



**Bundesstelle für Seeunfalluntersuchung**  
**Federal Bureau of Maritime Casualty Investigation**  
Federal Higher Authority subordinated to the Federal Ministry  
of Transport and Digital Infrastructure

## **Investigation Report 20/20**

### **Very Serious Marine Casualty**

**Fatal person-overboard accident  
involving a crew member  
of the fishing vessel HELEN MARY  
in the North Atlantic  
on 30 January 2020**

Information as of 29 January 2021

This investigation was conducted in conformity with the Law to improve safety of shipping by investigating marine casualties and other incidents (Maritime Safety Investigation Law – SUG). According to said Law, the sole objective of this investigation is to prevent future accidents. This investigation does not serve to ascertain fault, liability or claims (Article 9(2) SUG).

This report should not be used in court proceedings or proceedings of the Maritime Board. Reference is made to Article 34(4) SUG.

The German text shall prevail in the interpretation of this investigation report.

Issued by:  
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## 1 SUMMARY

The German-flagged fishing vessel HELEN MARY was in international waters north-north-west of the Isle of Lewis (Hebrides) when the accident happened on the night of 29–30 January 2020.

The crew had just set up the trawl and started to fish when sensors on the bridge indicated a large shoal of fish in front of the net. To prevent the destruction of the fishing gear, the net was immediately heaved from the bridge. The aim was to catch a manageable portion of the shoal. At the same time, the crew was called back to the deck by means of an audible signal. Since the six fishermen working on the deck assumed they would be performing a different task because the period between launching of the fishing gear and the signal being sounded was unusually short, they did not put on inflatable work vests. A south-westerly wind of 4 Bft prevailed at that time.

During the works related to hauling in the fishing gear, one of the fishermen climbed halfway on to the bulwark so as to lean out and reach for an auxiliary line from there in a kneeling position. He lost his balance and fell into the water in the process. The other fishermen quickly lost sight of him. One of the fishermen threw out two lifebuoys equipped with a signal light.

The bridge was informed of the incident immediately after the fall. The necessary measures, including manning the lookout positions and launching the workboat, were set in motion from there. The developing search operation was supported by seven other fishing vessels. A helicopter from HM Coastguard was additionally deployed later on.

The search was unsuccessful to begin with. Since the inflatable work vest had not been donned, its personal locator beacon (PLB) was not available to support the search operation. It was only possible to recover the casualty three hours later. An emergency doctor who flew to the ship confirmed the death.

The HELEN MARY returned to IJmuiden in the Netherlands and this is where the BSU began its investigation of the accident.

The investigation uncovered evidence to suggest there is a need for improvements in communication between the bridge and working deck, as well as in responsibilities on the working deck. A recommendation on ratification of the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F), which has already entered into force under international law, has also been formulated.

## 2 FACTUAL INFORMATION

### 2.1 Photograph of the ship



Figure 1: Fishing vessel HELEN MARY

### 2.2 Ship particulars

Name of ship:	HELEN MARY
Type of ship:	Fishing vessel
Flag:	Germany
Port of registry:	Rostock
IMO number:	9126364
Call sign:	DQLI
Registration number:	ROS-785
Owner:	Oderbank Hochseefischerei GmbH
Shipping company:	Oderbank Hochseefischerei GmbH
Year built:	1996
Shipyard:	YVC Yselwerf B.V.
Classification society:	DNV GL
Length overall:	116.7 m
Breadth overall:	17.7 m
Draught (max.):	8.2 m
Gross tonnage:	7,278
Deadweight:	6,521.4 t
Engine rating:	5,299 kW
Main engine:	MAK 9M32
Hull material:	Steel
Hull design:	Double bottom
Minimum safe manning:	22



### 2.3 Voyage particulars

Port of departure:	IJmuiden, the Netherlands
Port of call:	IJmuiden, the Netherlands
Type of voyage:	Merchant shipping/international
Cargo information:	Fish
Manning:	50
Draught at time of accident:	Df = 6.2 m, Da = 8.2 m
Number of passengers:	0

### 2.4 Marine casualty or incident information

Type of marine casualty:	Very serious marine casualty; person overboard with subsequent loss of life
Date, time:	30/01/2020, 0310 <sup>1</sup>
Location:	North Atlantic, Hebrides
Latitude/Longitude:	$\phi$ 59°12.18'N $\lambda$ 006°34.5'W
Ship operation and voyage segment:	High seas
Place on board:	Working deck, starboard side of stern
Human factors:	Yes
Consequences:	Several ships and a helicopter search for casualty; inflatable boat recovers person after more than three hours; person taken ashore by helicopter after being pronounced dead by an emergency doctor who had been flown in

Extract from Navigational Chart 249,  
Federal Maritime and Hydrographic Agency (BSH)

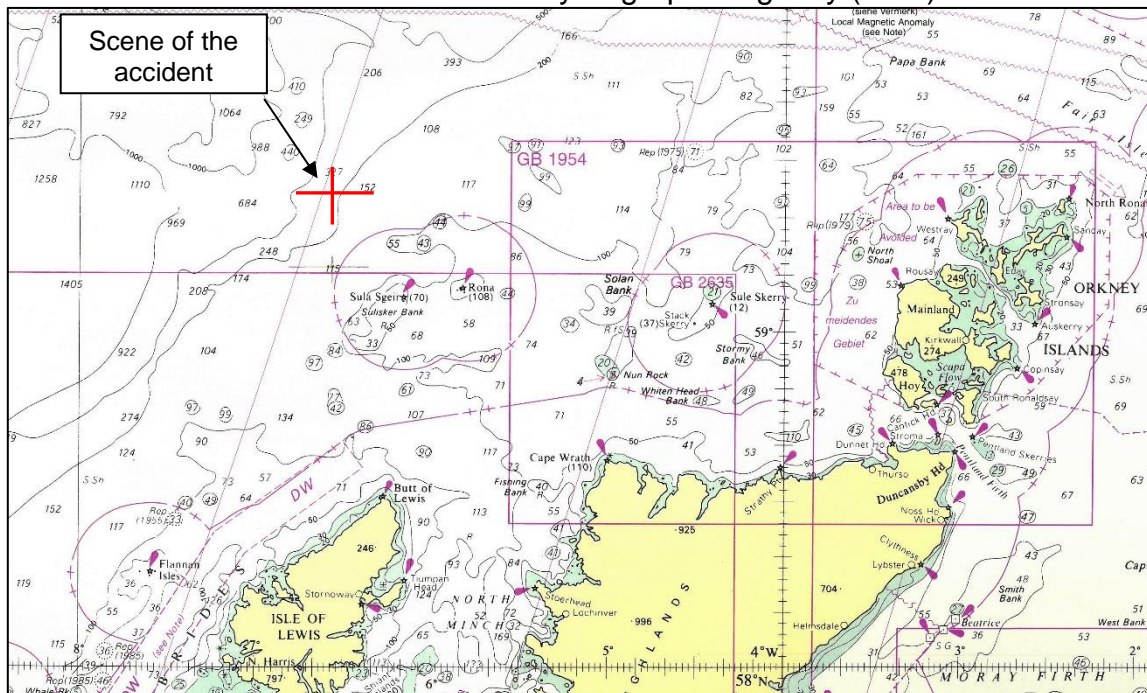


Figure 2: Navigational chart showing the scene of the accident

<sup>1</sup> All times shown in this report are Central European Time = UTC+1.

## **2.5 Shore authority involvement and emergency response**

Agencies involved: HM Coastguard, Federal Police – Maritime Department, BSU, UK Marine Accident Investigation Branch (MAIB), Scottish police

Resources used: Coastguard helicopter

Actions taken: Initiation of the person-overboard procedure on board the HELEN MARY; launch of workboat; information about accident to HM Coastguard; search for casualty by several fishing vessels, workboats and a coastguard helicopter, location and recovery of casualty on board the HELEN MARY; deployment of an emergency doctor, who was taken to the HELEN MARY by helicopter; establishment of death of casualty by emergency doctor and transportation of body ashore

### 3 COURSE OF THE ACCIDENT AND INVESTIGATION

#### 3.1 Course of the accident

The HELEN MARY left her usual port of departure, IJmuiden, on the evening of 22 January 2020 for this particular fishing trip. The fishing area west of the Shetlands was reached on the morning of 24 January 2020. The fishermen pursued migrating schools of mackerel over the days that followed. The ship reached the sea area north-north-west of the Isle of Lewis in the Hebrides on the afternoon of 29 January 2020.

The following version of events is based on the written statements and the outcome of interviews with various crew members who had been employed on the ship's bridge and working deck.

The ship was in international waters on the night of 29-30 January 2020. The search for fish was restarted at 0130. After fish were detected using the electronic devices, the HELEN MARY was turned on to a course of 260°. A west to south-westerly wind of 4 Bft prevailed at the time. At 0227, three short bell signals notified the crew members on the working deck that they were to start work there. The working deck was then manned by six crew members. Two deck officers were on the bridge, one of whom commanded the ship from the central conning position (Figure 3).



Figure 3: Conning position

The other officer operated the winches from the console at the aft edge of the bridge (Figure 4). He was also responsible for communication with the working deck. Consequently, this officer and the bosun<sup>2</sup> on the working deck both wore a headset<sup>3</sup>. The bosun's headset was fitted into his helmet (Figure 5).

<sup>2</sup> The bosun holds a foreman's position of sorts and is also referred to as 'first hand'.

<sup>3</sup> Combination of a headphone and microphone worn on the head.



Figure 4: Winch console at the aft edge of the bridge

The cables leading to the net are lowered or hoisted from the winch console.



Figure 5: A comparable helmet with integrated headset is shown on the left

The net was set up without any irregularities. This task was completed at 0243. The ship then turned around and sailed on a reciprocal course. They started to lower the two warps at 0248 after turning. This was done to lay out the net to the required depth. All six crew members left the working deck and returned to the superstructure, where most of them waited in the changing room. The working deck is not visible from this room. The fishermen assumed they would be needed again only after quite some time to haul in the fishing gear and empty the net. The bridge started to hoist the warps only a short while later at about 0302. At the same time, the signal for the crew of the working deck (three short rings) called them back to the deck.

