

DISTRIBUTION OF MERCURY IN THE SUNGAI PAKA, DUNGUN,
TERENGGANU

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FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
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**DISTRIBUTION OF MERCURY IN THE SUNGAI PAKA, DUNGUN,
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By:

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**JABATAN SAINS MARIN
FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN
UNIVERSITI MALAYSIA TERENGGANU**

**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **Distribution of mercury in the Paka River, Dungun, Terengganu**, oleh **Fatimah binti Usmang**, No.Matrik **UK11937** telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Marin sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda Sains (Sains Samudera), Fakulti Pengajian Maritim dan Sains Marin, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATIONS

ABBREVIATION

±	Plus minus
—	Minus or to
°C	Degree Celsius
%	Percentage
µm	Micro gram
µg/g	Micro gram per gram
ml	Milliliter
cm	Centimeter
mg/L	Milligram per liter
ppt	Part per thousand
ppm	Part per million
ppb	Part per billion
ANOVA	One-way analysis of variance
APDC	Ammonium pyroldine thiocarbamate
BSMF-N2	Blue-spot mullet fish – net 2
CVAAS	Cold vapor atomic absorption spectrometry
DF – N2	Duri fish – net 2
DFE-N2	Duri fish's eggs
DFL-N2	Duri fish's liver
DO	Dissolve oxygen

DOLT-3	Dogfish liver
FeSO ₄	Ferrous sulfate
GGF-N1	Gerut – gerut fish – net 1
Hg	Mercury
HCL	Hydrochloric acid
HNO ₃	Nitric acid
H ₂ O ₂	Hydrogen peroxide
H ₃ PO ₄	Phosphoric acid
IBF-N1	Indonesian Barb – net 1
ICP-MS	Inductively Coupled Mass Spectrometry
MC – N2	Mangrove crab – net 2
MESS-3	Marine sediment
MIBK	Methyl isobutyl ketone
PSA	Particle size analysis
RP-N1	River prawn – net 1
SBF-N1	Sea Bass fish – net 1
SBF-N2	Sea Bass fish – net 2
Temp	Temperature
THg	Total Mercury
TOC	Total organic carbon

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Distribution of Mercury in the Sungai Paka, Dungun, Terengganu

ABSTRACT

Total mercury concentrations were determined in environmental samples such as sediment, water and biota from the river areas, and some contaminated sources common to the Paka River of Terengganu. Water, sediment, fishes, mangrove crab, river prawn were collected during pre and post monsoon from targeted areas affected by point and non-point source contaminants. Mean concentrations in water were $0.032 \pm 0.015 \mu\text{g l}^{-1}$ during pre monsoon and were $0.013 \pm 0.006 \mu\text{g l}^{-1}$ during post monsoon season. Mean concentrations in sediment were $0.338 \mu\text{g g}^{-1}$ during pre monsoon and were $0.244 \mu\text{g g}^{-1}$ during post monsoon season. Mean total mercury concentrations in fish, mangrove crab, and river prawn were significantly lower than those in sediment. Mean concentrations ($\mu\text{g g}^{-1}$ dry wt) were $0.048 \pm 0.027 \mu\text{g g}^{-1}$ during pre monsoon and $0.030 \pm 0.013 \mu\text{g g}^{-1}$ during post monsoon for all the biota samples. Spatial, intraspecific and interspecific variability in the results limited most generalizations concerning the relative mercury contributions of different stressor types. All residues of seafood were less than the US Federal Drug Administration action limit of $1.0 \mu\text{g g}^{-1}$ for all biota samples.