



Danish Maritime Accident
Investigation Board

SUMMARY REPORT

September 2014



CHR. HØY
Mooring accident on 5 February 2014

The Danish Maritime Accident Investigation Board
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The marine accident report is available from the webpage of the Danish Maritime Accident Investigation Board www.dmaib.com.

The Danish Maritime Accident Investigation Board

The Danish Maritime Accident Investigation Board is an independent unit under the Ministry of Business and Growth that carries out investigations with a view to preventing accidents and promoting initiatives that will enhance safety at sea.

The Danish Maritime Accident Investigation Board is an impartial unit which is, organizationally and legally, independent of other parties

Purpose

The purpose of the Danish Maritime Accident Investigation Board is to investigate maritime accidents and to make recommendations for improving safety, and it forms part of a collaboration with similar investigation bodies in other countries. The Danish Maritime Accident Investigation Board investigates maritime accidents and accidents to seafarers on Danish and Greenlandic merchant and fishing ships as well as accidents on foreign merchant ships in Danish and Greenlandic waters.

The investigations of the Danish Maritime Accident Investigation Board procure information about the actual circumstances of accidents and clarify the sequence of events and reasons leading to these accidents.

The investigations are carried out separate from the criminal investigation. The criminal and/or liability aspects of accidents are not considered.

Marine accident reports and summary reports

The Danish Maritime Accident Investigation Board investigates about 140 accidents annually. In case of very serious accidents, such as deaths and losses, or in case of other special circumstances, either a marine accident report or a summary report is published depending on the extent and complexity of the events.

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1. FACTUAL INFORMATION

1.1 Photo of the ship



Figure 1: CHR. HØY
Source: Frede Adolfsen

1.2 Ship particulars

Name of vessel:	CHR. HØY
Type of vessel:	Stern trawler
Nationality/flag:	Greenland
Port of registry:	Nuuk
IMO number:	7393688
Call sign:	OZQQ
Year built:	1974
Shipyard/yard number:	Kirksaeterorens Skipsverft As/18
Classification society:	Det Norske Veritas
Length overall:	40.41 m
Breadth overall:	8.71 m
Gross tonnage:	499
Deadweight:	422 t
Draught max.:	7.29 m
Engine rating:	809 kW
Service speed:	12.0 kn
Hull material:	Steel
Hull design:	Single hull

1.3 Voyage particulars

Port of departure:	Vestmanna, Faroe Islands
Port of call:	Hosvik, Faroe Islands
Type of voyage:	Coastal
Cargo information:	None
Manning:	8
Pilot on board:	0
Number of passengers:	0

1.4 Weather data

Wind – direction and speed:	3 m/sec
Wave height:	0.2 m
Visibility:	Good
Light/dark:	Dark
Current:	None

1.5 Marine casualty or incident information

Type of marine casualty/incident:	Occupational accident
IMO classification:	Serious
Date, time:	5 February 2014, 0200 LT
Location:	Hosvik, Faroe Islands
Position:	62 09.1 N – 006 56.1 W
Ship's operation, voyage segment:	Arrival – during mooring operation
Place on board:	Boat deck
Human factor data:	Yes
Consequences:	One crewmember injured

1.6 Shore authority involvement and emergency response

Involved parties:	Emergency services at Torshavn Hospital
Resources used:	One ambulance
Speed of response:	20 minutes
Actions taken:	Injured person brought to hospital.

1.7 The ship's crew involved in the accident

Master:	44 years old. Served at sea for 30 years. Employed in the company for 7 years.
Navigational officer:	45 years old. Served at sea for 30 years and part owner of the company operating the ship.
Engineer:	Served at sea for 25 years and in the company since 2007.
Injured rating:	25 years old. Served at sea for 4 years and employed in the company for approximately 2 years.