When the fishermen reached the working deck, they noticed that the trawl boards were already back in their stowage position. This surprised them because they had not heard any interruption in the operation of the warp winches previously.

This is usually the case because once the fishing gear is fully set up, the vessel normally continues to proceed in this condition for some time before the net is hauled back in. Since the fishermen were expecting to perform another task, none of the six crew members donned an inflatable work vest<sup>4</sup> before leaving the superstructure. Although the actual situation on the deck was recognised, none of the fishermen returned to the superstructure to fetch or put on an inflatable work vest before they began hauling in the fishing gear.

After the fishermen had secured the trawl boards in their stowage position, the upper and lower bridles consisting of steel wire were hoisted further. The six fishermen separated for the other activities. The bosun took up his position in the middle of the stern so as to monitor the work. Two fishermen went to the port side. The casualty and the fifth fisherman were employed on the starboard side. The sixth fisherman (crane operator) was located on the lower platform at the crane's control position.

The net to net winch connection should be established after the bridles are hoisted via the warp winches. During this work (see points 3.3.2 and 3.3.3 for more details), one of the two fishermen working on the starboard side fell overboard at 0310. The statements indicate that three fishermen saw the actual fall. One of them was the bosun, who at that moment had moved back to the middle of the ship from the port side, where he had been assisting. Another was the crane operator. In addition, the deck officer operating the winches from the bridge also claims to have seen the person fall overboard.

The fisherman who was working with the casualty and therefore in close proximity did not see the fall. He had turned away at that moment to hang a pole with hooks back on its stowage position.

The casualty first fell on to a cable leading from the ship into the water and was able to hold on to it briefly. He then slipped off and drifted towards the net, which he tried to take hold of.

The crane operator initially attempted to make the bridge aware of the incident by calling and waving. Then he took hold of a nearby lifebuoy equipped with a signal light. The crane operator threw the lifebuoy to the casualty when it was no longer possible for the latter to hold on to the net. At this point, the ship was still moving ahead. The ring landed in the water about 5 m away from the casualty. The signal light illuminated immediately. However, the casualty was unable to grasp the lifebuoy.

The crane operator then tried to throw out another lifebuoy equipped with a signal light, which was attached to a line.

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<sup>4</sup> A lifejacket comprising a folded buoyancy device as the main component, which inflates automatically on contact with water or after manual activation and then rotates wearers onto their back to keep the respiratory tract above water.



This was not immediately possible in the commotion because he could not get it out of the bracket. When he was able to turn back towards the casualty and throw the lifebuoy, the latter was already further astern and partially submerged. The fishermen at the stern then lost sight of the casualty.

The skipper had been informed in the meantime and the person-overboard alarm sounded. The crew members tasked with manning and deploying the boat hurried to their station and started preparations for launching the boat. However, the fast rescue boat on board for this purpose was not used. Instead, the crew made ready the much larger and more powerful motorised rigid inflatable boat, which is stowed on deck in front of the bridge. This boat can also be launched with a crane. It is the normally used workboat of the ship and, in the opinion of the crew, far more suitable.



Figure 6: Large rigid inflatable boat in front of the superstructure

Other crew members manned the 13 lookout positions. By the time the skipper took charge, the inflatable boat had already been launched with three crew members on board. The skipper could see the two signal lights on the lifebuoys from the winch console. To improve manoeuvrability, the net was opened<sup>5</sup> at the codend and the catch released. The net was then hoisted in. At the same time, the skipper set the ship on a reciprocal course to return to the position of the accident. At this point, it was still assumed on the bridge that the casualty was wearing his inflatable work vest. This was combined with the idea that they would locate and rescue the casualty with the aid of the PLB fitted to the inflatable work vest.

In the meantime, one of the officers had requested assistance from the nearby fishing vessel AFRIKA (registration number: SCH24) at 0320.

<sup>5</sup> Back end of the net where the fish accumulate. See also Figure 12.

This ship then took over the role of on-scene coordinator. This vessel also lowered an inflatable boat into the water later on at about 0400 with a view to directly approaching the lifebuoys and searching in their immediate vicinity.

The skipper of the HELEN MARY contacted the Scottish coastguard service and informed it about the situation. He requested helicopter assistance for the search. At that time, it was still assumed on the bridge that the casualty was wearing an inflatable work vest. However, this point was verified because the PLB signal was not visible on the electronic navigational chart. Shortly afterwards, the skipper was notified that the casualty had not donned an inflatable work vest.

Other fishing vessels assisting in the search for the casualty comprised the FELUCCA, ANNIE HILLINA, CAROLIEN and GENESIS. They were joined by the ZEELAND and an Irish fishing vessel later on. The AFRIKA assigned search areas.

Only the casualty's helmet was sighted to begin with. The crew of the FELUCCA identified a person in the water at 0452. They lost visual contact again shortly after and it was not even possible for the helicopter, which had started to assist in the search in the meantime, to identify anything.

Since the weather had deteriorated during the search – the ship's command of the AFRIKA reported a wind force of 5–6 Bft from south-south-west, swell of 2.5 m and a water temperature of about 10 °C in its statement – and the crews of each boat were fatigued, the ship's commands of the HELEN MARY and AFRIKA decided at 0545 to take the inflatables back on board. According to the HELEN MARY's skipper, visibility was also impaired by light rain and/or snowfall, as well as some fog.

One of the ship's lookouts sighted the casualty at the bow of the ship shortly after the AFRIKA's boat had been taken on board again at 0602. Although the AFRIKA stopped, her crew was unable to maintain visual contact. The FELUCCA and the ANNIE HILLINA then arrived in the immediate vicinity. At 0610, the ANNIE HILLINA's crew succeeded in moving close enough to the casualty to secure him to the ship with a line.

The HELEN MARY's inflatable boat was lowered into the water again for the recovery and the ZEELAND's boat joined her to provide assistance. The HELEN MARY's boat was able to take the casualty on board at 0615. The inflatables returned to their respective ship shortly after. The search and rescue operation finished at 0630.

Due to the situation in which the casualty was found and the three hours that had passed before he was recovered, it was assumed on board the HELEN MARY that he was no longer alive. A doctor who had been flown to the ship confirmed this officially at 0800. The body was then flown ashore by the coastguard helicopter.

### **3.2 Subsequent events**

An inspector from the UK's MAIB notified the BSU of the accident on the morning of 30 January 2020. The BSU then contacted the representative of the shipping company and the Western Isle Police (Stornoway police station). When it became known that the casualty was a Lithuanian national, the marine safety investigation authority was also informed there.

It was agreed subsequently with the HELEN MARY's shipping company that the ship would be surveyed when she returned to the port of departure. This survey took place and the crew members directly affected by the incident were questioned on 10 February 2020 in the port of IJmuiden. The ship had arrived there on the previous night. The investigation on board was conducted jointly with officers of the Maritime Department of the German Federal Police, who were there to investigate the death.

### **3.3 Investigation**

#### **3.3.1 HELEN MARY**

The HELEN MARY is a German-flagged fishing vessel.

The Ship Safety Division (BG Verkehr)<sup>6</sup> issued an International Fishing Vessel Safety Certificate for the ship on 21 June 2019. The classification society (DNV GL) issued a classification certificate on 14 November 2017 based on a survey performed on 28 December 2015. Annual intermediate surveys were performed on 16 November 2016 and 17 November 2017. The intermediate survey was performed on 22 January 2019. Accordingly, the HELEN MARY possessed valid certificates.

The HELEN MARY is equipped with all the technical equipment necessary for navigating the ship and catching fish. The electronic navigational chart system installed is not officially approved for navigation. To assist with night-time operations, the ship is equipped with a night vision system that rotates through 360° for the immediate vicinity.

The HELEN MARY is equipped with a VR-3010 simplified VDR made by Furuno. VDRs must be inspected annually. As part of the comments on the draft, the shipping company submitted data on the verification of the voyage data recorder. According to this, the last annual test carried out by a certified company took place on 31 December 2019.

The HELEN MARY is a freezer trawler, which means she has the equipment needed to immediately freeze unprocessed fish in blocks. The ship has large frozen storage facilities in which blocks of fish packed in cartons can be kept for prolonged periods. The ship also has tanks in which fish not immediately ready for processing can be stored alive.

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<sup>6</sup> BG Verkehr: *Berufsgenossenschaft Verkehrswirtschaft Post-Logistik Telekommunikation* [German Social Accident Insurance Institution for Commercial Transport, Postal Logistics and Telecommunication].

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The ship catches fish using the trawl method. This means that a net on two long cables referred to as warps is towed behind the ship. The HELEN MARY was engaged in pelagic fishing at the time of the accident. This means that the trawl is floating at depths of 1,000 m maximum without ground contact.

The HELEN MARY is not equipped with a stern ramp upon which the entire net can be hoisted. The fish are transported out of the net to the deck by means of a pump. To this end, the codend is hauled on to the deck after the trawling hardware has been hoisted. The pump is then fixed there and both the codend and pump are lowered back into the water together by means of the crane. The net is positioned directly at the stern in the process.

In place of a stern ramp, a large horizontal tubular roller spans most of the stern section, closing it off aftermost. When the net is hoisted on the deck, which is necessary for covering longer distances without catching fish, the fishing gear is protected by the roller rotating with it (see Figures 13 and 14). A fixed bulwark surrounds the remainder of the working deck.

The crane is mounted on the upper of two superimposed platforms at the stern of the ship. The crane operator's control position is installed on the lower platform. The overall structure also contains additional drums for cables, lines and hoses, guide rollers, as well as two stowage spaces for net buoys.



Figure 7: View of the stern from the level of the winch console

Fish transported on the deck by means of the pump arrive at the ship's lower platform and are then fed to storage tanks or for processing via pipes.

