

ANALYSIS OF POTENTIAL OCEAN CURRENT ENERGY OF
SELECTED COASTAL AREA OF MALAYSIA

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**ANALYSIS OF POTENTIAL OCEAN CURRENT ENERGY OF
SELECTED COASTAL AREA OF MALAYSIA**

By

Farmie Bin Haripapbilah

**Research Report submitted in partial fulfilment of
the requirement for the degree of
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**Department of Maritime Technology
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UNIVERSITI MALAYSIA TERENGGANU**

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**DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE**

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

It is hereby declared and verified that this research report entitled:

ANALYSIS OF POTENTIAL OCEAN CURRENT ENERGY OF SELECTED COASTAL AREA OF MALAYSIA By **FARMIE BIN HARIPAPBILAH**, Matric No. **UK 17741** 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 **Bachelor Degree 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 **ANALYSIS OF POTENTIAL OCEAN CURRENT ENERGY OF SELECTED COASTAL AREA OF MALAYSIA** is the result of my own research except as cited in the references.

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ANALYSIS OF POTENTIAL OCEAN CURRENT ENERGY OF SELECTED COASTAL AREA OF MALAYSIA

ABSTRACT

The potential of selected area of Malaysia coastal was investigated to identify whether Malaysia has a potential to produce renewable energy from ocean, in particular in current energy. The analysis used the data from a device called Acoustic Wave and Acoustic Current (AWAC) that capture the current speed then by using a formulae, amount of energy was calculated. The deployment of AWAC was located at Terengganu Coastal area and Langkawi Island. The data was taken every three months, started from May 2011 to February 2012. From the analysis obtained, it shows that the average current speed and potential energy is 0.1836 m/s and 6.71 W/m² respectively. It was found that Malaysia's coastal area has a low current speed thus the potential current energy produced is under the recommendation value which is 4 m/s. The study also indicates that the suitable position to get the optimum potential current energy is at intermediate level of water depth.

ANALISIS POTENSI TENAGA ARUS LAUT PADA KAWASAN PERAIRAN TERPILIH DI MALAYSIA

ABSTRAK

Potensi kawasan perairan Malaysia yang telah dipilih adalah untuk mengenal pasti adakah Malaysia mempunyai potensi untuk menghasilkan tenaga baru dari laut, iaitu tenaga arus. Analisis yang telah digunakan daripada data adalah alat yang dikenali sebagai gelombang akustik dan arus akustik. Alat tersebut digunakan untuk mengira kadar kelajuan arus dengan menggunakan formula dan kadar tenaga akan dicatatkan. Kawasan penempatan gelombang akustik dan arus akustik terletak di perairan Terengganu dan Pulau Langkawi. Data telah diambil pada setiap tiga bulan, bermula pada Mei 2011 hingga Februari 2012. Hasil analisis yang telah diperoleh menunjukkan kadar kelajuan arus dan tenaga yang dihasilkan adalah 0.1836 m/s dan 6.71 W/m² pada setiap bacaan. Perairan Malaysia didapati mempunyai kawasan yang mempunyai halaju arus yang rendah seterusnya hasil tenaga yang telah dihasilkan adalah dibawah nilai yang disyorkan iaitu 4 m/s. Kajian menunjukkan bahawa kedudukan yang sesuai untuk mendapatkan potensi tenaga arus yang optimum ialah pada level pertengahan kedalaman air.