plasma Induktif Berganda- Jisim Spektrometer. Kandungan merkuri dalam sedimen dalam julat $0.003\mu\text{gg}^{-1}$ hingga $0.064\mu\text{gg}^{-1}$ sementara untuk tisu ikan ialah $0.014\mu\text{gg}^{-1}$ hingga $0.068\mu\text{gg}^{-1}$. Kepekatan merkuri menunjukkan korelasi rendah dengan min partikel saiz ($r = 0.358$) dan korelasi pertengahan dengan kandungan organik karbon. Berdasarkan keputusan yang diperolehi, hanya satu sahaja kawasan kajian dianggap tercemar dan melebihi nilai min kerak bumi ($0.04\mu\text{gg}^{-1}$) dengan nilai $0.064\mu\text{gg}^{-1}$. Keseluruhannya, stesyen lain mempunyai taburan merkuri pada nilai biasa dalam sedimen. Kandungan merkuri dalam tisu ikan juga dianggap rendah berbanding nilai piawai $0.5\mu\text{gg}^{-1}$ berat basah yang ditentukan oleh Akta Makanan Malaysia. Data yang diperolehi menunjukkan tiada ancaman yang berbahaya kepada kesihatan berlaku di perairan Kuala Terengganu.

ABSTRACT

The concentration of mercury was studied in sediment of coastal water of Kuala Terengganu that covers from Marang to Merang. In fish tissue muscle the concentration was also determined where 9 sample of sediment sample and biota sample were analyzed by ICP-MS (Inductive Couple Plasma – Mass Spectrometer). Mercury content in sediment varied from $0.003\mu\text{gg}^{-1}$ to $0.064\mu\text{gg}^{-1}$ while for the fish tissue is $0.014\mu\text{gg}^{-1}$ to $0.068\mu\text{gg}^{-1}$. Mercury concentration showed low correlation with mean particle size ($r = 0.358$) and moderate correlation with organic carbon content ($r = 0.599$). Due to the result obtained, only one sampling site of study area is contaminated and exceeded mean natural value in earth crust ($0.04\mu\text{gg}^{-1}$) with the value is $0.064\mu\text{gg}^{-1}$. Overall, other station has mercury concentration that distributed in the natural value of mercury in sediment. Mercury content in the fish tissue also considered low within the standard of $0.5\mu\text{gg}^{-1}$ wet weight set by the Malaysian Food Act. The data indicated that no major threat to public health occur in coastal water of Kuala Terengganu.