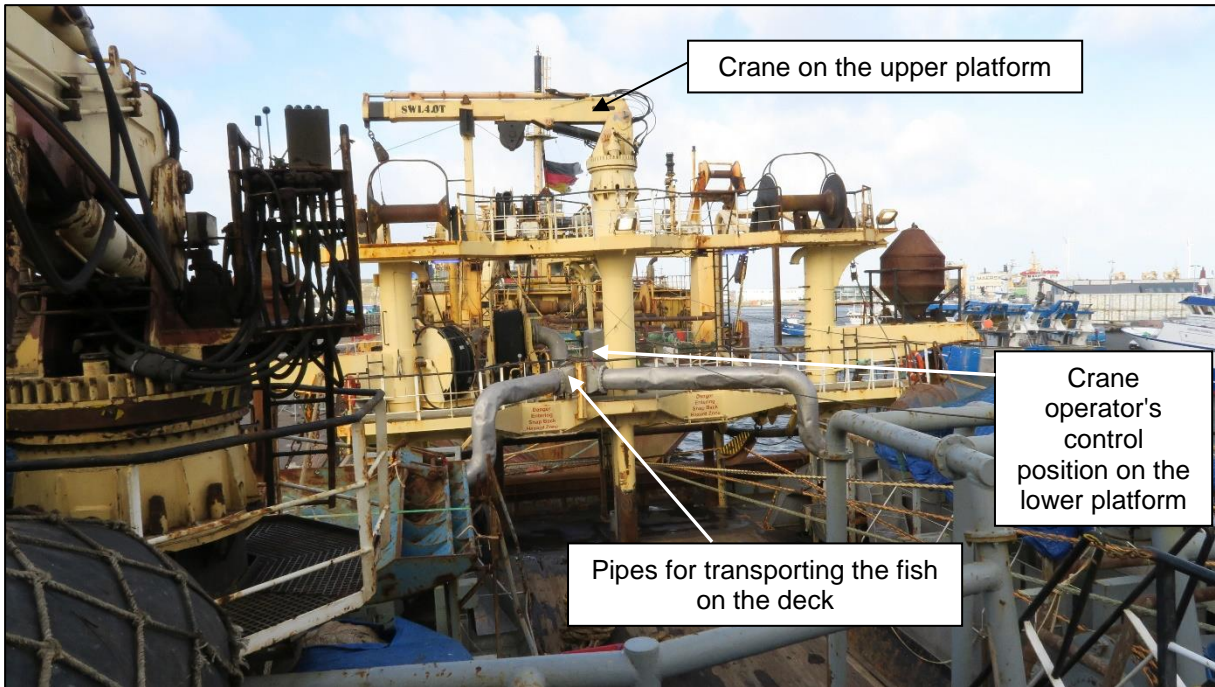


Figure 8: View towards the stern of the working deck



Figure 9: View of the stern and the two platforms

Channels are installed to the left and right of the work area into which the fish can be fed for processing. All the lines at the level of the working deck directed aft in this Figure are used for mooring the ship.





Figure 10: View from the lower platform towards the bow

### 3.3.2 Hoisting the net

The below explanation of the hoisting operation is confined to information needed to understand the accident. Figures 13-19, which explain the various operations in more detail, were taken by the crew after the accident. The skipper provided the photographs in the course of the investigation.

Four winches installed on the deck are used for setting up and hauling in the fishing gear. Two of them are warp winches, which carry the long trawl cable. The other two are net winches. The other part of the fishing gear is wound up on them.

The working deck is relatively narrow but there is sufficient space for performing the necessary works.

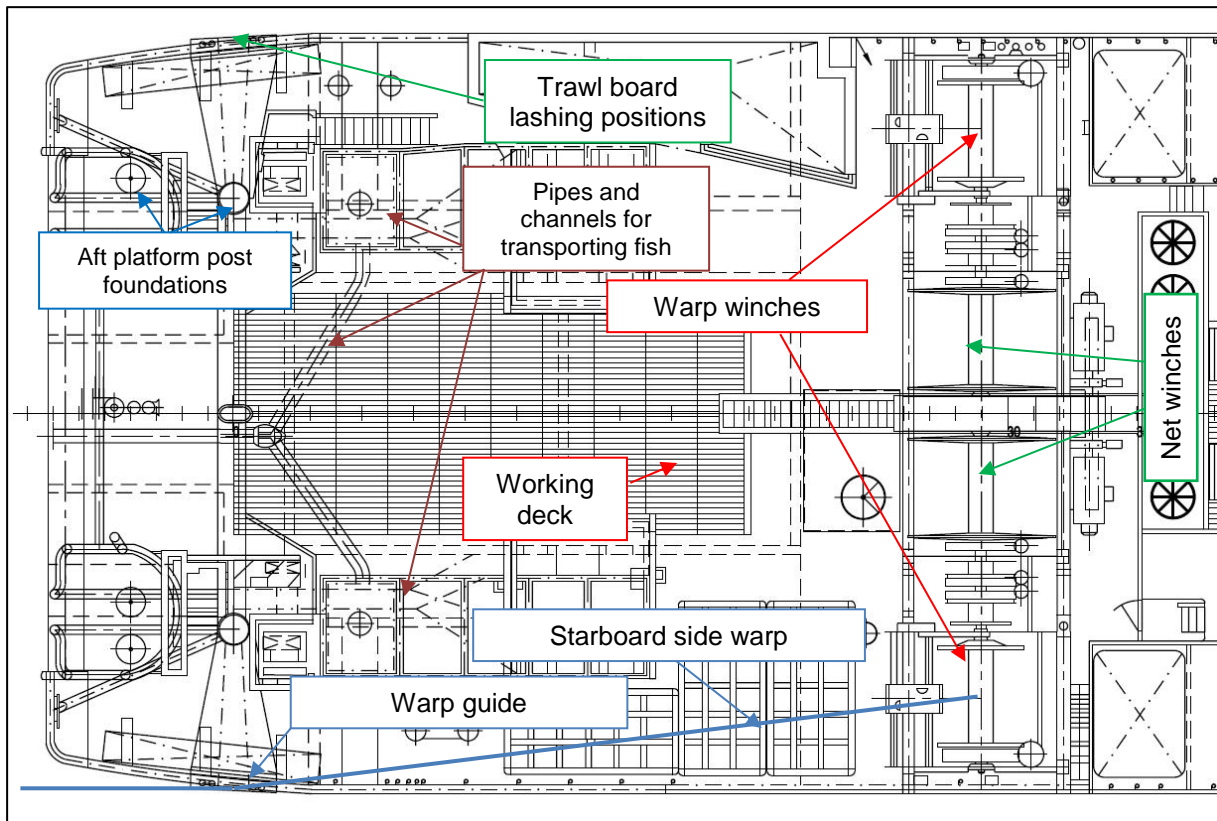


Figure 11: Aft section of main deck (working deck)

The two steel-wire warps run astern from the winches on each outer side of the ship to the respective trawl boards in the water. They are each directed once over a pulley, which is suspended outside and below the lower platform.

When the fishing gear is hoisted for hauling in enough for the trawl boards to be at platform level on each side of the ship, the trawl boards are lashed in that position. The upper and lower bridles are then hoisted further using the warp winches until the net is near the stern. To continue hauling in the fishing gear, the connection from the upper and lower bridle to the net (see Figure 12) must then be released so as to establish a connection with the net winches. To this end, the upper and lower bridles are connected on each side to the lines made ready on the working deck by means of two auxiliary lines. The fishing gear is thus directed from the outside between the posts of the aft platform. The net winch can then hoist the remainder of the fishing gear (or the net) further towards the ship.

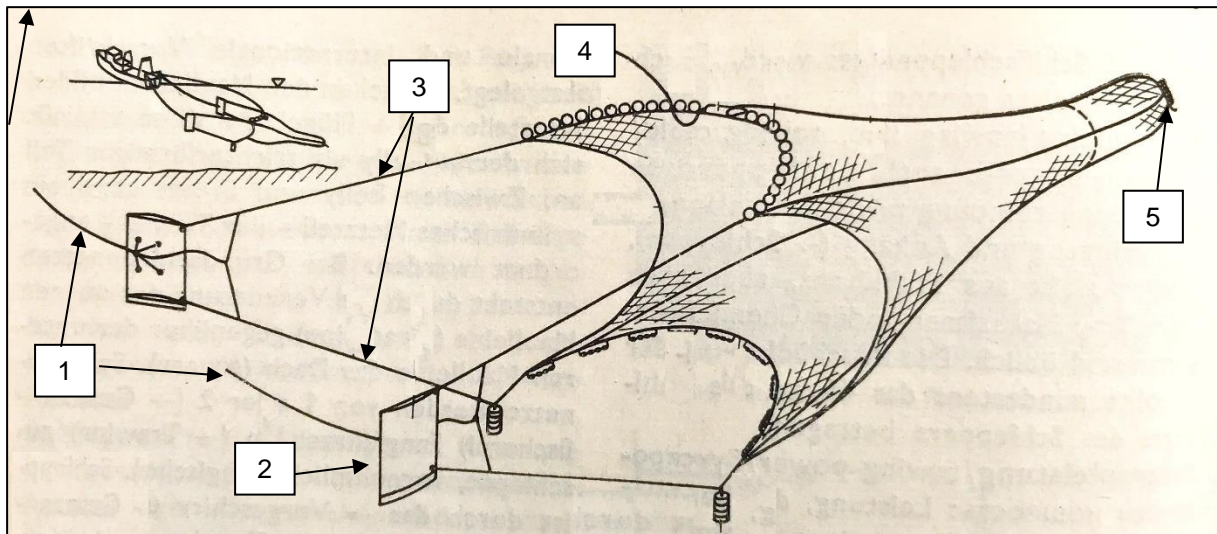


Figure 12: Basic design of a pelagic trawl<sup>7</sup>

1: Warp. 2: Trawl board. 3: Upper and lower bridle. 4: Cable for net sounder. 5: Codend with cod line.

During the hauling in operation, the auxiliary lines, made of light but high-tensile synthetic fibre, were already attached to the fishing gear in the usual manner. The bridles hung close to the stern after they were hauled in.

