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Operational challenges faced on the voyage of Panamax vessel

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ABSTRACT:

This case study revolves around the maritime voyage of the Panamax vessel, the study aims to overcome the challenges faced during the voyage of the vessel, and the methodology used in the study is the case study method. The Panamax vessel was contracted to carry a cargo of 34500 MT feldspar in bulk from Krishnapatnam to Chittagong/Mongla. The journey involved several operational challenges, including delays due to adverse weather conditions and logistical issues at the discharge ports. The vessel encountered difficulties in discharging its cargo at Chittagong due to heavy rain and a shortage of available barges, resulting in prolonged discharge operations. Despite the challenges. To address delays in cargo discharge at Chittagong, establish clear communication channels with local authorities and stevedores to ensure the timely availability of barges. Consider working with multiple barge operators to provide flexibility in case of delays. Implement contingency plans, such as adjusting the discharge schedule to accommodate changes in barge availability and weather conditions. To overcome logistical challenges, work closely with local agents to resolve clearance issues with sub-barges. Consider pre-arranging barge requirements and optimizing barge capacity for efficient cargo discharge. Establish clear protocols and procedures to streamline barge movements and cargo transfer, reducing potential bottlenecks. Implement advanced weather monitoring systems to anticipate adverse weather and adjust discharge operations accordingly. Use protective measures like tarpaulins to shield cargo from rain and other weather-related hazards. Be prepared to pause operations during severe weather to prioritize safety and minimize cargo damage. Adjust schedules flexibly to resume operations when the weather improves. the vessel completed its discharge at both Chittagong and Mongla ports and was ultimately redelivered to its owners in an unclean condition.

Keywords: Charter, Deponent Owner, Head Owner, Panamax Vessel, Port, Time Chartering.

Introduction :

The maritime industry plays a crucial role in global trade, facilitating the transportation of goods across vast distances through sea routes. In this case study, we examine the voyage of the Panamax vessel which was chartered to transport a cargo of 34500 MT feldspar from Krishnapatnam to Chittagong/Mongla. The journey, however, was fraught with challenges, ranging from adverse weather conditions to logistical hurdles at the discharge ports. These challenges impacted the vessel's operations, leading to delays in cargo discharge and necessitating adaptive strategies to overcome the obstacles encountered. Through a detailed analysis of the voyage, we explore the intricacies of maritime logistics and the dynamic nature of sea transport operations. To address delays in cargo discharge at Chittagong, establish clear communication channels with local authorities and stevedores to ensure the timely availability of barges. Consider working with multiple barge operators to provide flexibility in case of delays. Implement contingency plans, such as adjusting the discharge schedule to accommodate changes in barge availability and weather conditions. To overcome logistical challenges, work closely with local agents to resolve clearance issues with sub-barges. Consider pre-arranging barge requirements and optimizing barge capacity for efficient cargo discharge. Establish clear protocols and procedures to streamline barge movements and cargo transfer, reducing potential bottlenecks. Implement advanced weather monitoring systems to anticipate adverse weather and adjust discharge operations accordingly. Use protective measures like tarpaulins to shield cargo from rain and other weather-related hazards. Be prepared to pause operations during severe weather to prioritize safety and minimize cargo damage. Adjust schedules flexibly to resume operations when the weather improves. K Sasa et.al (2021) studied the optimal ship routing of a 28,000-DWT-class bulk carrier in rough sea voyage conditions in the Pacific Ocean. They used speed loss analysis and the isochrone method, finding that higher wave avoidance leads to closer simulated routes, but speed drops occur when deliberate speed reduction is considered. The study also discusses factors affecting ship routing reproducibility. Lu Ruihua Turan et.al (2013) developed an empirical fuel consumption prediction approach for the Suez-Max oil tanker, enhancing accuracy using noon report data. The model evaluates ships' courses for voyage time minimization, safety, and fuel consumption, using Energy Efficiency of Operation (EEO) as an indicator. Future work will apply the approach to other vessel sizes and commercial ship categories, addressing weather issues and minimizing voyage time. Kenji Sasa et.al (2015) developed a weather routing system using ship performance evaluation to determine optimal sea routes. However, accuracy in numerical models is limited due to insufficient data accumulation. The study used a 20,000 DWT bulk carrier data, revealing new relationships in ship motions, speed loss, and wave conditions. Taedong Lee et.al's (2015) study explores factors hindering the Northern Sea Route (NSR) commercial sailing due to global climate change. The study identifies economic, external, and internal drivers and barriers for shipping companies, focusing on

