



## Delays in the Landing Process When Loading at Gurimbang Jetty Impact of Financial 101 Barge Bill Leaking Due to Anchor Chain Friction

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### Abstract

In the incident of a tugboat approaching the dock at Gurimbang Jetty, they experienced friction between the barge hull and the anchor chain, resulting in a hull breach in the barge belonging to PT. Mitra Bahtera Segara Sejati's branch in Berau, East Kalimantan. Consequently, the coal loading activity faced departure delays. Therefore, as a ship owner company, they are responsible for all vessel-related activities from before entering the Port until the vessel departs. The aim of this research is to identify the causes of the barge leakage during coal loading at the dock and the efforts made by PT. Mitra Bahtera Segara Sejati's branch in Berau to address the issue. The research method employed in this study is a qualitative descriptive research method. The research data consists of primary and secondary data collected through data processing from observations, interviews, and documentation with the branch office of PT. Mitra Bahtera Segara Sejati. The data was then analyzed by conducting daily operational reports provided by the ship's personnel. At the same time, interviews were conducted to obtain more in-depth information regarding the daily operational reports and to understand the efforts to address the issues. The research findings indicate that the leakage of the barge significantly affects the company, leading to increased costs for docking services and a decrease in the monthly target of coal long towing from 4 to 3 due to the barge's hull leakage. Efforts have been made to prevent barge hull leakage by conducting regular inspections, routine monitoring, and coordination with relevant parties to address the issue and enhance the safety and operational performance of the vessel.

**Keywords:** *Leakage; Barge Hull; Friction*

### INTRODUCTION

In practice at PT Mitra Bahtera Segara Sejati's branch in Berau, East Kalimantan, a problem was identified when a tugboat was berthing at the Jetty related to an incident where the hull of the barge was grazed by an anchor chain, causing a rupture. This incident led to delays in loading coal and the ship's departure.

As the ship owner, PT Mitra Bahtera Segara Sejati is responsible for managing all aspects of the ship's operations, from entering to leaving the Port. A more in-depth evaluation of hull repair efforts and anchor usage, along with the training enhancement for the crew, is necessary to address challenges arising during ship operations in the Port.

Safety and security regulations for anchoring are becoming stricter in accordance with international standards. However, emergency conditions cannot be predicted, requiring the crew to have specific skills to handle such situations. SOLAS from IMO regulates emergency training and actions that crew members must follow. The importance of shipping is also emphasized in Law No. 17 of 2008, where ship delay challenges are a concern for shipping companies. Based on the outlined information, the author conducted research titled "Delay in the Berthing Process When Loading at Gurimbang Jetty Due to Leaking Hull of the Barge Financial 101 Impact of Anchor Chain Friction."

### LITERATURE REVIEW

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**Delay**

Delay refers to a condition in which work implementation is hindered or postponed due to various factors. The impact of delays can lead to losses in terms of both time and previously agreed-upon costs. Therefore, it is important to have a deep understanding and effectively manage the factors causing delays to prevent and mitigate potential negative consequences. Efforts in analyzing and comprehending the causes of delays are critical to enhancing productivity and efficiency in every project or task undertaken. Additionally, it is crucial to have a robust monitoring system and quick response to address situations that may result in delays. This way, companies or project teams can better confront the challenges of delays and achieve optimal outcomes.

**Leakage**

The condition of an object experiencing damage leads to the formation of gaps, allowing substances that should be contained, whether in liquid, solid, or gas form, to pass in and out through these gaps. Leakage on a ship can occur due to grounding, but it can also happen due to collisions, fires, as well as damage to the ship's hull plates due to corrosion.

**Ship Definition**

The ship referred to by the author in this study is a facility used as a means of transportation at sea and rivers for the purpose of transporting coal that is loaded or unloaded at coal docks from one area to another, commonly known as long towing. The following are the types of ships used for loading and unloading coal:

a. Tugboat

According to PM 93 of 2014, a tugboat that serves as an assisting device for guidance is a ship with specific characteristics used for pushing, pulling, coupling, escorting, and assisting ships that are in motion in shipping lanes, anchorages, and harbor basins, both for mooring to or releasing from docks, jetties, trestles, piers, buoys, dolphins, ships, and other mooring facilities.

b. Barge

A barge, also known as a pontoon, is a type of ship with a flat hull or a large box-like structure that floats. It is used to transport cargo and is towed by a tugboat or propelled by an engine. There are barges with propulsion systems similar to regular ships, known as Self Propelled Oil Barges (SPOB). The main difference from ships lies in design and construction. Barges are commonly used to carry large amounts of cargo, such as wood, coal, sand, oil, and so forth.

