



Marine Safety Investigation Unit



Transport Malta



## MARINE SAFETY INVESTIGATION REPORT

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Safety investigation into the collision involving the  
Maltese registered general cargo

***BRITANNICA HAV***

and the Belgian registered fishing vessel

***Z121 DEBORAH***

in position 50° 13.80' N 000° 26.40' W

on 20 March 2018

201803/021

MARINE SAFETY INVESTIGATION REPORT NO. 06/2019

FINAL

Investigations into marine casualties are conducted under the provisions of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011 and therefore in accordance with Regulation XI-I/6 of the International Convention for the Safety of Life at Sea (SOLAS), and Directive 2009/18/EC of the European Parliament and of the Council of 23 April 2009, establishing the fundamental principles governing the investigation of accidents in the maritime transport sector and amending Council Directive 1999/35/EC and Directive 2002/59/EC of the European Parliament and of the Council.

This safety investigation report is not written, in terms of content and style, with litigation in mind and pursuant to Regulation 13(7) of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011, shall be inadmissible in any judicial proceedings whose purpose or one of whose purposes is to attribute or apportion liability or blame, unless, under prescribed conditions, a Court determines otherwise.

The objective of this safety investigation report is precautionary and seeks to avoid a repeat occurrence through an understanding of the events of 20 March 2018. Its sole purpose is confined to the promulgation of safety lessons and therefore may be misleading if used for other purposes.

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## **LIST OF REFERENCES AND SOURCES OF INFORMATION**

Bureau d'enquêtes sur les événements de mer

Crew members MV *Britannica HAV*

Federal Bureau for the Investigation of Maritime Accidents of Belgium

Globavista - BigOceanData

Managers MV *Brittanica HAV*

Merchant Shipping Directorate – Transport Malta

Skipper MFV *Z121 Deborah*

## GLOSSARY OF TERMS AND ABBREVIATIONS

AB	Able seafarer
AIS	Automatic Identification System
ARPA	Automatic Radar Plotting Aids
ATA	Automatic Tracking Aid
Becker-type rudder	A spade-type rudder with flap. The Becker-type rudder has a moving flap on the trailing edge. When the rudder moves, a mechanical linkage diverts the flap to a higher angle to maximise the sideways thrust. Either 45° or 65° maximum rudder angles can be specified for bigger and faster rudders.
BNWAS	Bridge Navigational Watchkeeping Alarm System
cm	Centimetres
COLREGS	The International Regulations for Preventing Collisions at Sea 1972, as amended
CPA	Closest point of approach
DNV GL	Det Norske Veritas Germanischer Lloyd
DSC	Digital Selective Calling
EPIRB	Emergency Position Indicating Radio Beacon
GM	Metacentric height – the distance between the centre of gravity, ‘G’, and the metacentre, ‘M’.
GMDSS	Global Maritime Distress and Safety System
GOC	General Operator’s Certificate
GPS	Global Positioning System
gt	Gross tonnage
IMO	International Maritime Organization
kW	Kilowatt
LT	Local time
m	Metres
MLC	Maritime Labor Convention, 2006
MSIU	Marine Safety Investigation Unit
MSM	Minimum Safe Manning

N	North
OOW	Officer of the Watch
rpm	Revolutions per minute
SART	Search And Rescue Transponders
SOLAS	International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended
TSS	Traffic Separation Scheme
UTC	Universal Time Coordinated
VDR	Voyage data recorder
VHF	Very high frequency
W	West

## SUMMARY

*Britannica HAV* was on a passage from Pasajes, Spain to Keadby, UK via the English Channel with a cargo of steel profiles (beams). *Britannica HAV*'s passage plan took her between Casquets Traffic Separation Scheme (TSS) and Dover Straits TSS, a widely used shipping lane. *Z121 Deborah* left Milford Haven, UK on 14 March at about 1630 and proceeded to fish in area 7D.

On 20 March 2018, *Britannica HAV* was proceeding generally East Northeast towards Dover Strait TSS, whilst *Z121 Deborah*, having stowed her fishing gear, was moving Southwest across the English Channel, to a fishing area near Le Havre in France. Both vessels were in a crossing situation.

After observing *Z121 Deborah* for some time, the navigational OOW on board *Britannica HAV* altered course to port to increase the closest point of approach (CPA) of *Z121 Deborah* from 0.5 to about 0.7 nautical miles. At some stage, following the alteration of course, the navigational OOW noted that the CPA to *Z121 Deborah* had decreased to almost zero. It appeared to the OOW that *Z121 Deborah* had altered her course to starboard, although he could neither see her wake, nor her relative trail on the radar. Concerned with the situation, he tried to call *Z121 Deborah* on VHF radio channel 16 and channel 13, however, there was no response.

The navigational OOW on board *Britannica HAV* engaged manual steering and put the rudder hard to starboard and sounded a warning signal on the whistle. The turn was very slow and eventually *Z121 Deborah*'s bow collided with *Britannica HAV*'s port side in way of wing ballast tank no. 3. Soon after the collision, *Britannica HAV* developed a list to port, which kept increasing. It was confirmed that the cargo hold was breached and tidal. Taking stock of the situation, the master ordered that the vessel was abandoned. All crew members were rescued before the vessel capsized.

Analysis of the available evidence indicated that a close quarter situation had developed and progressed to an extent that the collision between the two vessels became inevitable. The Marine Safety Investigation Unit (MSIU) made one recommendation to the Belgian authorities with the aim of enhancing safety of navigation.

# 1 FACTUAL INFORMATION

## 1.1 Vessel, Voyage and Marine Casualty Particulars

Name	<i>Britannica HAV</i>	<i>Z121 Deborah</i>
Flag	Malta	Belgium
Classification Society	DNV GL	Not Applicable
IMO Number	8506440	8871766
Type	General cargo	Fishing
Registered Owner	Hav Bulk AS	Seabird Ltd.
Managers	Hav Ship Management Norrus AS	Seabird Ltd.
Construction	Steel (Double bottom)	Steel
Length overall	82.21 m	37.87 m
Registered Length	77.35 m	<i>Not applicable</i>
Gross Tonnage	1521	385
Minimum Safe Manning	7	6
Authorised Cargo	Solid cargo in bulk	Fish
Port of Departure	Pasajes, Spain	Milford Haven, UK
Port of Arrival	Keadby, UK	Zeebrugge, Belgium
Type of Voyage	International	International
Cargo Information	Solid bulk	Fish
Manning	7	6
Date and Time	20 March 2018 at 15:52 (LT)	
Type of Marine Casualty or Incident	Very Serious Marine Casualty	Less Serious Marine Casualty
Location of Occurrence	50° 13.80' N 000° 26.40' W	
Place on Board	Over side / Cargo hold	Stem
Injuries/Fatalities	None	None
Damage/Environmental Impact	Vessel capsized following progressive flooding	Damages to the forecastle and forecastle deck
Ship Operation	On passage	On passage
Voyage Segment	Transit	Transit
External & Internal Environment	The collision happened during daylight and in good visibility. The sea was moderate with Northeasterly Force 4 to force 5 winds.	
Persons on Board	7	6



