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

Investigation Report 71/17

Very Serious Marine Casualty

Collision between the FV JAN MARIA and a fishing boat in the Mauritanian EEZ on 21 March 2017

20 September 2019

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:
Bundesstelle für Seeunfalluntersuchung – BSU
(Federal Bureau of Maritime Casualty Investigation)
Bernhard-Nocht-Str. 78
20359 Hamburg
Germany

Director: Ulf Kaspera
Phone: +49 40 3190 8300 Fax: +49 40 3190 8340
posteingang-bsu@bsh.de www.bsu-bund.de

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1 SUMMARY

During the search for fish in the Mauritanian Exclusive Economic Zone (EEZ), the German-flagged stern trawler factory JAN MARIA sailed over the anchor line of a small fishing boat manned by six people at about 0113[1] on 21 March 2017. The boat's anchor line caught on the underwater hull of the JAN MARIA. As a result, the fishing boat was caught by the JAN MARIA and dragged to her hull, where the former was then trapped.

A continuous jet of cooling water, which was discharged permanently, then poured into the open fishing boat from at least one of the two outlets in the JAN MARIA's shell plating above the area in which the two vessels collided. The large amount of water in relation to the dimensions of the fishing boat caused her to fill up extremely quickly. Taken by surprise, the suddenly awoken crew was unable to cut the anchor line and move away from the JAN MARIA (or water jet) in the brief amount of time at its disposal. The boat inevitably foundered in virtually no time at all.

The accident was only noticed on board the JAN MARIA due to the grinding noises resulting from the collision with the fishing boat and ensuing calls for help from the fishermen. Three fishermen were saved during the immediately initiated rescue operation. It was not possible to locate the fishing boat's other three crew members even after the JAN MARIA's lifeboat was deployed.

The JAN MARIA discontinued the search operation, in which only one of the various vessels fishing in the accident area took part from about 0500 to 0900, at about 1030 and took the rescued fishermen ashore in the Mauritanian port of Nouadhibou.

The JAN MARIA was allowed to leave the country's territorial waters on 24 March 2017 after the local authorities had completed their investigation of the accident.

[1] All times shown in this report are UTC.

2 FACTUAL INFORMATION

2.1 Photograph of the FV JAN MARIA

Figure 1: FV JAN MARIA

2.2 Ship particulars: FV JAN MARIA[2]

Name of ship:	JAN MARIA
Type of ship:	Fishing vessel/stern trawler
Flag:	Germany
Port of registry:	Bremerhaven
IMO number:	8707446
Fisheries code:	BX 791
Call sign:	DFDJ
Owner:	Doggerbank Seefischerei GmbH, Bremerhaven
Year built:	1988
Shipyard:	Schichau Seebeckwerft AG Bremerhaven
Yard number:	1066
Classification society:	DNV GL
Length overall:	125.53 m
Breadth overall:	18.28 m
Gross tonnage:	7,646
Draught:	9.40 m
Engine rating:	3,000 kW
Main engine:	WÄRTSILÄ NETHERLANDS/8R32
(Service) Speed at time of accident:	3 kts
Minimum safe manning:	22

[2] Note: The JAN MARIA was sold in 2018, renamed **TSARITSA** and now flies the Russian flag. The ship's classification society has since been the RUSSIAN MARITIME SHIPPING REGISTER.

2.3 Voyage particulars: FV JAN MARIA

Port of departure:	IJmuiden, Netherlands
Planned port of call:	Nouadhibou, Mauritania
Type of voyage:	High-sea fishing in the Mauritanian EEZ
Draught at time of accident:	4.9 m
Manning:	47

2.4 Photograph of the fishing boat (example)

Figure 2: Fishing boat (example)[3]

2.5 Ship particulars: Fishing boat

Name of boat:	N/A
Type of boat:	Traditional fishing boat (pirogue)
Flag:	Mauritania
Port of registry:	Nouadhibou
National registration number:	3187
Call sign:	./.
Owner:	./.
Year built:	N/A
Shipyard:	N/A
Length overall:	14.00 m
Breadth overall:	N/A
Draught:	N/A
Engine rating:	2 x 29.4 kW
(Service) Speed at time of accident:	0 kts (laid up)
Minimum safe manning:	N/A

2.6 Voyage data: Fishing boat

Port of departure:	Nouadhibou, Mauritania
Planned port of call:	Nouadhibou, Mauritania
Type of voyage:	Coastal fishing in the Mauritanian EEZ
Draught at time of accident:	N/A
Manning:	6

[3] Note: The master of the JAN MARIA kindly provided the BSU with the photograph during the survey on board.

2.7 Marine casualty information

Type of accident:	Very serious marine casualty
Date, time:	21/03/2017 at about 0113
Location:	Atlantic; Mauritanian EEZ
Latitude/Longitude:	Approximately φ 20°25.7'N λ 017°31.0'W
Ship operation and voyage segment:	JAN MARIA: Preparing to fish (searching for fish) Fishing boat: Laid up
Consequences:	Fishing boat foundered; three of the fishing boat's crew members deceased

Figure 3: Scene of the accident

2.8 Shore authority involvement and emergency response

Agencies involved:	None
Resources used:	Lifebuoys, JAN MARIA's lifeboat
Actions taken:	SAR operation by the crew of the JAN MARIA; emergency calls on VHF channel 16; fishing vessel SVANAVAG (flag: Belize) provides temporary support during the SAR operation
Results achieved:	Apart from assistance provided by the SVANAVAG, there was no further response to the emergency calls despite the presence of various fishing vessels of differing sizes and origins in the area; the JAN MARIA's crew rescues three of the fishing boat's crew members; three other crew members missing

3 COURSE OF THE ACCIDENT AND INVESTIGATION

3.1 Course of the accident

3.1.1 Events up until the collision between the JAN MARIA and fishing boat from the perspective of the JAN MARIA

In the hours leading up to the accident (**night of 20-21 March 2017**), the JAN MARIA cruised in the area of the subsequent accident position in search of fish at an average speed of some 3 kts. The wind force was 5 Bft and the mean wave height less than 2.5 m. Due to the need for repairs on board, the vessel was not in the process of normal fishing operations. The chief officer was on the bridge in charge of the navigational watch. There was no rating on watch on the bridge. Inside and at times outside the superstructure several crew members were carrying out repair works on nets and a winch.

At about **0113**, the officer in charge of the navigational watch suddenly noticed an extremely weak light, shimmering in bluish colour, ahead on the starboard side immediately adjacent to the JAN MARIA's bow. The unidentifiable object prompted him to take the precautionary measure of executing a hard to port helm manoeuvre. Due to this last-minute avoiding action, he prevented a collision with the other (still unknown) vessel, which veered starboard and toward the stern until she was no longer visible from the bridge.

A few minutes later the officer heard excited cries, which included the English word 'canoe', coming from the JAN MARIA's aft section, i.e. from the direction of the fishing deck behind the superstructure (see **Figures 4 f.**).

