DISTRIBUTION OF MERCURY IN THE SUNGAI PAKA, DUNGUN, TERENGGANU

FATIMAH BTE USMANG

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
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DISTRIBUTION OF MERCURY IN THE SUNGAI PAKA, DUNGUN, TERENGGANU.

By:

Fatimah Bte Usmang

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

Department of Marine Science
Faculty of Maritime Studies and Marine Science
UNIVERSITI MALAYSIA TERENGGANU
2008

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 pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Marin sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains (Sains Samudera), Fakulti Pengajian Maritim dan Sains Marin, Universiti Malaysia Terengganu.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABREVIATIONS

ABREVIATION	
±	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 pyrolidine 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
FeSO4	Ferrous sulfate
GGF-N1	Gerut – gerut fish – net 1
Hg	Mercury
HCL	Hydrochloric acid
HNO_3	Nitric acid
H_2O_2	Hydrogen peroxide
H_3PO_4	Phosphoric acid
IBF-N1	Indonesian Barb – net 1
ICP-MS	Inductively Coupled Mess 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

LIST OF APPENDICES

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 ± 0.015 μg l^{-1} during pre monsoon and were 0.013 ± 0.006 μg l^{-} during post monsoon season. Mean concentrations in sediment were 0.338 μg g^{-1} during pre monsoon and were 0.244 μg 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 (μg g^{-1} dry wt) were 0.048 ± 0.027 μg g^{-1} during pre monsoon and 0.030 ± 0.013 μg 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 μg g^{-1} for all biota samples.