A STUDY ON THE VARIATION OF BEACH EROSION AT BESUT AND MARANG BEACHES, TERENGGANU, MALAYSIA

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2012

A STUDY ON THE VARIATION OF BEACH EROSION AT BESUT AND MARANG BEACHES, TERENGGANU, MALAYSIA

By

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Research Report submitted in partial fulfillment of

the requirement for the degree of

Bachelor of Marine 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:

Sunita, D. 2012. A study on the variation of beach erosion at Marang and Besut, Terengganu. Undergraduate thesis, Bachelor of Science In Marine Science, Faculty-Maritime Studies and Science Marine, Universiti Malaysia Terengganu. 112p.

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PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **A Study On The Variation Of Beach Erosion At Marang And Besut, Terengganu** oleh **Sunita Binti Daud**, No. matrik: **UK 19764** 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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ACKNOWLEDGEMENT

First and foremost, my deepest gratitude goes to Allah S.W.T for his kindness that gives me strength and blesses to finish this final year project. Million thanks to my supervisor Assoc. Prof .Dr. Rosnan Yaacob for his guidance, concerned advises and constructive comments from the beginning of the research till the final submission of the thesis.

Special thanks to Mr. Effi, Miss Aisyah and Mr. Syaibul for their guidance, ideas, time and knowledge. Special thanks also dedicated to assistants of Oceanography Laboratory; Mr. Suliman, Mr. Raja, Mr. Sainol and Mr. Naim for their guidance and allowing me to use and borrow the laboratory equipment and apparatus during my lab and sampling work.

I also would like to express my thankful to Wawa, Yana, Maisarah, Ila, Asyikin, Zuhairi, Fairuz, Haziq, Khairul, Amir and Syafiq for their priceless assists during sampling work. My thanks also go to my beloved friends, Nisa, Anis, Dila, Kila, Ain, Melah for their continuous supports and encouragements from the beginning until the completion of this project.

Last but not least, my sincere gratitude to beloved family, especially Mak and Bapak and to all my friends whom are not mentioned here, for their continuous assistance and supports to do the best. This project will not be able to be completed without everyone help and support. Thank you.

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LIST OF SYMBOLS AND ABBREVIATIONS

List of Symbols

1.	%	Percentage
2.	Ø	Phi
3.	Km	Kilometer
4.	m	Meter
5.	mm	Millimeter
6.	µm	Micrometer
7.	g	Gram
8.	ms^{-1} or m/s	Meter per second
9.	°	Degree
10.	‘	Minute
11.	N	North
12.	E	East

List of abbreviations

1.	HT	High Tide (High level of Tide)
2.	MT	Mid Tide (Middle level of Tide)
3.	LT	Low Tide (Low level of Tide)
4.	NSD	Net Shore Drift

ABSTRACT

Study on the variations of beach erosion at Besut and Marang Beaches was conducted to determine the changes of beach profile and the sediment characteristics at these particular areas. Sampling was conducted in six stations at Besut and Marang respectively and has been carried out in two times which is in May 2011 which represented before monsoon season and January 2012 which is during monsoon season. The beach morphology and sediment characteristics at East Coast Malaysia were greatly influenced by Northeast monsoon. From this study, it seems that during the monsoon not only erosion rate on the beaches occurred, but it is also dominated by deposition in certain areas. By comparing the beach slope degree of Besut and Marang from May 2011 to January 2012, Marang has higher beach slope degree than Besut such as at station 1, 2 and 3. Although, both Besut and Marang have a wavebreaker at the river mouth, however at Besut, there are series of groin was built at the shoreline. The rain distribution and wind velocity play a great role which influenced the changes of the sediment characteristics and beach profile changing. Moreover, the existence of man-made structure also has been caused a different effect to the beach morphology changes. From the study, the sediment in the both areas was dominated by coarser sand type and poorly sorted values. Most of the sample was distributed to very negatively skewed followed by negatively skewed sediment. Meanwhile, the distribution of sediment in the both study area was dominated by the medium sand type with poorly sorted and moderately sorted sediments. Based on this study, erosion process at Marang was most eroded compared to Besut. Sediment at Marang also coarser and poorly sorted compared to Besut.

ABSTRAK

Kajian mengenai variasi hakisan pantai di Pantai Besut dan Marang telah dijalankan untuk menentukan perubahan profil pantai dan ciri-ciri sedimen. Persampelan telah dijalankan yang mana sebanyak enam stesen di Besut dan Marang dan telah dijalankan dua kali iaitu pada bulan Mei 2011 yang mewakili sebelum musim monsun dan Januari 2012 iaitu semasa musim monsun. Morfologi pantai dan ciri-ciri sedimen di Pantai Timur Malaysia banyak dipengaruhi oleh Monsun Timur Laut. Daripada kajian ini, didapati semasa monsun bukan sahaja kadar hakisan mendominasi pantai, tetapi turut didominasi oleh pemendapan di kawasan tertentu. Dengan membandingkan tahap pantai cerun Besut dan Marang dari Mei 2011 hingga Januari 2012, Marang mempunyai pantai darjah cerun yang lebih tinggi daripada Besut seperti di stesen 1, 2 dan 3. Walaupun, Besut dan Marang mempunyai pemecah ombak di muara sungai, tetapi di Besut, terdapat groin dibina di tepi pantai. Taburan hujan dan halaju angin memainkan peranan besar yang mempengaruhi perubahan ciri-ciri sedimen dan profil pantai. Selain itu, kewujudan struktur buatan manusia juga telah menyebabkan kesan yang berbeza kepada perubahan morfologi pantai. Daripada kajian ini, sedimen di kedua-dua kawasan ini didominasi oleh jenis pasir kasar dan susunan yang tidak sekata. Kebanyakan sampel telah diedarkan daripada condong sangat negatif diikuti oleh sedimen yang negatif condong. Sementara itu, taburan sedimen di kawasan kedua-dua kajian telah didominasi oleh jenis pasir sederhana dengan sedimen susunan tidak sekata dan susunan sederhana. Keseluruhannya daripada kajian ini didapati Marang lebih terhakis berbanding Besut. Sediment daripada Marang juga lebih kasar dan mempunyai susunan yang lebih tidak sekata.