ANALYSIS OF MARINE INCIDENTS IN MALAYSIA

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To my beloved wife, mother and father.

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Thanks to god for his mercy for letting me finish this project despite the depression I've been struggling with. I was doing so fine during my first two semester and then everything changes when I was caught with terrible case of depression. In all honesty, I do feel sadness as they are actually tons of other stuff which I want to do with my study.

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ABSTRACT

There are no clear view of marine incident in Malaysia which not only pose problem for local authorities who try to improve maritime safety through legislation but also to risk management companies and other entities that use maritime casualty statistics in risk and accident analysis. Thus, this study aim to analyse the situation of marine incident in Malaysia by analysing different aspect such as number of marine incident cases, number of fatal incident, types of marine incident, type of ship involves and also to compare result obtained from this study with previous study done by other researchers at different location. The method used to analyse this data is by using linear regression on the number of cases, type of marine incident, type of ship and fatal marine incident to analyse their growth pattern. This study then proceed in using f-n chart to find social risk curve in order to determine the probability of accident with 10 or more death and also to compare it with previous study in order to evaluate the value of social risk curve of Malaysia. Data used for this study are provided by Marine Department of Malaysia as well as other sources. After analysing, it is found that the number of cases show decreasing pattern over the year. For the type of ship and type of incident, it show different pattern for each different categories. It is also found out that it is 50% less likely for an accident with 10 or more death to occurred compare to incident with 1 to 10 death to occurred, which is far more risky when compare with previous study. The conclusion that this study achieved is that the Malaysia waters are dangerous but at the same time also show that measure taken by the local authority do have their effectiveness as some of the aspect such as number of cases are actually decreasing. As recommendation, it is suggested that more effort should be put by authorities in improving Malaysia marine safety as well as conducting more closely with researcher in obtaining better solution.

ABSTRAK

Kurangnya pengetahuan jelas tentang situasi insiden marin di Malaysia akan mewujudkan masalah bukan sahaja kepada pihak berkuasa, tetapi juga kepad entiti dan badan syarikat yang terlibat dalam pengurusan risiko maritime. Oleh yang demikian, kajian ini dijalankan bertujuan untuk menganalisis incident marin di Malaysia dengan mengkaji beberapa aspek insiden marin seperti jumlah kes insiden, jumlah kapal terlibat, jumlah insiden melibatkan kematian dan sebagainya. Kajian ini juga akan membandingkan hasil kajian yang diperoleh dengan hasil kajian terdahulu bagi membolehkan perbandingn dibuat terhadap keselamatan peraiaran Malaysia. Kajian ini menggunakan *linear regression* untuk mengkaji corak perkembangan insiden-insiden marin di Malaysia. Kajian ni juga menggunakan graf *f-n* untuk mengkaji nilai risiko sosial di Malaysia. Data-data yang digunakan dalam kajian ini adalah dari Jabatan Laut Malaysia dan sumber-sumber lain yang berkaitan. Setelah analisis dilakukan, didapati jumlah kes insiden di Malaysia menunjukan corak penurunan. Corak bagi data-data lain adalah berbeza antara satu sama lain. Apabila perbandingan dibuat, didapati bahawa kebarangkalian berlakunya insiden yang melibatkan 10 atau lebih nyawa adalah 50% lebih kurang dari insiden yang melibatkan 1 hingga 10 nyawa, menunjukkan perairan Malaysia adalah perairan yang bahaya. Namun, kajian ini juga menunjukkan langkah-langkah yang diambil oleh pihak berkuasa adalah berkesan kerana terdapatnya pengurangan bilangan kes insiden marin di Malaysia. Sebagai cadangan, kajian ini menasihatkan agar pihak berkuasa lebih banyak berusaha dengan penyelidik-penyelidik bagi membolehkan jalan penyelesaian yang lebih efektif boleh diperolehi.

