# SIMULATION OF MOORING SYSTEM FOR AQUACULTURE SYSTEM FOR OCEAN PLANTATION USING ARIANNE 7

NURATUL NADZIRAH BT ALID



FACULTY OF MARITIME STUDIES AND
MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

2013

# SIMULATION OF MOORING SYSTEM FOR AQUACULTURE SYSTEM FOR OCEAN PLANTATION USING ARIANE 7

By

NURATUL NADZIRAH BINTI ALID

A thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor of Applied Science (Maritime Technology)

Department of Maritime Technology

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE

UNIVERSITI MALAYSIA TERENGGANU

2013

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: : **Simulation Of Mooring System For Aquaculture System For Ocean Plantation Using Ariane 7** by **Nuratul Nadzirah Bt Alid**, Matric No. **UK 21012** 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, Unitversiti Malaysia Terengganu.

Verified by:

Supervisor

Name: **Ir Dr Oladokun Sulaiman Olanrewaju**

Official stamp:

DR. SULAIMAN OLADOKUN OLANREWAJU, Ceng. SMarEng
LECTURER
DEPARTMENT OF MARINE TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

Date: 13 • 01 • 13

.....

Head of Department of Maritime Technology

Name: **Assoc. Prof. Dr. Mohammad Fadhli bin Ahmad**

Official stamp:

ASSOC.PROF. DR. MOHAMMAD FADHLI AHMAD
HEAD
DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

Date: 13 · 1 · 13

## DECLARATION

I hereby declare that this thesis entitled **SIMULATION OF MOORING SYSTEM FOR OFFSHORE AQUACULTURE SYSTEM USING ARIANE 7** is the result of my own research except as cited in the references.

Signature : 

Name : NURATUL NADZIRAH BT ALID

Matric No. : UK21012

Date : 13th January 2013

## ACKNOWLEDMENT

First of all, I am very to thankful and grateful to Allah All Mighty the Merciful who make my successful on this research. I am finally go through the hard time to submit the report. In particular I like to sincere gratitude to our Head of Department of Maritime Technology Prof Madya Dr Mohammad Fadhli Bin Ahmad for giving me a chance do the final year project and to complete my degree study. Secondly, I would like thank my calm, smart my supervisor Ir Dr Sulaiman Oladokun Olanrewaju. His knowledge has made my study successful. His encouragement and personal guides have given me a good basis for the present thesis.

My sincere thanks to Mr. Brice from Bereau Veritas who has been very co-operative to give the chance to know simulation of mooring system using Ariane software.

I owe my most sincere and special gratitude to my family, my mother and my father, Kammisah Salim and Alid Yahya, my sisters and brother for their encouragement me. During this work,I have collaborated with my colleagues and my friends who are Nur Sakinah Amirah Rosli, Nurul Akmar Izzati , NoorFarahidah and Adibah Husna in making my thesis well done. Thanks to all those who helped me in order to complete this thesis successfully.

# SIMULATION OF MOORING OFFSHORE AQUACULTURE SYSTEM FOR OCEAN PLANTATION USING ARIANE 7

## ABSTRACT

Seaweed has become one of the economically ocean plantation that become one of the important resource of Malaysia since 1978. Seaweed plantation has provided many benefits to the economy and to the marine systems. To ensure that the system is reliable, design needs to be built, a mooring simulated system should be creating. Mooring system is a system where the mooring component will give strength to position of the system keeping the purpose of this study is to simulate the mooring of offshore aquaculture system for ocean plantation and investigate the safety and efficiency of the mooring system. The simulation testing will be conduct by using Ariane software. Mooring system is used to 'anchor' to a system or vessel itself. The static model will predict the tension and tilt at each mooring component, including the anchor, for which the safe mass will be evaluated in terms of the vertical and horizontal tensions. Predictions can be saved to facilitate mooring motion correction. Time dependent currents can be entered to predict the dynamic response of the mooring. The Ariane includes a preliminary database of standard mooring components which can be selected. The database can be edited and expanded to include user specific components, frequently used fasteners or unique oceanographic instruments. Once designed and tested, a draft of the mooring components can be plotted and a list of components, including fasteners can be printed.

# SIMULASI TAMBATAN LUAR PESISIRAN PANTAI BAGI SISTEM PERLADANGAN AKUAKULTUR DI LAUT MENGGUNAKAN PERISISAN ARIANE 7

## ABSTRAK

Rumpai laut telah menjadi salah satu industry ekonomi laut yang menjadi salah satu sumber penting bagi Malaysia sejak tahun1978. Perladangan rumpai laut telah memberikan banyak mafaat kepada ekonomi dan system marin itu sendiri. Untuk memastikan system itu boleh dipercayai,rekabentuk perlu dibina, system simulasi tambatan hendaklah diwujudkan. Sistem tambatan merupakan satu system di mana komponen tambatan akan member kekuatan kepada kedudukan system penyimpanan. Tujuan kajian ini dilakukan adalah untuk mensimulasikan tambatan kuar bagi system perladangan laut khususna rumpai laut untuk menyiasat keselamatan dan kecekapan system tambatan tersebut. Ujian simulasi akan dilakukan dengan menggunakan perisian Ariane. Sistem tamabatan akan menggunakan 'anchor' kepada system atau kapal itu sendiri. Model statik akan meramalkan ketegangn dan kecondogan pada setiap komponen tambatan,termasuk 'anchor' yag mane berat selamat akan dinilai dari segi ketegangan menegak dan mendatar. Ramalan boleh disimpan untuk memudahkan pembetulan bagi gerakan tambatan. Ariane merupakan satu pangkalan data awal yang mempunyai pangkalan data yg standard. Pangkalan data boleh diedit dan diperluaskan untuk merangkami semua komponen pengguna tertentu. Setelah direka dan di uji,draf daripada komponen tanmbatan yang berkomplot dan seranai komponen boleh dicetak.