Marine Safety Investigation Report

VERY SERIOUS MARINE CASUALTY | **October 2024**

Fri Sea

Man overboard on 28 March 2024

The Bahamas Maritime Authority

The Bahamas conducts marine safety or other investigations on ships flying the flag of the Commonwealth of the Bahamas in accordance with the obligations set forth in International Conventions to which The Bahamas is a Party. In accordance with the IMO Casualty Investigation Code, mandated by the International Convention for the Safety of Life at Sea (SOLAS) Regulation XI-1/6, investigations have the objective of preventing marine casualties and marine incidents in the future and do not seek to apportion blame or determine liability.

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What happened

On the evening of 28 March 2024, the Bahamas flagged coastal general cargo vessel, Fri Sea, was outbound from Groveport, UK. After rigging the pilot ladder, one seafarer returned to the accommodation whilst the other stayed on deck to smoke a cigarette.

Around fifteen minutes later the master called the seafarer on the handheld radio to say that the pilot was ready to disembark but got no reply. Having called several times, the master went to the messroom and instigated a search on deck.

At 22:50 the master informed the pilot that they had a potential man overboard at which point the pilot asked the master to raise the alarm, informed vessel traffic services and stopped engines. The pilot boat, which was about to collect a pilot from the vessel ahead, quickly started a search and they were joined by multiple air and sea assets.

The search continued through the night but the seafarer's body was found, washed ashore, next morning.

Why it happened

A post-mortem indicated that the victim died as a result of acute myocardial ischaemia, ischaemic heart disease and severe coronary artery atheroma. There were no signs of drowning.

Notwithstanding the cause of death, the victim was on deck, in the dark and alone, in close proximity to an opening in the ship's rails with no fall protection or personal floatation device. There were no lifejackets suitable for work onboard the vessel and no administrative barriers that related to the task.

What we can learn

Operators and crew may be blind to a risk that is an integral part of their operation.

Proximity to openings in ship's rails massively increases the risk of falling overboard. Where risk of falling overboard exists, control measures such as a lifejacket and fall prevention devices must be used.

The Bahamas has recorded an increase in medical emergencies as a result of a seafarer's underlying health condition that has not been identified as part of a medical examination. A routine medical may not be sufficient to alert seafarers and operators to potential medical issues onboard. A holistic approach to seafarer health may be beneficial.

The importance of providing search and rescue coordinators with full and correct information cannot be overstated.

Narrative

All times in this report are local time (UTC)

At 11:00 on 28 March 2024, the Bahamas flagged coastal general cargo vessel, Fri Sea, completed discharge of its cargo of sepiolite granules[1] and was ready to depart Groveport, UK on the next tide.

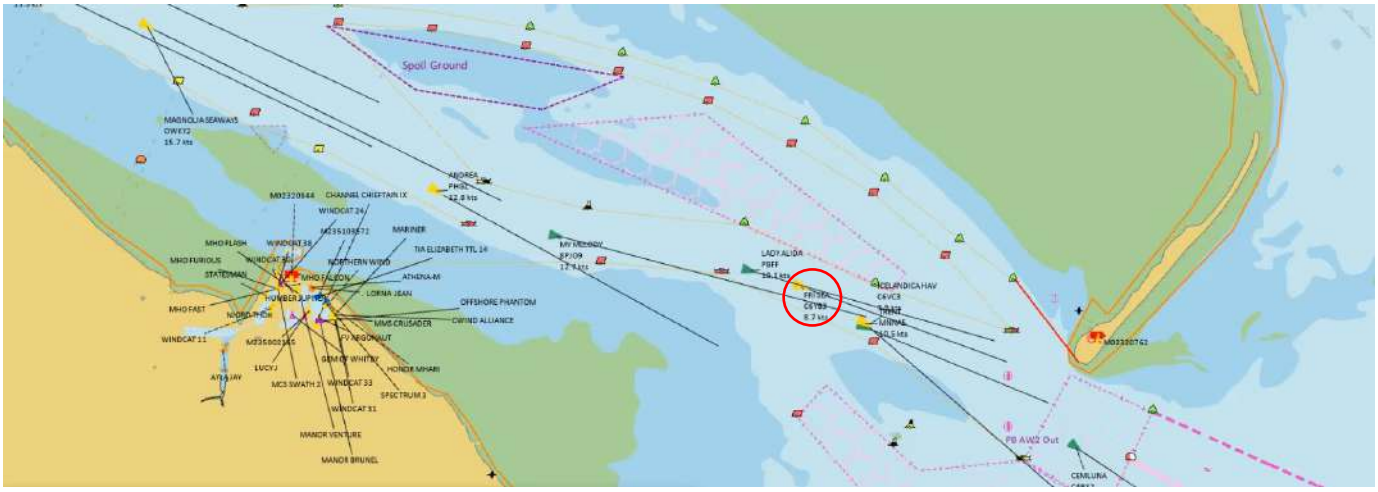
At 18:50 the pilot boarded, the master/pilot exchange and pre-departure checks were completed and, at 19:07, the vessel departed, in convoy with three other vessels. Soon after clearing the berth, the master asked the pilot which side to rig the pilot ladder. The pilot replied he would not know for some time so the crew were stood down. The master remained on the bridge with the pilot, who kept the conn.

