

Marine Safety Investigation Report

VERY SERIOUS MARINE CASUALTY | 05 February 2024

The **Bahamas**
Maritime Authority

Beluga Reefer

Heavy Weather Casualty 30 June 2023

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What happened

On the afternoon of 30 June 2023, Beluga Reefer was on passage from Durban to Port Elizabeth, South Africa, and was making way during a period of adverse weather.

Four crew members were at the forward mooring station to secure mooring lines when the vessel was struck by a series of large waves, washing the four crew members off their feet, and propelling them into the ship's structure and deck machinery. Of the four crew members, two suffered fatal injuries, one sustained minor injuries and the other required emergency medical assistance ashore.

Why it happened

On departure from Durban, the master requested that all deck machinery and lines be secured for sea due to adverse weather conditions being forecasted. Due to a lack of rest, the bosun reported the forecastle was secure but decided to leave the mooring lines with a plan to complete the task later that day.

Whilst the bosun and crew slept, conditions deteriorated but no measures were put in place to control access to the deck. When the bosun and crew returned to the deck, no-one was aware of their movements and they were found by chance by the chief officer who was on deck and exposed to the same risk whilst completing a routine task.

What we can learn

Work activity on open decks during adverse weather should be restricted and, where essential, appropriately assessed for known hazards and risks and only conducted with the appropriate personal protective equipment, including the use of lifelines, lanyards or securing arrangements are to be considered.

The importance of communicating with members of the bridge team and or colleagues cannot be over emphasised, especially as to one's whereabouts or planned areas of work.

Narrative

All times in this report are local time (UTC +1)

At 02:10 on the morning of 30 June 2023 the Bahamas flagged refrigerated cargo vessel Beluga Reefer completed the loading of its cargo of refrigerated fruit from the Fruit Terminal in Durban. At 02:45 crew were asked to "Stand-by for departure" and made their way to their respective stations.

The forecast for the passage to Port Elizabeth showed that there would be a low-pressure weather system approaching from the southeast and that the strong winds and increased swell activity would be likely.

At 04:02 the pilot departed the vessel and immediately after the master notified the deck crew to ensure that all lines were correctly stowed, and all deck equipment secured for the passage.

At 04:15 the second officer notified the bridge that all aft lines and machinery were stowed and secured for passage. At 04:20 the forward mooring station was not secure but the bosun notified the bridge that it was, leaving the deck to rest with a plan to come back later.

Shortly afterwards, the master retired to his cabin, handing over to the third officer. During its passage, the vessel encountered increased swell activity causing the vessel to slam when making contact with the waves, The increased slamming woke the master and he instructed the officer of the watch to reduce speed and alter course to minimise the effects the weather was placing on the vessel.

Prior to midday, the second officer took over the watch accompanied by the chief officer. The weather and conditions at the time of handover were clear skies, sunny but the wind and swell had increased – waves were in excess of three metres from the southeast.

Around 13:40 the chief officer departed the bridge informing the second officer that he was going on deck to check on the temperatures of the containers and their securing arrangements.

