



Analysis of Fulfillment of Navigation Equipment on Motor Sailing Ship on Safety on Ship Safety Flag Indonesia (Case Study of Makassar Potere Port)

Hadi Setiawan^{1*}, Eva Susanti², Poerwanto³

^{1,2,3} Makassar Marine Science Polytechnic

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A B S T R A C T

In the development of shipping, the national frequency has increased quite significantly. However, the rate of ship accidents and incidents that occur in Indonesian waters has also increased. Developing countries including Indonesia have not succeeded in reducing the number of sea transportation accidents. This study aims to analyze the readiness of the fulfillment of navigation tools on motor sailing vessels to the safety of shipping on Indonesian-flagged vessels and describe how much influence the readiness of the fulfillment of navigation tools on motor sailing vessels has on the safety of shipping on Indonesian-flagged vessels. Quantitative research method using a survey approach. The analysis technique used is regression analysis and correlation analysis. The results showed that there was an influence of readiness to fulfill navigational equipment on motor sailing vessels affecting shipping safety on Indonesian-flagged ships (p value 0.000 0.05) and 53.2% of the effect, while 46.8 % was determined by other variables outside of this study. There is a need for further research on the influence of other factors from motor sailing vessels on shipping safety on Indonesian-flagged vessels.

Keywords: Ship Safety; Motor Sailing Boats; Navigation Tools.

JEL Classification Code: L91, P25, Z21

INTRODUCTION

Shipping companies or shipping industry has increased in Indonesian waters. The operation of a ship has four closely related factors: employees/seafarers, systems, ships, and management. The growth of supporting good navigational safety equipment that needs attention at this time is NCVS (Non Convention Vessel Standard) vessels or Motor Sailing Vessels. KLM connects regional or local feeder ports, functions to serve regional or local scale national transfer activities with small and relatively close service volumes and reach, and acts as feeder for secondary or tertiary main ports and regional or local ports. The main port services serve the transportation of commodities and nine basic materials and building materials and fertilizers. The service volume is in the range of 200 – 300 GRT fleet size. People's shipping fleet still plays a major role in the national sea transportation system. This is because the service areas include regional or remote development centers that do not depend on dock facilities or other infrastructure. In addition to being able to reach remote water areas, another advantage is that the tariff is relatively cheap. Some research results conclude that the majority (nearly 80%) of all accidents are caused by "organizational and management problems" and the dumbbells are "human error". When viewed at the operational level, the harbormaster, ship owner and skipper, you could say the trident of shipping safety. Its roles and responsibilities are regulated in Law number 17 of 2008 concerning Shipping (Sailing Law). The rate of ship accidents and incidents that occur in Indonesian waters has also increased. In the last decade, developed countries in the world have succeeded in reducing the number of marine transportation accidents. However, developing countries including Indonesia have not succeeded in reducing the number

of sea transportation accidents. This is indicated by the many incidents of marine transportation accidents in Indonesian waters.

Based on accident data analyzed by IMO, it is known that ship accidents in Indonesian waters are caused by human error of $\pm 80\%$, and from all human errors it is also known that about 80% of them are caused by poor management. shipping company. The management system of the shipping company or ship operator has a strong influence on the condition of the ship's seaworthiness (Humas Dithubla, 2017).

The report of the National Transportation Safety Committee (KNKT) noted that the achievements of investigations into shipping accidents in 2019 were 25 cases. 22 of them were domestic accidents, while 3 were international cases. The number of dead/missing victims was 92 people, and 10 people were injured. He mentioned KNKT also mentioned identification problem safety (Hazard) in transport voyage going on that is on transport boat traditional covers Accidents involving boat transport passenger, aspect supervision to boat traditional transport passengers, management transport passenger through boat traditional still risky tall and handling condition emergency above boat no run with good. KNKT proactively continues to monitor through communication and recommendations to stakeholders for monitoring and management of transportation in Indonesia shipping field.

Meanwhile, in the following year, according to the 2020 NTSC Report, the number of accident investigations was 11 cases. In which 11 people died/missing, and 22 people were injured. Reported from the Kompas TV page (20/09/202) that throughout 2021, there were 15 cases of ship accidents. Of the several ships that crashed in the waters, the exact number of victims is not yet clear, it is thought to have

reached more than a hundred people.

Ship 's seaworthiness in accordance with Law Number 17 of 2008 concerning Shipping Article 117 paragraph 2 which includes ship safety, prevention of pollution from ships, manning of ships, ship loading and loading lines, welfare of ship crew and passenger health, legal status of ships , safety management and pollution prevention from ships and ship safety management. Fulfillment of every requirement of the seaworthiness of the ship as intended is evidenced by a certificate and ship's letter. Based on the above background, hereby interested writer to conduct research with the title: "Analysis of the Fulfillment of Navigational Aids on Motorized Sailing Vessels on Sailing Safety on Indonesian-flagged Ships"

METHODOLOGY

This research is a quantitative research using a survey approach. The population referred to in this study is the crew of Indonesian-flagged ships sailing in Indonesian waters and shipping companies. The sampling technique used

is non - probability sampling , which is a sampling technique that does not provide equal opportunities for each element of the population to be selected as sample members. The type of technique used is using incidental sampling.