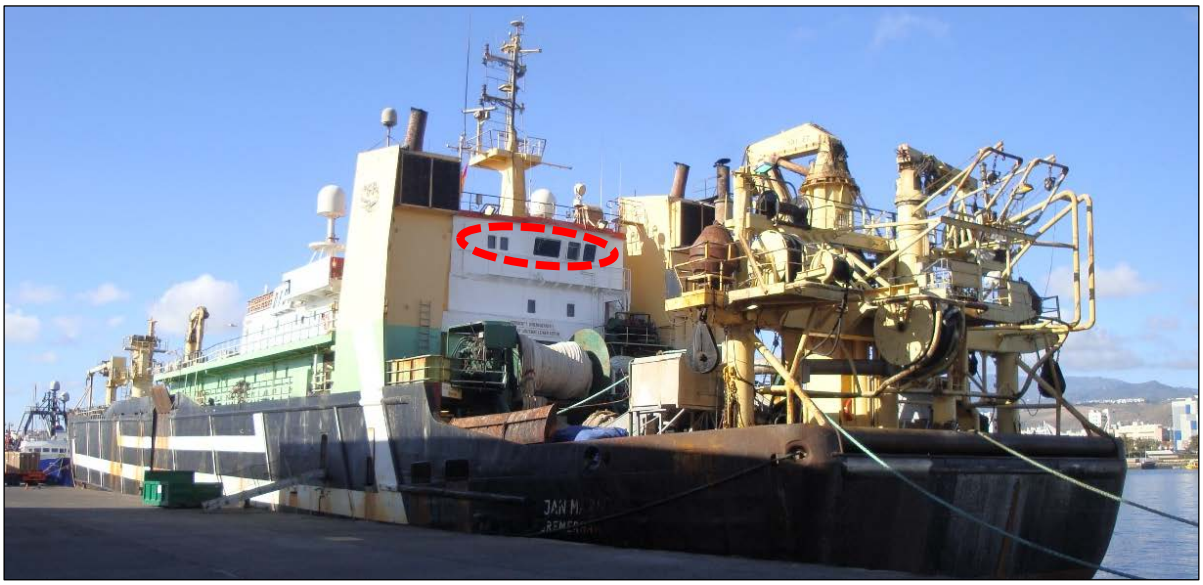

Figure 4: View of the aft section of the JAN MARIA
(bridge's aft windows marked red)

Figure 5: View of the fishing deck from the bridge's aft windows

The officer left the bridge through a door on the starboard side so as to establish the reason for the cries from there (i.e. in the area of the external companionway to the fishing deck). At that moment, a crew member arrived at the bridge deck via the above companionway. The seaman told the officer that grinding noises and cries for help had been heard on the fishing deck from the direction of the water on the starboard side. Despite the darkness, the officer was then able to see the shadowy outline of a fishing boat pressed against the JAN MARIA when he looked along the aft section of the ship's hull on the starboard side.

Figures 6 ff. show the position outside the bridge where the officer in charge of the navigational watch and the seaman (who reported the collision with the fishing boat) met, the position in the starboard wing from where they then looked for the object with which they had collided and the view from the position in question toward this object.

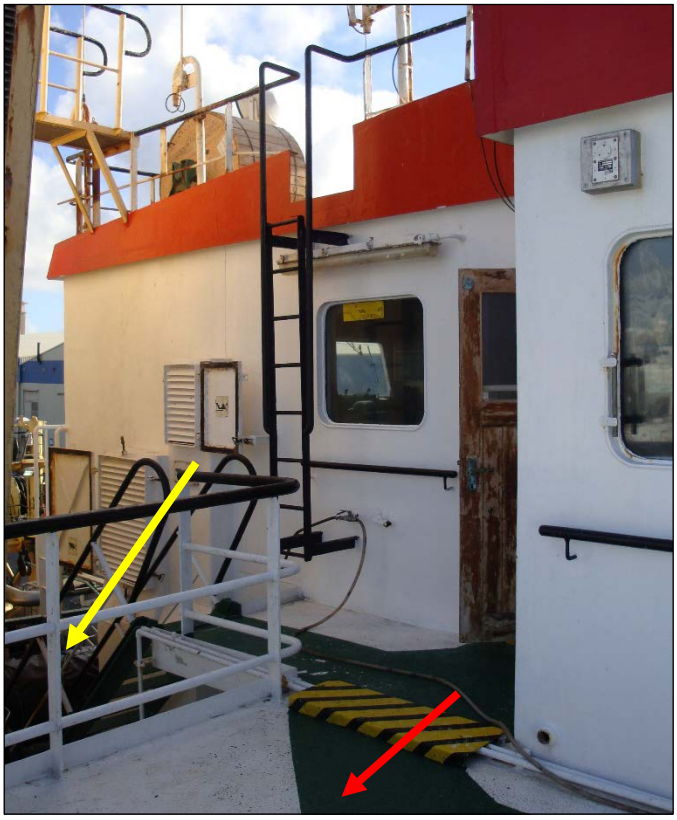

Figure 6: Area outside the JAN MARIA's bridge (starboard side) with companionway to the fishing deck (yellow arrow) and path to starboard wing (red arrow)

Figure 7: Starboard bridge wing (red arrow marks path to observation point)

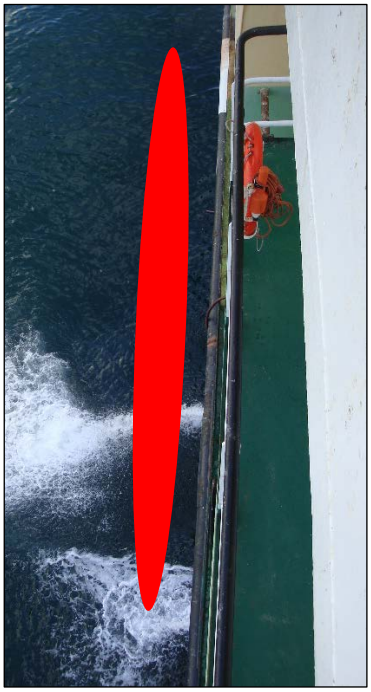

Figure 8: View from starboard wing to fishing boat
(red ellipse symbolises boat, not to scale)

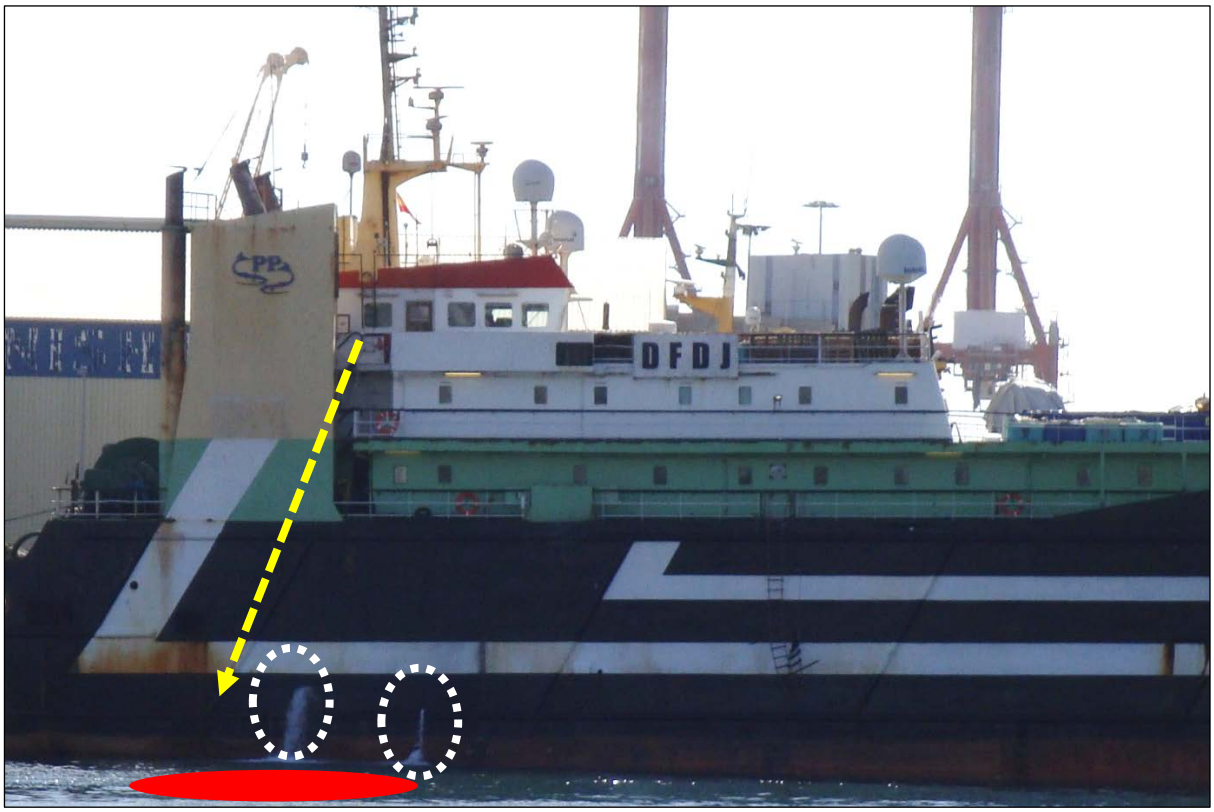

Figure 9: Starboard side of the JAN MARIA with schematic illustration of the position at which she and the fishing boat collided; direction of view from the wing to the boat (yellow arrow); cooling water discharge outlets (marked white)

After the officer in charge of the navigational watch had identified the fishing boat, he hurried back to the bridge, sounded the alarm, stopped the ship and switched on the deck lighting. He sent the seaman who had reported the accident to the master's quarters to notify him. After or at the same time as this was going on, the officer in charge of the navigational watch used a torch to try to gain more detailed information about the other vessel involved in the collision and her situation.

