

IMPACTS OF BREAKWATER TO NAVIGATION AT
SUNGAI TERENGGANG RIVER MOUTH

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2012

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**IMPACTS OF BREAKWATER TO NAVIGATION AT SUNGAI TERENGGANU
RIVER MOUTH**

**By
NOOR AINI IBRAHIM**

**A thesis submitted in partial fulfillment of
The requirements for the award of the degree of
Bachelor of Applied Science (Maritime Technology)**

**DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
2012**



DEPARTMENT OF MARITIME TECHNOLOGY

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled: **Impacts of Breakwater To Navigation at Sungai Terengganu River Mouth by Noor Aini Ibrahim, Matric No. UK 17729**, have been examined and all errors identified have been corrected. This report is submitted to the Department of Maritime Technology as partial fulfillment towards obtaining the degree of Bachelor of Applied Science (Maritime Technology), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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DECLARATION

I hereby declare that this thesis entitled “Impacts of Breakwater to Navigation at Sungai Terengganu River Mouth” is the title of my own research except as cited in the references.

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ACKNOWLEDGEMENTS

I thank God, for giving me the courage, mental and physical strength, and also for His blessings which make me accomplished this project successfully.

First of all, I am heartily thankful to Associate Professor Dr. Khalid Samo, my principal supervisor, for his encouragements, guidance and comments for this project. In particular, my special thanks go to my beloved co-supervisor, Professor Ir. Dr. Ab Saman Abd Kader from Marine Technology Centre, University of Technology Malaysia for his valuable support, comments and encouragement throughout this project. Not forgotten to my final year project coordinator, Dr. Ahmad Faisal Mohammad Ayob for his encouragement and supportive documents of this study.

I would like to thanks Mr. Tarmizi and Mr. Nasrun from Marine Department of Eastern Region, Kuala Terengganu for their cooperation. I am much indebted to both of them for their valuable advice in discussion and important data and information given for my project. A special thanks to all my course mates, especially to Nor Suzela Anuar, Nor Azura Adnan and Zukirani Ashari, for help and encouragement throughout this project.

Apart from that, I offer my regards and blessings to all of those who supported me in any respect during the completion of the project, especially staffs of Maritime Technology Department of Universiti Malaysia Terengganu as well as expressing my apology that I could not mention personally one by one. My deepest gratitude also goes to all my family members, especially my dearest parents and siblings for encourage and support.

Last but not least, I would like to thank all those people who made this thesis possible and enjoyable experience for me. It is a pleasure to convey my gratitude.

IMPAK BENTENG PEMECAH OMBAK TERHADAP PELAYARAN DI MUARA SUNGAI TERENGGANU

ABSTRAK

Pembinaan benteng pemecah ombak di muara Sungai Terengganu telah menyebabkan laluan pelayaran menjadi cetek dan sempit. Didalam kajian ini, impak dan risiko pembinaan benteng pemecah ombak terhadap pelayaran kapal diselidik menerusi kaedah pengurusan risiko dan penilaian risiko. Penilaian risiko meliputi analisi terhadap kemalangan yang lampau dan kajian penyampelan kepada pengguna yang menggunakan laluan pemecah ombak yang mana peringkat impak gangguan pelayaran sebelum dan selepas pembinaan benteng pemecah ombak dikaji. Penilaian kebarangkalian risiko termasuklah pengiraan kebarangkalian impak untuk berlaku. Analisis terhadap impak pembinaan benteng pemecah ombak terhadap pelayaran di muara Sungai Terengganu telah menyiasat faktor utama yang menyumbang kepada impak dengan pembinaan tersebut dan ditunjukkan melalui gambarajah logik oleh penilaian risiko tidak tentu. Keputusan awal kajian menjangkakan kemajuan keatas keselamatan pelayaran dengan memantulkan impak yang minima. Kajian juga memaparkan cadangan penambahbaikan untuk kemajuan keselamatan pelayaran dan mengurangkan impak yang mungkin dipantulkan.

IMPACTS OF BREAKWATER TO NAVIGATION AT SUNGAI TERENGGANU RIVER MOUTH

ABSTRACT

The construction of breakwater at Sungai Terengganu river mouth has result the navigation channel to shallow and narrowed. In this study, the impacts and risks of construction of breakwater towards vessels navigation are investigated through risk management and risk assessment approaches. The risk assessment are accomplished through historical marine accident analysis and sampling to the breakwater users which the level of impacts towards navigational defects before and after the construction of breakwaters are essentially studied. The probabilistic risk assessment includes the calculation of occurrence probability of the impacts. Analyses of the impacts of breakwater construction to navigation at Sungai Terengganu river mouth has investigate the major factors contribute to the impacts upon the construction of breakwater and reviewed by diagrammatic logic of qualitative risk assessment. The preliminary results of the study expected the improvement of navigation safety with minimum impact reflected. The study also presents the recommendations for improvement of navigation safety of while reduced the possible reflected impact.