

TEMPORAL VARIATION OF THE BEACH PROFILE TREND AND  
SEDIMENT VARIABILITY AT TANJUNG LUMPUR OF KUANTAN  
AND PENARIK OF TERENGGANU

MOHAMAD AMIR BIN RAZAK

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE  
UNIVERSITI MALAYSIA TERENGGANU

2012

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LP 15 FMSM 3 2012



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Temporal variation of the beach profile trend and sediment variability at Tanjung Lumpur of Kuantan and Penarik of Terengganu / Mohamad Amir Razak.

PERPUSTAKAAN SULTANAH NUR ZAHIRAH  
UNIVERSITI MALAYSIA TERENGGANU (UMT)  
21000 KUALA TERENGGANU

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**TEMPORAL VARIATION OF THE BEACH PROFILE TREND AND SEDIMENT  
VARIABILITY AT TANJUNG LUMPUR OF KUANTAN AND PENARIK OF  
TERENGGANU**

**By**

**Mohamad Amir bin Razak  
Matric No: UK20684**

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

**Department of Marine Science  
Faculty of Maritime Studies and Marine Science  
UNIVERSITI MALAYSIA TERENGGANU  
2012**

This project report should be cited as:

Amir, R. 2012. A study on temporal variation of the beach profile trend and sediment variability at Tanjung Lumpur of Kuantan and Penarik of Terengganu. Undergraduate thesis, Bachelor of Science (Marine Science), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu, Terengganu, Terengganu. 94p.

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**DEPARTMENT OF MARINE SCIENCE  
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE  
UNIVERSITI MALAYSIA TERENGGANU**

**DECLARATION AND VERIFICATION FORM  
FINAL YEAR RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled: **Temporal Variation of the Beach Profile Trend and Sediment Variability at Tanjung Lumpur of Kuantan and Penarik of Terengganu** by **Mohamad Amir bin Razak**, Matric No. **UK 20684** has been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the **Degree of Bachelor of Science (Marine Science)**, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

Verified by:

Principal Supervisor

Name: Prof Madya Dr. Rosnan Yaacob

Official stamp **PROF. MADYA DR. ROSNAN BIN YAACOB**

Ketua  
Jabatan Sains Marin  
Fakulti Pengajian Maritim dan Sains Marin  
Universiti Malaysia Terengganu  
21030 Kuala Terengganu

Date: **17-6-2012**

Head of Department of Marine Science

Name: Prof. Madya Dr. Rosnan Yaacob

Official stamp **PROF. MADYA DR. ROSNAN BIN YAACOB**

Ketua  
Jabatan Sains Marin  
Fakulti Pengajian Maritim dan Sains Marin  
Universiti Malaysia Terengganu  
21030 Kuala Terengganu

Date: **17-6-2012**

## ACKNOWLEDGEMENT

First and foremost, my deepest gratitude to god and it's gracious, whose help and guidance gave me the strength to complete this final year project. Here I would like to express my sincere appreciation and thankfulness to my supervisors, Assoc. Prof. Madya Dr. Rosnan Yaacob and Dr. Mohd Fadzil bin Mohd Akhir for their professional guidance, concerned advice and constructive comments from the beginning of the research till the final submission of the thesis.

Special thanks also been dedicated to Mr. Effi, assistants of Oceanography Laboratory, Mr. Sulaiman, Mr. Raja and Mr. Kamarun for allowing me to use and borrow the equipment's during my lab work. Thanks also to Science Officer, Mr. Sainol who had believed in me to operate the equipment's in Oceanography Lab all by myself.

The greatest thanks go to Khairul Rijal, Amirul Razak and Haziq Zainol for their priceless assists and involvement during the sampling sessions. Last, but not least, my sincere gratitude to my beloved family and to all my friends whom are not mentioned here, for their continuous and support to do the best. This project will not be able to be completed without the help of everyone mentioned above.