**Friction**

Friction originates from the base word "friction." Friction is a homonym because its meanings have the same spelling and pronunciation but differ. In the noun class, friction can refer to the name of a person, place, or any object and all things that can be objectified.

**Anchor Chain**

An anchor chain is a chain connected to the ship's anchor, used to hold the ship in place when the anchor is dropped. The use of anchor chains on a ship is a critical function. The anchor chain on a ship is formed from segments between one shackle and another, directly connected to the ship's anchor and linked to the windlass. The purpose of the anchor chain is to support the anchoring activity of the ship. With this anchor chain, an anchor can be dropped and retrieved. The anchoring function maintains the ship's position, preventing it from moving or drifting.

## **RESEARCH METHOD**

The research method used in this study is the qualitative descriptive method.

### **Time and Place of Research**

The study was conducted from September 2, 2021, to April 10, 2022 PT. Mitra Bahtera Segara Sejati, Tbk.

### **Research Data Source Samples**

The data source for this research sample is primary data and secondary data. Primary data were obtained from direct observation and interviews with branch heads, HSE, and ship chief officers.

### **Data Collection Techniques**

The methods used to collect data in this study are observation, interviews, documentation studies, and literature studies.

### **Research Instruments**

In qualitative research, the data collection tool is the researcher himself; non-human tools (e.g., questionnaires, interview guides, instructions, observations, etc.) can also be used, but their function is only limited to supporting research work.

### **Qualitative Data Analysis Techniques**

The data analysis technique used in the preparation of this thesis uses three research methods: data reduction, data presentation, and drawing conclusions.

### **Data Validity Testing**

To check the validity of the data in qualitative research, researchers used four criteria for testing the validity of the data: credibility, transferability, dependability, and confirmability. With these four criteria, certain information will be obtained by using various data sources such as documents, archives, interview results, and observations.

## **FINDINGS AND DISCUSSION**

### **How is the berthing process during loading at Gurimbang Jetty?**

The researcher extensively explains the berthing process of the tugboat owned by PT. Mitra Bahtera Segara Sejati during loading at Gurimbang Jetty. The berthing process of a ship involves a series of activities aimed at safely and securely mooring the ship at a dock or Port. This process encompasses several stages commonly executed in ship berthing. These stages are as follows:

1. Preparation: Prior to berthing, the ship's crew and port personnel undertake preparations that include inspecting the ship and the dock's conditions, ensuring the completeness of mooring ropes and required equipment, and preparing appropriate safety procedures.
2. Approach: The ship approaches the Jetty cautiously, adhering to navigation rules. The ship must follow designated routes and communicate with port personnel for accurate guidance and instructions.
3. Mooring: Once the ship reaches the designated position, the crew throws mooring ropes to the Jetty and ties them to bollards or mooring posts on the dock. Mooring is done carefully to ensure a secure and stable attachment.
4. Securing: After mooring, the mooring ropes attached to the dock are properly arranged to prevent any undesired movement of the ship. The crew ensures that the mooring ropes are not

loose or caught, conducting a reinspection for mooring safety.

5. Finalization: Upon safely berthing the ship, the crew and port personnel carry out administrative procedures, such as reporting the ship's arrival and completing necessary immigration and customs formalities.

Each ship berthing process can vary based on the type and size of the ship used, as well as the conditions of the destination port. Certain situations may require additional assistance, such as tugboats or towboats, to aid in the berthing process. Additionally, weather and sea conditions at that moment play a crucial role in the ship mooring process. These factors interact and influence the overall success and safety of ship berthing at the Port. Considering all these aspects, shipping companies need to conduct precise planning and efficient coordination to ensure a smooth and safe mooring process. Furthermore, training the ship's crew to handle fluctuating weather situations and unpredictable sea conditions is also a vital factor in maintaining the safety and success of the ship's berthing process.