## 1.2 Description of Vessels

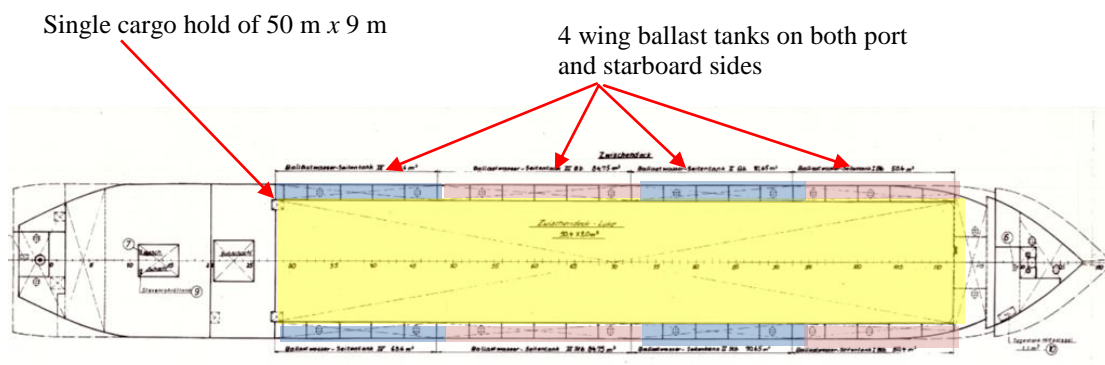
### 1.2.1 *Britannica HAV*

*Britannica HAV* (Figure 1) was a 1,521 gt general cargo vessel, built in 1985 and was registered in Malta<sup>1</sup>. She was owned by Hav Bulk AS, managed by Hav Ship Management NorRus AS and was classed with Det Norske Veritas Germanischer Lloyd (DNV GL). The vessel's length overall was 82.21 m and her summer draught of 4.17 m corresponded to a summer deadweight of 2,289 tonnes.



**Figure 1: MV *Britannica HAV***

*Britannica HAV* had a single cargo hold, with wing ballast tanks arranged in four pairs (total 8) and three pairs of double bottom tanks (total 6). Each pair of tanks were located on the port and starboard sides (Figure 2). These ballast tanks effectively made the vessel double skinned. The cargo hold was covered by a piggy back, multi-stack type hatch covers.



**Figure 2: Arrangement of the cargo hold and the ballast tanks**

<sup>1</sup> The vessel was deleted from the Maltese Register of Ships on 02 July 2018.

*Britannica HAV* had an eight person rescue boat located aft on the starboard poop deck, as well as one eight person liferaft on the port side. There was another liferaft on the starboard side of the poop deck as shown in Figure 3.

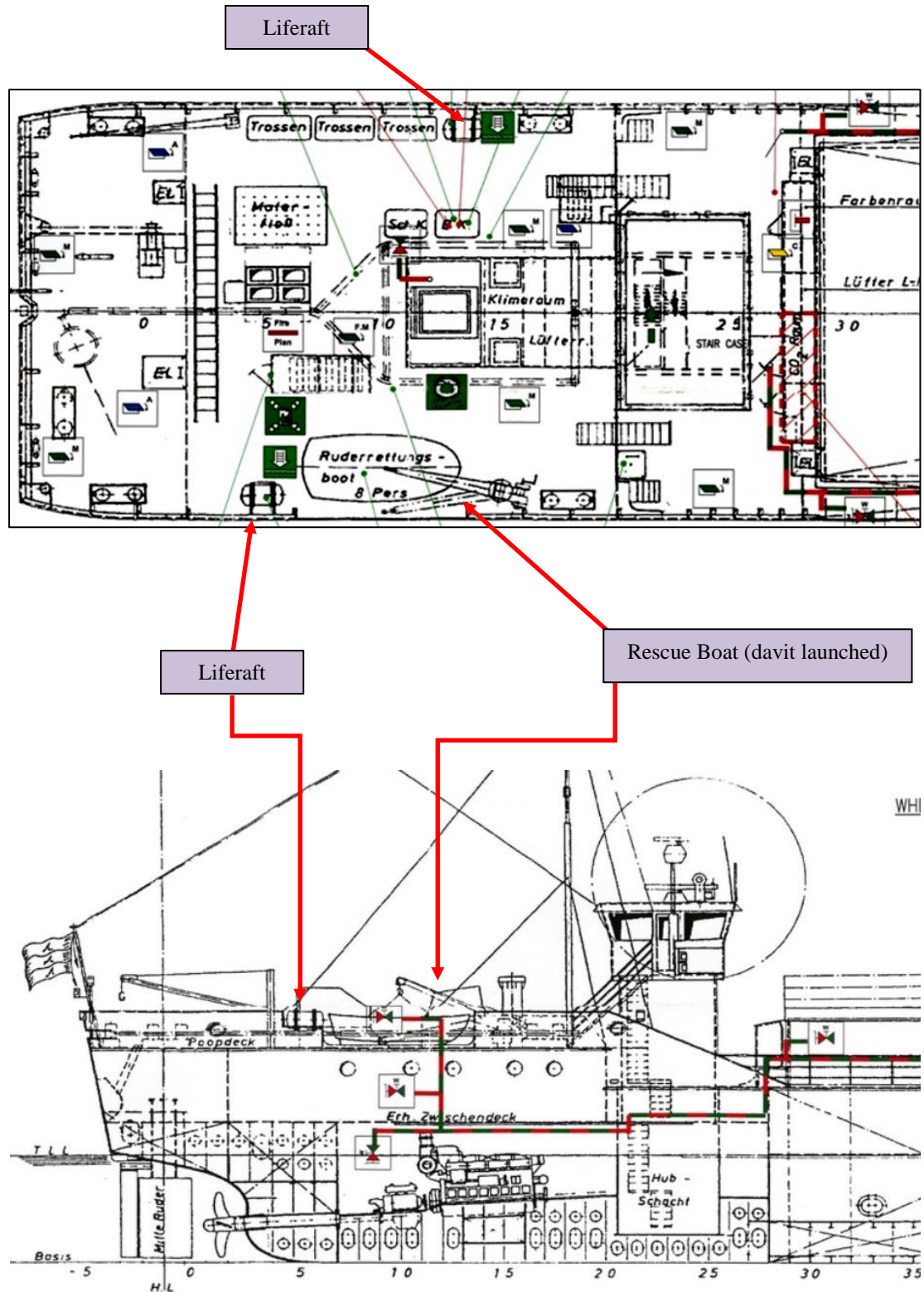


Figure 3: Location of liferafts and rescue boat on board *Britannica HAV*

The vessel was equipped with two Search And Rescue Transponders (SARTs), a float free Emergency Position Indicating Radio Beacon (EPIRB), and three handheld VHF radios, all located on the bridge deck. The bridge was fitted with two radars. The starboard side radar was JMA 5312-6, manufactured by JRC. This unit had ARPA functionality, but only when connected to a device measuring speed through the water. This was not set up and the unit was operated with an automatic tracking aid (ATA)<sup>2</sup>. The port side radar was a Furuno FR 7062 without ATA or ARPA. She also had three sets of Very High Frequency (VHF) radiotelephone with Digital Selective Calling (DSC), two sets of Global Positioning System (GPS), a gyro and magnetic compass, and an Automatic Identification System (AIS). The AIS system was interphased with the radars, allowing AIS targets to be displayed along with ATA data when required.

*Britannica HAV* had a Bridge Navigational Watchkeeping Alarm System (BNWAS). The BNWAS included bridge movement sensors that would trigger an audible alarm on the bridge if a watchkeeper were not to either physically move or be present for a short time. This system is designed to stop watchkeepers leaving the bridge or falling asleep and to alert others on board if a watchkeeper were to become incapacitated for any reason.