3.1.2 Events up until the collision between the JAN MARIA and fishing boat from the perspective of the fishing boat

The fishing boat left the Mauritanian port of Nouadhibou on **19 March 2017** for a fishing trip lasting about one week in the Mauritanian EEZ (70-80 kg of squid are usually caught per day on average). To conserve the catch, the live fish are kept outboard in a net, which is then towed to the port at the end of the fishing trip.

On the night of the accident, the sparsely lit fishing boat made fast at an anchorage not specifically marked as such on the navigational chart in the middle of an area of the Mauritanian EEZ in which large foreign fishing vessels regularly – including on the night in question – fish.

The boat's skipper assigned the role of watchkeeper to one person. Like everyone else on the boat, the fisherman fell asleep sometime before the accident, however. Consequently, the crew of the fishing boat only became aware of the JAN MARIA (or were suddenly awoken) when the latter was in the immediate vicinity of the boat.

3.1.3 Events following the collision between the two vessels

From the JAN MARIA's bridge wing and various other positions on the starboard side of the ship, the officer in charge of the navigational watch and other observers quickly realised that the anchor line of a fishing boat manned by several people had evidently caught on the underwater hull of the JAN MARIA and that the fishing boat had then been dragged up to and was trapped against the JAN MARIA's hull.

Figure 9 above shows that the JAN MARIA's hull has two cooling water discharge outlets directly above the area in which the two vessels collided. As with the time at which the photographs were taken, cooling water from the cooling water circuit belonging to the ship's air conditioning and cooling system also – and as per design – flowed out of these outlets when the accident occurred. At least one powerful water jet identical with those in **Figures 9 f.** flowed directly and continuously into the open fishing boat unchecked.

The efforts of the fishermen on board the boat to cut the line and release her were not successful.

Figure 10: Cooling water discharge outlet (close-up)

The officer in charge of the navigational watch had already contacted the engineer on watch in the engine room by phone and asked him to shut off the cooling water discharge outlets before the master had arrived on the bridge. The engineer stated that it was reportedly not possible to shut them off immediately for technical reasons.

The JAN MARIA's master arrived on the bridge at roughly the same time (at about **0119**). The officer in charge of the navigational watch explained the situation to him. The master then contacted vessels apparently in the vicinity of the scene of the accident on VHF channel 16 and asked for assistance with the SAR operation personally. His repeated emergency calls went unanswered in the hours that followed. The JAN MARIA's bridge team even saw how vessels moved away from the accident area.

The crew of the JAN MARIA urged the fishermen on the boat to cut the anchor line in the minutes that followed. At the same time, attempts were made to throw lifejackets or lifebuoys to the people on the fishing boat, which was filling up with water rapidly.

When the boat finally foundered, three fishermen succeeded in using empty plastic fuel canisters from on board as buoyancy aids and in keeping their heads above water with those and the lifejackets that had been thrown to them.

One of those fishermen finally managed to swim to the JAN MARIA's lowered pilot ladder and used his last ounce of strength to board her. With the linguistic assistance of the JAN MARIA's Mauritanian crew members, it was established that the crew of the fishing boat consisted of six people.

The crew of the JAN MARIA managed to rescue two more fishermen from the sea by about **0145**. The boat's remaining three crew members were missing.

Despite a temporary increase in swell, a decision to lower the person-overboard boat to search for survivors was taken on board the JAN MARIA **(see Figure 11**). The boat was launched at about **0150** and began to search the sea within sight of the JAN MARIA for the missing fishermen.

Figure 11: JAN MARIA's person-overboard boat at her stowage position on the ship's main deck

Every effort to find the fishermen in the water was made on the JAN MARIA, too. At the same time, emergency calls were transmitted regularly at short intervals on VHF channel 16. These calls included an indication of the presumed drift position of the casualties, which was estimated based on flotsam identified in the water and attributed to the fishing boat.

To begin with, every emergency call went unanswered. Since the sea became more and more stormy and the risks to the lifeboat's crew ever greater, the lifeboat was taken back on board at about **0335**. Regardless of that, the entire crew of the JAN MARIA continued searching in the hours that followed. However, increasing swell made it more and more difficult to conduct a visual search of the sea.

At about **0500**, the Belize-registered fishing vessel SVANAVAG responded to the calls for assistance on channel 16 and participated in the SAR operation until **0900**.

After that, the JAN MARIA continued the search on her own. Since no other objects or references to the missing people were found in their presumed drift direction and interviews with the survivors had revealed that the missing people were unable to swim, the SAR operation was called off at about **1030** due to the apparent hopelessness of the situation.

The JAN MARIA's master consulted with the owner and the local agency responsible for her and decided to head for the port of Nouadhibou, where the ship made fast at about **1700** on the day of the accident.

3.2 Consequences of the accident

Three out of six people on board the fishing boat are very likely to have drowned after the boat foundered. The three other fishermen were rescued and – apart from minor injuries to one fisherman – went ashore in good health in the port of Nouadhibou.

Criminal proceedings were instituted against the master and the officer in charge of the navigational watch after the JAN MARIA arrived at the port of Nouadhibou. The master was taken into custody for about 48 hours. The case was closed within two days after the defendants, the three survivors and two Mauritanian fishermen belonging to the JAN MARIA's crew had been interviewed.

The surviving dependants of the drowned fishermen and the owner of the foundered boat received compensation payments (so-called 'Diya')[4] from the JAN MARIA's owner in accordance with Sharia law. The three surviving fishermen were also compensated.

3.3 Investigation

3.3.1 Course of events, sources and material particulars

The German Ship Safety Division (BG Verkehr) informed the BSU about the accident by phone on **21 March 2017**. The owner of the JAN MARIA had notified this authority (which performs various tasks on behalf of the German Flag administration) of the accident previously and requested that it forward the accident report to the BSU.

On **22 March 2017**, the owner of the ship provided the BSU with the first items of detailed information on the cause of the accident by phone and email. In particular, the accident report sent on the morning of that day, which the master and the chief officer had drawn up, was suitable for gaining an initial impression of the accident.

Due to the severity of the accident, the BSU's director decided that the investigation team should go to the JAN MARIA as soon as possible. Since the owner planned to order the vessel to proceed to the port of Las Palmas immediately after the imminent completion of the local investigation for the purpose of equipping and unloading fish, a decision was made to inspect the JAN MARIA there.

[4] Diya = 'Blood money' that the party responsible or her/his family pays to the surviving dependants of a deceased person under Sharia law, regardless of fault.

The JAN MARIA reached said port on **26 March 2017**. The team of two investigators boarded the ship for several hours on the morning of the following day, first questioning the master and the chief officer on the bridge about the course of the accident and subsequent events. Both witnesses were extremely willing to provide information. The chief engineer was later asked to participate in the interview in order to answer technical questions and also proved extremely cooperative

In addition to the interviews, the investigation team used the time on board as an opportunity to inspect the bridge equipment, as well as visibility from the bridge and wings ahead and toward the aft deck (fishing deck) and the position at which the hull and fishing boat collided. Moreover, documents were sighted, a tour of the entire ship was made and photographs were taken.