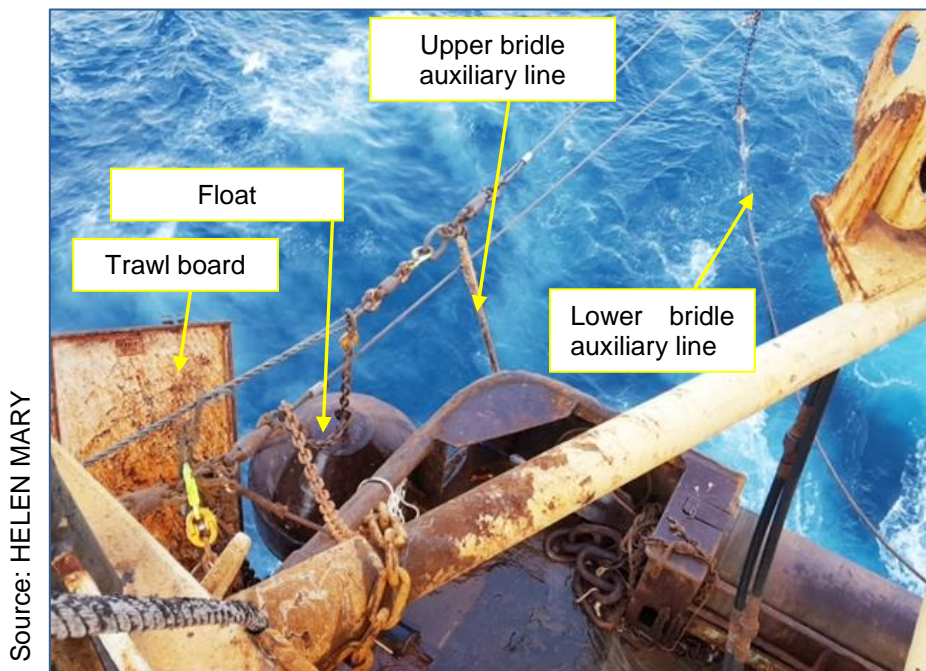


Figure 13: Starboard workstation at the stern

Both auxiliary lines are visible in Figure 13. At about 14 m in length, the lower bridle auxiliary line is already connected to the line coming from the net winch.

<sup>7</sup> U. Scharnow et al.: Transpress Lexikon Seefahrt, 1976, page 426, edited by the BSU.



Figures 14 and 15 show how the upper bridle auxiliary line, which is about 4 m in length, is collected using a metal pole so as to pull it on to the deck.



Figure 14: View of the workstation from amidships outside to starboard

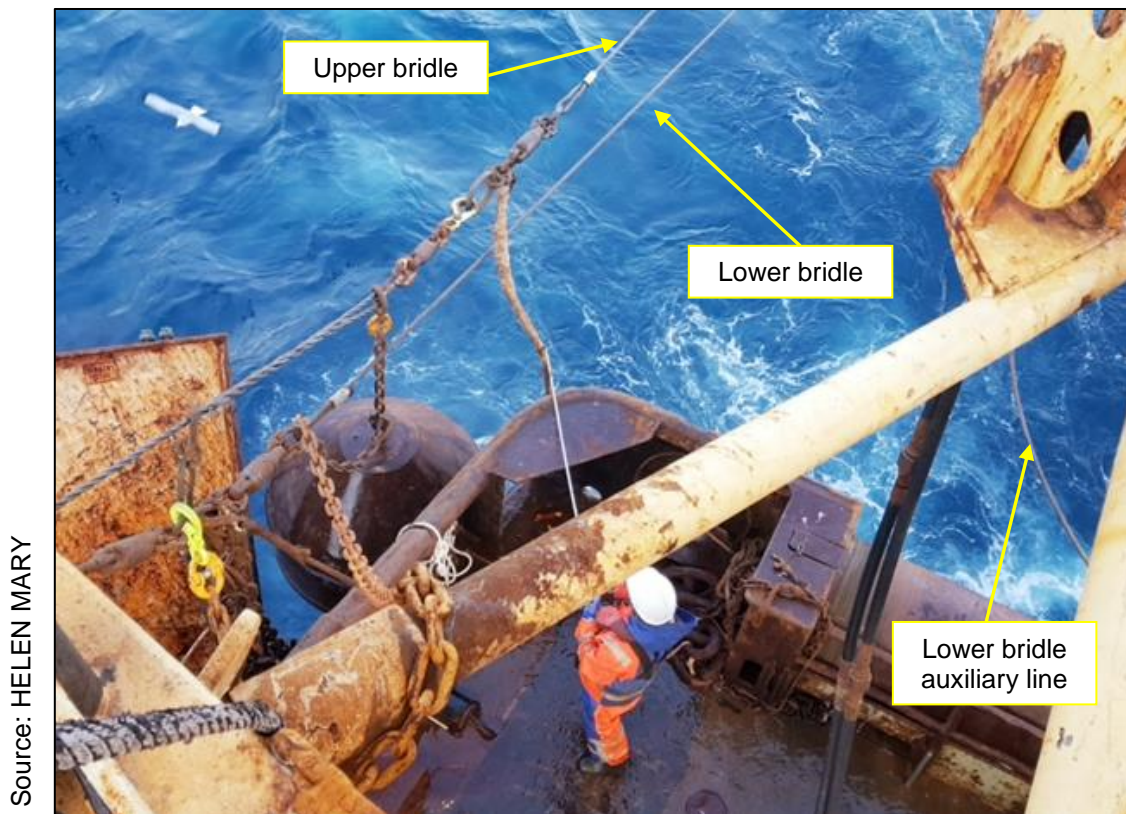


Figure 15: View of the workstation at the stern on the starboard side  
The fisherman is also using a pole to reach the auxiliary line here.

After use, the fisherman hung the metal pole back on its stowage position (Figures 16 and 17).

Source: HELEN MARY



Figure 16: View from stern to bow

Source: HELEN MARY



Figure 17: View from bow to stern

This is the starboard workstation at the stern.



Figure 18 shows the configuration when both auxiliary lines are connected to the lines coming from the net winch. The bridles are then lowered and the net winch hoisted so that the load is transferred from one winch to the other. When the net winch is supporting the entire load, the bridles are released from the fishing gear. After that, there is no connection from the warp winches to the net.

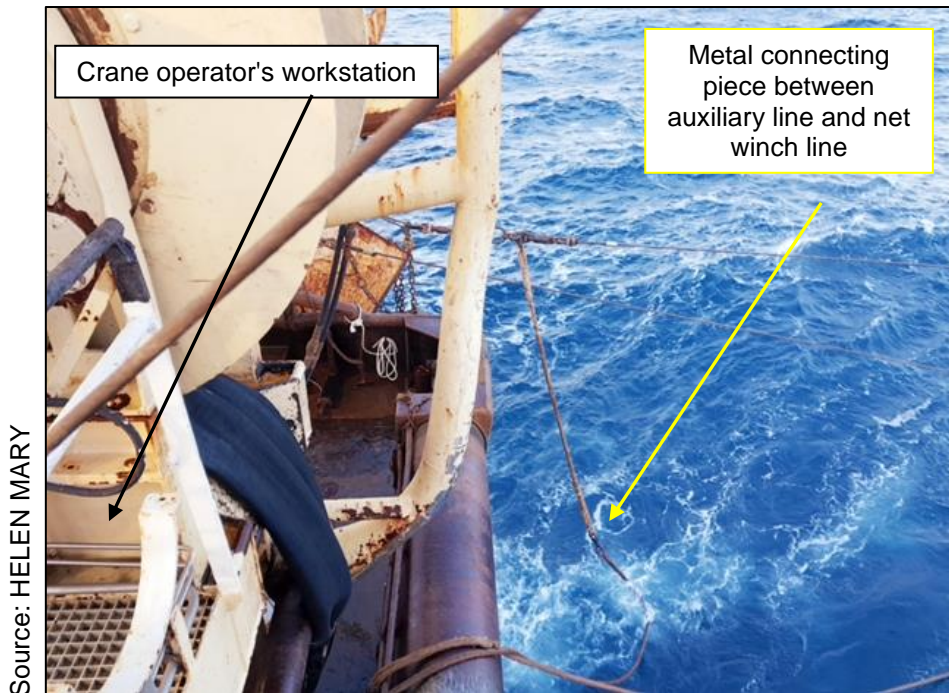


Figure 18: View from lower platform to stern

A connection is established with both auxiliary lines. The warp winches are still supporting the load.

The next step is to hoist the fishing gear and thus the net by means of the net winch until the fish are concentrated in the codend and can be pumped out from there once the pump is attached.

### 3.3.3 Accident

No data from the VDR were available for the investigation because the ship's command failed to activate the emergency backup. Accordingly, it is not possible to make statements with regard to specific times, courses and speeds or conversations between the bridge and working deck. The account of the course of the accident is therefore based on the written and oral information provided by the crew members involved.

The crane operator saw the immediate course of the accident. In his statement submitted at the beginning of the interview, he declared that he saw the casualty climb on to the bulwark at the outer corner of the stern so as to reach for the auxiliary line with one hand. He then knelt with one leg on the bulwark and stood in the hawsehole



there with his other leg. His upper body stretched over the bulwark. He lost his balance and fell overboard in the process. As he was falling, his upper body first struck the lower bridle.

The bosun stated that he had previously assisted on the port side due to a problem there. He understood that the connections on the starboard side were already made when he turned to the port side to help there. When he turned back towards the centre, he saw the casualty kneel with one leg on the starboard bulwark, lean out and then lose his balance. He notified the bridge of the incident via the available voice communication link immediately after the fall.

Source: HELEN MARY



Figure 19: Crane operator's workstation

Position from which the fall from a height into the water was observed.

The fisherman working with the casualty stated that as always they first connected the long auxiliary line to the lower bridle. The casualty then put it back overboard for reasons of safety in the usual manner. While this was happening, he himself pulled up the shorter auxiliary line with the help of the pole and connected it with the line from the warp line winch. He then hung the pole back on its stowage position. When he turned back towards the stern, the casualty was no longer on the deck. He suspected that the casualty had not noticed beforehand that he had already made the second connection. This was not immediately apparent because the end of the auxiliary line was in the water. Therefore, the casualty had probably tried to reach the auxiliary line by hand. Since the auxiliary line was much heavier due to the now submerged metal connecting piece, the casualty possibly misjudged its weight, lost his balance because of this and fell overboard.