Apparently, the BNWAS used to be switched off in port while the bridge was unmanned, and switched on again as part of the vessel's pre-departure checklist procedures. There was no system key; but simply a manual on/off switch on the unit itself.

Propulsive power was provided by an 8-cylinder Kloeckner-Humboldt-Deutz AG SBA8M528, medium speed, 4-stroke diesel engine, producing 599 kW at 686 rpm. This drove a single, right hand turning, fixed pitch propeller through a reduction gearbox, to reach a service speed of 9 knots. The vessel was also fitted with a single, Becker-type rudder.

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<sup>2</sup> ARPA was not mandatory for *Britannica HAV*. ATA enables manual acquisition and automatic tracking and display of at least 10 targets.

### 1.2.2 Z121 Deborah

The fishing vessel *Z121 Deborah* (Figure 4) is a 385 gt Belgian flagged beam trawler built in 1992. She has a length overall of 37.87 m, a beam of 8.58 m, and a summer draft of 4.70 m.

The wheelhouse is fitted slightly aft of amidships, with the accommodation spaces located at the aft end of the vessel (Figure 5). At the time of the accident, *Z121 Deborah* was transmitting and receiving data by AIS. She had the facilities to use the radar to determine risk of collision as well as Global Positioning System (GPS positioning).

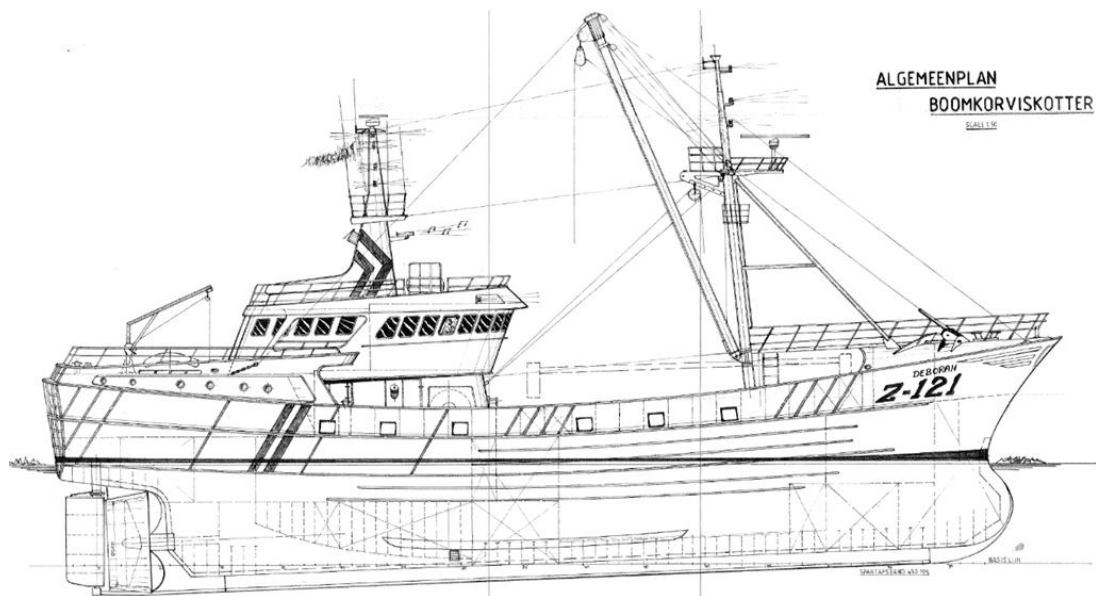


Figure 4: MFV *Z121 Deborah*

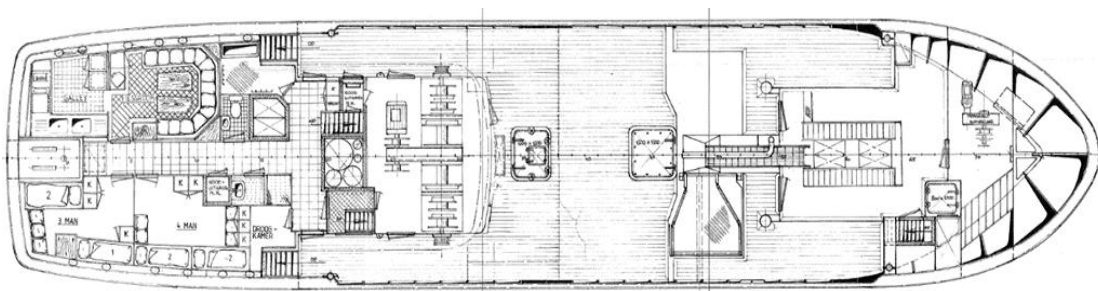


Figure 5: Wheelhouse and accommodation fitted aft of the vessel's centreline

The safety investigation was informed that *Z121 Deborah*'s wheelhouse was fitted with a watchkeeping alarm, which sounded if not acknowledged after four minutes.

This alarm was only audible in the wheelhouse and on deck if the bridge windows happened to be open.

This alarm system is not compulsory for a fishing vessel and had been installed voluntarily by the owner.

Propulsive power is provided by a high speed, 4-stroke, diesel engine, producing 599 kW and driving a single, fixed pitch propeller.

### **1.3 Crew Members**

#### **1.3.1 Manning on *Britannica HAV***

The Minimum Safe Manning (MSM) Certificate, issued by the flag State Administration stipulated a minimum number of eight crew members, although a number of conditions were stipulated on the Certificate, *i.e.*:

- if the UMS or bridge control system are not operational, a second engineer had to be signed on board;
- at least two deck officers must be holders of a GMDSS General Operator's Certificate (GOC), or otherwise, the vessel was required to sign on a dedicated radio operator, holder of at least a GMDSS GOC; and
- one navigational OOW may be omitted if the vessel was operating within the restricted areas<sup>3</sup> indicated in the MSM Certificate.

At the time of the accident, *Britannica HAV* had a crew of seven, all of whom were Russian nationals. The crew had sailed together for a considerable period of time and appeared to know each other well. The working language on board was Russian, with English used for external communications.

*Britannica HAV* operated a two watchkeeper system, with the master and chief mate holding the watch for 12 hours each per day at sea and in port. The master held the 0700 to 1200 and the 1700 to 2400 watch, whereas the chief mate held the 0000 to 0700 and the 1200 to 1700 watches. With respect to the ratings, *Britannica HAV* had

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<sup>3</sup> Baltic / North / European Coast / Morocco (Casablanca) / Mediterranean and Black Seas.

one bosun, one AB and one cook / AB on board. They had rotating hours of duty to ensure that at least one deck crew member was always available 24 hours a day.

The engine-room was unmanned, with one chief engineer and one motorman on board.

### **1.3.2 Manning on *Z121 Deborah***

Information made available to the safety investigation suggested that the fishermen on board *Z121 Deborah* worked on a roster of three weeks at sea and one week ashore on leave. To implement this system, eight fishermen were employed by the vessel owner, while six of them served on board.

The skipper had been a fisherman for 30 years. He first went at sea at the age of 16 on board a fishing vessel operated by his family. He worked all his way up to skipper where he served in this capacity for about eight years, until the fishing boat was sold for scrap. Since then, he served as a skipper on *Z121 Deborah*, *i.e.*, 9 years.