The investigation team had already contacted the owner before the passage to Las Palmas, asking if the VDR[5] had been backed up after the accident, which wasn't the case. The retrieval of relevant recordings from the day of the accident was therefore not possible during the BSU's survey on board.

Since the accident was outside the scope of terrestrial AIS[6] monitoring, the BSU was unable to refer to corresponding recordings to reconstruct the course of the JAN MARIA's voyage.

An analysis of the JAN MARIA's SAT-AIS[7] data made it possible to get an overview of this, but only in a sparse pattern due to the system.

[5] VDR: **V**oyage **d**ata **r**ecorder = required system used for recording various items of information (e.g. radar, audio, GPS, gyro compass). The data are stored in a ring buffer and – if no data backup is made due to operation or power failure – overwritten after a certain period of time due to limited memory space. On the VDR (Furuno VR-3000S S-VDR) installed on board the JAN MARIA, overwriting is – in accordance with the design and approval – carried out continuously and such that the previous 12 hours are always available in the system and can be backed up manually if necessary.

[6] AIS = **A**utomatic **i**dentification **s**ystem; introduced to improve maritime safety. All ships equipped with this system transmit on VHF their current GPS-based data, such as position, course and speed as well as possibly other information, which can be displayed on a monitor. Moreover, an increasing number of sea marks and coastal radio stations are being equipped with AIS transponders and/or receivers.

[7] SAT-AIS = Certain operators of near-Earth satellites have equipped them for the reception of VHF-AIS signals. This makes it possible for shore-based stations to record AIS signals in offshore areas (via satellite). Since satellite reception is determined and restricted by such aspects as the number of satellites and their respective trajectories, the AIS data cannot be recorded and forwarded to shore-based stations continuously, unlike VHF reception onshore.

In addition to findings made by the BSU's investigation team on board the JAN MARIA and by analysing the SAT-AIS data already discussed, during its investigation into the cause of the accident, the BSU was also able to refer to transcripts from the official investigation of the accident by the Mauritanian police, which had been translated into English and were kindly made available by the JAN MARIA's owner on **20 April 2017**. In all material respects, the testimonies contained in the transcripts were consistent with the statements made to the BSU by the master and the chief officer of the JAN MARIA.

When the master and the chief officer were interviewed on board the JAN MARIA, they reported in passing that they had learnt, e.g. from conversations with the rescued Mauritanian fishermen, that many local fishermen lost their lives every year in the coastal waters off Africa, in particular. This was because of the inadequate equipment of the boats and the generally extremely hazardous working conditions. Several accidents would normally occur every day. The master was of the opinion that although the European Union (EU) was providing development aid to improve the working and living conditions of local fishermen, it was not reaching the people intended.

On **14 February 2018**, the BSU used the above information as an opportunity to address a relevant written questionnaire to the European Commission, specifically to DG DEVCO[8], which is responsible within the Commission for the EU's international development and aid policy.

The BSU finally received a reply from DG DEVCO in **December 2018**.[9]

3.3.2 FV JAN MARIA (basic Information)

The JAN MARIA is a stern trawler factory built in 1988 for high-sea fishing by the Bremerhaven-based Schichau Seebeckwerft AG. The fishing net is set and hauled in on the fishing deck, which is located at the ship's stern. The JAN MARIA sailed under German flag until she was sold in 2018 but was managed and operated by a fishing company based in the Netherlands. At the time of the accident, the vessel complied with all the requirements applicable to fishing vessels engaged in high-sea fishing and was thus in possession of all the certificates required.

On 13 March 2006, a fatal accident occurred on the ship during a fishing voyage west of Ireland, which the BSU investigated. The investigation report[10] published on 1 September 2008, which can be referenced in this regard, provides a detailed description of the structural conditions and technology used for fishing operations.

[8] DG DEVCO = Directorate-General for International Cooperation and Development.
[9] See also the comments in Section 3.3.7 below.
[10] See Investigation Report 101/06 dated 1 September 2008.

In addition to the minimum safe manning according to the manning certificate (22 people), a further 25 people primarily employed in fishing and, in particular, in the labour-intensive processing of fish were on board the JAN MARIA at the time of the accident.

The crew of the ship consisted of German (20), Dutch (9), Lithuanian (2), Portuguese (2), Polish (1), Russian (1) and Mauritanian (12) nationals. The presence of the 12 Mauritanian crew members is a condition for fishing in the country's EEZ imposed by Mauritania.

The master and the chief officer (both Dutch) each have many or several years of experience working at management level on high-sea fishing vessels and on board the JAN MARIA, in particular.

3.3.3 Fishing boat (basic information)

The 14 m-long fishing boat was a so-called pirogue built and operated in the traditional manner. Vessels of this type are to be found in very large numbers in the coastal waters of the African continent. Due in part to their open design and very limited space on board, they generally do not have safety equipment that meets western standards. As far as can be seen, their countries of origin have few or no regulations at all concerning the equipment, safe operation or regulatory control of the boats in question. This is also the case in Mauritania.

According to statements made to the Mauritanian police by the pirogue's owner (who was not actually on board on the day of the accident) when specifying his material losses, the boat was equipped with two 40 bhp engines, seven fuel canisters each with a capacity of 70 l of diesel, two anchors, a compass, a navigation[11] device and 22 squid traps.

Accordingly, lifejackets, a radar reflector, a powerful handheld torch and a VHF radio were apparently not part of the boat's equipment. The structural conditions (no mast), an analysis of photographs of comparable boats, the testimony of witnesses and not least the investigation team's professional experience in respect of close-quarter situations with the traditional fishing boats in question allow the conclusion to be drawn that the pirogue neither had the structural prerequisites for the proper carriage of lights and shapes according to the International Regulations for Preventing Collisions at Sea (COLREGs – see Rule 26 for fishing vessels in conjunction with Rule 23 or Rule 30 therein), nor did she have them on board even in a provisional or modified form.

[11] Note: The transcript refers to an ‘orientation device’ with no further explanation.

3.3.4 Reconstruction of the course of the JAN MARIA's voyage

The following AIS data on the course of the JAN MARIA's voyage were retrieved for the period **2200 on 20 March 2017 to 2300 on 21 March 2017** from EMSA's[12] IMDatE[13] data portal.