All the fishermen interviewed stated that they were surprised by the unexpectedly short period between the net being set up and hauled in. When interviewed, the officers stated that the sensors had detected a large shoal of fish in front of the net immediately after it was set up. Since it is only possible to catch a certain amount of fish in one haul,

the net was then immediately hoisted again to protect the fishing gear. This caused the net to rise again and had the intended effect that only the upper part of the shoal was caught.

### 3.3.4 Scene of the accident

When the ship was inspected, the height of the bulwark was measured at 1.03 m. The upper edge of the hawsehole in this area and the bollard next to it are 0.73 m and 0.46 m high, respectively.



Figure 20: Starboard workstation at the stern

The investigators believe that the scene of the accident cannot be seen from the bridge (the winch console, in particular). A direct view of the work area on each side of the stern is not possible due to the hardware installed and the equipment stored on the sides (see Figure 7). However, the view of the middle of the stern is also limited due to the considerable distance, as well as partially obscuring protective tubes and other objects. As a consequence of this, the winch console on the bridge is equipped with large screens. In addition to fishing-related information, these also display images from cameras installed on board (Figure 21).

The scene of the accident was not visible by camera when the accident happened because the camera that was installed there had not yet been replaced following damage.



Figure 21: Screens for displaying information and camera images

### 3.3.5 Manning

With regard to the necessary qualifications of all employees on board the ship, the Ship Safety Division stated that fishing vessels are not subject to the STCW Convention under international law. Accordingly, the reference to the STCW Convention with regard to the rank, number and required certificate of competency of the employees in the minimum safe manning certificate is of little use.

Irrespective of the foregoing, the certificate of competency issued by the Ship Safety Division (BG Verkehr) requires at least 22 crew members, including 13 ratings deck. Three people (including the skipper) are required for navigational watchkeeping. The existing minimum safe manning certificate does not contain any competency or qualification requirements.

The HELEN MARY was actually manned by four deck officers, including the skipper. This means it was possible to man the bridge with a sufficient number of people qualified to form part of the watch. Apart from the above deck officers, no other crew member was qualified to form part of the watch.

Since Germany has not laid down national provisions in its *Seeleute-Befähigungsverordnung (See-BV)* [Seafarers' Competencies and Proficiencies Regulations], there are no provisions for the qualification of fishing vessel deckhands.

According to the Ship Safety Division, they only need to hold a valid medical fitness certificate for serving at sea.

Germany has yet to ratify the STCW-F, which entered into force in 2012. However, the STCW-F does not contain competency requirements for crew members serving in the deck department, either. Chapter III merely requires basic safety training for every crew member of a fishing vessel. However, this contains a lower standard of training



than that required by Section A-VI/1 of the STCW Code (Mandatory minimum requirements for safety familiarization, basic training and instruction for all seafarers) for employees on cargo ships.

The first sentence of Section 2(1) – Obligations of the Shipowner – of the *Schiffsbesetzungsverordnung (SchBesV)* [German Ordinance on Safe Manning] indicates, *inter alia*, that "The shipowner shall man the ship with due regard to the number, competence and qualification of the crew members so as to ensure [1.] the safety of the ship [is guaranteed]." The shipping company satisfied this requirement to the extent that the HELEN MARY's 13 crew members employed as ratings deck all held a basic safety training certificate.<sup>8</sup>

### **3.3.6 Crew**

The HELEN MARY's crew was made up of 50 people from eight different countries on this particular voyage.

The group of fishermen responsible for handling the net on the HELEN MARY comprised seven people, including three Lithuanian, two Ukrainian and two Portuguese nationals.

This group worked in a rotating system in which each person alternately had a day off after seven days. Consequently, the group's composition changed repeatedly. One of the two Portuguese fishermen was stood down on the day of the accident. The casualty was working with one of the Ukrainians when the accident happened.

The investigators assume that the majority of the group communicated in Russian. Communication with the bridge and the Portuguese members of the group was in English. English was also the working language on board when the accident happened. However, it was noted during the interview that the English skills of some of the group's members were only rudimentary. In principle, it should be noted that the group consisted of experienced fishermen. This means that it was also possible to communicate sufficiently within the group using hand signals, as the various operations were known to all.

### **3.3.7 The casualty**

The 59-year-old casualty was born in Ukraine but had Lithuanian citizenship. According to the skipper, he had worked for this shipping company since March 2012. The employer of the casualty was the Lithuanian company Novikontas SCM UAB.<sup>9</sup>

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<sup>8</sup> Section 44 See-BV – Certificate of proficiency with regard to the basic requirements for safety on board (basic safety training).

<sup>9</sup> The accident prevention regulations (DGUV) do not apply to workers who are not insured with a German social accident insurance. This marine casualty investigation did not examine which crew members were not directly employed by the shipping company. Therefore, reference is made to the accident prevention regulations in the report.

As with all the other fishermen who worked on the deck, he was entered as 'Deckhand' in the crew list. The shipping company advised that the name 'Deckhand' corresponds to the 'Rating deck' qualification of the minimum safe manning certificate.

A valid medical fitness certificate had been issued for the casualty and confirmed his unrestricted fitness for serving in the deck department. The shipping company submitted a document confirming that the casualty had attended and completed a training course on personal survival techniques, fire prevention and firefighting, elementary first aid, personal safety and social responsibilities in accordance with provisions of A-VI/1,1-4 of the STCW Code. The document was issued by the Lithuanian Maritime Safety Administration on 1 April 2015 and was valid until 31 March 2020.

The shipping company produced a document outlining the casualty's professional training following a request concerning the latter's qualifications, which was issued in 1983 due to the loss of the original document and certifies completion of training as a mechanical technician<sup>10</sup> in 1981 at the Belgorod-Dniester Marine Fish Industrial College in Ukraine.

Based upon experience in Ukraine, a representative of the shipping company confirmed that this training, although probably more technical in this case, would have included a large module that covered the knowledge and skills needed to work on the deck of a deep-sea fishing vessel.

In response to a query, the shipping company also stated that the various activities on deck (deckhand or bosun) require training in fish farming/specialisation in deep-sea and/or cutter fishing or certification as able seafarer (deep-sea fishing) or similar international training.

It was not possible to obtain further information on the training or qualifications of the casualty with the assistance of the Lithuanian marine safety investigation authority.

The ship's command submitted a time sheet for the hours worked since the ship's departure, which indicated that four or five hours had been worked on each of the three days leading up to the accident. It provided no evidence of the casualty being fatigued.

Following consultations between the Scottish Fatalities Investigation Unit (North) and BSU, an autopsy was carried out on the casualty by the pathology department of Raigmore Hospital in Inverness. No significant injuries were identified. Drowning was identified as the cause of death.

There was no evidence to suggest that alcohol, medication or drugs affected physical or mental capacity.

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<sup>10</sup> Taken from the certified translation into English that was submitted.

### 3.3.8 Personal protective equipment (PPE)

The shipping company had provided a waterproof jacket and waterproof trousers for every fisherman working on the deck (see Figure 16). The equipment issued for working on the deck also included work boots, wellington boots and gloves. Every fisherman was also equipped with a protective helmet. The full helmet type of the bosun was only used by this individual on the HELEN MARY.

Every fisherman was issued a personal automatic inflatable work vest. These inflatable work vests self-inflate when in contact with a substantial amount of water. They are triggered by a sensor that reacts to water pressure.

To guarantee that a person who has fallen overboard can be quickly recovered, each vest was equipped with a PLB<sup>11</sup> (AIS-SART<sup>12</sup> – see Figure 23). This AIS transmitter (type: easyRESCUE-Automatic) is made by Weatherdock AG and activates upon contact with water. When the inflatable work vest opens up, the transmitter's antenna also straightens up. The device has an integrated GPS receiver so that the current position is communicated with the alarm signal. The AIS signal then appears on the ship's electronic navigational chart and a direct course can be set for the person overboard's position.

The ship's command secured the casualty's inflatable work vest after the accident and handed it over to the investigators in a sealed case on the day the ship was inspected. A service company inspected and furnished with a test label the inflatable work vest issued to the casualty before it was used on board. The next service would have been due in August 2020.



Figure 22: Inflatable work vest issued to the casualty

<sup>11</sup> Personal Locator Beacon.

<sup>12</sup> Automatic identification system – search and rescue transmitter.



Figure 23: Inflatable work vest with integrated AIS-SART

### 3.3.9 Safety briefings and responsibilities

The ship's command of the HELEN MARY submitted two safety briefings that the casualty had signed. Both documents are dated 4 January 2019. On the one hand, they concern a briefing for new crew members and on the other hand, a briefing for working on the aft deck. Both documents are in Lithuanian. The German versions were also submitted to the investigators for improved understanding.

The briefing for new crew members contains general instructions on behaviour on board and during situations involving particular danger, as well as instructions on behaviour at the workstation. The obligation to wear protective equipment should be mentioned here, in particular. The document also states that a brochure dealing with occupational hazards at each workstation has been issued and that a PowerPoint presentation on safety was given.

*Inter alia*, the aft deck briefing contains instructions on safe behaviour:

- *I know the safe places on the aft deck.*
- *I am familiar with the crew member communication signs.*
- *I know how to execute the work safely.*
- *I regularly check that all loose items are secured.*

This document also refers to the brochure mentioned above:

- *I have received a brochure dealing with occupational hazards at the workstation and am aware of its contents.*

The most relevant point of the aft deck briefing document for the accident is:

- *It is my duty to wear a lifejacket<sup>13</sup> (with personal locator beacon), a protective helmet and safety boots during deployment and retrieval. This also applies to all other works on the aft deck.*

<sup>13</sup> *Arbeitssicherheitsweste* [inflatable work vest] is the German official designation.