## **1.4 Environment**

At the time of the accident, visibility was reported to be at least eight nautical miles with a clear horizon visible from *Britannica HAV*. No precipitation was present. It was daylight, with a partly overcast sky. The sun was in the West, with no reported bright sunshine or glare. Winds were about Beaufort Force 4 from the Northeast, with Northeasterly seas of about 1.5 m and a low Northeasterly swell. The prevailing current was Westerly, with a speed of about 3 knots.

## **1.5 Narrative<sup>4</sup>**

### **1.5.1 Events prior to the collision**

On 16 March 2018, *Britannica HAV* sailed from Pasajes, Spain to Keadby, UK *via* the English Channel, with a cargo of steel profiles (beams). Her single cargo hold was not divided in any way, and the steel cargo filled a significant volume of the hold (Figure 6).

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<sup>4</sup> Unless otherwise stated, all times are UTC.



There were no defects recorded on board. The vessel did not have any ballast and no ballast tanks had recently been opened. She was loaded almost to her winter loadlines, and trimmed slightly by the stern. The vessel's GM was about 90 cm.

Following completion of the cargo loading operations, the cargo hold was covered by a piggy back multi-stack type hatch cover. The crew stated that the hatch covers had historically been very effective at preventing any water ingress into the cargo hold, either from weather or the sea.



**Figure 6: Cargo loading operations at Pasajes, Spain**

*Britannica HAV*'s passage plan took her between Casquets TSS and Dover TSS, a widely used shipping lane.

*Z121 Deborah* had left Milford Haven, UK on 14 March at about 1630 and proceeded to fish in area 7D<sup>5</sup>.

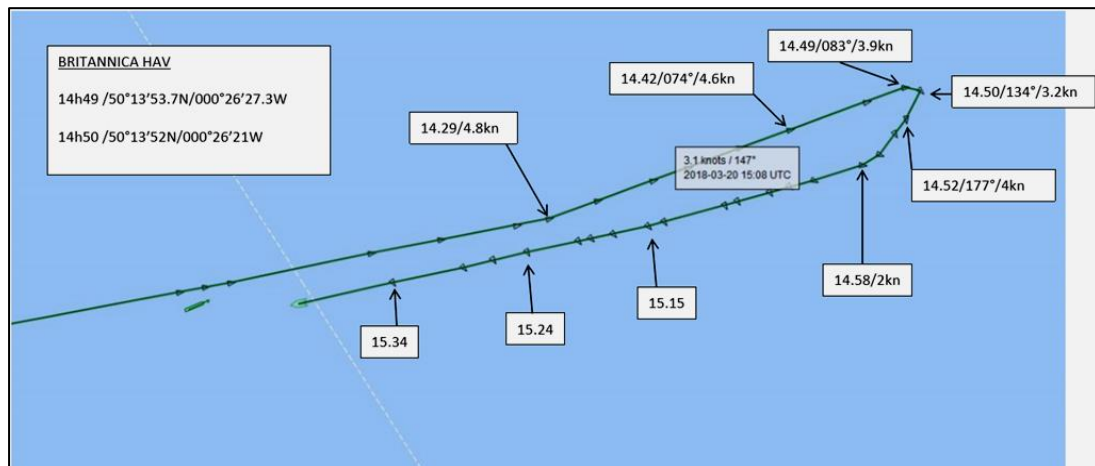
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<sup>5</sup> Fishing area 7D includes the waters bounded by a line, beginning at a point on the West coast of France at 51°00' North latitude; thence due West to the coast of England; thence in a Westerly direction along the South coast of England to 2° 00' West longitude; thence due South to the coast of France at Cape de la Hague; thence in a Northeasterly direction along the coast of France to the point of beginning.

### 1.5.2 Accident dynamics

On 20 March 2018 at about 1430, the chief mate on *Britannica HAV* was alone on watch. He had been on watch since about 1100 (*i.e.*, 12:00 vessel's time).

*Britannica HAV* was proceeding generally on an East Northeast route, with her main engine at full ahead, doing about 8.0 knots through the water, but only about 4.5 knots over the ground with a strong adverse current on the bow and some wave action from the port bow. The vessel was on autopilot, reportedly on a course of 074°. AIS image showing track of *Britannica HAV* is shown in figure 7.



**Figure 7: AIS image of *Britannica HAV***

Source: French Bureau d'enquêtes sur les événements de mer (BEAmer)

In the meantime, by 1430, the fishermen on board *Z121 Deborah* had secured their fishing nets and were proceeding to another fishing area near Le Havre, France, following the fishing operation in area 7D. The skipper had already set a course of about 214° and the fishing boat had reached a speed of about 10 knots. The skipper recalled that he observed no other vessels within a four nautical mile radius, neither by AIS nor radar. AIS image showing track of *Z121 Deborah* is shown in Figure 8.



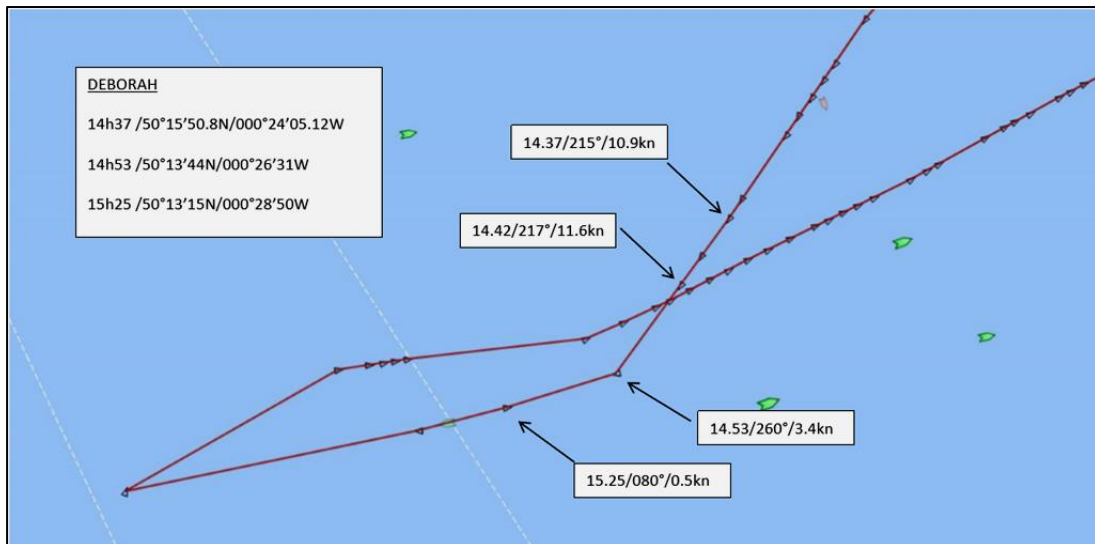


Figure 8: AIS image of Z121 Deborah

Source: French Bureau d'enquêtes sur les événements de mer (BEAmer)

### 1.5.2.1 Events on Britannica HAV

During his watch, the chief mate was reportedly monitoring three vessels (specifically in the lead up to the collision) (Figure 9).