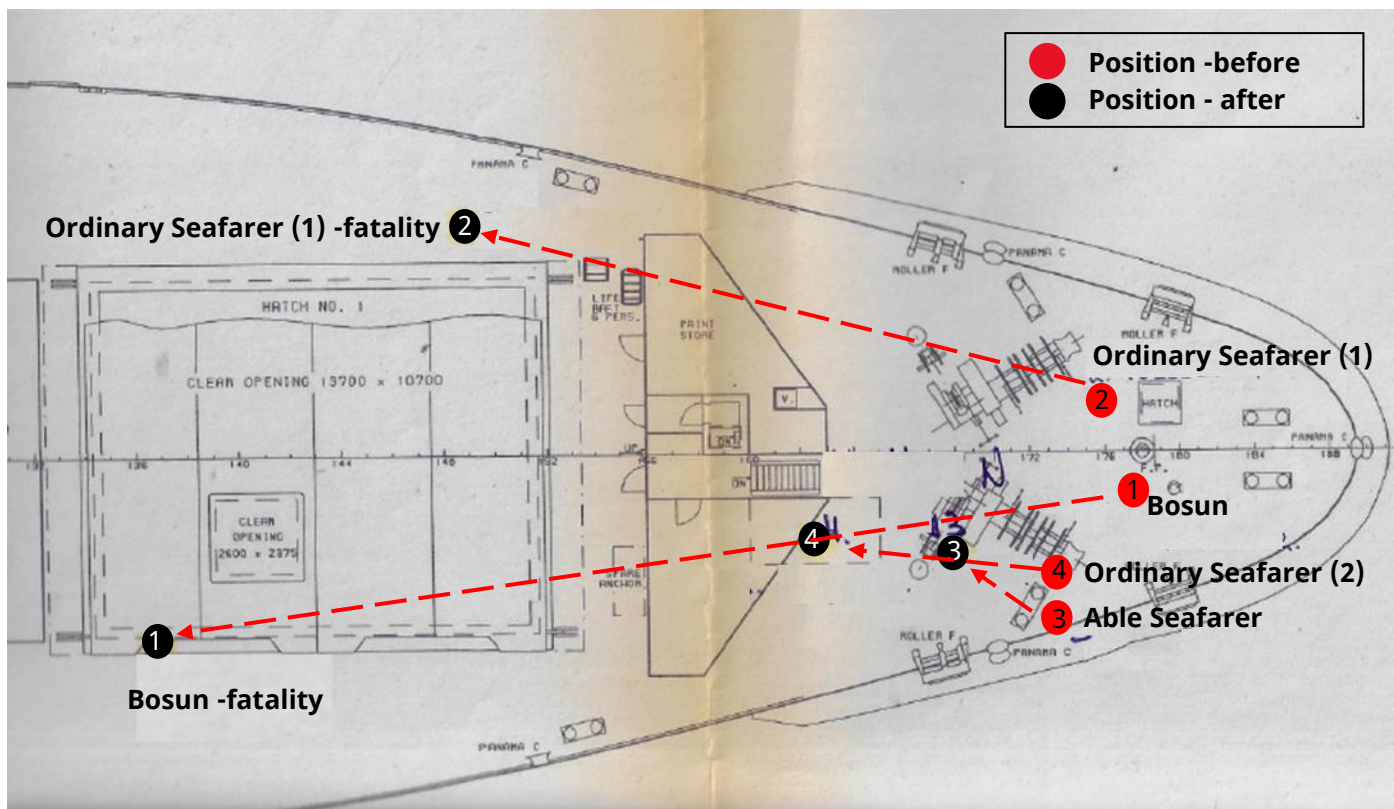
At around the same time the bosun and deck crew had woken, had lunch, and were preparing to return to work. At around 13:45 the bosun and members of his deck team made their way forward to make fast the lines and secure the deck machinery. Shortly afterwards the vessel was struck by a series of large waves, breaching the forecastle, washing the crew off their feet.

At 13:51 the chief officer walked on the forecastle and found two injured crew members. He raised the alarm and then discovered two others further aft. The master, upon receiving the report, made his way to the bridge and took the decision to alter course and head for the nearest port of Port Alfred.

At 14:15 an emergency team led by the chief officer transferred the injured crew members to the ship's hospital.

A request for med-evac was made by the master, however a helicopter was not available, and the master was instructed to alter course and head to East London where paramedics boarded the vessel on arrival, that evening.

Of the four members of crew injured, two were fatally injured with another member transferred to a local hospital to undergo emergency medical surgery whilst the fourth injured member of crew received treatment on board for minor injuries.



Before and after positions of crew when waves struck

Vessel and Crew

The Beluga Reefer was a Bahamian registered 149 metre refrigerated cargo vessel. Beluga Reefer's 22 crew were Russian nationals who all held appropriate qualifications for their respective roles on board.

The bosun was 52 years old, and had served with the company for over 10 years. On the day of the incident he had come off his rest period following a period of 8 hours work from 20:00 to 04:00, preceded by eight consecutive days where the hours had been staggered and altered from his usual working pattern of days to accommodate loading and discharging operations.

The ordinary seafarer was 46 years old and served with the company for over eight years. On the day of the incident, he too had been working the same pattern of hours as the bosun.

Previous similar cases

Arafura (2021) – fatalities in heavy weather

On 11 September 2021, the Belgian registered tanker Arafura was rounding Cape Horn in heavy weather. Reacting to a bilge alarm in the forecastle store, the chief officer and bosun were re-securing the anchors when a large wave washed them against deck gear. Neither of them survived their injuries.