The ship's command also submitted to the BSU's investigators the aforementioned brochure dealing with occupational hazards at each workstation. The publisher is the Dutch Pelagic Ship-owners Association. The brochure submitted is bilingual (German/English). It is also available in other languages<sup>14</sup>.

The brochure is divided into individual workstations and associated risks. The chapter dealing with the aft deck is of relevance to the accident. The structure of the various topics/tasks, the risks involved and the issues the crew member should consider and act upon to mitigate the risk are shown below in Figures 24 and 25.

Page 13 of the brochure deals with PPE. The risk of injury or damage to health could reportedly be reduced by wearing PPE. To achieve the objective, the crew member should consider the following questions, *inter alia*:

- *Do you have your PPE ready to hand?*
- *Do you know how to use the PPE?*
- *Is your PPE approved?*
- *Do the people on the aft deck wear their PPE before the works begin?*

The PPE to be worn on the aft deck is then reiterated:

- *immersion suit (depending on weather conditions);*
- *lifejacket with PLB and serviceable lamp;*
- *helmet;*
- *protective boots;*
- *gloves;*
- *ear defenders.*

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<sup>14</sup> English/Spanish, English/French, English/Dutch.



THEMA	RISIKO	FRAGEN
<b>Hieven und Heben</b>  <b>Ordnung und Sauberkeit</b>	Getroffen werden von Gegenständen bei Hebearbeiten	<ul style="list-style-type: none"> <li>• Tragen Sie einen zugelassenen Schutzhelm?</li> <li>• Verwenden Sie eine Rettungsleine?</li> <li>• Kennen Sie die Handzeichen, die für Hebearbeiten verwendet werden?</li> <li>• Verwenden Sie zugelassene Hebemittel, Seile und Bänder?</li> </ul>
	Fallen durch Öffnungen im Boden	<ul style="list-style-type: none"> <li>• Denken Sie bei Öffnungen an Roste im Boden, Tankdeckel, Luken usw.</li> <li>• Sind Öffnungen im Boden ausreichend abgedeckt?</li> <li>• Sind Öffnungen im Boden gut abgeschirmt?</li> <li>• Können Sie in einem sicheren Abstand zur Öffnung arbeiten?</li> </ul>
	Glatte Böden	<ul style="list-style-type: none"> <li>• Sind die Böden frei von Fischresten?</li> <li>• Sind die Böden frei von Öl oder anderen rutschigen Substanzen?</li> </ul>
	Getroffen werden von Gegenständen, die nicht ausreichend verzurrt sind oder nicht auf richtige Weise verstaut wurden	<ul style="list-style-type: none"> <li>• Sind alle losen Gegenstände verzurrt?</li> </ul>
<b>Kommunikation</b>	Sich verfangen	<ul style="list-style-type: none"> <li>• Sind alle Schläuche und Seile so verstaut, dass sich niemand darin verfangen kann?</li> </ul>
	Genehmigen Arbeiten Achterdeck	<ul style="list-style-type: none"> <li>• Ist es in Anbetracht der Witterungsverhältnisse zulässig, Arbeiten auf dem Achterdeck durchzuführen?</li> </ul>
	Unkenntnis der richtigen und sicheren Arbeitsweise	<ul style="list-style-type: none"> <li>• Wissen Sie, was von Ihnen erwartet wird?</li> <li>• Wissen Sie, wie Sie dies auf richtige Weise durchführen müssen?</li> <li>• Wissen Sie, wie Sie dies sicher durchführen können?</li> </ul>
	Unfälle bei Fehlkommunikation	<ul style="list-style-type: none"> <li>• Funktionieren die Kommunikationsmittel?</li> <li>• Sind alle mit den Kommunikationsmitteln vertraut?</li> <li>• Wird eine einheitliche Verkehrssprache verwendet?</li> <li>• Sind alle mit der Bedeutung der Handzeichen vertraut?</li> </ul>

Figure 24: Brochure on risks at the workstation, page 11

In this case, risks related to hoisting and lifting, order and cleanliness, communication.

THEMA	RISIKO	FRAGEN
<b>Persönliche Schutzausrüstung</b>  <b>Einholen und Aussetzen</b>	Verletzungen oder Gesundheitsschäden durch das Fehlen oder die fehlerhafte Verwendung der persönlichen Schutzausrüstung (PSA)	<ul style="list-style-type: none"> <li>• Haben Sie Ihre PSA griffbereit?</li> <li>• Wissen Sie, wie Sie die PSA verwenden müssen?</li> <li>• Ist Ihre PSA zugelassen?</li> <li>• Tragen die Personen auf dem Achterdeck ihre PSA, bevor die Arbeiten beginnen?</li> <li>• Achterdeck:                         <ul style="list-style-type: none"> <li>- Rettungsanzug (abhängig von den Witterungsbedingungen)</li> <li>- Rettungsweste mit PLB und funktionierender Lampe</li> <li>- Helm</li> <li>- Schutzstiefel</li> <li>- Handschuhe</li> <li>- Gehörschutz</li> </ul> </li> <li>• Bei Arbeiten in der Höhe:                         <ul style="list-style-type: none"> <li>- Auffanggurt mit Falldämpfer</li> </ul> </li> <li>• Schleifarbeiten:                         <ul style="list-style-type: none"> <li>- Schutzbrille</li> </ul> </li> <li>• Schlechtes Wetter:                         <ul style="list-style-type: none"> <li>- Ölanzug</li> </ul> </li> </ul>
	Fallen durch Ausrutschen	<ul style="list-style-type: none"> <li>• Haben Sie Schuhe oder Stiefel mit gutem Profil, um Ausrutschen zu verhindern?</li> <li>• Ist das Deck glatt?</li> </ul>
	Verletzungen und Quetschungen	<ul style="list-style-type: none"> <li>• Trägt die Besatzung des Achterdecks ihre PSA?</li> <li>• Werden beim Stoppen des Netzes die richtigen Mittel verwendet?</li> <li>• Leinen können besser länger sein, als zwei Leinen mit Augspießen miteinander zu verbinden</li> <li>• Stehen die Personen am sicheren Ort?</li> <li>• Sind alle in Sicht bei Inbetriebnahme der Winde?</li> <li>• Mindestens zwei qualifizierte Personen auf der Brücke beim Aussetzen und Einholen?</li> <li>• Wurden alle Gegenstände aus der Schlepprichtung des Netzes entfernt, so dass sich keine Gegenstände im Netz verfangen können?</li> <li>• Wissen Sie, wo sich die Notauschalter befinden?</li> </ul>

Figure 25: Brochure on risks at the workstation, page 13

In this case, risks related to PPE and deployment/retrieval of fishing gear.

According to the ship's command, there was no graded responsibility for compliance with health and safety regulations. This means that the crew member acting as bosun/foreman when the trawl is set up was not responsible for ensuring that the other fishermen were wearing their PPE or behaving so as to ensure maximum safety.

During the investigation, no indication came to the knowledge that the boatswain had been instructed in writing by the shipping company to act as a "responsible person" in the sense of Section 13 (2) ArbSchG<sup>1516</sup>.

The statement of the ship's command also applied to officers on the bridge, meaning they had no responsibility for crew members operating on the working deck in terms of health and safety regulations, either.

The ship's command was thus of the opinion that having confirmed knowledge of the instructions, each crew member was responsible for himself.

Following a corresponding request, the Prevention Division (BG Verkehr) stated that under the circumstances in question it did not consider the handling of fishing gear to be a hazardous task<sup>17</sup> within the meaning of Section 8 DGUV Regulation 1 during normal operation. That assessment was based firstly on the fact that the work carried out was reportedly a routine activity and secondly that sufficient protective measures were reportedly available at the workstation given the bulwark's height and the PPE available.

Classification as a non-hazardous task means that the requirement under Section 8(1) DGUV Regulation 1, which makes it necessary to appoint a supervisor for hazardous tasks performed jointly by several persons, does not apply in this particular case.

### **3.3.10 Risk assessment**

The ship's command also submitted a risk assessment in German and English during the inspection of the HELEN MARY. This contains the potential hazards in eight departments of the ship, thus covering the entire operation of the ship. In addition to hazards that exist in general ship operation or in the machinery or galley, for example,

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<sup>15</sup> Act on the Implementation of Measures of Occupational Safety and Health to Encourage Improvements in the Safety and Health Protection of Workers at Work (Arbeitsschutzgesetz, ArbSchG)

<sup>16</sup> Section 13 Responsible persons

(1) In addition to the employer, the following shall also be responsible for fulfilling the obligations resulting from this Part:

1. His legal representative,

2. The organ of a legal entity authorised to represent that entity,

[...]

5. Other persons obligated in accordance with subsection (2) or on the basis of a statutory instrument issued on the basis of this Act or in accordance with an accident prevention regulation within the context of the tasks and powers transferred to them.

(2) The employer may commission reliable persons with the requisite specialised knowledge in writing to take on the tasks incumbent upon him under this Act under their own responsibility.

<sup>17</sup> DGUV (*Deutsche Gesetzliche Unfallversicherung* [German statutory accident insurance]) Rule 100-001, point 2.7.1: Hazardous tasks are tasks involving an increased risk arising from work procedures, the nature of the task, the substances used or the environment because adequate protective measures cannot be taken.

hazards arising in the deck department during various activities are also addressed. *Inter alia*, such activities include actions related to fishing gear, but also risks arising from the movement of the ship, from particular environmental conditions such as ice on the deck, from mooring and unmooring or from working with pressurised hoses.

Activities/Circumstances	hazard factors	hazards	Measures (T-O-P) <sup>1</sup>
Coupling and uncoupling the fishing gear	Squeezing, pushing	Crushing, bruising of body parts due to general handling of fishing gear	- Continuous monitoring of the process; - Ensuring a functioning communication with all parties involved; - Use of security areas and railings; - Instruction of employees (min. 1x per year); - PPE: Work safety vest incl. AIS transmitter, protective helmet incl. communication system, protective gloves, safety rubber boots or safety shoes, oilskin clothing
Handling of chains, hoppers, blocks, locks, clearing of wires, ropes...	crushing, cutting, pushing, rubbing, grooving	Crushing, cuts, bruises, broken bones due to general handling of fishing gear	- Check the work equipment before starting work; - Continuous monitoring of the process; - Immediate exchange of defective units; - Ensuring a functioning communication with all parties involved; - Use of security areas and railings; - Instruction of employees (min. 1x per year); - PPE: Work safety vest incl. AIS transmitter, protective helmet incl. communication system, protective gloves, safety rubber boots or safety shoes, oilskin clothing

<sup>1</sup> T – Technical measures, O - Organisational measures, P - Personal measures.