1.8 Scene of the accident

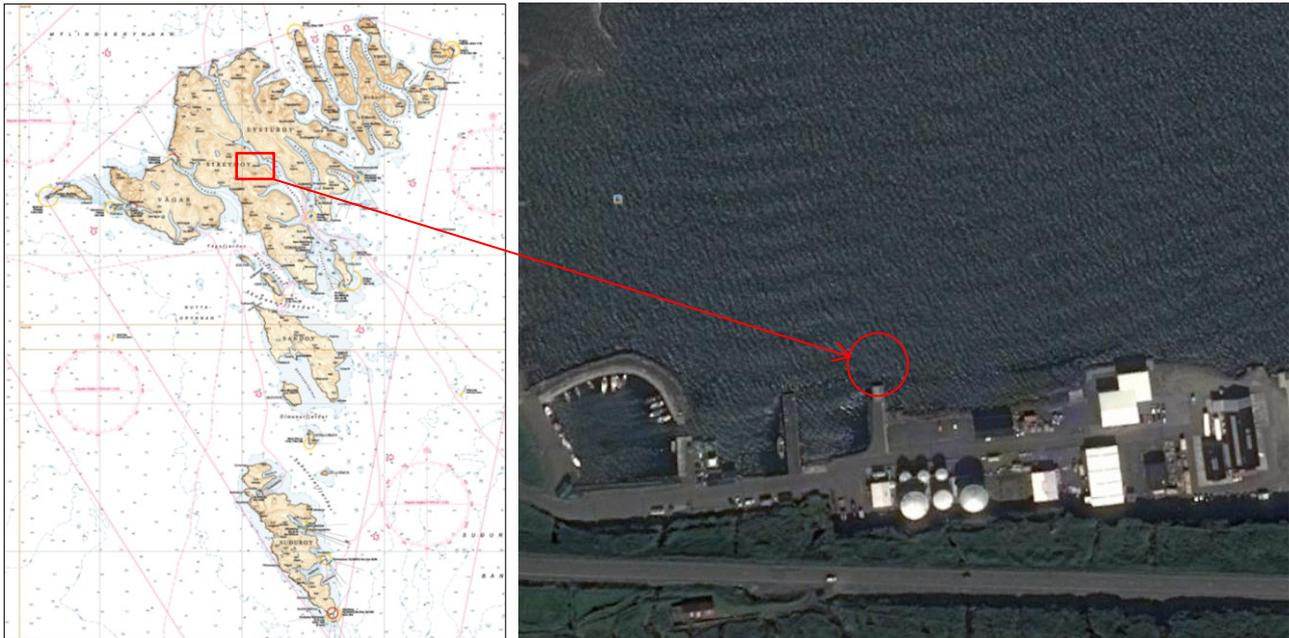


Figure 2: Pier where CHR. HØY was alongside.
Source: Danish Geodata Agency and Google Earth

2. NARRATIVE

2.1 Preface

On 5 February 2014, there was a serious occupational accident on board the Greenlandic fishing/guard ship CHR. HØY in Hosvik, Faroe Islands. The DMAIB has investigated the circumstances of the accident and this report is a summary of the findings.

2.2 Background

CHR. HØY was owned by Royal Greenland A/S and was operated by THOR P/F that was responsible for certification, manning and technical operation. It was used as a guard ship for offshore installations in the North Sea and as a tender ship for fishing vessels in Greenland.

The ship was brought to the Faroe Islands in 2013 for general repairs and refitting. On the day of the accident, the ship was moved from the port of Vestmanna to the port of Hosvik for repairs of the cargo refrigerating plant.

On board was a crew consisting of one Bulgarian, one Filipino, one Ukrainian, one Russian and four of Faroese nationality. Three ratings had been assigned to work on deck, whereof one was usually working as an oiler in the engine room. The official working language was English.

The crewmembers had not been hired to serve specifically on board CHR. HØY, but were also working on other company ships.

In the following, the time references are given as the local time on the Faroe Islands ZT (0).