At 22:10 the pilot reported to Humber Vessel Traffic Services (VTS) who confirmed that the pilot ladder should be rigged on the port side, 1.5m above the water. The pilot relayed this to the master also confirming it would be around 45 minutes until disembarkation.

Shortly afterwards, on instruction from the master, two crew (AB1 & AB2) went on deck to rig the pilot ladder. Having removed from it from its stowage position on the cargo hatch level, they lowered it to the main deck on the port side and, after opening the gate in the ship's rails, they lowered it into position and secured it. At approximately 22:35 AB2 radioed the master to confirm that the ladder was ready. AB1 then returned to the accommodation whilst AB2 stayed on deck to smoke a cigarette.

Approximately 15 minutes later the master called AB2 on the handheld radio to say that the pilot was ready to disembark but got no reply. Having called several times, the master went to the messroom and seeing AB1, asked where AB2 was. At the direction of the master, AB1 then went on deck to check. After a quick search of the vessel AB1 reported that AB2 could not be found.

At 22:50 the master informed the pilot that they had a potential man overboard at which point the pilot asked the master to raise the alarm, the pilot then informed Humber VTS and stopped engines. The whole crew mobilised to keep lookout. No life ring or other marker was deployed.



Traffic situation at the time the man overboard was reported. Fri Sea ringed. (Source: Humber VTS)

The pilot boat, which was about to collect the pilot from the vessel ahead, quickly started a search and they were joined by multiple air and sea assets, including Humber lifeboat at 23:58. The search was coordinated by Humber VTS until relieved by Humber Coastguard at 01:47 with datum and likely drift pattern based on the

[1] Sepiolite is an absorbent soft white clay material

location of the Fri Sea when the alarm was raised and information that the missing person was wearing a lifejacket. The search continued until 08:52 when Humber Coastguard called off the search.

AB2's body was found at 10:30, washed ashore approximately 13 nautical miles from the position where the alarm was raised. The victim was not wearing a lifejacket.

Vessel and Crew

Fri Sea was a single hold coastal general cargo vessel that traded around north west Europe. The vessel had seven crew who worked on the vessel regularly.

The victim was a 58 year old Russian and had sailed onboard for 14 years. He had returned to the vessel from leave the previous day, after 80 days of leave. On the day of the casualty he had worked 00:00-06:00, 12:00-17:00 and had been on deck for unmooring as well as rigging the ladder.

The master held a master's unlimited certificate of competency and had also sailed onboard Fri Sea for 14 years, all as master. The master had also returned to the vessel from leave the previous day.

The pilot was a master mariner and Class 2 Humber pilot with six years' experience on the estuary. The pilot was on the penultimate day of a 10 day rotation on duty.

Safety management

The vessel's safety management system included risk assessments and permits to work for enclosed space entry, work at height, hot work, electrical work and bunkering. There was no risk assessment or permit for work over the side or a risk assessment for rigging the pilot ladder.

The vessel's shipboard training did include regular refresher training (once per 80 day contract) on rigging pilot ladders which used The Bahamas Maritime Authority's Technical Alert 21-09 (Concentrated Inspection Campaign for Pilot Transfer Arrangements) as a checklist for the correct rigging of the ladder.

Legislation and guidance

The Bahamas Maritime Authority's 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 "Code of Safe Working Practices for Merchant Seafarers".

