

Improvement of Engine Room Watchkeeping Activity on Zada Hela Liveboard

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Abstract

Zada Hela Liveboard is one of the tourist ships that serve shipping activities in East Nusa Tenggara, especially in the Labuan Bajo area. This ship is equipped with facilities that greatly pamper the passengers during their cruise activities. To be able to support and provide a sense of security and comfort to the passengers, good engine room watchkeeping activities are needed, but some shortcomings were found. The deficiencies in watchkeeping activities were then analyzed by observation and interviews with 6 respondents to make improvements. Improvement of engine room watchkeeping activities can finally be done by making a watchkeeping schedule, logbooks, and adding 3 assistant engineers. These items will be very helpful in checking and knowing the condition of the engine on the ship. The addition of 3 assistant engineers to assist the chief engineer is also very necessary. This is in accordance with STCW and to provide a longer rest time, so as to prevent fatigue when doing watchkeeping in the engine room.

Keywords: work fatigue, improvement, STCW, watchkeeping

INTRODUCTION

The marine and fisheries sector has a strategic role in supporting the Indonesian economy (Tran *et al.*, 2017; Samad *et al.*, 2020; Tienh *et al.*, 2021). Indonesia as a maritime country and a coastal line or a coastline that is almost one-fifth the length of the world's coast, which has a fairly large fishery and marine potential with a coastline of 99,093 km², an area of 6,315,222 km² of water, and a total of 13,466 islands. Indonesia is also known to be rich in marine diversity, where more than 450 species of coral and more than 2,000 species of fish are known to be in Indonesian waters. This role can improve the welfare and prosperity of all the people of Indonesia as a large maritime country, which has many islands and a very long coastline. This potential, of course, in addition to affecting the abundant fishery products, also provides the potential for water tourism that is so promising (Arismayanti, 2019).

The increasing number of users of sea transportation services in Indonesia as a transportation route is increasing, as evidenced by the increasing number of ships (Dwicaksana *et al.*, 2021; Nugraha, 2020). This increase can be seen clearly in Indonesia, especially in the Labuan Bajo area. Labuan Bajo is now known as a tourism city that is the gateway to the international world to get to know the charm of Flores Island tourism. This indirectly opens more and more new employment fields, one of which is the Zada Hela vessel. This ship serves cruise activities that are served to tourists with sailing operations for 3 days 2 nights by visiting the islands of East Nusa Tenggara. Zada is a traditionally designed wooden phinisi yacht that offers guests the ultimate privacy. Onboard this luxury yacht with impeccable service, guests

are cocooned in a quality vessel that serves as the perfect base for exploring the wonders of Indonesia's tropical islands.

Sea transportation services have a fairly high risk of danger, so to anticipate it, seafarers are needed who know about the guard service on board and are able to carry out their duties and responsibilities in accordance with applicable regulations, one of which is STCW (Mawardi, 2021; Nugraha, Rajab and Rasdam, 2021; Sánchez-Beaskoetxea *et al.*, 2021). Ship accidents cause various consequences related to human, financial, and environmental safety (Suganjar and Hermawati, 2019; Fish, 2020; Mawardi, 2021; An *et al.*, 2022). Ship accidents can be caused by several factors, such as the human and technological elements that can occur on the coast or along the shipping lane (Desnanjaya, Nugraha and Hadi, 2021; Sánchez-Beaskoetxea *et al.*, 2021). Human and technological factors as factors that contribute to ship accidents can be caused by carelessness of ship crews related to safety through the granting of permits to load goods that exceed the loading capacity (overloading), alcohol abuse, poor ship maintenance, machinery and equipment not functioning properly, lack of knowledge and experience, and is also caused by human emotions such as fatigue, discomfort, boredom, anger, sadness, and pain. Some causes of ship accidents in general terms include natural conditions, technical failures, route conditions, ship-related factors, human negligence, age of the ship, and factors related to cargo (Suwardjo *et al.*, 2017; Antoro, D., Purwantini, S. and Ikhsannudin, M.A., 2018; Kurniawan, A., Purwantini, S. and Palapa, A., 2018; Fish, 2020; Kamis *et al.*, 2020; Kim and Mallam, 2020; Mawardi, 2021; Pramoda *et al.*, 2021; Sánchez-Beaskoetxea *et al.*, 2021; An *et al.*, 2022).

Accidents are becoming more of an environmental hazard that can be a threat to shipping and trade flows. Shipping will always be full of risks, even though safety standards are always being improved, both for commercial vessels and surveillance vessels. Shipping safety needs to be a concern of all parties, both regulators and operators. One of the statements that shipping will always be full of risks, even though safety standards are always improved, where most of them do not understand the implementation of the watch service on the ship in accordance with the procedures in chapter VIII, mainly related to rest hours so that crew members on guard duty do not lose concentration. which results in when a dangerous situation occurs, they are often late or seem hesitant to take action. This phenomenon often occurs when the ship is sailing and tends to have a harmful effect on the ship due to ineffective arrangements for the implementation of the guard service on board the ship. The implementation of the watch service activities on board the ship aims to ensure that ship operations can run properly by paying attention to the safety of the human soul, type of ship, cargo and ship environment, both when the ship is in port and while sailing at sea.

Based on observations on the Zada Hela Liveaboard, it was found that there were still less than optimal watchkeeping activities on the ship, so an increase in watchkeeping activities was needed. The increase in the guard service that will be carried out is expected to be management material in increasing added value on the Phinisi Zada Hela Ship. Increasing the activities of the guard service will indirectly provide a sense of security and comfort, and will improve service delivery to consumers.