2.3 Sequence of events

At 2140 on 4 February 2014, CHR. HØY departed Vestmanna heading for Hosvik; a voyage of approximately four hours. The mooring ropes were prepared just after departure so that they would

be ready for use on arrival. During the voyage the crewmembers were resting in the mess room and the engineer was doing his regular inspections and minor repair works.

At approximately 0150, the ship arrived in Hosvik and was to be berthed at the end of a pier with the starboard side alongside. The weather was good with a gentle breeze and smooth sea.



Figure 2: Pier where CHR. HØY was alongside
Source: DMAIB



Figure 3: Position of rating and spring line during the accident
Source: DMAIB

The berth was shorter than the ship and therefore the mooring lines had to be secured on bollards on the pier and on shore (figure 2). The plan was to approach the pier with the bow first, secure a spring line and use the propulsion and rudder to manoeuvre the ship alongside. Thereafter, the ship was to be moored 1/2 – i.e. by means of one headline and two spring lines. Two of the spring lines (wire ropes) came from the shore side. The ratings were to finish the mooring forward before they secured the moorings aft.

Manoeuvring the ship alongside went on according to plan. At approximately 0135, the ship was alongside and the ratings moored the forward part of the ship and, shortly after, went aft to prepare to secure the last mooring lines aft.

The ratings found that it was not possible to throw the heaving line ashore from the aft part of the ship. The ratings were specifically concerned about getting the slackened rope into the water while the propeller was running, because it was not buoyant and could therefore be entangled in the propeller.

The slack of the spring line was therefore brought to the boat deck under the railing (figure 3) by two ratings, where a heaving line was attached to it – while a rating would fasten the spring line onto the bits on the aft deck.

As the rating on the aft deck was pre-occupied with another task, the remaining slack of the mooring rope on the aft deck slowly went into the water. As the rope sunk, it went into the propeller and was quickly tightening. The engineer in the engine room heard the engine load change and heard noises from the gear.

Suddenly, as the rating on the boat deck prepared to throw the heaving line, the spring line tightened and the slack gathered on the boat deck went overboard. The lower leg of the rating got caught in a loop and, as the rope tightened, the leg got severely injured.

The navigational officer in the wheelhouse heard that something was wrong on deck and rushed to aid the injured rating. He applied a tourniquet on the injured leg and the rating was moved ashore and brought to the hospital in Torshavn.

2.4 The accident

Figures 5 and 6 show the area and position where the rating was positioned as he tried to heave up the slackened mooring rope and prepare the heaving line. The rope was pulled under the lower bar on the railing, and as the rope was piling up on deck, there was little room left for the rating to position himself in such a way that he was clear of the rope if an unexpected event occurred. The rope was heavy and would slide over board if the rating did not hold on to it.

The rope stored on the aft deck was accidentally slacked out of the aft fairlead (figure 4) enabling the rope to sink and drift into the rotating propeller. The rating who was standing on the aft deck was occupied by another task and therefore did not notice the rope sliding out of the fairlead and into the water.

As the rope was caught by the propeller and tightened, his leg was trapped under the bar of the railing as shown on figure 6.



