

THE READINESS OF MALAYSIAN SHIP'S OWNERS TOWARDS  
BALLAST WATER MANAGEMENT COMPLIANCE

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**THE READINESS OF MALAYSIAN SHIP'S OWNERS  
TOWARDS BALLAST WATER MANAGEMENT  
COMPLIANCE**

By

**AHMAT YAZID BIN MALIKI**

**Thesis Submitted in Fulfillment of the Requirement of  
Bachelor Degree of Applied Science in Maritime Technology  
Faculty of Maritime Studies and Marine Science  
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**May 2012**

## **DEDICATION**

**This thesis is dedicated to my beloved parents**

**Mr. Maliki bin Ismail**

**&**

**Mdm. Siti Razmah binti Che' Su**





**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:

**THE READINESS OF MALAYSIAN SHIP OWNERS TOWARDS  
BALLAST WATER MANAGEMENT COMPLIANCE**

by **AHMAT YAZID BIN MALIKI**, Matric No. **UK 17987** 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 Applied Science (Maritime Technology), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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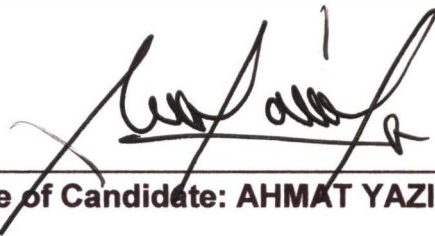
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## DECLARATION

I hereby declare that the thesis entitled "The Readiness of Malaysian Ship Owners towards Ballast Water Management Compliance" is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any degree at UMT or other institutions.



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# “THE READINESS OF MALAYSIAN SHIP OWNERS TOWARDS BALLAST WATER MANAGEMENT COMPLIANCE”

## ABSTRACT

Ships are a dominant factor for biological invasions through ballast water discharge from their vessel. The organisms or bacteria can survive in longer period during a voyage because of unsettled sediments inside the ship's ballast tank which will become nutrients for them. When the ship arrived at the desired port of loading (POL), they will load cargoes and discharging ballast water into the sea and this has been a major potential problem in marine ecosystem which new species will be introduced. For prevention, IMO Convention has implemented new rule since 2007 which required all ships either existing or new which capacity over 400 gross tonnages should have BWTS onboard their ship. This research aims to achieve 3 objectives which are to provide an overview of the readiness of Malaysian Ship Owners towards BWMC to meet forthcoming regulatory deadlines; to provide feedback on technical and operational aspects associated with the installation and use of BWTS; and to encourage the sharing of information on BWTS. This research used a method known as a survey research to identify Malaysian ship owners by providing questionnaire and walk-in interview to gather information about their level of readiness towards BWMC where consist of cost, technology, knowledge, maintenance, manpower and moreover. The outcomes of this research as expected where Malaysian ship owners do not ready yet to comply with IMO Guidelines as only 31.9% from total ships owned by Malaysian ship owners ready to install treatment system onboard while the other reluctant in making decision. Future research through sampling method of Malaysian most major ports should be done to determine rate of ANS distribution and in incoming 2 years, this research should be continue as at that time the exact data could probably achieved.

# “TAHAP KESEDIAAN PEMILIK-PEMILIK KAPAL MALAYSIA TERHADAP PEMATUHAN PENGURUSAN AIR BALLAST”

## ABSTRAK

Kapal merupakan faktor dominan kepada pencerobohan biologi marin melalui pembuangan air ballast dari kapal ke laut. Organisma atau bakteria boleh hidup dalam tempoh yang lebih lama di dalam tangki ballast kapal kerana mendapan atau sedimen yang berada di dalamnya boleh menjadi sumber nutrien kepada mereka. Apabila kapal tiba di sesuatu pelabuhan bagi tujuan memuatkan kargo, maka kapal berkenaan akan melepaskan air ballast ke dalam laut bagi menstabilkan kapal ketika proses memuatkan kargo dilakukan. Air ballast yang dilepaskan itu telah diambil di laut yang mana hidupan marin di sana adalah berlainan sama sekali dengan hidupan marin di kawasan ianya dilepaskan. Hal ini berpotensi besar menjadi punca pewujudan spesis baru hidupan laut ke dalam ekosistem marin yang mana boleh mengakibatkan ekosistem marin di kawasan berkenaan akan terganggu. Justeru itu, Pertubuhan Maritim Antarabangsa (IMO) telah mengadakan satu Konvensyen Antarabangsa bagi melaksanakan dasar baru berkenaan Sistem Pengurusan Air Ballast sejak tahun 2007 di mana memerlukan semua kapal sedia ada atau kapal baru yang berkapasiti lebih 400GT perlu mempunyai Sistem Rawatan Air Ballast (BWTS) di atas kapal mereka. Kajian ini bertujuan mencapai 3 objektif iaitu bagi menentukan tahap kesediaan pemilik kapal Malaysia ke arah pematuhan dasar pengurusan air ballast (BWMC); menyediakan maklumbalas berkenaan aspek teknikal & operasi yang berhubungkait dengan pemasangan dan penggunaan sistem rawatan air ballast; dan bagi menggalakkan perkongsian maklumat berkenaan Sistem Rawatan Air Ballast. Kajian ini telah menggunakan kaedah tinjauan melalui borang soal-selidik yang telah diedarkan kepada beberapa syarikat pemilik-pemilik kapal Malaysia yang dikenalpasti bagi mendapatkan

maklumat mengenai kos, teknologi, pengetahuan, penyelenggaraan, tenaga manusia dan lain-lain lagi. Keputusan yang diperoleh seperti yang telah dijangkakan iaitu majoriti pemilik syarikat kapal Malaysia masih tidak bersedia untuk mematuhi peraturan IMO yang terkini di mana hanya 31.9% daripada jumlah keseluruhan kapal yang dimiliki oleh pemilik kapal Malaysia yang bersedia untuk memasang sistem rawatan air ballast di atas kapal mereka sementara pemilik-pemilik kapal lain masih tidak mahu membuat sebarang keputusan. Kajian di masa depan melalui kaedah pensampelan perlu dilakukan untuk menentukan kadar penyebaran ANS dan dalam tempoh 2 tahun akan datang, kajian ini perlu diteruskan bagi mendapatkan data yang lebih tepat.