

OIL POLLUTION AND OIL BACTERIA DISTRIBUTION IN  
THE SOUTH CHINA SEA AND STRAITS OF MALACCA

SUE TEAK HONG

FACULTY OF APPLIED SCIENCE AND TECHNOLOGY  
UNIVERSITI PUTRA MALAYSIA TERENGGANU  
TERENGGANU

1999

628

**1100024173**



LP 33 FSGT 2 1999



1100024173

Oil pollution and oil bacteria distribution in the south China Sea  
and Straits of Malacca / Sue Teak Hong.

PERPUSTAKAAN  
KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA  
21030 KUALA TERENGGANU

**1100024173**


Lihat sebelah

LP  
70 33  
FSGT  
1999

HAK MILIK  
PERPUSTAKAAN KUSTEM

**OIL POLLUTION AND OIL BACTERIA DISTRIBUTION IN  
THE SOUTH CHINA SEA AND STRAITS OF MALACCA**

**BY**

**SUE TEAK HONG**

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

**Faculty of Applied Science and Technology  
UNIVERSITI PUTRA MALAYSIA TERENGGANU**

**1999**

**1100024173**

## ACKNOWLEDGEMENT

First and always, my supervisor, Professor Dr. Law Ah Theem, through whom all things are possible. I thank you for your advice and guidance.

To Mom, Dad and sister, my #1 fans! Thank you for loving and supporting me and teaching me that I truly can do anything I put my mind to.

To my dear, Jenny. I love you!

Shoutouts and thanks to...

yii siang, see ien, tiing siik, lerky, yip heng, lee siang, jillian, morgan, ismail, haji sukiman, my friends and my cousemates. Thankyou!

## ABSTRAK

Taburan hidrokarbon petroleum di dalam air dan endapan di Port Dickson dan Kuala Terengganu telah dianggarkan pada bulan Mac'98 sehingga Disember'98. Tiga kali penyampelan telah dijalankan ke atas empat stesen di kedua-dua lokasi kajian masing-masing.

Keseluruhan min hidrokarbon petroleum di perairan Port Dickson dan Kuala Terengganu adalah di antara 20.52 – 190.57 ppb and 23.35 – 519.03 ppb. Untuk endapan pula, kandungan adalah di antara 8.85 – 171.53 mg/kg endapan kering dan 0.65 – 7.24 mg/kg endapan kering. Keputusan ini menunjukkan bahawa kandungan hidrokarbon minyak adalah lebih tinggi di perairan Terengganu berbanding Port Dickson. Bagi endapan pula, kandungan hidrokarbon minyak adalah lebih tinggi di Port Dickson. Ini mungkin disebabkan oleh pukulan ombak yang kuat pada monson hujan terhadap tepian pantai dan membawa pergi hidrokarbon minyak di dalam endapan.

Didapati tiada hubungan di antara bakteria pengurai hidrokarbon di kawasan marin dengan hidrokarbon. Ini menunjukkan bakteria pengurai hidrokarbon adalah tidak sesuai dijadikan sebagai indeks pencemaran hidrokarbon minyak di marin.

Peratus bakteria pengurai hidrokarbon terhadap jumlah heterotropik bakteria adalah diantara 0 – 3 %. Ini adalah nilai yang diperolehi oleh kebanyakan penyelidik di kawasan temperat dan tropikal.

## ABSTRACT

The distribution of petroleum hydrocarbons in water and sediment in Port Dickson and Kuala Terengganu were studied between March and December'98. Four sampling stations were established in each study areas, and they were visited three times.

The overall mean of hydrocarbon levels in Port Dickson and Kuala Terengganu coastal waters ranged between 20.52 – 190.57 ppb and 23.35 – 519.03 ppb respectively. As for the sediment, the ranges were between 8.85 – 171.53 mg/kg dry sediment and 0.65 – 7.24 mg/kg dry sediment respectively. The results indicated that there was a higher level of oil pollution in the Terengganu coastal water than that found in the Port Dickson coastal water. However, a reverse observation was detected in the sediment. This was probably due to the monsoon effect on the coastal waters of Terengganu which caused the resuspension of hydrocarbons in the sediment back to the water column.

There was no correlation between the hydrocarbon levels and the oil degrading bacteria population in water. A similar phenomenon was found in the sediment. This reveals that oil degrading bacteria level in seawater is not a good indicator for hydrocarbon pollution.

The percentage of oil degrading bacteria to total heterotrophic bacteria in water and sediment ranged between 0 – 3 %. A similar level was found by many researchers in the temperate and tropical seas.