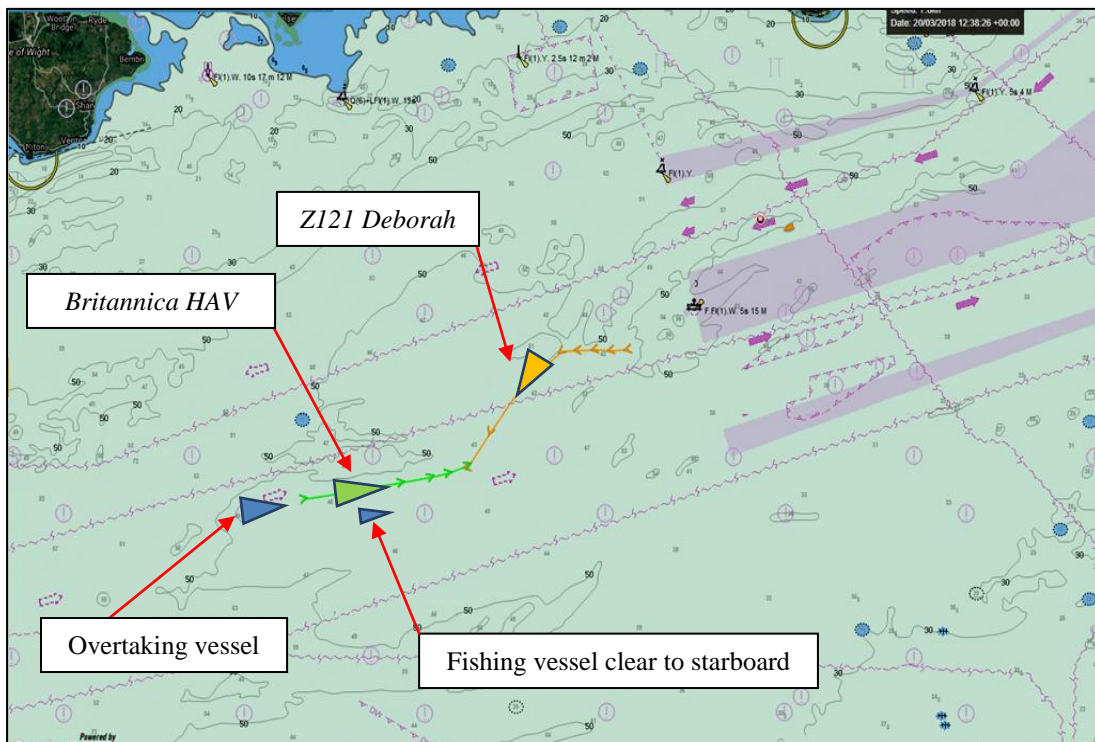


Figure 9: Approximate reported navigational situation of Britannica HAV (positions and distances are illustrative only)

Source: www.Bigoceandata.com

First, a tanker was overtaking *Britannica HAV* and was around one nautical mile astern of the vessel. Second, a fishing vessel was passing clear at least 0.5 nautical miles to starboard. The third vessel, a fishing vessel (*Z121 Deborah*), was on his vessel's port bow. The chief mate further reported that he believed that she was shaping up to pass ahead of *Britannica HAV*'s bow, at a range of about 0.5 nautical miles (by ATA).

*Z121 Deborah* was observed to be proceeding at about 12 knots over the ground by ATA and was displaying fishing shapes as well as transmitting her status by AIS as a vessel engaged in fishing. The navigational OOW on board *Britannica HAV* stated that he had some previous experience of sailing aboard fishing vessels and was of the opinion that *Z121 Deborah* was actually a power driven vessel under the COLREGS. Her fishing gear was apparently stowed, and she was proceeding at about 12 knots, faster than she could reasonably be expected to be using the fishing gear that restricted manoeuvrability.

The navigational OOW stated that he normally felt that a 0.5 nautical mile passing distance (closest point of approach) was acceptable. He also recalled that he had experienced instances in the past when fishing vessels did not take the correct action under the collision regulations in these waters. To this effect, he wanted to increase his passing distance from 0.5 nautical miles. He stated that he had altered course to port about 10° to increase the CPA to 0.7 nm.

Prior to this course alteration, the navigational OOW believed that there were risks of collision neither with *Z121 Deborah* nor with any other vessel.

At some stage, following the alteration of course to port, the navigational OOW noticed that the CPA to *Z121 Deborah* had decreased to almost zero, indicating risk of collision. It is likely that the prevailing environmental conditions at the time may have affected the movement and / or direction, appearing to the OOW that the fishing vessel had altered her course to starboard, although he could not see her wake clearly. He was also using relative trails on radar, making the extent of alteration difficult to estimate.

From about 1440, the navigational OOW on board *Britannica HAV* tried calling *Z121 Deborah* on VHF radio channels 13 and 16. However, there was no response.

He stated that he neither altered course nor speed, interpreting the situation as a Rule 15 (crossing situation) with *Britannica HAV* being the stand on vessel as per the COLREGS.

At about 1445, the chief engineer proceeded to the bridge to discuss spare parts orders with the chief mate. There, the chief mate informed him that at that moment, he was too busy to speak as he was concerned about *Z121 Deborah*. The chief engineer remained on the bridge and witnessed the chief mate's attempts to contact *Z121 Deborah* on the VHF radio.

The OOW further stated that since *Z121 Deborah* had not taken any avoiding action, he engaged manual steering and put the rudder hard to starboard. He did not sound any whistle signals. As the main engine was already on full ahead, he did not alter the engine's speed. At about 1448, *Britannica HAV* began a turn to starboard. The turn was very slow and the vessel's ground speed decreased to about 3.5 knots during the turn.

At about 1449, the chief mate realised that collision was unavoidable unless *Z121 Deborah* also took immediate actions. He sounded one long blast on the ship's whistle. The chief engineer stated that following this whistle signal, he observed one crew member on board *Z121 Deborah* appearing from somewhere towards the bow and running towards the wheelhouse. The chief engineer noticed this person stopping by the wheelhouse and appeared to be banging on the bulkhead, as if to get the attention of somebody on the inside. The chief engineer could not see anybody inside the wheelhouse but saw other crew members appearing from the forward part of *Z121 Deborah*.

The chief mate stated that from the time he first observed *Z121 Deborah* visually, until shortly before the collision, he did not see anybody inside the fishing boat's wheelhouse. He noted, however, that he could not be certain that the wheelhouse was unmanned as visibility through the fishing boat's wheelhouse windows was limited.

At about 1450, less than a minute after *Britannica HAV* sounded her whistle signal, *Z121 Deborah*'s bow collided with *Britannica HAV*'s port side in way of wing ballast tank no. 3. It was evident that the impact had damaged the cargo hold hatch cover and

the vessel's side shell plating. Soon after the collision, the chief mate pulled the main engine's telegraph to stop. Figure 10 shows AIS data leading to the collision.