Code of Safe Working Practices for Merchant Seafarers (2024) Chapter 10.2.13 covers *safety for seafarers rigging accommodation and pilot ladders*:

- Where a work activity involves lifting from deck or overside (e.g. raising of pilot ladders), follow guidance on body posture and technique to prevent musculoskeletal injury. Where manual handling is unavoidable, lift the ladder from no lower than deck level in stages rather than trying to lift from overside (see section 22.10).
- Get adequate additional manual help and/or appropriate means wherever possible and do a risk assessment.

Do a risk assessment of the dangers associated with this work activity as it involves working overside, which requires a permit to work (see Chapter 14). It also requires control measures such as a safety line, fall prevention device, safety harness and wearing of lifejackets (see section 17.2.2).

Previous similar cases

There have been numerous instances of ship's crew falling overboard when working around pilot transfer arrangements. In almost all cases that result in death, the member of crew that entered the water was not wearing a lifejacket.

Navios Amitie (2020) Malta
While rigging combination pilot ladder, alone and in the dark, the bosun fell from the ladder's lowest platform. At the time of the accident, the crew member was not wearing a safety harness or a lifejacket.
https://msiu.gov.mt/wp-content/uploads/2022/11/PDF-Accidents_and_Incidents_2020-MV_Navios_Amitie_Final_Safety_Investigation_Report.pdf

Madinah (2015) New Zealand
While rigging a combination ladder the bosun slipped, falling outboard. He was not wearing a buoyancy aid and the wire to which he had clipped his safety harness was broken. The bosun was last seen swimming towards a lifebuoy thrown by a crew member.
www.taic.org.nz/inquiry/mo-2015-202

Analysis

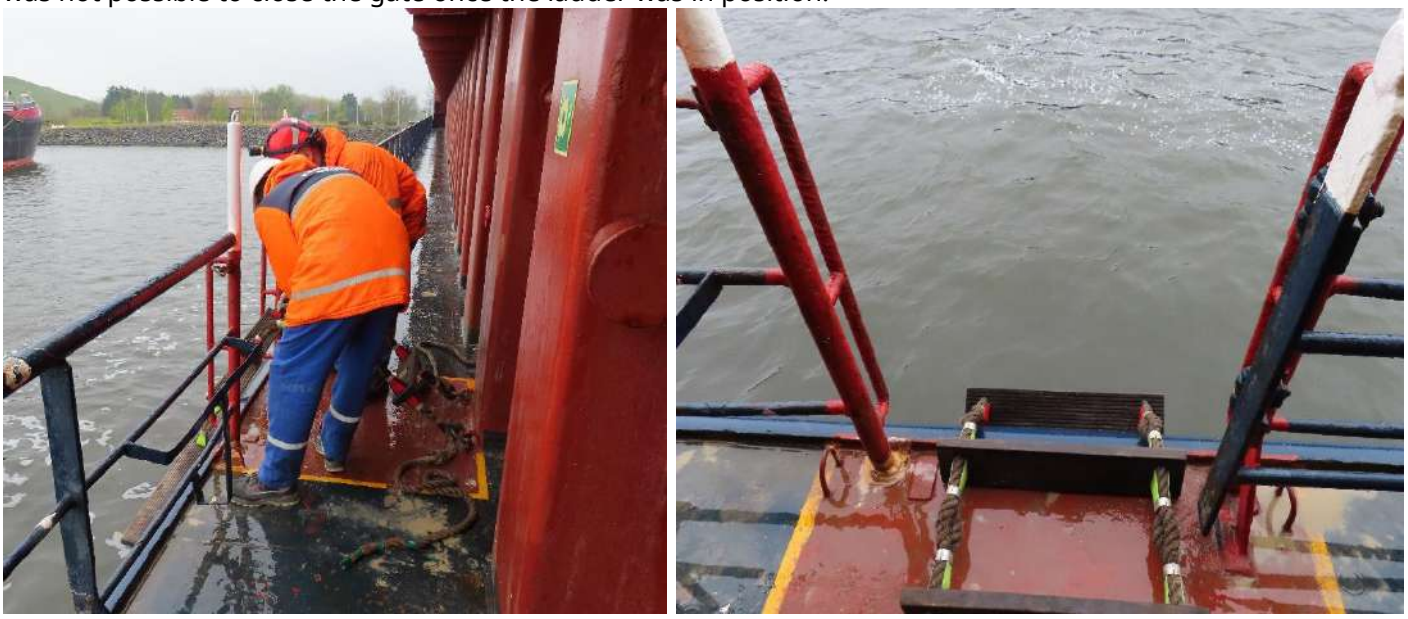
The purpose of the analysis is to determine the contributory causes and circumstances of the casualty as a basis for making recommendations to prevent similar casualties occurring in the future.