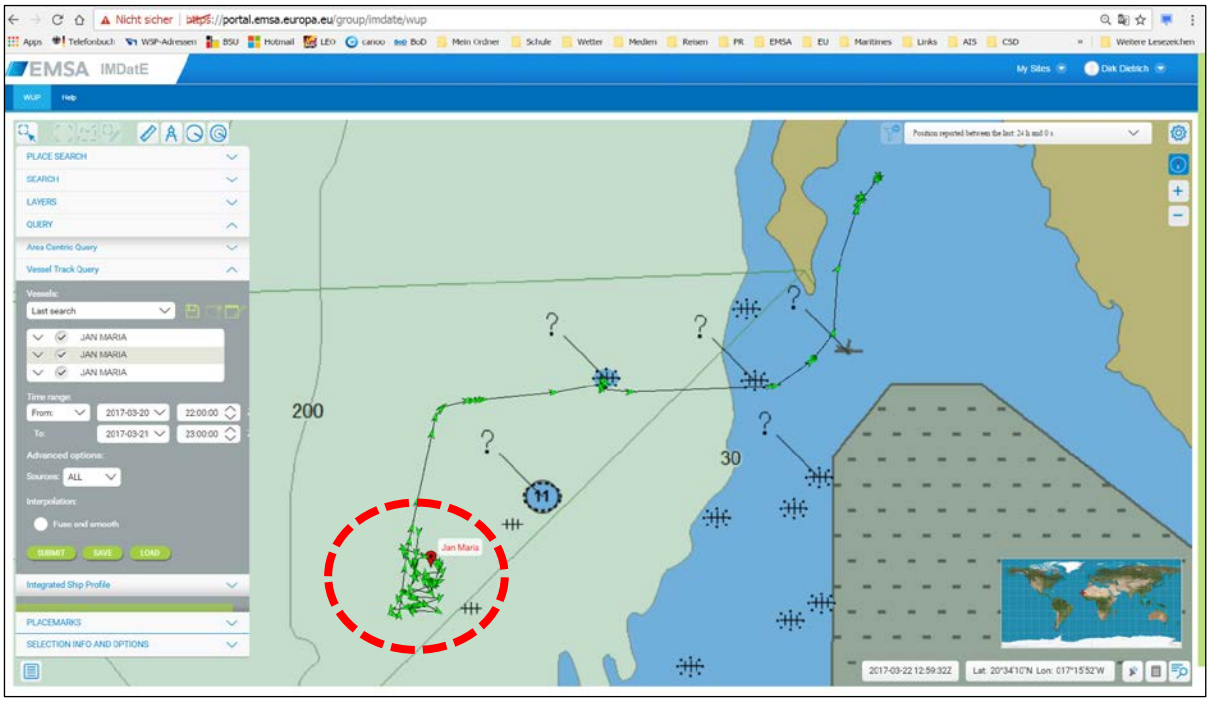

Figure 12: The JAN MARIA's SAT-AIS data on 20/21 March 2017
(overview map; accident and search area marked in red)

Figure 13 below and an analysis of all the AIS data retrieved illustrate that after the accident the ship's command of the JAN MARIA made every effort to search the accident area systematically for the missing fishermen through frequently changing courses.

It should be noted that the ship positions displayed or their connecting lines can only give an approximate impression of the JAN MARIA's actual course. Due to the system, the underlying AIS data were not recorded continuously or at a constant interval. Instead, depending on the satellite constellation, there were distances of up to 35 minutes between two recorded positions during the period under consideration. It is also important to consider that the JAN MARIA only proceeded at an average speed of some 3 kts before and after the accident. Due to the system, this low speed additionally limits the reliability of the course lines calculated.

[12] EMSA: **E**uropean **M**aritime **S**afety **A**gency; service (agency) under the umbrella of the European Commission, which advises the Commission on technical and scientific matters relating to maritime safety as well as the prevention of ship-source pollution and assists EU Member States in the above areas.
[13] IMDatE: EMSA's Integrated Maritime Data Environment.

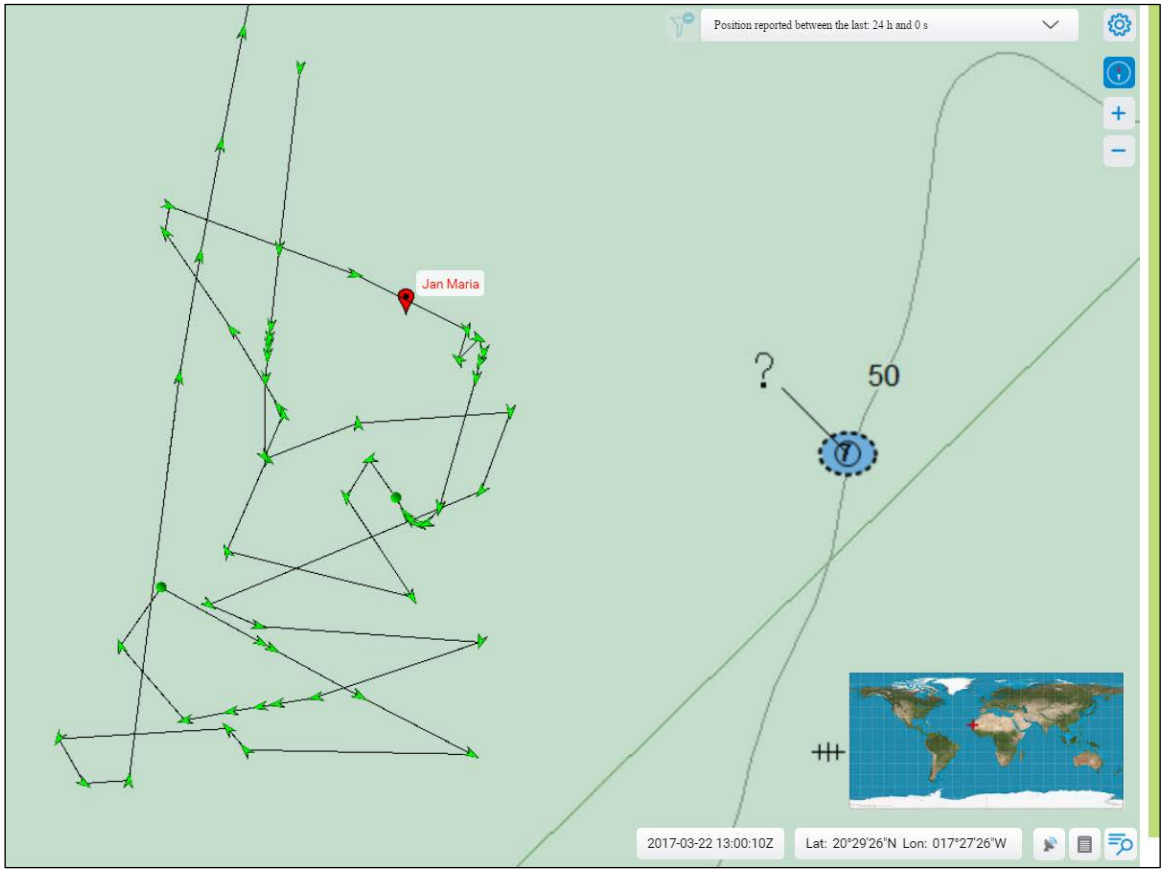

Figure 13: The JAN MARIA's SAT-AIS data on 20/21 March 2017 (accident/search area)

3.3.5 Witness testimony

The interviews with the BSU and an analysis of the transcripts of the Mauritanian police, which include the testimonies of the three rescued fishermen, indicate that the six people on the fishing boat were asleep when the JAN MARIA caught the boat's anchor line.

There is also no doubt about the further course of events, in particular the fact that the fishing boat was trapped against the side of the JAN MARIA and flooded there by the latter's cooling water.

Finally, the extensive search operation of the JAN MARIA, which lasted more than nine hours, is also documented by the concurring testimony of witnesses and analysis of the ship's SAT-AIS data.

3.3.6 Weather report

The Weather Forecast division of Germany's National Meteorological Service (DWD) prepared a report on the weather situation at the scene and time of the accident on behalf of the BSU.[14]

To describe the wind and swell conditions, the DWD referred to its own prediction model and additionally to that of the European Centre for Medium-Range Weather Forecasts (ECMW) in Reading, England. **Figure 14** shows the development of wind and swell from **20-22 March 2017** interpolated to the accident position and based on the analyses and forecasts of the DWD and ECMW [EZMW in below Figure]. The green curve shows the wind sea's proportion of the total significant wave height (grey) and blue indicates the swell's proportion, the direction of propagation and period of which are each shown at the bottom of the charts. Accordingly, the significant wave height was probably less than 2.5 m at the time of the accident. A force 5 (18-21 kts) north-east wind prevailed.