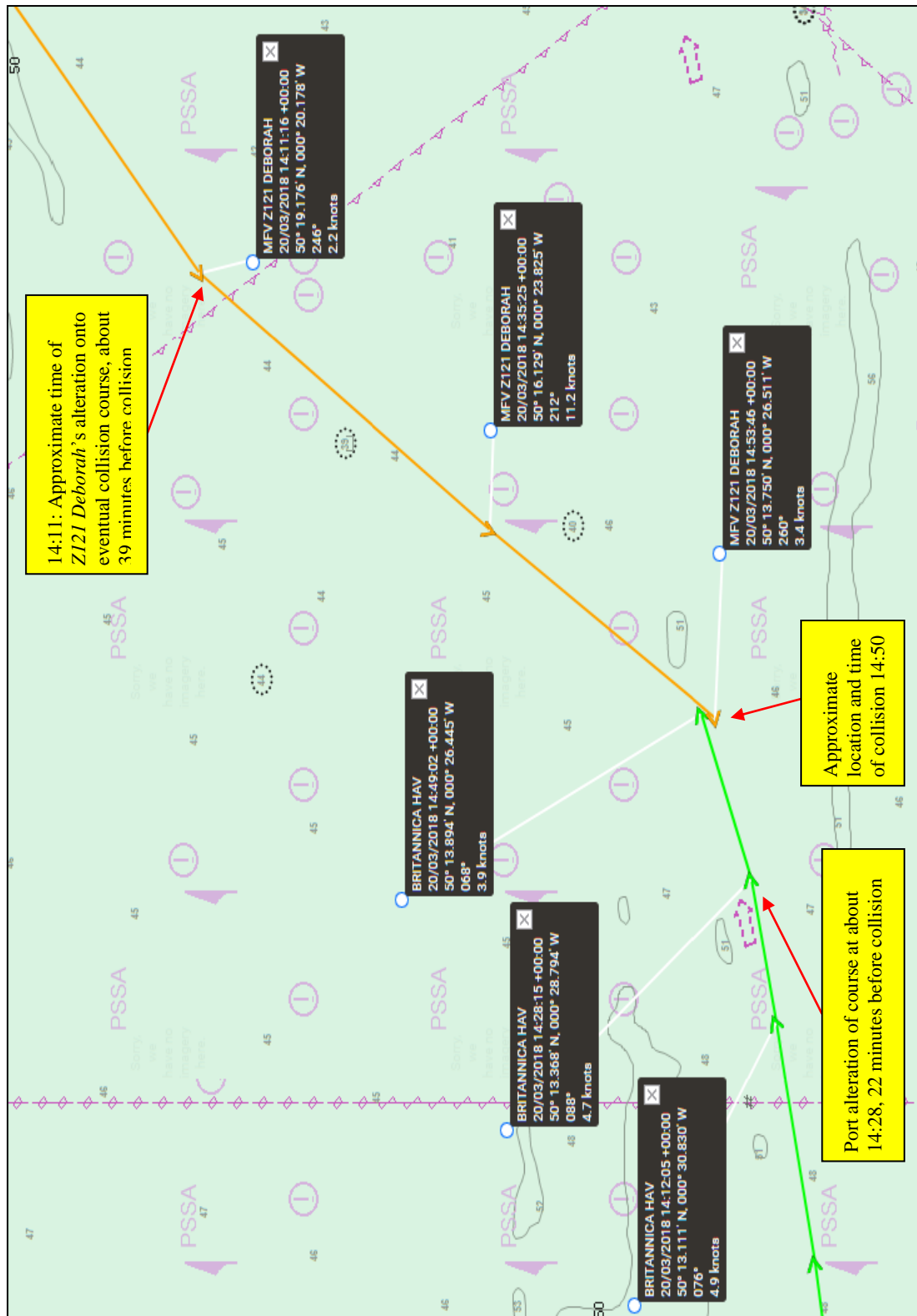


Figure 10: AIS data leading to the time of the collision

Source: [www.Bigoceandata.com](http://www.Bigoceandata.com)

### 1.5.2.2 Events on *Z121 Deborah*

The skipper on board *Z121 Deborah* stated that prior to the collision, he had left the wheelhouse (Figure 11) and proceeded to the galley to make a cup of coffee. At this point, the wheelhouse was unmanned, with the rest of the crew either processing the last catch or maintaining the fishing gear in other parts of the vessel.

The skipper stated that he could not recall what had happened after he had left the wheelhouse to make himself a cup of coffee. He described further how he had no recollection of what had happened, except that he fell unconscious and came back to his senses in the galley covered in blood and soon after the impact.

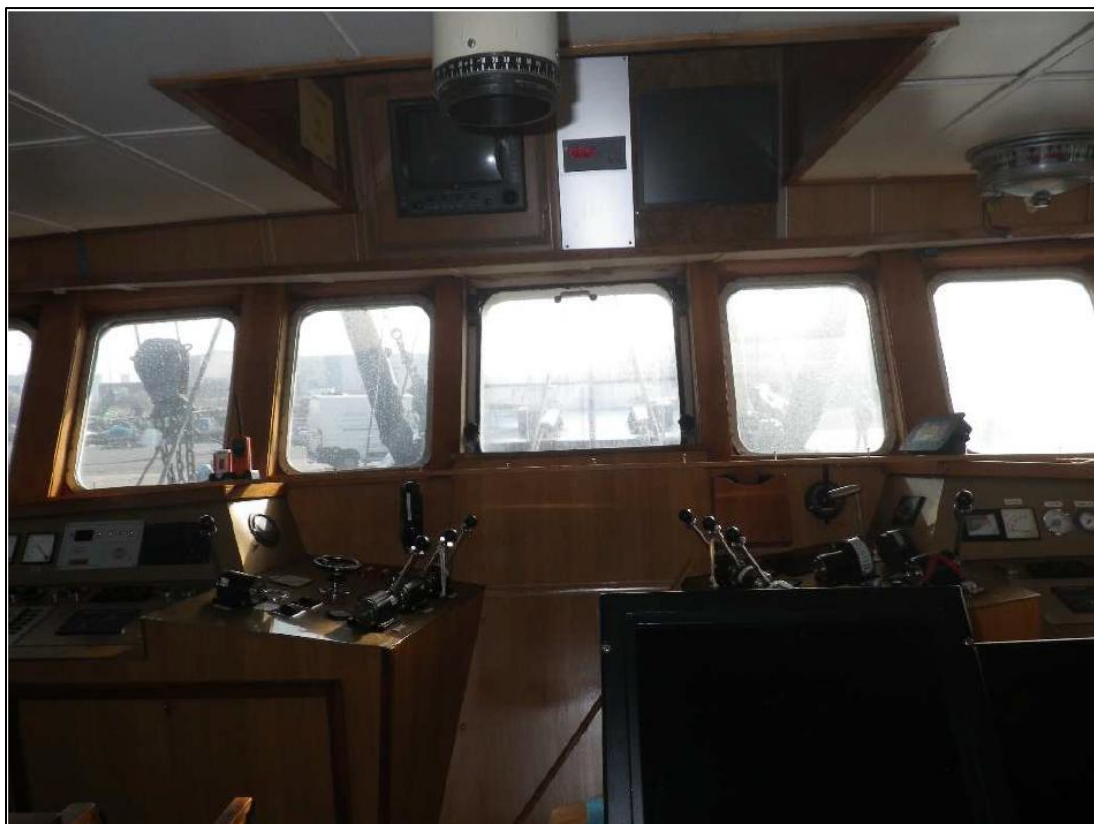


Figure 11: *Z121 Deborah* wheelhouse

### 1.5.3 Post collision events

*Z121 Deborah* repeatedly struck *Britannica HAV*, although less forcefully than the initial impact. These impacts occurred progressively further aft along the port side of the Maltese vessel. Wave motion and the close proximity of the vessels meant that the total number of impacts remained unclear.

The skipper stated that he rushed back to the wheelhouse, encountering the motorman in the alleyway. In the wheelhouse, he noticed *Britannica HAV* very close by and at that point he stopped the main engine. In the meantime, the motorman had joined him in the wheelhouse.

*Britannica HAV*'s freeboard was only about 1.3 m. The poop deck was about 1.5 m higher than this. The fishing vessel had her nets and steel gear raised and at a similar height to the poop deck. The skipper observed that the securing chains for the nets had parted but could not see any entangled nets with the other vessel. None of the other crew members was injured.