<https://mobiliteit.belgium.be/fr/file/5599/download?token=Jcw7dgNj>

Castillo De Valverde (2020) – man overboard in heavy weather

On 28 May 2020, Castillo de Valverde's bosun and second officer were repairing a leak on the deck's fire main. Having completed the task at 1500, both crew members went for a coffee break. Shortly thereafter, work on deck was suspended due to deteriorating weather conditions. On completion of the coffee break, the bosun and second officer went back on deck to collect tools when, a heavy wave struck the deck and washed the bosun overboard. A search and rescue operation were initiated but the bosun was not recovered.

www.bahamasmaritime.com/wp-content/uploads/2021/04/Castillo-De-Valverde-Marine-Safety-Investigation-Report.pdf?swcfpc=1

Johann Schulte (2000) – fatalities in heavy weather

On 02 March 2000 one crew member lost his life and four other crew were injured, three of them seriously aboard the Isle of Man registered gas tanker Johann Schulte. The ship was struck by two waves which washed over the forecastle. The incident occurred while the chief officer, bosun and four seafarers were attempting to secure the anchors.

www.iomshipregistry.com/media/1626/cr-johann-schulte-fatal-accident-in-heavy-weather.pdf

Safety Management System

The company operated a safety management system comprising a series of documents including risk assessments, checklists, procedures, and guidance on vessel operations. These checklists included preparing for sea and navigation in heavy weather.

Legislation and Guidance

Bahamas Maritime Authority – Marine Notice 04 – Reporting requirements

Stipulates that accurate and timely reporting is vital to ensure the appropriate response can be mounted by the Department. Marine casualties should be reported as soon as possible.

The Bahamas Maritime Authority - Marine Notice 36 - Management of Occupational Health & Safety

Describes the general duties of employers and employees in relation to health and safety, in line with Merchant Shipping (Health and Safety – General Duties) Regulations 1984. Marine Notice 36 does not provide specific guidance on working safely onboard ships but states that the shipowner shall comply fully with the International Labour Organization’s Code of Practice “Accident prevention on board ship at sea and in port” or other recognised Codes of Practice including the United Kingdom’s Maritime & Coastguard Agency’s Code of Safe Working Practices for Merchant Seafarers.

Code of Safe Working Practices for Merchant Seafarers (2018)

Provides guidance on work in adverse weather conditions in chapter 11.12:

- 11.12.1 If adverse weather is expected, lifelines should be rigged in appropriate locations on deck.
- 11.12.2 No seafarers should be on deck in conditions that the master considers adverse weather unless it is considered necessary for the safety of the ship, passengers, and crew, or the safety of life at sea. Where possible, work should be delayed until conditions have improved, e.g. until daylight, or until the next port of call.
- 11.12.4 Work on deck during adverse weather should be authorised by the master and the bridge watch should be informed. A risk assessment should be undertaken, and a permit to work and a company checklist for work on deck in heavy weather completed.
- 11.12.5 Any seafarers required to go on deck during adverse weather should wear a lifejacket suitable for working in, a safety harness (which can be attached to lifelines) and waterproof personal protective equipment including full head protection and should be equipped with a water-resistant UHF radio. Head-mounted torches should be considered.

Analysis

The purpose of the analysis is to determine the contributory causes and circumstances of the casualty as a basis for making recommendations to prevent similar casualties occurring in the future.

Due to initial misreporting, the BMA investigation team could not travel to the vessel to gather evidence and conduct interviews until several weeks after the casualty, impacting the quality of the information gathered for analysis.

Heavy weather preparations

Prior to departure the weather forecast showed a deep low pressure frontal weather system in the Indian Ocean approaching the coast of South Africa. Wind strength of force five to six, occasionally gale-force eight from the southeast, veering to southwest had been forecasted, with a swell height of three to four metres from the southwest. The planned passage was into the wind and swell.

Due to the forecast, the chief officer held a shipboard safety meeting with all crew present on the 29 June 2023. The wind direction, strength as well as predicted wave heights was shared along with an emphasis on crew duties during "bad weather."



Conditions of weather as seen from the bridge one hour post-casualty

Despite the safety meeting and intervention from the master to reduce slamming, no action was taken to restrict access to the deck. The Company's Heavy weather checklist (CL-12) identified the need to ensure access to the deck was avoided as well as ensuring all deck machinery was to be secured prior to sea, but the checklist was not used as there was no identified thresholds for what constituted heavy weather.

Human Factors

The bosun's misreporting that the forward mooring station was secure for sea when departing Durban was a situational violation. This decision - to leave securing the forward mooring station until after their rest period - was informed by fatigue, onset by the change in working patterns as the vessel worked along the coast.