A post-mortem indicated that death was a result of acute myocardial ischaemia, ischaemic heart disease and severe coronary artery atheroma. The pathologist commented that there was no evidence of drowning.

Notwithstanding the pre-existing medical conditions, the victim was lost overboard, most likely through an opening in the ship's rails, when he was not equipped with any form of fall arrest equipment or personal floatation device.

Risk of falling overboard

Fri Sea carried two pilot ladders – one of a length suitable for the vessel's loaded condition and one for its ballast condition. When it was required to be rigged 1.5m above the sea, the ladder could be shackled directly onto two purpose fitted lugs on the deck. The pilot ladder then passed through an inward-opening gate in the ship's rail. This task could only be completed with two crew working together. Due to the design of the gate, it was not possible to close the gate once the ladder was in position.



Rigging the ladder, ladder in position (gate opens to the right of picture)

Fri Sea's safety management system did not include a permit to work for work over the side because they did not recognise that any work over the side was being conducted as part of the ship's operations. This blind spot was absolute: there were no lifejackets onboard that were suitable for working and crew could not identify a time when they had been required to work over the side. Witness testimony and demonstration of the process of rigging the pilot ladder included the crew "testing" the ladder using their own body weight on the topmost rung (outboard of ships rails).

Whilst regular training had been conducted on the proper rigging of a pilot ladder, at no point had the crew had a meaningful discussion on the *safe* rigging of a pilot ladder and no formal risk assessment been completed. The checklist from Technical Alert 21-09 included a check box on safe procedures but did not contain any specifics about what safe looks like.

TBMA

TECHNICAL ALERT 21-09

Section 2 – Rigging of the Pilot Ladder				
No	**Item Inspected**	**Yes**	**No**	**Comments/defects**
20	Personnel engaged in rigging and operating any mechanical equipment are instructed in the safe procedures to be adopted and the equipment are tested prior to use.			

Excerpt from Technical Alert 21-09

The design of the pilot transfer arrangement meant that when the pilot ladder was rigged, there was a gap in the ship's rails that could not be closed, adjacent to a potential trip hazard (the ladder). As the hazard of falling overboard was not recognised, there were no control measures in place to reduce the risk of falling over the side (such as a temporary barrier/chain) and no appropriate personal protective equipment available to the crew to mitigate the outcome of a fall.

Search and rescue – importance of correct information

After the pilot's initial report of a man overboard, Humber Vessel Traffic Services (VTS) relayed the distress call and tasked search and rescue assets to assist, based on Fri Sea's position at the time of the initial report. 55 minutes later (at 23:45), the pilot contacted VTS to inform them that 5-10 minutes had elapsed before the crewman was noticed to have been missing.

Shortly after the pilot's report of a potential man overboard from Fri Sea, Humber VTS requested confirmation on whether the missing person was wearing a lifejacket. The pilot relayed the question to the master who responded that AB2 was wearing an orange coat that was inflatable. The pilot then reported to VTS that the missing person was wearing a Seasafe[2] type jacket. This was not corrected until 05:25, when VTS asked for further information from Fri Sea.

Whilst it would not have had an impact on the outcome of the casualty , the initial search plan was based on an incorrect starting location (datum). The drift pattern was also based on incorrect information, hindering the effectiveness of the search.

Humber lifeboat

The Royal National Lifeboat Institution's Humber Lifeboat Station is one of the few in the United Kingdom that is staffed with a full-time crew. The lifeboat station is located at Grimsby and the lifeboat, Pride of Humber, moors in Grimsby's Royal Dock, approximately five nautical miles from the position where the man overboard was reported.