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## ABBREVIATIONS

### Abbreviations

g	-	Gram
Km	-	Kilometer
m	-	Meter
$\mu\text{m}$	-	micrometer
NSD	-	Net shore drift
N	-	North
E	-	East

### Symbols

%	-	Percentage
$\phi$	-	phi
°	-	Degree

## ABSTRACT

Study on the beach morphology and the movement of sediments was conducted along the Penarik beach, Terengganu and Tanjung Lumpur beach, Pahang. This study mainly carried out in order to differentiate the shape of the beach and sediments characteristics between months which started from May to December 2011. The direction of the Net shore drift was also given a pattern which closely related to the sediment movement and beach profiles. Sampling was done in eight stations with the distance interval between each station range from 500 m to other station. Transit Sokkia C4<sub>10</sub> was used to measure beach profile properties. Meanwhile, method of moments was employed to calculate the sediment logical parameters. According to the beach profile analysis, 4 out of six stations at Penarik beach and one of six stations at Tanjung Lumpur beach faced drastic erosion in the month of Disember 2011. Also two stations at Penarik beach and five stations at Tanjung Lumpur beach had their beach gradient increased. However in this case of study, the mean size was increasing which shows that area is maximized with coarse sand. Sorting of sediments during the monsoon indicates that five stations experienced increasing value of sorting. Increasing value sorting indicates that sediments in station 2 and 3 at Penarik beach and station 1, 3, 4, 5 and 6 are moderately and well sorted. However, station 1, 2, 4, 5 and 6 at Penarik beach and station 2 had undergoes decreasing sorting value. These means moderate and well sorting has taken place during the monsoon season. However, since the increasing value should be showing moderate and poorly sorted rather than well sorted. This is maybe due to that source of sediments carried by the waves are fine sand. Overall studies and based on the beach width and slope define that the sediment movement was from station 1 to station 6 at Penarik and station 6 to station 1 at Tanjung Lumpur.

**KEPELBAGAIAN BENTUK PROFIL PANTAI DAN PERHUBUNGANNYA  
DENGAN PELBAGAI SEDIMEN DI PENARIK, TERENGGANU DAN  
TANJUNG LUMPUR, KUANTAN**

**ABSTRAK**

Kajian mengenai profil pantai dan pergerakan sediment telah dijalankan di pantai Penarik, Terengganu dan pantai Tanjung Lumpur, Pahang. Kajian ini telah dijalankan untuk menentukan perbezaan profil pantai dan ciri-ciri sediment antara bulan Mei hingga Disember 2011. Arah hanyutan pantai (NSD) dapat ditentukan dengan menilai ciri-ciri pergerakan sediment dan profil pantai. Proses penyampelan telah dijalankan di enam stesen yang mempunyai jarak antara 500 meter bagi setiap stesen. Transit Sokkia C4<sub>10</sub> digunakan untuk mengukur profil pantai, manakala kaedah momen digunakan untuk mengukur parameter sedimentology. Berdasarkan analisis profil pantai, didapati bahawa empat stesen di Pantai Penarik dan lima stesen di Pantai Tanjung Lumpur telah mengalami proses hakisan semasa bulan Disember 2011. Pada bulan Disember 2011, kecerunan pantai dua buah stesen di Pantai Penarik dan lima buah stesen di Pantai Tanjung Lumpur telah meningkat. Walau bagaimanapun, dalam kes ini kajian, saiz purata telah meningkat yang menunjukkan kawasan dapat dimaksimumkan dengan pasir kasar. Nilai sisihan semasa monsun menunjukkan bahawa lima stesen mengalami peningkatan nilai daripada sisihan tersebut. Peningkatan nilai sisihan menunjukkan bahawa sediment di stesen 2 dan 3 di pantai Penarik dan stesen 1, 3, 4, 5 dan 6 di Pantai Tanjung Lumpur berada pada tahap sederhana dan tersusun dengan baik. Walau bagaimanapun di stesen 1, 2, 4, 5 dan 6 di Pantai Penarik dan stesen 2 telah mengalami penurunan nilai sisihan. Kajian keseluruhan berdasarkan lebar pantai dan kecerunan mentakrifkan bahawa pergerakan sediment adalah dari stesen 1 ke stesen 6 di Penarik dan stesen 6 ke stesen 1 di Tanjung Lumpur.