Normally in between port calls the bosun and deck crew would have been operating a set eight-hour day work pattern, allowing for sufficient uninterrupted rest. Prior to the casualty, work and rest periods had been adjusted for eight consecutive days to accommodate port arrivals and departures and for cargo operations. This meant that the deck crew were operating staggered hours of work and rest which affected their sleeping patterns. At the time of departure - the bosun had been working since 20:00 the evening before and was scheduled to end his shift at 04:00 to commence with rest. The bosun's normal rostered hours of work were between 08:00 and 18:00 with scheduled breaks in between allowing for lunch.

Despite the points raised during the previous day's shipboard safety meeting, neither the chief officer nor the deck team considered the risk of heavy weather when making their way out on deck. As such, no consideration was given to delaying the work or using personal protective equipment such as personal flotation devices or lifelines.

Risk Mitigation

The shipboard safety meeting was an opportunity to agree upon heavy weather mitigation measures and plan work as part of the risk assessment process. Risk assessment templates were completed on the day and on departing Durban. However, they did not reflect the upcoming passage or work that was considered necessary - as such they did not identify any effective risk mitigation measures. The risk assessment templates were last amended in June 2010.

Similarly, the Company's standard checklists (Preparation for Sea, Navigation in Ocean Waters) did not highlight the risks associated with adverse weather or any guidance on when to employ the Company's Heavy Weather checklist.

Conclusions

The bosun and an able-bodied seafarer were killed and a further two seafarers suffered injuries when they were washed clear from the forward mooring station when a series of large waves engulfed the forecastle.

The deck team were on the forecastle to secure mooring lines and equipment which they had reported as completed on sailing – they had left the work unfinished in order to take overdue rest.

The vessel was experiencing slamming into the building sea and swell and steps had been taken to mitigate but at no point had the officer of the watch or master considered using the Company's heavy weather checklist or restricting access to deck.

The chief officer missed an opportunity to discuss mitigating measures for the forecasted adverse conditions at a shipboard safety meeting the previous day.

Action taken and Recommendations.

Acheon Akti Navigation Co. Ltd. (the Company) has:

- Enforced a programme of change with regards to "Stop-The -Job" interventions and risk management.
- Requested refresher training of the following Company procedures with all officers and ratings who could be involved in works on open decks:
 - Navigation under Various Conditions
 - Navigation in Ocean Waters
 - Navigation in Heavy Weather
 - DRA 1 Navigation in Heavy Weather
- Instructed its fleet to affix warning signs at the exits of accommodation blocks that entry to the weather deck during adverse weather is prohibited.

Acheon Akti Navigation Co. Ltd. (the Company) is recommended to:

- Conduct a full review of its onboard procedures with particular attention to casualty reporting, verifying that the vessel is prepared for sea, deck access and movement of personnel, task scheduling and communication.
- Review of its risk assessments to ensure they align with work as done and reflect current guidance and industry best practice.

Vessel particulars

Vessel name	Beluga Reefer
Vessel type	Refrigerated cargo vessel
Flag / IMO number	Bahamas / 9015204
Registered owner	Escape Mariners Trade SA.
Manager	Acheon Akti Navigation Company Ltd.
Classification Society	American Bureau of Shipping
Built	1992 - Danyard Frederikshavn, Denmark
Length / breadth / moulded depth	149.1m / 24.4m / 15.7m
Gross / net tonnage	10,349 / 5,353
Minimum safe manning	10
Authorised cargo	Refrigerated goods

Voyage Particulars

Departure port	Durban, South Africa
Arrival port	Port Elizabeth, South Africa
Distance / duration	369 NM / 21 hours
Cargo information	4200 pallets underdeck & 57 40' containers on deck. Total 6468 metric tonnes of refrigerated fruit
Crew	23 crew

Marine Casualty Information

Severity of casualty	Very Serious Marine Casualty
Date / time	30 June 2023 / 13:50 LT
Geographical location	Off South Africa, 32° 02.60'S 027° 55.8'E
Place onboard	Forward mooring station
Injuries / fatalities	2 fatalities, 2 injured
Damage / environmental impact	No structural damage/ environmental impact
Ship operation	Underway
Stage of passage	Coastal
External environment	Daylight. Wind: SSW 20 knots (gusting 30 knots). Swell SW 3-4 metres
Internal environment	N/A