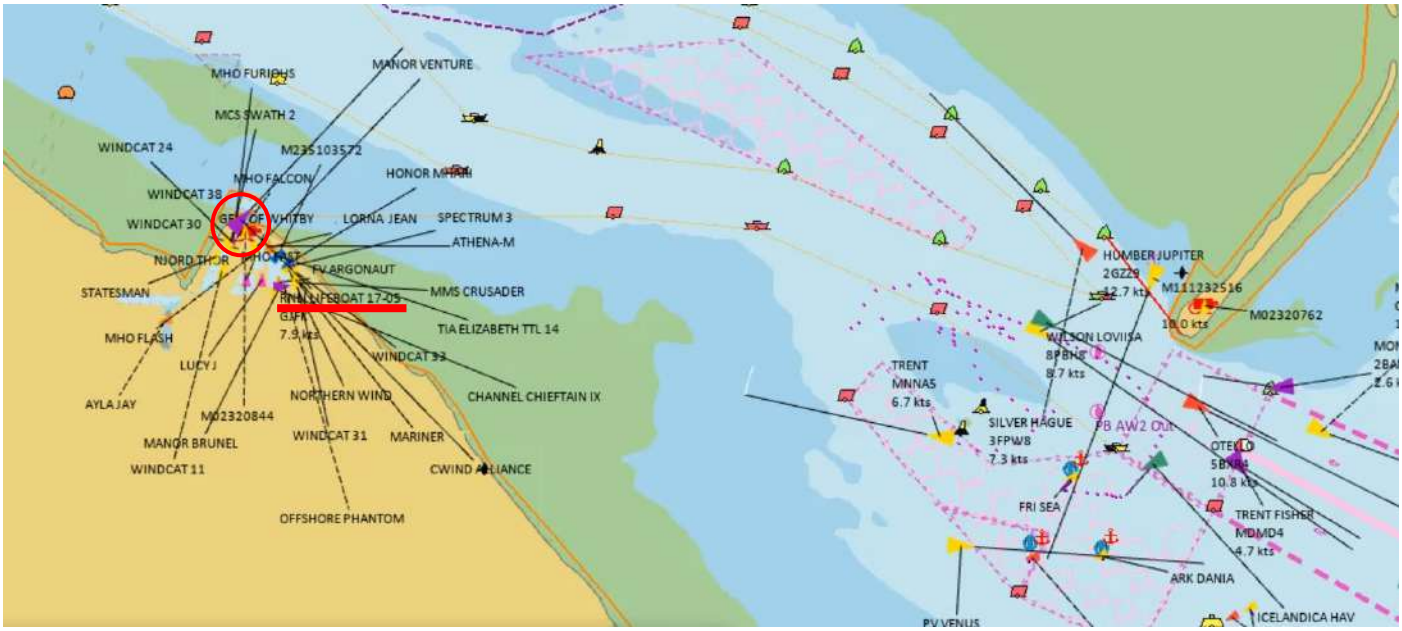
From Grimsby Royal Dock, the river Humber is accessed via a lock, the operation of which is restricted by tide and operation of the floodgates:

[2] Seasafe is a manufacturer of marine safety clothing, including foul weather coats with integrated lifejackets (which are often issued to pilots and other marine personnel in UK ports).

GRIMSBY ROYAL & ALEXANDRA DOCKS
OPERATING RULES AND GUIDANCE FOR SMALL CRAFT

OPERATING TIMES – ROYAL DOCK
Level period between 1 ½ hours before H.W. and the end of level 10 minutes before H.W. Outside of level periods pens will be available on an hourly basis: On the hour for departure and approximately half past every hour for the subsequent return pen. All craft should endeavour to give 20 mins notice to the ADM should they wish to utilise one of these pens. These timings may be varied at the ADM'S discretion.
During very high H.W. and for operational purposes the floodgates may be closed, shortening the level period and closing the dock for a period of time.

Operating times – Royal Dock



Pride of Humber (RNLI Lifeboat 17-05) leaving Royal Dock lock at 23:57 (Source: Humber VTS)

The Royal National Lifeboat Institution are aware of the lock gate restrictions and Humber Lifeboat Station advises its Central Operations and Information Room and HM Coastguard of availability based on tidal predictions on a daily basis. They did not anticipate any restriction on the day of the casualty.

Whilst it would not have had an impact on the outcome of the casualty, Humber lifeboat was waiting in the lock for over an hour after mobilising due to an issue with the outer sluice gate which reduced ability to remove lock water to match the falling tide outside the gates. Further delay would have resulted in insufficient depth of water for the lifeboat to safely cross the sill.

Seafarer health

A post-mortem indicated that the victim died as a result of acute myocardial ischaemia (when blood flow to the heart muscle is obstructed by a blockage), ischaemic heart disease (heart weakening caused by reduced blood flow to the heart) and severe coronary artery atheroma (when a fatty material builds up inside the coronary arteries).