Figure 26: Extract from the deck department risk assessment

Points 03.7 and 03.8 of the risk assessment (Rev. No 001 of 29 August 2019) are shown here. Following information from the BSU, the ambiguous wording *protective helmet incl. communication system* has been changed in the current version to the extent that it only applies to the bosun.

Of the activities related to fishing, only one single task involves a risk of falling from a height into the water. However, this concerns ships with a stern ramp when the stern gate is open. The HELEN MARY does not have such a stern ramp. Her entire working deck is enclosed by a bulwark that complies with the requirements in terms of height.

The investigators believe that the activity that comes into question during the accident most closely corresponds to points 03.7 of the risk assessment (on connecting and disconnecting fishing gear) and 03.8 (on handling chains, hoppers, blocks, locks, clearing wires, ropes), see Figure 26.

With regard to the measures, it is evident that ensuring workable communication, continuous monitoring of the process and wearing PPE are the points relevant to the accident.

## 4 ANALYSIS

### 4.1 Accident

The investigators assume that the process of connecting the auxiliary lines with the lines from the net winches took place as described.

The investigators believe that the casualty fell overboard while reaching for the shorter auxiliary line, which was hanging a little further from the stern, during works on the fishing gear. To this end, he partly climbed on to the bulwark and leant quite a long way out. It is possible that the weight of the auxiliary line, which was higher than expected, contributed to the loss of balance.

The investigators were unable to explain why the casualty did not notice that his colleague had already made the connection and therefore wanted to reach for the auxiliary line from the upper bridle himself. Moreover, it remains unclear why he did not use the metal pole provided for this purpose.

Not donning the inflatable work vest had no effect on the event described above.

Although the actual course of the accident, i.e. the leaning out and falling overboard, was observed by two of the fishermen on the deck, they were so far away from the scene that they could not influence the course of events in any way. The fisherman working with the casualty had turned away at this point to hang a metal pole that had previously been used to make the connection between the upper bridle and net winch back on its stowage position. Accordingly, he had no influence on the course of the accident, either.

In the BSU's view, the extent to which the casualty's failure to don an inflatable work vest influenced the outcome of the accident remains conjectural to some degree. Having said that, it is reasonable to assume that the AIS-SART integrated into the inflatable work vest would have made it possible to rescue the casualty from the water far more quickly.

The absence of VDR recordings did not influence the investigation or its outcome in any particular way in this incident. Such data could be of considerable importance in another accident, however.

### 4.2 Communication

The fishermen working on the deck stated that they were ordered to return to the deck after an unusually short period by the corresponding signal. Since they did not believe that works on the fishing gear were actually necessary, none of the six fishermen donned their inflatable work vest.

In the BSU's view, this was partly due to deficits in the flow of communication between the bridge crew and the deck crew in this particular situation. Although the bridge crew knew the net had to be hoisted as quickly as possible based on the information

available, this information was not shared with the bosun even though a voice communication link existed at least after the bosun donned his helmet.

### **4.3 Scene of the accident**

The height of the bulwark in the vicinity of the workstation at the stern of the ship complied with structural requirements. In the opinion of the BSU, a risk of falling overboard did not exist there. Other heightened risks did not become apparent during the inspection. However, the hawsehole and the bollard located there (see Figure 20) do offer an opportunity to climb on to the bulwark without any effort, but the use of these components in the course of ship operation prohibits structural modifications.

### **4.4 The casualty**

The BSU's investigators assume that the casualty's many years of service on the deck of fishing vessels, combined with his training at a Ukrainian educational institution, meant that he was fully qualified for the work he was engaged in. The qualification or nature and extent of the work experience of the casualty is therefore not considered to be a factor that would have affected the course of the accident.

### **4.5 Personnel Protective Equipment**

The casualty had been issued PPE on the ship. This included an inflatable work vest. The shipping company had additionally equipped this inflatable work vest with an AIS-SART.

When the accident happened, the casualty was wearing the PPE issued to him with the exception of his inflatable work vest.

Having heard the crew members working on the deck, it has not been possible to ascertain with certainty why the fishermen did not return to the superstructure to don their inflatable work vests after the situation on deck was established. However, it appears that the fishermen did not believe the work on the deck was unduly dangerous in the prevailing weather and sea conditions.

As a general point, it should be noted that the health and safety provisions in force on the HELEN MARY did not contain any exemption from the requirement to wear an inflatable work vest on the aft deck.

### **4.6 Safety briefings and responsibilities**

#### **4.6.1 The company**

The shipping company respectively the ship's command satisfied their responsibility under the Occupational Health and Safety Act and the Accident prevention regulation 1 – Principles of prevention – insofar as they ensured that the risk assessment required



by Section 5 ArbSchG<sup>18</sup> and Section 3 DGUV Regulation 1 was carried out and documented. The company also complied with the requirements of Section 12 ArbSchG<sup>19</sup> and Section 4 DGUV Regulation 1, as it is established that it had trained crew members employed on the deck in health and safety at work and, in particular, in the hazards associated with their work as well as the measures for preventing hazards, and that it had provided information material.

The company thus also complied with the requirements of Section 2 DGUV Regulation 84 – Shipping Enterprises.<sup>20</sup> The rules under Chapter 2<sup>21</sup> – in particular, Section 17(1)/(2), which deals with the working deck(s) [referred to as *Catch deck* in this Regulation] of a fishing vessel – were not relevant to this incident because the HELEN MARY does not have a stern ramp. The investigators believe that reliable communication between bridge and working deck, as required under paragraph 3, was basically given.

In principle, every management staff member is responsible for the occupational safety and health of his or her subordinates. If no explicit delegation has been made, this must at least result from the job descriptions and/or the operational organisation and practice. On the HELEN MARY, the skipper was the person responsible for occupational health and safety in the sense of Section 13 (1) no. 4 ArbSchG. The

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<sup>18</sup> Section 5 Assessment of the conditions of work

(1) The employer shall determine which measures of occupational safety and health are necessary by assessing the risk to workers associated with their work.

(2) The employer shall carry out the assessment in the light of the nature of the activities. In cases where the conditions of work are similar, an assessment of one work place or one activity shall suffice.

(3) A risk can in particular result from

1. the design and setup of the workstation and the work place,
2. physical, chemical and biological impacts,
3. the design, selection and use of work equipment, in particular of agents, machines, equipment and plants, as well as their handling,
4. the design of the working and production methods, work processes and working time and their interplay,
5. insufficient qualification and training of the workers,
6. psychological stress at work.

<sup>19</sup> Section 12 Training

(1) The employer shall give workers sufficient and appropriate training regarding safety and health protection at work during their hours of work. The training shall comprise instructions and explanations which are geared specifically to the workers' work place or area of work. Training must be given before workers take up their activity after recruitment or in the event of changes affecting their job or the introduction of new work equipment or new technology. The training must be adapted to developments pertaining to the risk and, if necessary, must be repeated on a regular basis.

[...]

<sup>20</sup> Section 2(1) DGUV Regulation 84 – Special characteristics of seafaring; basic obligations of the employer: "According to Sec. 2 Par. 1 DGUV Regulation 1, the employer shall implement the necessary measures to prevent work accidents, [...]." Paragraph 2: "When assessing the working conditions in accordance with Sec. 3 DGUV Regulation 1, the employer shall take into account the special characteristics of seafaring and ship operation. In particular, these include weather conditions and swell, as well as the related acceleration forces, regular crew changes, the multi-lingual and multi-cultural composition of the crew, [...]."

<sup>21</sup> Fishing vessel regulations

extent to which this responsibility also extended to the nautical officers or the boatswain on the basis of the employment contracts or the job descriptions was not examined within the scope of the investigation. No responsibility for occupational safety could be derived from regular company practice. The personal responsibility of the fishermen working on the catching deck (see point 4.6.2) did not cancel out the general responsibility of the master for occupational safety, i.e. for example the safe design of the workplace or the organisation of a safe work process.

In the opinion of the Prevention Division of BG Verkehr, only the chief officer and the chief engineer could be considered for a transfer of responsibility in the sense of section 13 sub-section 2 ArbSchG. The boatswain, on the other hand, was out of the question. According to the Prevention Division, the position of boatswain lacks the necessary competences and scope for action.

Furthermore, the Prevention Division specifies that all officers have a fundamental responsibility with regard to occupational health and safety regulations. Officers are part of the management personnel of a ship and would therefore legally assume a guarantor position.

#### **4.6.2 The employees**

Pursuant to Section 15 DGUV Regulation 1, the insured individuals shall: *„as far as possible and as instructed by the employer, protect their own safety and health at work and the safety and health of those affected by their actions or failure to take action. The insured individuals shall support the measures taken to prevent occupational accidents, occupational disease and work-related health risks [...]. They shall obey the instructions given by the employer in relation to such matters.“*<sup>22</sup>

None of the crew members working on the deck when the accident happened observed the above requirement when they started to haul in the fishing gear without wearing an inflatable work vest (and thus contrary to the corresponding instruction).

#### **4.6.3 Hazardous tasks**

The work on the ship's working deck was organised such that one person supervised implementation of the various work steps and communicated with the bridge (or the winch console located there). On the other hand, this person (the bosun) was not responsible for ensuring that health and safety regulations were complied with, however. This was a personal responsibility of each crew member employed on the deck.

That the bosun's responsibility is limited to a specific area is justifiable in the opinion of the Prevention Division (BG Verkehr) because the work on the working deck would not concern a hazardous task (see point 3.3.9).

