TREVERSING

STOTETT OF POLEMOE AND TECHNOLOGY ON LEVE SHIMERSHIT OF SOMENGE AND TECHNOLOGY NAIL AVISIA

2003

PERPUSTAKAAN KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA 21030 KUALA TERENGGANU

21030 KUALA TERENGGANU		
1	1000248	65
<u></u>		
	2	
		1

Lihat sebelah

HAK MILIK PERPUSTAKAAN KUSTEM

1100024865

LP 33 FST 7 2003

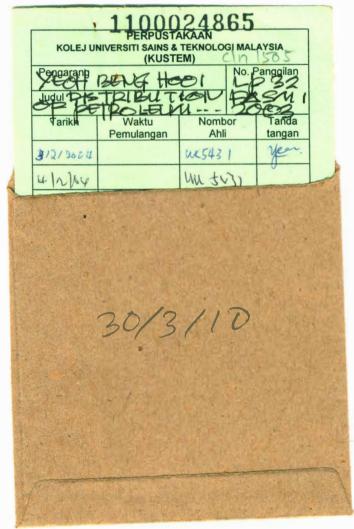
LI 33 FS1 / 2003

1100024865

Distribution of petroleum hydrocarbons and bacteria in Terengganu river estuary, Kuala Terengganu / Yeoh Beng Hooi.

CN 1505





DISTRIBUTION OF PETROLEUM HYDROCARBONS AND BACTERIA IN TERENGGANU RIVER ESTUARY, KUALA TERENGGANU

BY YEOH BENG HOOI

This project report is submitted in partial fulfillment of
the requirements for the Degree of
Bachelor of Marine Science

Faculty of Science and Technology

COLLEGE UNIVERSITY OF SCIENCE AND TECHNOLOGY MALAYSIA

2003

This project report should be cited as:

Yeoh, B. H. 2003. Distribution of Petroleum Hydrocarbons and Bacteria in Terengganu River Estuary. Undergraduate Thesis, Bachelor of Science (Marine Science), Faculty of Science and Technology, Kolej Universiti Sains dan Teknologi Malaysia, Terengganu. 97 p.

No part of this project report may be reproduced by any mechanical, photographic, or electronic process, or in the form of phonographic recording, nor may it be stored in a retrieval system, transmitted, or otherwise copies for public or private use, without written permission from the author and supervisor(s) of the project.

2981-11

ACKNOWLEDGEMENTS

First and foremost, my sincere gratitude and thanks are due to my supervisor, Professor Dr. Law Ah Theem for his invaluable guidance, advice, encouragement, supervision and time spend in this study to complete this project successfully. I appreciate the entire helping from him, which is gratefully acknowledged.

The warmest thanks and appreciation are extended to my dear friends, Miss Chan, Mr. Hii, Mr. Jong, Miss Julie and Mr. Mok for giving their love, help, support and teaching me lots of things.

I wish to thank the lab assistants and staffs of KUSTEM contributed to this study for their help and guidance, I will always remember their kindness, comment and everything that I owe them.

I'm also very grateful to my beloved parents, brother and sister for their love and support during my education years and everything in my life. Last but not the least, I apologies for my misbehaviors, problems and difficulties I had made accidentally.

ABSTRAK

Kajian tentang taburan hidrokarbon petroleum dalam air dan sedimen di Muara Sungai Terengganu telah dikaji pada bulan Jun dan November 2002. Dua kali penyampelan (28/06/2002 dan 07/11/2002) telah dijalankan di 13 lokasi kajian yang terpilih.

Analisa statistik telah menunjukkan bahawa terdapat perbezaan yang ketara (p < 0.05) dalam air dan sedimen di antara penyampelan pertama dan penyampelan kedua, tetapi tidak mempunyai perbezaan yang ketara (p > 0.05) dikesan di antara station. Julat tahap hidrokarbon petroleum di perairan Muara Sungai Terengganu adalah di antara 28.619 – 439.588 μg.L⁻¹. Min keseluruhan pada hidrokarbon pula ialah 203.032 μg.L⁻¹. Walaubagaimanapun, julat kandungan hidrokarbon di dalam sedimennya adalah di antara 45.345 – 252.954 mg.kg⁻¹ sedimen kering dengan purata 136.073 mg.kg⁻¹ sedimen kering dalam sepanjang tempoh penyampelan. Keputusan daripada kajian ini menunjukkan bahawa air dan sedimen di Muara Sungai Terengganu telah dicemari hidrokarbon.

Perhubungan di antara tahap hidrokarbon petroleum, populasi bacteria pengurai hidrokarbon dan populasi bacteria heterotropik di Muara Sungai Terengganu telah dirumuskan. Satu kolerasi yang baik telah diperoleh di antara populasi bacteria pengurai hidrokarbon and populasi bacteria heterotropik melawan tahap hidrokarbon petroleum dalam air.

ABSTRACT

The distribution of petroleum hydrocarbons in water and sediment of Terengganu River Estuary were studied during the months of June and November 2002. Two sampling trips (28/06/2002 and 07/11/2002) were conducted to all of the 13 sampling stations.

Statistical analysis revealed that there was a significant difference (p < 0.05) of petroleum hydrocarbon levels in water and sediment between first samplings and second sampling, however no significant difference (p > 0.05) was found between stations. The levels of petroleum hydrocarbon in the water of Terengganu River Estuary ranged between $28.62 - 439.59 \, \mu g.L^{-1}$. The overall mean of the hydrocarbons present was $203.03 \, \mu g.L^{-1}$. Whereas, the hydrocarbon contents in the sediment ranged between $45.35 - 252.95 \, mg.kg^{-1}$ dry sediment, with an average of $136.07 \, mg.kg^{-1}$ dry sediment throughout the samplings. Result from this study indicated that the water and sediment in Terengganu River Estuary was polluted with hydrocarbons.

The relationships among the petroleum hydrocarbon levels, the oil-degrading bacteria population and the heterotrophic bacteria population in Terengganu River Estuary were established. A good correlation was found between the oil-degrading bacteria population and heterotrophic bacteria population against petroleum hydrocarbon levels in water.