In the meantime, the crew on board *Britannica HAV* was concerned that if the cargo hold had been breached, the vessel's stability would be compromised and that sinking or capsizing could have been a possibility if she lost her reserve buoyancy. At about 1500, the master of *Britannica HAV* confirmed that the fishing boat's fishing gear was clear. The master put the rudder hard to port and went full ahead on the main engine to move the stern clear of the fishing vessel and avoid further collisions. Once clear, the main engine was again set to stop.

At about 1519, the fishing vessel reported the collision to the relevant shore authorities.

#### **1.5.4 Sustained damages**

Both vessels sustained significant structural damages as a result of the collision.

##### **1.5.4.1 Damages to *Britannica HAV***

Soon after the collision, *Britannica HAV* developed a list to port, which kept increasing. The AB was ordered to check inside the cargo hold for any water ingress. He entered through a manhole on the main deck and at about 1505, the AB returned to the main deck and reported water inside the cargo hold. He also confirmed that the flooding was progressing. It was evident to the master that the side shell plating had been breached and there was significant structural damages below and above the waterline.



#### 1.5.4.2 Damages to Z121 Deborah

The damages sustain by the fishing vessel seemed to be confined to the forward part, *i.e.*, her forecastle and forecastle deck (Figure 12). This damage was comparable to an impact almost at right angles to *Britannica HAV*'s side shell<sup>6</sup>. The fishermen did not report any water ingress and it was confirmed that there were no damages below the waterline.



**Figure 12: Damages to the fishing vessel's bow area**

<sup>6</sup> Information available to the safety investigation indicated that the fishing vessel had actually struck the Maltese vessel at an angle of 70° leading aft.

### 1.5.5 Abandonment

As *Britannica HAV* was a single cargo hold vessel and almost fully laden, the master was extremely concerned that there was a serious risk of either sinking or capsizing, given that it had been confirmed that the cargo hold had been breached.

Consequently, he ordered that the ship was abandoned. The crew members donned their immersion suits and life jackets and began to prepare liferafts.

The port list was increasing gradually so disembarkation was ordered from the port side since the starboard side was by then too high above the water. The chief mate and the master were the last to disembark *Britannica HAV* into the liferafts at about 1520. The list was by now about 35° to port. The vessel's rescue boat was not launched. At about 1526, a MAYDAY relay message was broadcast by VHF radio from the fishing vessel<sup>7</sup>.

*Britannica HAV*'s crew members were moving away from the side of the vessel in their liferafts. The master reported that this was difficult, as the rafts were in the lee of the vessel. They had no propulsion available other than the rafts' sea anchor and small paddles.

At about 1529, a French rescue helicopter with an embarked medical team was mobilized. *Z 121 Deborah*'s relief skipper manoeuvred the vessel close to the liferafts in order to pick up the *Britannica HAV*'s crew.

### 1.5.6 Rescue operation

At about 1550, the survivors boarded the fishing vessel from the liferafts. At this point, the master observed that his vessel had developed a list of more than 45° and increasing.

At about 1620, the French rescue helicopter was on scene. At about 1622, *Britannica HAV* capsized. Her four hatch covers floated free and separated from the vessel. An area of unspecified pollution, measuring about 800 m by 200 m was reported by the French rescue helicopter.

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<sup>7</sup> The first MAYDAY had been actually transmitted by the crew of *Britannica HAV* from a handheld VHF from the liferafts.



At about 1721, the survivors were lifted aboard the French rescue helicopter (Figure 13), arriving at Cherbourg at about 1811. The vessel was marked with a smoke buoy. *Z121 Deborah* subsequently proceeded to her home port of Zeebrugge under her own power. Hospital treatment was required for minor injuries for two crew members of *Britannica HAV* but both were discharged within a short time.

It was reported that the skipper of *Z121 Deborah* had suffered a broken shoulder blade, a broken elbow, and cuts to his head.



**Figure 13: *Britannica HAV*'s chief engineer being air lifted by the French rescue helicopter**

*Britannica HAV* remained afloat, albeit capsized. She was watched closely by a French tug, and eventually towed to Le Havre, brought alongside (Figure 14) and righted (Figure 15). In the meantime, her hatch covers were continuously monitored, being a potential hazard to navigation.



**Figure 14:** *Britannica HAV* alongside at Le Havre



**Figure 15:** The vessel being lifted upright by a heavy lift at the shipyard

## **2 ANALYSIS**

### **2.1 Purpose**

The purpose of a marine safety investigation is to determine the circumstances and safety factors of the accident as a basis for making recommendations, to prevent further marine casualties or incidents from occurring in the future.

### **2.2 Cooperation**

During the course of the safety investigation, the Marine Safety Investigation Unit was assisted by the Federal Bureau for the Investigation of Maritime Accidents of Belgium and the French Bureau d'enquêtes sur les événements de mer.

### **2.3 Available Documentary and Electronic Evidence**

*Britannica HAV* was not fitted with a voyage data recorder (VDR) since this was not a requirement for a vessel of her size. Due to the emergency and the situation on board following the collision and subsequent abandoning of the vessel, the crew were unable to recover any documents prior to boarding life rafts. The MSIU was aware that the chief mate did retrieve the deck logbook from the bridge, but this was subsequently left on the main deck during the abandonment. None of the crew members were able to retrieve their personal mobile devices before abandonment. To this effect, no photographs exist from *Britannica HAV*, of the accident and the immediate aftermath.

Limited third party AIS data recording the accident was available and had been sourced, showing the position, speed, course and heading of the two vessels at key times on the lead up to the collision.

The information used to prepare the safety investigation report was primarily sourced from interviews with the crew members of *Britannica HAV* and *Z121 Deborah*.

## **2.4 Alcohol and Drugs**

The Company had a drug and alcohol policy enforced on board which stipulated that “[i]t is prohibited to be intoxicated for any crewmember or other staff of ‘HAV Ship Management NorRus AS’ while on board. Intoxication was defined as 0.04 % or more blood alcohol content.”

During interviews, the *Britannica HAV*’s crew members advised that theirs was a dry ship, *i.e.*, a strict policy of no alcohol consumption on board was practiced. The safety investigation was informed that only a small amount of alcohol was on board at the time of the accident and it was not for crew consumption, but for “gift” purposes only.

The safety investigation is aware that following the accident, neither alcohol nor drug tests were carried out on the crew members of both involved vessels.

## **2.5 Fatigue**

*Britannica HAV* followed the Maritime Labor Convention, 2006 (MLC)’s hours of work and rest requirements. A digital system of recording these hours was in place on board and managed by the chief mate. Moreover, the Company had issued internal Circular C-2016-30DPA, dated 21 September 2016, in relation to the record keeping of hours of rest and overtime hours. The Circular highlighted the need to ensure that hours of rest are completed accurately and correctly. This system relied on the chief mate entering all the crew members’ working hours and printing a sign-off sheet at the end of each calendar month. All sheets would then be presented to the relevant crew member for confirmation and signing, before sending them to the Company.

Analysis of the February 2018 hours of rest (the last full month available) indicated that these hours of rest records may not have been accurate, particularly for the chief mate. For instance, although the chief mate regularly worked outside of his core 12-hour watch times, particularly during mooring operations or port cargo operations, the hours of rest records showed that he maintained strict (identical) 12-hour watch patterns every day.

Evidence collected from the vessel indicated that the schedule was demanding, considering that there were two navigational OOWs and this had often led to the consumption of considerable amounts of coffee. In line with this claim, the safety investigation did not come across records to suggest that this matter had been ever brought to the attention of the Company. Moreover, the navigational OOW confirmed that at the time of the accident, he did not feel fatigued.