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LIST OF ABBREVIATIONS

AMS	: Additional Member System
ASEAN	: Association of Southeast Asian Nations
EEZ	: Exclusive Economic Zone
GRT	: Gross Registered Tonnage
HELCOM	: Helsinki Commission
ICT	: Information and Communication Technology
MTW	: Malaysia Territorial Water
RMN	: Royal Malaysian Navy
UN	: United Nations

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Global container trade has increased every year since the introduction of unitization to deep-sea routes in the late 1960s. Since 1980, global container port handling has grown at an average annual rate of 9.5%, a growth rate which has continually exceeded underlying trade growth by several percentage points (Global port congestion: No quick fix, 2006). This because around 90% of world trading is done by the shipping industry as it considered as a safe, economical, and environmentally benign form of commercial transport (C.Chauvin, *et al*., 2013). Maritime traffic volumes in the Malaysian port waterways continue to increase and given trends with growth of regional economies and seaborne trade, shipping traffic growth will continue into the future (N.A. Osnin *et al.*, 2011).

Inevitably, as the population of shipping traffic grows so will the likelihood of accidents and environmental catastrophe (N.A. Osnin *et al.*, 2011). When an accident occurs, it is important to understand the root cause in order to take effective preventive measures (Y.F.Wang, M. Xie, K.S. Chin, X.J. Fu, 2012).

The power of knowing is importance as it can be used to improve existing solution as mentioned by (G. Psarros, R. Skjong, M. S. Eide, 2009) which state that improvement can be achieved through the consideration of accident scenarios.

As an example, reducing the probability of collision and grounding events is facilitated with improved bridge design management also addressing human interaction with navigation systems or when fire scenarios are developed, crew actions related to detection, fire fighting and assisting evacuation are modelled to predict their effects and by introducing risk analysis and cost-benefit assessment into the traditional decision-making process as well as incorporating operational aspects, the capability for cost-effective safety solutions is increased (G. Psarros, R. Skjong, M. S. Eide, 2009). This show the important of having clear view on a situation and in case of this study, is the Malaysia Maritime Incident situation.

1.1.2 Problem Statement

Malaysia is a maritime country, surrounded by water. With more than 800 total island, sea transportation is indeed prominent. Malaysia also home to Malacca strait which is one of the world busiest strait making Malaysia water more prone to have marine incident. Although the safety is important, there are no extensive study been conducted on marine incident in Malaysia thus preventing a clear view on the situation of marine incident in Malaysia.

Without a clear view of marine incident in Malaysia, a better analysis in finding better solution couldn't be conducted as stated by M. Hassel, B.E. Asbjørnslett, L.P.Hole, 2011 that it is a problem not only for authorities trying to improve maritime safety through legislation, but also to risk management companies and other entities using maritime casualty statistics in risk and accident analysis.

1.3 Objectives of Study

The study will include numbers of objective with the first one is to determine the pattern of marine cases in Malaysia whether it is increasing or decreasing. The pattern being studied applied to:

(i) Number and pattern of cases reported to Marine Department of Malaysia
(ii) Number and pattern of type of marine incident
(iii) Number and pattern of type of ship involve in marine incident
(iv) Analysis of fatal marine incident

The second objective is to establishing the frequency-number of Death for marine Incident that happen in Malaysia based on data provided by Marine Department Malaysia so that probability of occurrence of fatal Marine incident involving 10 or more death can be obtained

Other than that, this study also aim in comparing the established Malaysia's frequency-number chart with other frequency-number chart that been established from previous study to provide better insight on the probability of fatal incident with 10 or more death in Malaysia compared to other study.

Finally the study submits recommendations that will help improving not only this study, but also situation on Malaysia Marine Incident.

1.4 Scope of Research

This study involve data analyze of marine incident occurred in Malaysia waters. The analysis will cover:

(i) Number of cases reported to Marine Department of Malaysia
(ii) Number of type of marine incident
(iii) Number of type of ship involve in marine incident
(iv) Analysis of fatal marine incident

Other than that, this study also involve comparative study between the result obtained and previous study

1.5 Significant of Study

Provide better understanding of Marine Incident in Malaysia from the year 2008 to 2012 so that a pattern could be established. Through this pattern, better and more detailed analysis can be conduct in finding solution which benefit that will benefit Malaysia water. This study also will allow comparison to be made by establishing f-n chart to better measure the safety of Malaysia Water thus knowing how well our Malaysia waters fare with previous study.

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