METHOD

The research was conducted on Zada Hela Liveaboard for 4 months from March to June 2022. This ship is one of the tourist ships with sailing activities for 3 days and 2 nights, which departs from Labuan Bajo with a cruise route to Komodo National Park, Padar Island, Pink Beach, Manta Point, Kelor Island, Manjarite Island, Kalong Island, and Taka Makassar Island. The ship is powered by a Mitsubishi engine, 190 HP.

The method used in this study consisted of observation and interviews with 6 respondents. Observation activities were carried out on machine operation and watchkeeping activities were carried out on Zada Hela Liveaboard. Respondents in this study consisted of 1 captain, 1 chief officer, 1 chief engineer, 1 housekeeper, and 2 chefs. In supporting this observation activity, cameras are used to carry out documentation activities.

The data that has been collected is then analyzed and optimized for the machine watch service activities based on STCW. Optimizing the activities of the duty service as a form of increasing service to tourists, and providing a sense of security and comfort to members in the engine room.

RESULTS AND DISCUSSION

Zada Hela Liveaboard is a ship made of wood which is a ship loaded with passengers or guests of local and foreign tourists that sail for 3 days and 2 nights visiting tourist places or islands which are facilitated with VIP rooms and two master rooms and one cafe. Figure 1 is Zada Hela Liveaboard.



Figure 1. Zada Hela Liveaboard



Figure 2. Engine Room Watchkeeping at Zada Hela Liveaboard

The engine is a unit that has a very important role and is needed to support the smooth running of various shipping activities on the ship. The function of this machine is as a ship movement, navigation tool, lighting, cooling, and many more that use the engine on board to facilitate various activities on board. The engines on the Zada Hela Liveaboard ship are divided into several types according to their use, such as main engine and auxiliary engine for power generation. These machines are located in the engine room. Engine operation is carried out as needed on board. Figure 2 is engine room watchkeeping activity at Zada Hela Liveaboard.

The Zada Hela Liveaboard engine guard service is not so good. This is because the watchkeeping change system, machine logbook, and measuring instruments do not exist, so the

duty officer must check and control the machine manually. The unavailability of the engine logbook causes uncertainty as to how far the ship has sailed and the engine is operating, making it difficult for officers to determine when periodic maintenance is needed on engine components. This ship also still lacks personnel in the engine room. Improvements to the watchkeeping activities on the Zada Hela Liveaboard need to be done. These improvements can be seen in Table 1.

Table 1
Improvement in Watchkeeping on Zada Hela Liveaboard

Present Condition	Improvement
There is no watchkeeping system	A watchkeeping schedule is required by the chief engineer
There is no daily journal of the machine so there is no daily recording of the machine operating	The daily journal (logbook) of the machine is required during operation by the chief engineer
There is no certainty about how far the ship sails and the engine operates, making it difficult for officers to determine when to carry out engine maintenance	The daily journal (logbook) of the machine is required during operation by the chief engineer
There is only 1 engineer (chief engineer) without any assistant engineer	Additional 3 engineer crew such as assistant engineer to help chief engineer

Repair and improvement of watchkeeping activities at Zada Hela Liveaboard should also be equipped with more supportive equipment, such as measuring tools that support when carrying out duty service activities. The equipment includes a thermometer and pressure gauges. Improvements in the schedule of watchkeeping can also be made as shown in Table 2 below. This scheduling system can run smoothly with the addition of 3 assistants engineer and has been adapted to STCW. This scheduling is also of course expected to provide a sense of security and comfort as long as officers carry out guard duty activities while the ship is operating. The STCW rules used in determining this schedule are:

1. Section A-VIII/1 of the STCW Code states that watchkeeping personnel (i.e., all persons assigned duty as officers in charge of a watch, or as rating forming part of a watch) shall be provided a minimum of 10 hours of rest in any 24-hour period. The period of rest may be divided into two periods, one of which must be at least 6 hours. Also, the watch schedule is to be posted where it is easily accessible.
2. The basic rest-period rule of section A/VIII/1 applies except in an emergency or a drill or "in other overriding operational conditions." Furthermore, the 10 hours of rest may be reduced to a single period of 6 hours for up to two days, as long as the seafarer concerned is provided with at least 70 hours of rest each 7-day period.
3. Section B-VIII/1 of the STCW Code (which contains non-mandatory guidance) explains that the term "overriding operational conditions" should be "construed to mean only essential shipboard work which cannot be delayed for safety or environmental reasons or which could not reasonably have been anticipated at the commencement of the voyage.
4. Although mathematically, 10 hours of rest leaves 14 hours for shipboard activities, Section B-VIII/1. of the STCW Code states that the minimum rest periods "should not be interpreted as implying that all other hours may be devoted to watchkeeping or other duties."

Table 2
Improvement in Watchkeeping Schedule on Zada Hela Liveaboard

Division	Time	Office on Duty
I	4 am–8 am 4 pm–8 pm	Assistant Engineer I
II	8 am–12 pm 8 pm–12 am	Assistant Engineer II
III	12 am–4 am 12 pm–4 pm	Assistant Engineer III

CONCLUSION

Machine watchkeeping activities at Zada Hela Liveaboard are currently not going well. This problem arises because there is no watchkeeping schedule and machine logbook. To overcome this, improvements were made. Improvements were made by completing documents such as watchkeeping schedules, and logbooks and adding 3 crew members to the engine room to assist the chief engineer.

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