As explained elsewhere, *Z121 Deborah* was required to be manned by six persons. The total number of available crew members meant that the crew could rotate with periods of three weeks on board followed by one week at home. Documents made available to the safety investigation did not suggest that fatigue was an issue on the fishing vessel.

In the absence of factors and behaviour which would be indicative of fatigue, the safety investigation did not consider fatigue as a contributing factor to this accident.

## **2.6 Bridge Manning**

During the lead up to the incident, the navigational OOW on board *Britannica HAV* was alone on the bridge. Company procedures required that a dedicated look-out was on watch on the bridge during the hours of darkness, and available on call during daylight hours. The safety investigation revealed that in practice, a dedicated look-out was only rarely called to the bridge during daylight hours, even in heavy traffic such as may be expected within the Dover Straits. It was indicated to the safety investigation that this procedure was applied in order to ensure effective use of crew members. It would appear that the navigational OOW did not consider the situation particularly challenging and no additional look-out was requested.

On board the fishing vessel, the wheelhouse was entirely unmanned for some time prior to the collision and to this effect, the safety investigation concluded that in all probability, nobody on board was either monitoring the VHF radio or keeping a lookout on deck. The absence of watchkeeper on the bridge on board the fishing vessel was considered to be one of the contributing factor to the collision. It also needs to be highlighted that the lack of manning of the fishing vessel's wheelhouse did happen within the busy lanes of the English Channel, close to the Dover Straits.

There was, however, no evidence of steering gear failure although the fishing vessel's unsteady movement or direction across the Channel possibly from the influence of the sea and current was not excluded by the safety investigation.

## **2.7 Sound Signals**

The navigational OOW stated that he was in doubt about the actions and intentions of the fishing vessel. The chief engineer also confirmed that the navigational OOW had expressed this concern prior to the accident.

The available information suggested that *Britannica HAV* did not make any sound signal until less than a minute prior to the collision. The navigational OOW estimated that his vessel's whistle range was at least one nautical mile. Thus, with a closing speed of about 12 knots, the whistle of *Britannica HAV* should have been audible to the fishing vessel for at least five minutes before the collision. The Northeasterly wind may, however, have had a slight reducing effect on this audible distance (*Z121 Deborah* was upwind of *Britannica HAV*).

Although the navigational OOW was aware that at the time, all crew members on board *Britannica HAV* were awake (therefore the ship's whistle would not have had any adverse effect on crew rest hours), his decision not to sound the whistle was influenced by two main factors. He was:

- trying to contact the fishing vessel on the VHF radio. The fact that he got no reply was not a concern to the navigational OOW. He had encountered situations before where fishing vessels often would not reply to VHF calls, but would instead simply take avoiding action on hearing a VHF call; and
- concerned that he may confuse other vessels in the vicinity.

The navigational OOW stated that as a stand-on vessel, concerned about a give-way vessel's actions, he would (in order of preference):

1. try and call the other vessel by VHF;
2. take avoiding action by altering course/speed; and
3. sound five or more short blasts on the ship's whistle.

The MSIU has investigated other collisions in the past where the sounding of five short and rapid blasts on the whistle was not done and this had possibly led to a missed opportunity to alert the other vessel of the developing situation and to express doubt whether sufficient action is being taken by the other vessel to avoid collision. Moreover, the use of VHF for collision avoidance relies on a VHF radio being turned on (and in good working condition), set on the right channel, and with adequate volume. Even more, it also relies on somebody being close enough to hear the transmission.

In comparison, a ship's whistle only needs somebody to be on board the target vessel and within range. The safety investigation considers the ship's whistle as an effective functional prevention barrier system, which was not utilised in good time. It has to be stated, however, that since there was no one in the wheelhouse on the fishing vessel, there remained the risk that *Britannica HAV*'s whistle signal being missed as well.

## **2.8 Crossing Situation**

The navigational OOW had identified *Z121 Deborah* as a power driven vessel (not engaged in fishing), visible to the eye, initially crossing from the port side of *Britannica HAV*. However, during the course of events, the dynamics of the crossing situation changed and the OOW interpreted this change as a COLREGS Rule 15 - crossing situations - with the fishing vessel being the give-way vessel and *Britannica HAV* as the stand-on vessel.

Moreover, it is the view of the safety investigation that previous experience of the OOW with fishing boat encounters has influenced this decision as well. Academic studies show that reasoning patterns and decision making processes more often than not rely on personal experiences. In other words, scenarios and problem-solving situations are related to own experiences, in an attempt to resolve the dilemmas which are encountered. The safety investigation believes that this accident was no different.

## **2.9 Vulnerability of Bulk Carriers**

*Britannica HAV* had a single undivided hold. The vessel was effectively double skinned; both the side shell plating and the ballast wing tanks had to be breached before cargo hold flooding could occur. Despite this, *Britannica HAV* remained vulnerable to hull damage as her intact stability was not adequate to keep the vessel upright and afloat once the cargo hold flooding occurred.

This issue had been investigated in depth by the International Maritime Organization (IMO), leading to SOLAS Chapter XII (Additional Safety Measures for Bulk Carriers). It is notable that most of these considerations are only for vessels over 150 m in length and not applicable to *Britannica HAV*, which was 82 m long.



**THE FOLLOWING CONCLUSIONS AND  
RECOMMENDATIONS SHALL IN NO CASE CREATE  
A PRESUMPTION OF BLAME OR LIABILITY.  
NEITHER ARE THEY BINDING NOR LISTED IN ANY  
ORDER OF PRIORITY.**

### **3 CONCLUSIONS**

Findings and safety factors are not listed in any order of priority.

#### **3.1 Immediate Safety Factor**

- .1 A close quarter situation which developed and progressed to an extent that the collision between the two vessels became inevitable.

#### **3.2 Latent Conditions and other Safety Factors**

- .1 On board the fishing vessel, the wheelhouse was unmanned prior to the collision;
- .2 Nobody on board the fishing boat was neither monitoring the VHF radio nor keeping a lookout;
- .3 The available information suggest that *Britannica HAV* did not make any sound signal to attract attention, until less than a minute prior to the collision;
- .4 The ship's whistle, as an effective functional prevention barrier system, was not utilised in good time;
- .5 Influenced by previous personal experience, no action was taken in good time by the navigational OOW on board *Britannica HAV*.

#### **3.3 Other Findings**

- .1 Fatigue was not considered to be a contributing factor to this accident;
- .2 The navigational OOW's interpretation of the events as a crossing situation to be reasonable and correct.
- .3 The navigational OOW alone on the bridge did not consider the situation challenging.

## 4 ACTIONS TAKEN

During the course of the safety investigation, the managers of *Britannica HAV* have carried out an internal investigation in accordance with the requirements of the Company's safety management system. The outcome of the internal investigation was shared with masters serving on board the Company's fleet. Crew members were required to discuss the accident and the safety lessons learnt.

A Company decision was also taken to install dual ECDIS on board the Company's fleet vessels. The installation date will be completed by the end of 2020.

## 5 RECOMMENDATIONS

In view of the conclusions reached and taking into consideration the safety actions taken during the course of the safety investigation,

**Belgian Maritime Inspectorate is recommended to:**

**06/2019\_R1** Issue an information notice to fishing vessel registered in Belgium to highlight the significant hazards of inadequately manned wheelhouses, in particular when the vessel is in close proximity of busy shipping lanes and TSS zones.