

ST. JOHN'S COLLEGE, NEW YORK

ST. JOHN'S COLLEGE

ST. JOHN'S COLLEGE



**STUDY OF BEACH PROFILE AND SEDIMENT CHARACTERISTIC ALONG  
KUSTEM TO MARAS BEACH, KUALA TERENGGANU**

By

**SITI NORDILLA BT AHMAD**

Research Report submitted partial fulfillment of the requirement for the  
Degree of Bachelor of Science (Marine Science).

Department of Marine Science  
Faculty of Science and Technology  
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA  
2006

**1100042354**

This project report should be cited as:

Ahmad,S.N. 2006. Study of Beach Profile and Sediment Characteristic Along KUSTEM to Maras Beach, Kuala Terengganu. Undergraduate thesis Bachelor of Science in Marine Science, Faculty of Science and Technology, Kolej Universiti Sains dan Teknologi Malaysia Terengganu. 76p.

*No part of this project may be reproduced by any mechanical, photographic, or electronic process, or in the form of phonographic recording, no it be stored in retrieval system, transmitted or otherwise copied for public or private use, without written permission from the author and the supervisor of the project.*

## ACKNOWLEDGEMENT

Alhamdulillah, praise to Allah for which blessing and enabled me to finish this project. I would like to take this opportunity to express my sincere gratitude and appreciation to those who had helped me to make this project running smoothly. I would like to thank especially to my parent, En. Ahmad Hussin and Pn. Maznah Shaari. Also to all my brothers and sister. Thanks for supports and concern during the period I had done this project.

I wish special thanks for my supervisor Prof. Madya Dr. Rosnan Yaacob for his guidance, suggestion and encouragement completion of my study. Thank you also to Dr Nur Antonina Bt Abdullah.

Not forgetting the entire laboratory assistant in Oceanography Laboratory; En Kamari, En. Kamarun, En. Raja and En. Sulaiman for their help during the sampling and laboratory sessions. Special appreciation is also expressed to En.Azam, En Habir and Mr.Karthiq for their assistance and advices on some technical aspect.

My deepest gratitude must definitely go to special person Khidir B.Ibeni @ Zakaria for his blessing and prayers; I was able to get the strength and inspirations, special thanks for undying supports that you given me thus far. For my course mate, Bachelor of Degree of Marine Science 2003-2006 especially to Maria, Nisah and Rokiah, Aini and Ziana. Also to my housemate Fitt, Mashi and Ijan. I really appreciate for all your help and thoughts my project.

## ABSTRACT

A study on a variation of grain size and beach profile was conducted along the Kuala Terengganu coastline which covers the area from Tok Jembal Beach to Maras Beach. Sampling and data collection were carried out every one month from September 2005 until December 2005. The aims of the study are to determine grains size characteristic and distribution, also the relation with beach profile. The study also determines the net shore drift pattern along the coastline. Sample was taken from seven different station with three representative points along littoral zone which include the high tide, mide tide and low tide. This study has found a significant influent of the monsoon to the sediment characteristic changes on the study area. The sediment mean size for the whole samplings station was dominated by coarse sand with range from 0.30 phi to 2.16 phi. Sorting shows similar value between ranges from 0.30 phi to 1.10 phi. Skewness showed tends to be very positively skewed and very negatively skewed with the lowest value is -1.22 phi and the highest value is 0.93 phi. Meanwhile, kurtosis classification is from those of extremely leptokurtic and very leptokurtic, which range between 2.34 phi and 7.13 phi. Beach profile showed a variation where erosion occurred at several stations in the month of September and October 2005, while other stations were eroded in November and December 2005. Maximum beach gradient for the North East monsoon was 0.50 ( $5.4^{\circ}$ ). This study showed that the North East monsoon season was the main factor that influences beach morphology and sediment characteristic.

## ABSTRAK

Kajian mengenai perbandingan saiz enapan dan profil pantai telah dijalankan sepanjang pantai Kuala Terengganu meliputi kawasan Pantai Tok Jembal hingga ke Pantai Maras. Penyampelan dan pengumpulan data telah dilakukan setiap satu bulan dari bulan September 2005 hingga bulan Disember 2005. Kajian ini dijalankan bertujuan mengkaji ciri enapan dan taburan serta perkaitan dengan kecerunan pantai. Kajian ini juga untuk mengenal pasti arah pergerakan enapan di persisir pantai dimana lokasi kajian dijalankan. Sampel di ambil daripada tujuh stesen yang berbeza merangkumi tiga zon littoral iaitu air pasang surut tertinggi, air pasang pertengahan, dan air pasang terendah. Kajian ini menunjukkan kesan monsun kepada perubahan jenis sedimen. Kenyataan ini menunjukkan setiap bulan penyampelan mempunyai taburan enapan yang terdiri dari jenis pasir kasar yang berjulat 0.30 phi hingga 2.16 phi. Nilai sisihan pula berjulat di antara 0.30 hingga 1.10 phi. Dari segi kepencongan kajian ini menunjukkan kepencongan sangat positif dan sangat negatif dengan nilai yang terendah adalah -1.22 phi dan nilai tertinggi adalah 0.93 phi. Manakala pengkelasan kurtosis terdiri daripada jenis yang paling sangat leptokurtik dan paling leptokurtik yang berjulat diantara 2.34 phi dan 7.13 phi. Profil pantai menunjukkan variasi dimana hakisan berlaku di beberapa stesen pada bulan September dan Oktober 2005, manakala lain-lain stesen mengalami hakisan pada bulan November dan Disember 2005. Nilai kecerunan yang paling maksima pada monsun timur laut adalah  $0.50 (5.4^\circ)$ . Kajian ini menunjukkan bahawa monsun timur laut adalah faktor utama kepada perubahan morfologi pantai dan ciri-ciri sedimen.