Figure 5: Boat deck where the accident occurred
Source: DMAIB

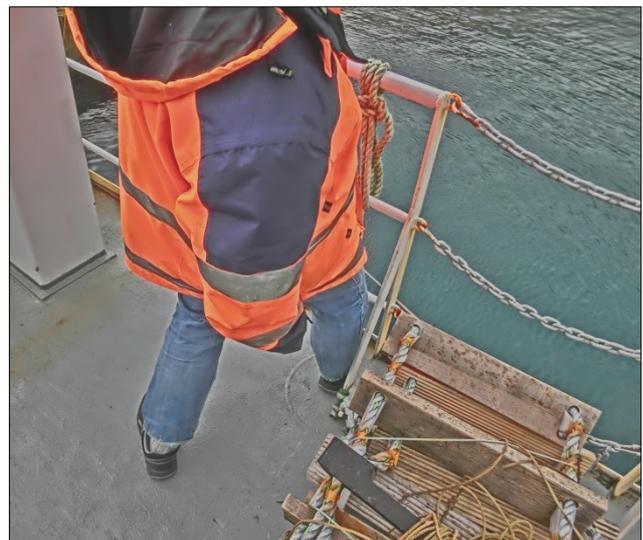


Figure 6: Approximate position of rating
Source: DMAIB

This particular way of carrying out mooring had not been addressed in the risk evaluation, as it was a situation that had not been foreseen.

2.5 Mooring arrangements and operations

CHR. HØY was built as a stern trawler in 1974 and had been refitted to serve as a guard ship and tender ship in 2012. The mooring arrangements had not been modified and consisted of one combined mooring and anchor winch on the foredeck and mooring bits on the aft part of the ship (figures 4 and 5). There were no mooring winches on the aft deck.



Figure 4: Mooring bitts on aft deck
Source: DMAIB



Figure 5: Mooring arrangement on foredeck
Source: DMAIB

All mooring lines were handled manually, and the winch on the forward station was used only for tightening the mooring line before it was fastened on the bitts. It was usually not necessary to tighten the mooring lines in order to keep the ship alongside, which also made continuous adjustments of the mooring lines unnecessary.

Different types of mooring ropes were available, some of which were buoyant and some of which were not. In addition, wires from shore side with rope tails were used as seen on figure 4 above.

During the new crewmembers' general familiarization with the ship, specific attention was not paid to the mooring operation. The familiarization focused on the general layout of the ship and the use of life-saving equipment. In relation to mooring operations, work with formal risk assessments was not a part of the normal routine.

The mooring operations were, to a large extent, subject to local adaptation as the ship was moored under varying conditions, e.g. next to other ships or alongside short piers.

Time was of little importance as there was no schedule or cargo operation to take into consideration; therefore, the crewmembers were not in a rush to finish the mooring operations.

3. ANALYSIS AND CONCLUSIONS

The accident occurred as several events accumulated into a situation that had not been foreseen by the crewmembers and the ship's operator. I.e. the layout of the pier necessitated a different way of handling the heaving line. The mooring rope to be used as a spring line was not buoyant and was therefore caught in the rotating propeller.

CHR. HØY was equipped and functioned as a tender ship and as a guard ship. The mooring arrangements were designed and the mooring operation was carried out as a result of the ship's use and dimensions. This meant that the mooring rope was handled manually with a high degree of adaptation to local conditions, e.g. pier layout or mooring alongside other fishing ships. Varying local conditions will make planning and risk mitigation difficult as the mooring process is dependent on the knowledge gained after the ship's arrival – this is particularly relevant when mooring alongside other fishing vessels.

These circumstances made the rating move the mooring rope to the boat deck and pull the rope up to an area that was neither designed nor suitable for handling mooring ropes – mainly due to the space restriction imposed on the rating unknowingly, making him place himself in a hazardous situation.

Having a unified overview of the task at hand and of how to mitigate uncertain situations is essential when mooring a ship. One of the key results of the mitigation is to agree on stop rules for when to terminate the mooring process, thereby empowering the ratings and officers to decide not to seek untried practical solutions that might be hazardous.

This particular accident reveals how the design of mooring arrangements challenges the safe mooring practices of the crewmembers – as also addressed in previous reports from the DMAIB¹.

4. PREVENTIVE MEASURES TAKEN

After the accident, the operator of the ship has changed the type of mooring ropes used on all ships to a type that is buoyant. Furthermore, folders on safe mooring have been sent to the ships with the aim of changing the risk assessments made in connection with mooring operations.

¹ ATAIR J – Mooring accident on 3 October 2013.
TORM REPUBLICAN – Occupational accident on 3 December 2013.
PACHUCA – Occupational accident on 14 December 2012.