perceptions of economic opportunities and internal factors and competition between countries. Stefano Fazi (2019) presents a mathematical model for optimizing container stowage on barges, utilizing a hybrid metaheuristic technique that integrates local search and industrial solver. Svitlana Onyshchenko et. al. (2021) discusses potential hazards in transporting heavy cargo, classifying unfavorable events during loading/unloading and transit, and developing a model to assess the probability of these occurrences. Nasser Saeidi's (2013) study identifies major causes of halt and lag at Amirabad's port, including equipment defects, incorrect product stowage, and lack of readiness, suggesting regular maintenance and improved communication. Alper Seyhan et.al (2024) found navigation equipment is crucial for bulk carrier failures, recommending proactive maintenance techniques to improve system reliability and prevent catastrophic accidents. Ab O, et.al (2023) propose a method for scheduling preventive maintenance in complex systems using FMEA, focusing on subsystems, failure mechanisms, and cost reduction. Ahmad Bahoo Toroody et.al (2022) propose a probabilistic technique for estimating the trustworthy operating duration of autonomous ship mechanical systems, thereby improving maritime industry safety. Bayraktar et.al (2022) studied ship propulsion systems reliability using four ship failure data, identifying critical components, with the main engine having the highest dependability, aiming to enhance marine transport efficiency. Samet Bicen et al. (2020) employ Shipboard Operation Human Reliability Analysis to assess human error probability (HEP) in a cargo ship's crankshaft overhauling during dry docking. Dikis et.al. (2015) introduced a Java-based Machinery Risk Analysis model for assessing maritime machinery dependability, highlighting its potential for improved strategic planning and maintenance as a strategic operating strategy. Alexander Senss, et.al. (2023) propose a dynamic JIT approach to calculate vessel arrival characteristics based on expected berth and cargo operation availability. The study by Gizem Elidolu et al. (2022) aids in reducing hazards and improving safety on tanker boats by involving tanker officers, shipowners, and safety and technical inspectors.

Operational challenges

The Panamax vessel was owned by the head owner and charted to the disponed owner and sub-charted to charters she is charted to carry 34500 Mt of feldspar in bulk. The vessel is currently loaded with a cargo of gypsum in bulk and is heading to Krishnapatnam and arrived on 4th Aug 2023 at 1700 hrs, on outer anchorage and was birthed on 6th Aug 2023, after completion of discharging gypsum by the previous charter. She is handover to the disponed owner by the head owner) on 14th Aug 2023 at 15:36 hrs.

For load feldspar in bulk at Krishnapatnam it is a one-time charter trip of duration about 20 - 25 days without guarantee from delivery on dropping last outward sea pilot Krishnapatnam, load cargo at Krishnapatnam and direct sailing to Chittagong/ Mongla (1 / 2 discharge port), safe anchorage(s), safe berth(s), safe port(s), always afloat, always accessible, always within institute warranty limits with lawful bulk cargos - intention feldspar in bulk. The charter needs to pay the first 15 days of hire payable in advance within 3 banking days, thereafter hire is paid for every 5 days in advance as per hire become due. Owners will refund any overpaid money to charterers within 5 days after the vessel's redelivery.

The vessel completed discharging of gypsum on 12th - Aug 2023 and after hold cleaning vessel arrived at Krishnapatnam Pilot station on 14th Aug 2023. And started cargo holds cleaning by head owners on 13th Aug 2023 and complete cleaning on 14th Aug 2023 @16:00 hrs. After hold cleaning the vessel was delivered to charters on 14th aug2023 15:36 hrs with a clean hold and remaining bunker (BROB) on the vessel (VLSFO: 764.00 Mt, MGO: 40.00 Mt)

Notice of readiness (NOR) was tendered on 14th Aug 2023 at 15:36 hrs and accepted the same day. The pilot was onboarded at 23:06 hrs and she was birthed to berth no 2 on 15th Aug 2023 at 01:06 hrs. She (**she denotes the vessel**) commenced her loading on 15th Aug 2023 at 04:00 hrs. And completed loading on 19th Aug 2023 at 10:30 hrs

On 19th Aug 2023 at noon, the pilot booked for the departure of the vessel from Krishnapatanam, and at 14:00 hrs she started her departure from Krishnapatanam port on her way to Chittagong with 34500 Mt of field spare cargo with a remaining bunker of (IFO 751.80 Mt and MDO 39.80 Mt).