Coronary heart disease is a major cause of death worldwide and risk is generally associated with lifestyle factors. Cessation of tobacco use, reduction of salt in the diet, eating more fruit and vegetables, regular physical activity and avoiding harmful use of alcohol have been shown to reduce the risk. Carrying additional bodyweight increases risk.

The Bahamas requires seafarers to have a valid medical certificate to work onboard Bahamian ships, the examination for which should apply the medical standards as specified in the ILO/IMO Guidelines on the Medical Examinations of Seafarers. The guidelines do not contain a set methodology to assess heart and blood vessel disease but gives recommendations for physical abilities to be assessed.

The victim had undergone a medical examination on 15 August 2023 which did not highlight any issues with his health and recorded the following comment against cardiovascular system "the hearth [sic] is healthy and fit".

Body mass index (BMI) is a useful indicator of when additional assessment might be needed. It should not form the sole basis for decisions on capability and national norms will vary. The victim's BMI is not recorded on the medical certificate but, using the recorded height and weight, the victim's BMI was 30.1 at time of examination. In many Administrations[3], a BMI over 30 would require additional assessment but there is no uniform rule for this.

The medical certificate did not record any physical capability assessment or that any measure of heart and lung performance was taken. In any event, the medical examination did not identify the significant and long-term deterioration of the victim's cardiovascular health, seven months before his death.

Conclusions

A post-mortem indicated that the victim died as a result of acute myocardial ischaemia, ischaemic heart disease and severe coronary artery atheroma. This underlying health condition had not been identified as part of the seafarer's medical examination.

Nevertheless, the victim was on deck, in the dark and alone, in close proximity to an opening in the ship's rails with no fall protection or personal floatation device.

The crew were regularly exposed to unnecessary risk when rigging or retrieving the pilot ladder – the work was not considered to be "work over the side" so no controls were in place: there were no lifejackets suitable for work onboard the vessel and no administrative barriers that related to the task.

In line with requirements, the gate in the ship's rails opened inwards but its design meant that it had to remain open when the pilot ladder was in place – increasing exposure to risk.

Whilst it would not have had an impact on the outcome of the casualty, providing the pilot (and subsequently Humber VTS) with the incorrect information that the man overboard was wearing a lifejacket had a detrimental impact on the modelling of the search operation. Similarly, the use of the time and location of the initial report meant that the correct datum was not established for the search.

Whilst it would not have had an impact on the outcome of the casualty, Humber lifeboat was waiting in the lock at Grimsby for over an hour after mobilising. Humber lifeboat's availability may be more restricted than identified on the basis of tidal predictions alone.

Action taken and Recommendations

Kopervik Ship Management Poland Sp. z o.o has:

- Provided vessels in its fleet with inflatable lifejackets.
- Reviewed the design of openings in ship's rails throughout its fleet. The gate on Fri Sea has been altered to allow it to be closed when the pilot ladder is rigged.
- Added anti-slip coating to the decks between pilot ladder and accommodation.
- Revised its procedure for rigging of the pilot ladder (including mandatory use of inflatable lifejackets) and issued a fleet circular explaining the changes.

Considering the actions taken, there are no further recommendations.

[3] The Bahamas does not stipulate a need for additional assessment

Vessel particulars	
Vessel name	Fri Sea
Vessel type	General cargo
Flag / IMO number	Bahamas / 9229166
Registered owner	Kopervik Ship Invest AS
Manager	Kopervik Ship Management Poland Sp. z o.o
Classification Society	Registro Italiano Navale
Built	Kootstertille, Netherlands. 2001
Length / breadth / moulded depth	84.99m / 13.75m / 6.25m
Gross / net tonnage	2,601 / 1,428
Minimum safe manning	6 (within 200' of a place of refuge) / 8 (worldwide)

Voyage Particulars	
Departure port	Groveport, UK
Arrival port	Amsterdam, Netherlands
Distance / duration	220 nautical miles / 1 day
Cargo information	In ballast
Crew onboard	7

Marine Casualty Information	
Severity of casualty	Very serious marine casualty
Date / time	28 March 2024 / 22:50UTC
Geographical location	Humber Estuary, UK. 53° 35.1’N 000°02.4’E
Place onboard	Maindeck
Injuries / fatalities	One fatality
Damage / environmental impact	None
Ship operation	Underway
Stage of passage	Departure, pilot onboard
External environment	Wind: Southerly, BF6. Sheltered waters. Dark but with good visibility. Ebb tide. Sea surface temperature approximately 7°C