Readiness to fulfill navigational aids on motor sailing vessels is a navigational tool is a tool used to assist in navigating, especially in determining the direction of the ship. As for indicators of readiness for fulfillment of navigational aids on motor sailing vessels, namely (1) completeness of navigational aids; (2) Operation of navigational aids by appropriate persons ; (3) Maintenance of navigational aids, and; (4) Operator's responsibility for navigational aids.

Safety of Indonesian-flagged ships is a condition of the fulfillment of safety and security requirements concerning transportation in waters and ports. Ship safety indicators can be determined by the fulfillment of (1) company policies; (2) Qualified and certified crew members; (3) Continuous maintenance and repair; and (4) complete ship documents.

**Table 1
Estimation of Regression**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,579	3,444		1.039	.303
	Navigation Aids	.656	.078	.729	8,459	.000

a. Dependent Variable: Ship Sailing Safety

Correlation analysis is used to determine the closeness of the influence between the fulfillment of navigational aids on the safety of ship shipping. Based on the guideline for interpretation of the

correlation coefficient, it shows that the influence of the fulfillment of navigational equipment on the safety of ship navigation is in the very strong category.

**Tabel 2
Correlation Test**

		Navigation Aids	Ship Sailing Safety
Navigation Aids	Pearson Correlation	1	.729 **
	Sig. (2-tailed)		.000
	N	65	65
Ship Sailing Safety	Pearson Correlation	.729 **	1
	Sig. (2-tailed)	.000	
	N	65	66
**. Correlation is significant at the 0.01 level (2-tailed).			

RESULT AND DISCUSSION

To test the hypothesis regarding the effect of the fulfillment of navigational aids on the safety of ship navigation, a simple regression analysis was carried out. The result found is a significance value of 0.000 0.05, these results indicate that it is H_0 rejected and H_a accepted with the

regression equation $y^{\wedge}=8,459+3,579X$. The value of the determinant coefficient is 0.648. This means that the fulfillment of navigational aids to the safety of ship navigation is 53.2 % while 46.8 % is determined by other variables outside of this study.

**Tabel 3
R-Square**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.729 ^a	.532	.524	2.859
a. Predictors: (Constant), Navigation Aid				

Respondents totaling 65 people indicated that the fulfillment of navigational aids on Indonesian-flagged ships was in the high category. This is evident from the percentage results obtained that is equal to 93.8 % and only a small number of respondents' answers are in the medium category. that the four indicators contained in the variable fulfillment of navigational aids have been implemented well. Although this still needs to be improved, considering that there are still low respondents' answers to the statement items that have been

distributed to these respondents.

Routine inspection of navigational aids also aims to adjust the position of navigational aids that are not ready for use in special areas, so that when they want to use them they can be right on target on ready-to-use tools. In the variable, the fulfillment of navigation aids is also in the high category. This means that the parties concerned know well how to maintain navigational aids, and when there are tools that are damaged, they will be responsible for immediately replacing or repairing

navigational aids that are not suitable for use. A total of 89.2 % of respondents' answers were in the medium category so that the percentage results also show that only a small number of respondents' answers are in the high category and zero in the low category.

Based on the results of the SPSS attachment, there are still some respondents who have low answers, although the number of respondents who have low answers is much less than respondents who have high answers. So there is still a need for improvements to these indicators in order to improve the safety of ship shipping. Furthermore, to see how closely the influence of the fulfillment of navigational aids on the safety of ship navigation is, it is stated that the influence of the fulfillment of navigational aids on the safety of ship's navigation is in the very strong category. The results of the next analysis, based on coefficient analysis, show that the safety of the ship's shipping is very dependent on the fulfillment of navigational aids.

CONCLUSION

There is an influence of the readiness of the fulfillment of navigational tools on navigation on motor sailing vessels on the safety of shipping on Indonesian-flagged ships. And the fulfillment of navigation tools on motor sailing ships has an effect of 53.2% on the safety of Indonesian-flagged shipping. Therefore, there is a need for further research on the influence of other factors from motor sailing vessels on shipping safety on Indonesian-flagged vessels. Respondents totaling 65 people indicated that the fulfillment of navigational aids on Indonesian-flagged ships was in the high category. This is evident from the percentage results obtained that is equal to 93.8 % and only a small number of respondents' answers are in the medium category. That the four indicators contained in the variable

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