On 22nd Aug 2023 at 13:30 hrs she arrived at her first discharge port to discharge about 23500 Mt of cargo at anchorage on a letter of indemnity (LOI) basis (without presenting the original bill of lading (OBL)). Notice of reediness is tendered on the same day at 13:30 hrs for the commencement of discharging at Chittagong port. The stevedore gang boarded at 02:00 hrs on 24th Aug 2023 and discharge commenced at 8:15 hrs at alpha birth

She stopped her discharging due to the non-availability of barges at 13:10 hrs- 21:45 hrs and 21:45-22:30 hrs. No cargo was unloaded due to rain on 24th Aug 2023 and on 25th Aug 2023 due to heavy rain she faced a problem in discharging the cargo at Chittagong 3 barges were alongside they weren't able to assist her in discharging the cargo due to heavy rain and still now the vessel commences discharging using the 3 gangs from morning 08:00 hrs to 13:25 hrs from 13:25 hrs to 22:30 hrs no cargo works due to nonavailability of barges at 22:30 hrs 1 barge came alongside and resumed discharging from h.no1. And the next day 26th Aug 2023 from 00:30 hrs to 07:00 hrs discharging was stopped due to heavy rain.

Due to bad weather conditions, the vessel uses the one barge near the vessel hold no 1 and with the gangs in it. On 28th Aug 2023, the vessel shifted its anchorage position from alpha anchorage to bravo anchorage due to the collision of two nearby vessels for safety reasons.

On the other hand, from morning onwards another barge is alongside but the barge's documents have yet not

cleared hence discharge operation not going on now and the barge is idle. The master did not receive any ideas from agents regarding further barges for discharging and on 29th Aug 2023 Chittagong climate was fair. Still now discharging is going on with 2 gangs in the vessel. She completed her discharging of 11000 Mt of field spare cargo and departure on 31st Aug 2023 at 14:30 hrs from Chittagong port.

She entered her second discharge port Mongla Anchorage (Bangladesh) on 02nd Sep 2023 at 08:00 hrs and started discharging on the same day and completed her discharging of 11000 Mt of field spare cargo on 03rd Sep 2023 at 22:00 hrs.

Due to the scenarios that happened, the vessel faced several operational challenges Upon arrival at Krishnapatnam, the vessel underwent cargo discharge and cleaning operations before being handed over to the current charterers on August 14th, 2023. Despite a clean hold and remaining bunker, the voyage encountered several challenges, including adverse weather conditions and logistical issues, The vessel encountered delays in cargo discharge at Chittagong due to the non-availability of barges and adverse weather conditions. These delays disrupted the planned timeline for cargo discharge, leading to operational inefficiencies, The vessel faced logistical challenges, including the need for additional barges and clearance issues with sub-barges. These complexities hindered the smooth progression of cargo discharge operations, Adverse weather conditions, including heavy rain,

further compounded the challenges faced by the vessel. The inclement weather disrupted cargo discharge operations and necessitated adaptive strategies to mitigate risks.

The vessel is re-delivered to owners from charterers on 04th Sep 2023 at 04:00 hrs at Mongla port, Bangladesh with (VLSFO: 639.50 Mt and MGO: 38.60 Mt) with cargo holds in an unclean condition.

The challenges faced by the vessel not only affect the operation of the vessel but also have a direct impact on the delivery of cargo in the discharge port affect the charters by increased demurrage at port and affect the re-delivery of the vessel to the head owners.

Conclusion

Despite the operational challenges encountered by the Panamax vessel completed its voyage, discharging cargo at both Chittagong and Mongla ports. The adaptability and resilience demonstrated throughout the journey underscore the complexities inherent in maritime transportation. the successful completion of the voyage by the Panamax vessel, despite the operational challenges encountered, serves as a testament to the adaptability and resilience of the maritime industry. The journey, which included discharging cargo at both Chittagong and Mongla ports, underscores the complexities inherent in maritime transportation. This case study illuminates the critical importance of effective planning, communication, and contingency measures in navigating the uncertainties that often accompany maritime operations. By demonstrating the ability to adapt to unforeseen circumstances and overcome challenges, the vessel exemplifies the best practices necessary for success in the maritime industry, while also emphasizing the need for continuous improvement and preparedness in facing future challenges. This study highlights the importance of effective planning, communication, and contingency measures in navigating the uncertainties of maritime operations.

Abbreviation

- BROB Bunker Remaining on Board.
- LOI Letter of Indemnity.
- MDO Marine Diesel Oil.
- MGO Marine Gas Oil.
- Mt Metric Tons.
- NOR Notice of Readiness.
- OBL Original Bill of Lading.
- VLSFO Very Low Surplus Fuel Oil.

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