

SEDIMENT ACCUMULATION IN THE MANGROVE WATER CHANNELS OF  
TUMPAT, KELANTAN DELTA: AN APPROACH FOR THEIR DETECTION  
USING REMOTE SENSING AND GIS

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2008



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USING REMOTE SENSING AND GIS**

**By**

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

**Department of Marine Science  
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UNIVERSITI MALAYSIA TERENGGANU  
2008**

This project report should be cited as:

Hashrul, H. 2008. A study on sediment accumulation in the mangrove water channels of Tumpat, Kelantan Delta: an approach for their detection using remote sensing and GIS. Undergraduate thesis, Bachelor of Science (Marine Science), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu, Terengganu. 60p.

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FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN  
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**PENGAKUAN DAN PENGESAHAN LAPORAN  
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

**Sediment Accumulation in the Mangrove Water Channels of Tumpat, Kelantan Delta: an Approach for Their Detection Using Remote Sensing and GIS** oleh **Hamie Hashrul b. Husin** No.Matrik Uk 12077 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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Tarikh: 12/5/08

## ACKNOWLEDGEMENTS

Alhamdulillah, praise me to Allah s.w.t for His opportunity, strength and blessing that had been given to me to finish my study on this project. Foremost, I would like to express my greatest gratitude to my only supervisor, Dr Behara Satyanarayana, I could not have imagined having a better advisor and mentor for my final year project, and without his common-sense, knowledge and perceptiveness, I would never have finished my thesis.

I am tempted to individually thank all of my colleague and friends which have joined me in the discovery meaning of life about and how to make the best of it. However, because the list might be too long and by fear of leaving someone out, I will simply say *thank you very much to you all friends*.

I cannot finish without saying how grateful I am to resident of 'Villa 38' (Botak, Sopi, Ja'a, Amore, Peda and Naza) for being most craziness and supportiveness to me. Lastly, and most importantly, I wish to thank my parents, Husin b. Deraman and Nooriah bt. Muda, my twin and my two little brothers. They have always supported and encouraged me to do my best in all matters of life. To them I dedicate this **thesis**.

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## LIST OF ABBREVIATION

%	Percentage
°C	Degree Celsius
mL	Milliliter
ms <sup>-1</sup>	Meter per second
TSS	Total Suspended Sediment
q	Water Discharge
v	Velocity
a	Area
h	Hour
kg	Kilogram
s	Second
IMWQS	Interim Marine Water Quality Standards
DOE	Department of Environment

## ABSTRACT

The application of Remote Sensing and GIS is a modern technology that has capability to provide authenticated information, which has proven useful in change detection, defining problems and in trying to manage them efficiently. This project involves the implementation of Remote Sensing and GIS to analyze and determine the area statistics of sediment change detection at Tumpat Kelantan Delta. This project also involve in determining the Total Suspended Sediment (TSS) in 3 water channel at Tumpat, Kelantan using ground data sampling. In determination of sediment change detection, satellite images of Landsat year of 1988, 1993 and 2000 were used. In order to detect the changes from two images, the band differentiation technique was applied using band 5. There has been estimated 1.422 sq km of new sediment cover and 1.709 sq km of new formation of sand bar detected in the band differentiation images of 1988 and 1993. Meanwhile, for the band differentiation image of 1993 and 2000, there has been estimated 1.459 sq km of new sediment and 1.619 sq km of new formation of sand bar. For the TSS study, it shows that averages of TSS (mg/L) are 61.4, 55.86 and 65.29 mg/L for both 3 stations. All of these 3 stations don't pass the IMWQS standard that is 50 mg/L. It also shows that about 198.0, 138.0, 32.0 mg amount of excess sediment per liter found at 3 stations.