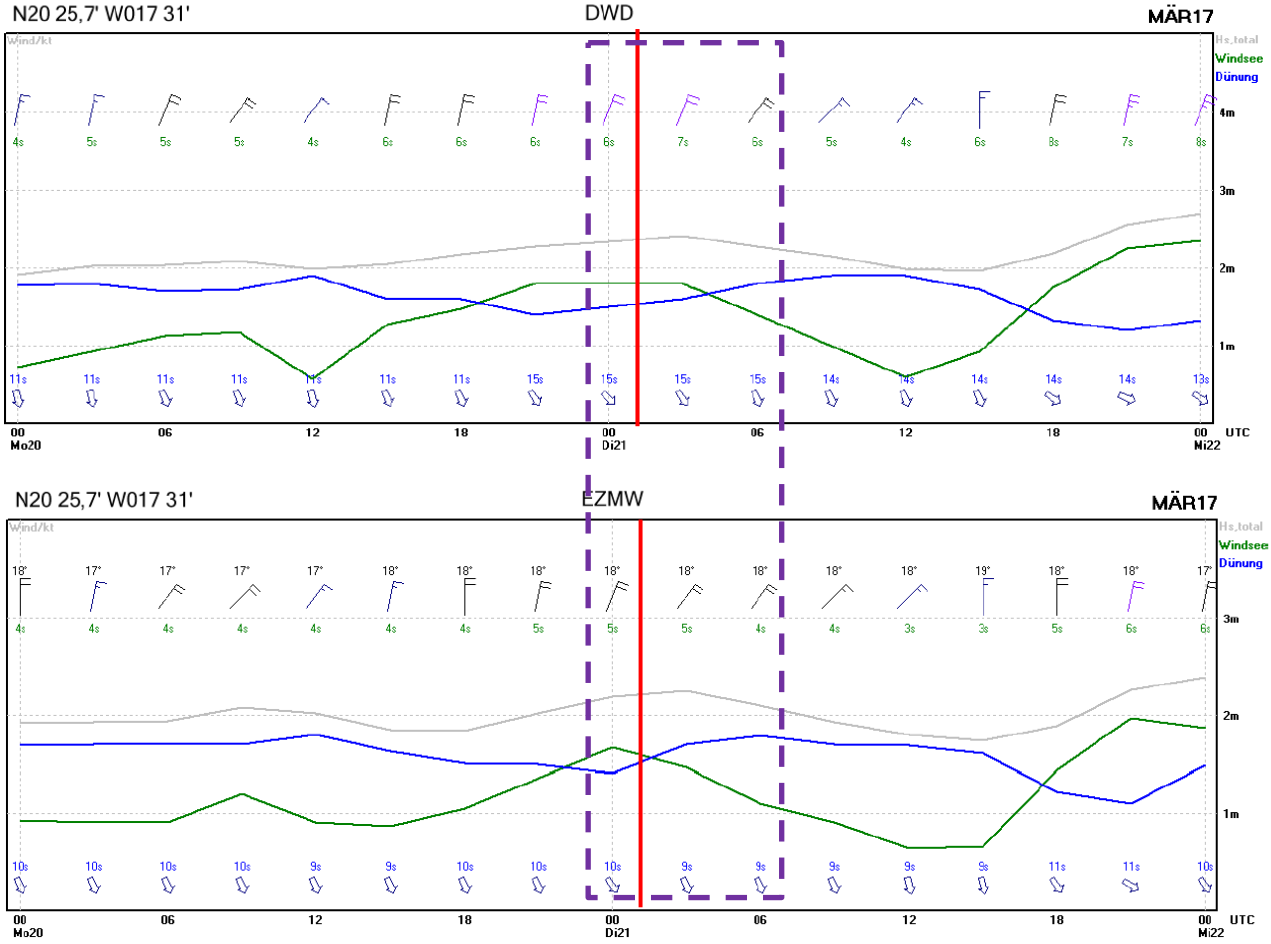

Figure 14: Development of wind and swell at the scene of the accident
(red line: time of accident)

[14] Official report on the weather situation off Mauritania at the position 20,25.7' N 017,31' W on 21 March 2017 dated 8 July 2019.

No serious weather deterioration in the hours after the accident was indicated at the scene of the accident, which was under the influence of a broad subtropical high. The two prediction models are both in agreement – at least with regard to the swell – and confirm the statements of the ship's command that the swell increased in the hours immediately after the accident (see area marked purple in **Figure 14**).

Based on the few reports available from individual coastal stations, the report concludes that visibility stood at about 10 km at the time of the accident. Apart from dust turbulence in the afternoon of 21 March 2017, more severe restrictions in visibility due to weather therefore did not occur during the period under consideration (20-22 March 2017).

3.3.7 Correspondence with the European Commission

The BSU sent the following letter to the European Commission's DG DEVCO on **14 February 2018**.

"Marine Casualty Investigation; Collision of German FV JAN MARIA with a small fishing boat in the exclusive economic zone (EEZ) of Mauritania on 21.03.2017

Dear Sir or Madam,

The Federal Bureau of Maritime Casualty Investigation (BSU) is the competent German authority for the official investigation within the meaning of Article 8 of Directive 2009/18/EG. According to the requirements of this Directive, the national legislation based on this (Maritime Safety Investigation Act = SUG) and in application of the regulations stipulated in the Code for the investigation of marine casualties (IMO Resolution MSC.255(84) the BSU conducts an investigation into the very serious marine casualty involving the fishing vessel JAN MARIA and the boundary conditions associated with this.

The accident occurred on 21 March 2017 about 45 nautical miles southwest of the Mauritanian port of Nouadhibou, in the EEZ of the Islamic Republic of Mauretania. FV JAN MARIA collided with a very small, unlit Mauritanian fishing boat. As a consequence of the accident, three Mauritanian fishermen lost their lives.

Crewmembers of the JAN MARIA advised the BSU of the fact that very serious accidents frequently occur in the fishing area in question, especially collisions involving local fishermen and deep-sea fishers acting in this area. According to unverified data, such collisions and other accidents account for the deaths of some 100 or 1000 fatalities among fishermen. These accidents can be largely ascribed to the fact that the local fisher boats do not have noteworthy safety appliances and navigation equipment.

Onboard the JAN MARIA, the BSU was advised of the fact that support programs of the EU are in place, aiming at supporting the Mauritanian fishermen (possibly other fishermen in the third world) in order to improve their working conditions, that is to say, the safety of their ships.

With respect to the aforementioned legal foundation, I would like to ask you to answer the following questions:

1. *Is the EU aware of the fact, that a very large number of fishermen on small fishing vessels in the third world lose their life due to insufficient safety of their vessels every year?*

2. *If so, which information is available to the EU-Commission?*
3. *Does the EU provide funds to enhance the safety of fishermen in third world countries?*
4. *If so, which countries are supported and which sum is being paid?*
5. *Does the EU-Commission make sure that the funds provided actually serve the purpose?*
6. *If so, in which way does the EU monitor this?*

I would be very grateful if you could deal with inquiry (also by e-mail) until 15 March 2018."

Since an answer was not received from Brussels despite a written reminder, the BSU asked the Ministry for Economic Cooperation and Development (BMZ) in Germany, whose responsibilities include development aid, to inquire with DG DEVCO about the status of the request in July 2018. The above Ministry complied with this request and received an undertaking that the BSU's letter would be replied to at the earliest opportunity. Since there was still no reply from Brussels, the BSU asked for the BMZ's assistance in this matter again in October 2018. The BMZ acted accordingly.

The BSU received the reply on **17 December 2018**. Extracts taken from it follow.

Please find below elements of response to your list of questions, which we were able to gather from relevant colleagues in Delegation but also in the thematic expertise units both within our Directorate General DEVCO as well as DG MARE:

1. Is the EU aware of the fact, that a very large number of fishermen on small fishing vessels in the third world lose their life due to insufficient safety of their vessels every year?

Yes, we are aware as this issue is regularly discussed in international fora.

2. If so, which information is available to the EU-Commission?

While we are rarely informed about specific cases such as the one mentioned in this investigation report, we receive global reports like the one published by FAO in January 2018 (GLOBAL REVIEW OF SAFETY AT SEA IN THE FISHERIES SECTOR - http://www.fao.org/3/I9185EN/i9185en.pdf).