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<sup>22</sup> Sentence 1 is identical to Section 15(1) *Arbeitsschutzgesetz* [German Safety and Health at Work Act].

In its comments on the draft of this report, the shipping company stated that, from its point of view, the setting and hauling of the fishing gear was also a routine activity and, taking into account the technical and structural conditions of the vessel, could not be classified as dangerous work. For example, during the 15 fishing voyages in 2020, there were approximately 500 setting and hauling operations.

The BSU believes that the very fact that a bosun on the deck is responsible for the various operations is indicative of these activities are “hazardous tasks”. Even a routine activity can be hazardous work. The risk assessment of 29 August 2019 submitted by the shipping company, which had been discussed with the Prevention Division, shows 20 activities which involve various hazards for the deck department. 12 of those activities are related to the direct activity of fishing. These include winch operation, handling the trawl boards, connecting and disconnecting the fishing gear, handling chains, blocks and other components, as well as connecting and disconnecting the net pump, for example. The main hazards identified here are bruising and contusions, but also fractures or more serious injuries that can lead to death. In particular, the dangers arise from the heavy loads on the cables and lines used, as well as the heavy weights of certain components of the fishing gear (trawl boards, floats, net pump).

The investigators believe that the height of the bulwark referenced by the Prevention Division or wearing PPE offers little protection against the hazards mentioned, however. Rather, good work organisation is of particular importance here. This is also reflected in the safety measures, which repeatedly demand vigilance during fishing activities and continuous monitoring of the process.

#### **4.6.4 Competency requirements**

It was found during the investigation that there are no requirements in Germany for employees on the working deck of a deep-sea fishing vessel in terms of professional competence or training with regard to personal safety or the safety of the ship. In fact, medical fitness for work is the only requirement. Although the first sentence of Section 2(1) SchBesV imposes an obligation on the shipowner to man the ship so as to ensure that the safety of the ship is guaranteed, the specific requirements for individual crew members are left entirely open.

The BSU believes that the works and ensuing risks on the working deck of a fishing vessel require a considerable amount of knowledge in terms of the various fishing methods and working practices on the different types of fishing vessel, as well as basic requirements in terms of the skills and competences necessary. Accordingly, this should also be reflected in legal requirements for the safety training and technical training of the people employed there.

On the one hand, the BSU sees a need for the legislator to define exactly how guaranteeing ship safety, as required by the SchBesV, should be structured and whether the basic safety training already satisfies this requirement adequately or whether certificates of proficiency that go beyond this, such as for the ability to operate survival craft or fast rescue boats, should also be included.

But on the other hand, the BSU also sees the need to regulate the professional requirements for operating on the working deck. Resolution 4<sup>23</sup> – Training of deckhands on board fishing vessels of 24 metres in length and over, which Germany has not transposed into national law, sets out the minimum scope of such training at international level, for example. Ideally, vocational requirements at national level could be based upon the training of fish farm workers in middle-water fishing.

In the case of the HELEN MARY, the shipping company had ensured that all crew members employed at the vessel had received basic safety training. The shipping company additionally stated that all its employees had also received vocational training respectively that this was reportedly a general prerequisite for employment with it.

In its comments on the draft, the shipping company stated that in its opinion the implementation of the BSU's requirements would lead to overregulation. In its own interest, the shipping company only signs on seafarers who are in possession of valid basic safety training. In addition, the shipping company is of the opinion that training deckhands alone would not meet the complex and diverse requirements on its ships. The shipping company is therefore also a training company for the profession of fisherman, specialising in deep-sea fishing [sic], and cooperates with the vocational school in Sassnitz.

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<sup>23</sup> Attachment 2 - Resolutions Adopted by the Conference: International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, 1995.

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## 5 CONCLUSIONS

### 5.1 Communication

The investigators believe that communication between the HELEN MARY's bridge and the bosun was inadequate at the time of the accident. The bosun was not informed about the imminent retrieval of the fishing gear by means of the available voice communication link. The bell signal used was overly general in this particular case. As a result, the crew went on to the working deck without donning inflatable work vests and eventually started work. The BSU does not view the communication deficit as a causal factor in this accident. The investigators consider that there is room for improvement in this regard, however.

### 5.2 Manning

The investigation has shown that the legal requirements for manning workstations on the working deck of a fishing vessel are extremely sparse. The BSU views this as a legal omission in the deep-sea fishing sector's safety system. Ratification of the STCW-F by Germany could remedy this situation by providing a solid legal foundation for training and the awarding of certificates of competency for navigational and technical services on board fishing vessels.

Moreover, it would make basic safety training compulsory for all crew members. In addition, fishing vessel minimum safe manning certificates could be given a meaningful legal reference.

The BSU believes that work performed on the working deck also requires professional qualifications. To this end, the legislator or regulator could lay down the training content set out in Resolution 4 – Training of deckhands on board fishing vessels of 24 metres in length and over – as a minimum requirement.

The shipping company of the HELEN MARY is already acting responsibly here, as it only musters crew members with valid basic safety training and all fishermen employed on deck have appropriate vocational training.

### 5.3 Hazardous tasks and responsibility

The accident on board the HELEN MARY showed that the awareness of personal responsibility for occupational health and safety among employees on the working deck was not sufficiently developed. The shipping company and the Prevention Division (BG Verkehr) should consider this fact in the context of the BSU's assessment that work on the working deck is indeed hazardous.

The shipping company should also check whether the general responsibility of the skipper and the reference to the individual responsibility of the crew members adequately take into account the obligations under the Occupational Health and Safety Act. Possibly, in the deck area, an explicit transfer of responsibility to the officers and the boatswain will be necessary. At the very least, awareness of occupational health and safety must also be raised among this group of people.



#### **5.4 VDR**

It was found during the investigation that the ship's command failed to complete the emergency activation procedure on the VDR. This points to a deficit in the organisation of procedures on the bridge in the event of an emergency.

## 6 Actions taken

The shipping company took the below measures following its own investigation of the accident:

- The existing risk analysis was revised and sent to the Ship Safety Division for review.
- The shipping company analysed the accident and the result of the analysis was forwarded to all its German-flagged ships in a circular. *Inter alia*, the circular reiterated that inflatable work vests must be worn on deck.
- The safety committees set up on the ships, which are made up of the ship's management and representatives from the deck, processing and engine areas, also dealt with this accident. In addition to reviewing the risk assessment, all documents relating to the necessary safety instructions for the crew members in the individual areas were revised and brought to the attention of all crew members.
- Camera surveillance has been installed at workstations on the aft edge of the working deck that are not visible from the bridge. Additional screens were also installed for this purpose (Figure 27).

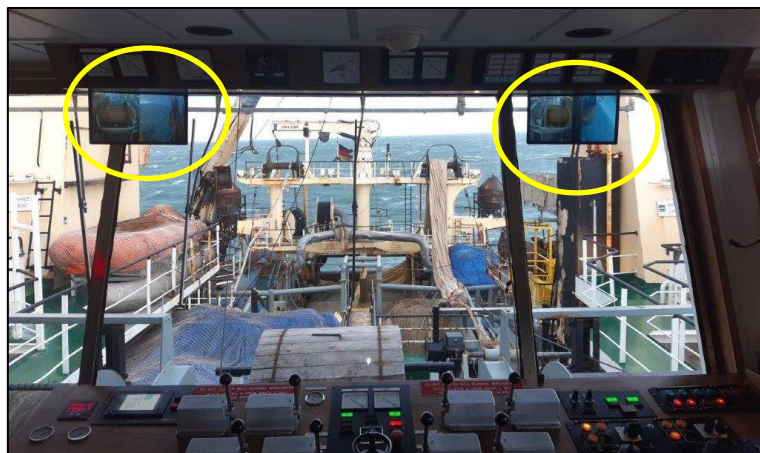


Figure 27: Newly installed screens for monitoring the stern

The shipping company informed that in addition, the areas not visible from the bridge were checked on all five vessels with the fishing mark ROS. The resulting necessary retrofitting with camera systems was implemented on all vessels.

- New notices indicating the obligation to wear an inflatable work vest and the other items of PPE (Figure 28) have been put up at the main deck access points.



Figure 28: Notice indicating the obligation to wear PPE

## **7 SAFETY RECOMMENDATIONS**

The following safety recommendations do not constitute a presumption of blame or liability in respect of type, number or sequence.

### **7.1 Federal Ministry of Transport and Digital Infrastructure**

The Federal Bureau of Maritime Casualty Investigation recommends that the Federal Ministry of Transport and Digital Infrastructure implement the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, as well as the associated Resolution 4 – Training of deckhands on board fishing vessels of 24 metres in length and over. Moreover, the Federal Bureau of Maritime Casualty Investigation recommends that the model minimum safe manning certificate be revised so as to establish a legally sound basis for fishing vessel crews.

### **7.2 Ship's command**

The Federal Bureau of Maritime Casualty Investigation recommends that the ship's command of the HELEN MARY improve communication procedures between the bridge and bosun so as to give the crew of the working deck an understanding of events on the deck when they are on standby even when the workstation is not in sight.

### **7.3 Ship's command**

The Federal Bureau of Maritime Casualty Investigation recommends that the ship's command of the HELEN MARY ensure that the emergency backup of the ship's data recorder is triggered in the event of an emergency or other special event.

### **7.4 Shipping company**

The Federal Bureau of Maritime Casualty Investigation recommends that the shipping company classify work on the working deck as a hazardous task. The Federal Bureau of Maritime Casualty Investigation takes the view that operations being coordinated in the manner practiced there, the existing hazards, as well as the fact that only one member of the working deck's crew communicates with the bridge support classification as a hazardous task and thus the appointment of a supervisor.

Furthermore, the shipping company is recommended to review the existing internal regulations for occupational health and safety to ensure that, on the one hand, other crew members in addition to the skipper are (jointly) responsible and, on the other hand, that the tasks and powers in occupational health and safety are clearly regulated.

## **8 SOURCES**

- Investigations of the Federal Maritime Police
- Written statements of individual crew members and the shipping company
- Navigational chart of the BSH