### **Why Does Delay Occur in the Berthing Process during Loading at Jetty Gurimbang**

One of the primary factors causing delays in the berthing process during loading at Jetty Gurimbang is hull leakage due to the friction between the anchor chain and the ship's hull, along with irregular maintenance and upkeep of the ship's hull. When the ship's hull lacks proper maintenance, its structural integrity weakens, making it susceptible to damage. Furthermore, weather conditions can impact the ship's hull, especially during rainy weather. Water contact with the ship's hull can lead to corrosion and structure erosion, ultimately contributing to leakage.

The use of anchor chains also plays a significant role in the risk of hull leakage. During usage, friction between the anchor chain and the ship's hull can create excessive pressure that results in leakage. Hence, conducting regular maintenance and upkeep of the ship's hull is crucial to mitigate the risk of leakage caused by anchor chain friction.

Moreover, the friction between the anchor chain and the ship's hull is also crucial in causing leaks that lead to delays. Inappropriate sizing and strength of the anchor chain can cause excessive friction on the ship's hull. Repeated and high-intensity friction can damage the ship's hull structure and eventually lead to leakage.

The delay arises from friction between the anchor chain and the ship's hull during the berthing process or when the anchor is used to secure the vessel. An inadequate anchor chain, whether in size or strength, is unable to withstand the load or pressure generated when the ship is swaying in the water. This results in direct friction between the anchor chain and the ship's hull, particularly in areas prone to damage.

Repetitive friction between the anchor chain and the ship's hull can cause damage to the protective layers or paint coating the hull. Consequently, this may result in holes or leaks in the ship's structure. Such leakage conditions have the potential to allow water to enter the ship or even the cargo being transported, as observed in cases such as this study involving coal cargo. Apart from physical impacts, this condition also poses risks to crew safety and can lead to significant financial losses. Therefore, maintaining routine hull upkeep, using appropriately sized anchor chains, and considering weather factors are essential steps in preventing leakage and preserving the ship's integrity.

### **Efforts made by the branch to address the delay in the berthing process at Gurimbang Jetty:**

In response to the delay in the berthing process caused by the hull leakage of the barge due

to chain anchor friction, the branch of PT. Mitra Bahari Segara Sejati can implement several measures to address the issue.

Some of the measures that can be taken are as follows:

1. **Repairs and Maintenance:** The branch can promptly carry out repairs and maintenance on the barge hull experiencing leakage. The process involves structural repairs, sealing holes or cracks in the hull, and restoring the hull's strength and integrity.
2. **Evaluation and System Enhancement:** The branch can evaluate the chain anchor usage system and identify factors leading to excessive friction causing leakage. The results of this evaluation can be utilized to improve or enhance the chain anchor usage system, including repairing supporting mechanisms or reinforcing vulnerable areas.
3. **Training and Crew Awareness:** The branch can train the crew on the importance of hull maintenance and supervision, as well as raise awareness of potential damage caused by chain anchor friction. The aim of this training is to enhance the crew's understanding and responsibility in maintaining the ship's integrity and safety.
4. **Routine Monitoring:** The branch should regularly monitor and supervise the ship's hull condition, particularly in areas prone to chain anchor friction. This monitoring should be performed periodically to detect early signs of damage or leakage, allowing for prompt repair actions.
5. **Coordination with Relevant Parties:** The branch can coordinate with relevant parties, such as maritime experts or regulatory authorities, to obtain advice and guidance on handling hull leakage and preventing excessive friction in the future.

These efforts aim to address the delay issue resulting from hull leakage of the barge due to chain anchor friction, prevent further losses, and enhance the safety and operational performance of the vessels at PT. Mitra Bahari Segara Sejati.

## **CONCLUSIONS**

The process of berthing a ship at Gurimbang Jetty involves several stages, including preparation, careful approach to the Jetty, mooring line attachment, ship positioning, and relevant administrative checks. However, delays in the berthing process occur due to various issues, such as hull leakage caused by anchor chain friction and inadequate maintenance. The impacts encompass structural damage and the risk of leakage. Efforts to address these problems encompass hull repairs, anchor usage evaluation, crew training, routine monitoring, and coordination with welding technicians.

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