3. Does the EU provide funds to enhance the safety of fishermen in third world countries?

4. If so, which countries are supported and which sum is being paid?

In the framework of the EU development policy or in the framework of Sustainable Fisheries Partnership Agreements (SFPA), the EU has supported some actions in favour of sea safety. In Mauritania, the EU has supported national authorities in improving rescue at sea (2.3M EUR). The EU has also funded Mauritanian maritime schools to develop curricula, including on sea safety. Some other partners have funded safety equipment (lifejackets, beacons etc.) for artisanal pirogues but such initiatives face sustainability and traceability issues.

5. Does the EU-Commission make sure that the funds provided actually serve the purpose?

6. If so, in which way does the EU monitor this?

EU projects are monitored by EU delegations in third countries. Regular evaluations / audits are carried out.

In its reply, the EU Commission confirms that many fishermen lose their life on the coast of developing countries every year due to inadequate safety measures. In particular, it refers to a study prepared for the FAO[15] in 2018 titled 'GLOBAL REVIEW OF SAFETY AT SEA IN THE FISHERIES SECTOR' as one current source of information.[16]

It also confirms that the EU has provided financial aid to Mauritania in the past to assist with sea rescue and to improve safety in the fisheries sector. In this context, it is stressed that the Commission monitors the appropriate use of the funds.

[15] FAO = **F**ood and **A**griculture **O**rganization of the United Nations.
[16] FAO Fisheries and Aquaculture Circular No. 1153; see relevant comments in Section 4 of this investigation report for particulars.

4 ANALYSIS

4.1 Chronology of the course of the accident

From the various sources of information analysed by the BSU, in particular the consistent testimony of the JAN MARIA's crew members on one hand and the fishing boat's surviving crew members on the other hand, it is clear that the accident's starting point was not a collision between the JAN MARIA and the fishing boat, but rather that the JAN MARIA sailed over the anchor line of the only very sparsely lit boat.

In all likelihood, the anchor line caught on the JAN MARIA's bilge keel.[17] The boat was dragged to the JAN MARIA's hull and unable to free herself from this helpless situation without assistance.

Figure 15: The JAN MARIA in dock (bilge keel marked red)[18]

The fact that the fishing boat and the fishing vessel collided directly beneath two cooling water discharge outlets in the latter's shell plating proved to be fatal and the primary cause of the accident. The exceptionally large inflow of cooling water in relation to the size of the open fishing boat resulted in her flooding and foundering extremely quickly. The temperature of the water was less than 30 °C, meaning that viewed in isolation it was of no relevance to the accident.

[17] Bilge keels = Flat steel sections fixed to either side of a ship to reduce the rolling motion.
[18] Note: The master of the JAN MARIA kindly provided the BSU with the photograph during the survey on board.

4.2 Preventability of the accident

4.2.1 Visibility of the fishing boat

4.2.1.1 The boat's technical equipment

There is no reliable information about the actual manner in which the fishing boat is illuminated and her resulting visibility. However, it is reasonable to assume that the boat was not equipped with the lights and shapes stipulated by the COLREGs because of the structural conditions alone.

The pirogue was at anchor at the time of the accident, meaning that according to Rules 26(e) and 30(b) COLREGs she would have had to exhibit an all-round white light with a range of 2 nm (see Rule 22(b) COLREGs). In fact, the officer in charge of the navigational watch on the JAN MARIA noticed a weak 'bluish' shimmering light only shortly before the accident. It is almost certain that this light failed to meet the above provisions of the COLREGs.

The relatively small wooden fishing boat did not have a radar reflector, meaning she was probably also not recognisable as an echo on the JAN MARIA's radar image, which was unclear due to the swell. Since the boat did not have an AIS transponder on board, this means of identification was not available, either.

4.2.1.2 Lookout on board the fishing boat

The surviving fishermen unanimously reported that like the other fishermen, the crew member (lookout) tasked with watchkeeping on the boat was suddenly awoken by the collision with the JAN MARIA. In consequence, the method crews of traditional fishing boats usually employ to draw attention to themselves when approaching large vessels by using a handheld torch was – aside from the unresolved question as to whether one was actually on board – not an option.

4.2.2 Look out on board the JAN MARIA

4.2.2.1 Initial situation

Only the chief officer was on the JAN MARIA's bridge at the time of the accident. He commanded the ship and simultaneously performed the role of lookout, as defined in Rule 5 COLREGs.

4.2.2.2 Legal requirements in merchant shipping

In accordance with the provisions of the Seafarers' Training, Certification and Watchkeeping (STCW) Code[19], in particular in Part A, Chapter VIII, Section A-VIII/2, Part 4.1 (Principles to be observed in keeping a navigational watch), a lookout, as defined in Rule 5 COLREGs, shall be maintained at all times on the bridge of a ship (see points 14 ff. in Part 4.1). He must not be assigned any other duties that might interfere with this responsible task. Point 16 of the relevant provision lays down that the officer in charge of the navigational watch may perform the task of lookout in daylight under certain conditions. Conversely, this means that in addition to the officer

[19] As amended by the 2010 Manila Amendments to the STCW Code.

in charge of the navigational watch, another crew member must be assigned the role of lookout on the bridge at night.

4.2.2.3 Legal requirements in the fisheries sector

According to Article 17 of the STCW Convention, the provisions therein, in particular the internationally binding provisions of the STCW Code on education, training, certification (certificates of proficiency) and watchkeeping on board ships, do not apply to fishing vessels.

The International Convention of the International Maritime Organization (IMO) on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F), which was adopted on 7 July 1995 and entered into force on 29 September 2012, established a standard in the above areas for the fisheries sector comparable with the rules applicable to merchant shipping. The provisions of the STCW Code, in particular those concerning bridge and watchkeeping duties, have been applied to fishing vessels of at least 24 m in length.

Council Decision (EU) 2015/799 of 18 May 2015 authorised Member States of the EU to become party to the STCW-F Convention in the interest of the EU. Nine Member States have ratified the Convention, which currently (as of March 2019) comprises 26 parties (including the nine EU Member States). The ratification process has yet to be completed in Germany.[20]

Accordingly, there was no legal obligation for a separate lookout to be on the German-flagged JAN MARIA's bridge in addition to the officer in charge of the navigational watch at the time of the accident (at night).

4.2.3 Shutting off the cooling water discharge outlet

Following the BSU's investigation it is reasonable to assume that the officer in charge of the navigational watch immediately called the engine room personnel to arrange for the water outlet to be shut off as quickly as possible after noticing that the cooling water was flowing into the fishing boat. The engineer on watch advised the officer in charge of the navigational watch that it was not possible to shut it off immediately. Accordingly, the cooling water continued to flow into the fishing boat unchecked in the minutes that followed until she was completely flooded and foundered.

[20] Source: REPORT FROM THE COMMISSION TO THE COUNCIL, Brussels, 28 March 2019, COM(2019) 157 final.

During the survey on board in Las Palmas, the BSU questioned the issue of shutting off the cooling water jet rapidly. The chief engineer essentially replied that abruptly shutting off the cooling system in question would have entailed serious risks for the ship's technology and for her manoeuvrability, in particular. However, this explanation seems rather implausible because the cooling water in question does not belong to the main engine's cooling circuit but rather to the ship's air conditioning system (or that of the fish holds).

Since it was not possible to clarify whether the time span between identifying the impending risk of flooding the fishing boat and shutting off the cooling water discharge outlet at the earliest possible moment would have been sufficient to actually prevent the boat from foundering, the ensuing question as to whether shutting it off immediately would have been technically possible and what consequences this might have had for the ship's operation was no longer of relevance to the BSU.

4.2.4 Intermediate findings with regard to the preventability of the accident

From the BSU's point of view, the starting point for the entire accident was that the fishing boat was not noticed on the JAN MARIA's bridge in time for her to pass the laid up vessel at a safe distance.

The primary reason for this was the inadequate lighting on the boat, which could not be detected by radar or AIS equipment. The BSU is unable to give a reliable answer to the question as to whether an additional lookout on the bridge would have detected the fishing boat earlier than the officer in charge of the navigational watch and thus initiate the evasion manoeuvre in good time ex post.

Furthermore, due to the lack of precise information on the chronological sequence of events and the 'capacity' of the fishing boat, amongst other things, the BSU is also unable to reliably clarify whether it would have been possible to prevent the jet of cooling water from pouring into the fishing boat in good time after recognising this extremely unique and unusual risk scenario.

4.3 Rescue operation of the JAN MARIA

The fact that the JAN MARIA's crew swiftly managed to save three fishermen from drowning, and did so in the middle of the night, warrants great recognition. It should be noted that the actions on board the JAN MARIA were also exemplary with regard to the search for the three remaining fishermen, which lasted more than nine hours. AIS recordings demonstrate that the relevant sea area was searched systematically. In spite of adverse conditions (rough sea, darkness) a boat was deployed to search for survivors, too. The crew of the boat consciously accepted the risks and hazards associated with rescuing the missing fishermen.

4.4 Safety deficits in the fisheries sector in developing countries

4.4.1 EU policy

Following a request from the BSU, the European Commission's DG DEVCO, which oversees this area, confirmed it is aware of the considerable dangers fishermen face, especially those who work on small boats on the coast of developing countries. The related safety deficits are therefore regularly a topic of international fora.

In its reply to the BSU, the DG referred to a 2018 study commissioned by the FAO, which looked in detail at the underlying conditions affecting safety in the fisheries sector in different parts of the world, as one recent source of information.

Moreover, the DG confirmed that the EU is providing development aid to improve safety at sea. In the context of the EU development policy or Sustainable Fisheries Partnership Agreements, the EU claims to have supported several initiatives in the interest of maritime safety. In Mauritania, the EU has assisted the national authorities in improving sea rescue (EUR 2.3 million). The EU has also provided financial assistance to Mauritanian maritime schools for the development of curricula, including on maritime safety. Certain other partners have financed safety equipment (lifejackets, beacons, etc.) for traditional fishing boats. However, the DG acknowledges that such initiatives face sustainability and traceability problems.

4.4.2 Study commissioned by the FAO

The 'GLOBAL REVIEW OF SAFETY AT SEA IN THE FISHERIES SECTOR' conducted in 2018 on behalf of the FAO, which contains 134 pages – broken down by region and country – of detailed information on the legal framework and underlying conditions of the respective domestic fisheries sector, vividly confirms the assumption that the above economic sector is marked by a completely inadequate safety culture, despite the fact that it often plays a critical role in the economy and nutrition of the countries and coastal regions.

The outcome here is that fishing is the most dangerous profession in the world. According to International Labour Organization figures, 80 out of 100,000 fishermen are killed in accidents.

The study's summary (see pages 1 ff.) reads as follows:

"Sea safety legislation
Legislation regarding sea safety existed in almost all countries studied, except in the majority of the West African nations. However, this legislation concerns only certain fishing vessels, such as fishing vessels of more than 10 m or 7 m L and/or motorized. Small-scale fishing vessels therefore usually remain unregulated, in spite of the fact that they can represent up to 99 percent of the fishing fleet - as is the case in Kenya, for instance. Moreover, even the vessels that are regulated do not comply with regulations, as enforcement, when it can be estimated - thanks in large part to some FAO studies - is weak in most cases.

Aside from enforcement, there is also the problem that the surveyors responsible for issuing seaworthy certificates or conducting inspections do not usually have the adequate knowledge to fulfill their duties properly.

[…]

The availability of safety, navigational and communication equipment is reduced and, as a general rule, available only in major towns. The same can be said of spare equipment. In cases where such equipment is available, prices are too high for the fishers to buy it even though it is duty-free. Nevertheless, the manufacturing of safety equipment is not widespread; legislation cannot therefore be enforced even if there is a desire for compliance among fishers or the authorities.

The use of mobile phones is widespread in most countries. Mobile phones have been accepted by fishers and they are very useful to avoid fatalities when proper facilities and infrastructure do not exist.

Few countries require a set out sail notice or a clearance permit prior to going out to sea: this is because few countries have the proper licence and registration regulations in place.

The conclusion is that small-scale fishing vessels are not properly regulated and controlled, which negatively affects both the fishing effort and, most importantly, safety at sea.

Fisheries management and safety at sea
The twin concepts of fisheries management and safety at sea are not well-known and therefore not implemented in any management measure.

The fact that fishing areas are generally overexploited has increased the fishing effort in recent decades enormously. This increase in the fishing effort has in turn put the fishers in danger, as they are forced to fish further from the coast without proper vessels and equipment, as well as inadequate knowledge or training.

However, some of the fisheries management measures in place affect safety at sea indirectly, such as quotas, closed seasons or restricted artisanal fishing areas. As a recent FAO study states (FAO, 2008), it cannot be concluded whether these measures affect safety at sea negatively or positively (FAO, 2016). In general, quotas or closed seasons tend to have a negative impact, as the necessity of ensuring a sufficient catch means that fishers will go out to sea even in adverse weather conditions. Restricted artisanal fishing areas may be positive for safety at sea, but as a result of a lack of control over industrial fishing vessels these measures are rarely enforced. In addition, artisanal fishing vessels become reckless and do not use navigational lights at night or marks during the day, and do not mark fishing gears properly. All of this increases the likelihood of collisions between artisanal fishing vessels

themselves, between artisanal and industrial fishing vessels, and/or the entanglement of fishing gear by industrial fishing vessels.

In some countries attempts are being made to implement co-management measures, whereby fishers become an active party in fisheries management. However, this system is mostly centred around preserving fishing resources and not on improving safety at sea.

Monitoring, Control and Surveillance (MCS) centres have been installed in various countries, as well as fish aggregating devices (FADs).

Data recording
It is not standard practice to collect data from marine accidents and collate it in order to put together statistics and conduct follow-up activities. This fact demonstrates that safety at sea is not given great consideration by governments, because the magnitude of the problem is not even known.

In cases where data collection systems do exist, only those accidents that have involved SAR operations are registered, or accidents with small-scale vessels are not accounted for. Thus, even where the necessary system exists, it is impossible to gain a global perspective.

Boatbuilding and vessel design
Few countries have adopted regulations regarding boatbuilding and vessel design and, where they exist, they are inadequate. In general, countries require a certain number of inspections during the construction of the fishing vessel, or approval of the drawing plans, but neither of these measures tends to be properly enforced.

Thus, boatbuilding and vessel design is usually based on tradition; in some cases this is not necessarily negative as the designs are good and stable, and boatbuilders have experience in building them.

In other cases designs are the result of a programme developed by FAO or another organization. Most of these designs were developed during the 1980s and 1990s and they have undergone modifications over the years, with the drawback that some of these modified fishing vessels now experience stability and/or structural issues.

Wood construction is usually good enough but, as a result of the scarcity of wood affecting almost all the countries studied, boat construction is transitioning to fibreglass-reinforced plastic (FRP) vessels, on which boatbuilders have much less experience.

Many of the new fishing vessels made of FRP may therefore be hampered by construction problems and do not last as long as expected. To mitigate this problem certain countries have developed good practice booklets relating to FRP construction, and some governments even have their own boatyards. FAO has also developed a number of manuals and other helpful documents, as well as training courses.

Insurance scheme
In general, proper insurance schemes - be they public or private - do not exist, nor are they properly disseminated. However, in certain countries an insurance policy exists for fishers, which covers damage to the fishing vessel and/or loss of life as a result of a sea accident.

Search and rescue
SAR facilities vary significantly from country to country. In most countries a well-established structure exists, and it operates efficiently in those countries with a reduced coastline. In

countries where there are dispersed islands or kilometers of inhospitable coastline these services are inefficient and fishers organize their own SAR operations independently.

Main causes of accidents
Adverse weather conditions and mechanical failures are the main causes of accidents, as well as collisions between industrial and artisanal fishing vessels.

It is impossible to eliminate the cause of accidents arising from bad weather conditions, especially in those countries where sudden and violent changes in the direction and intensity of the wind are common. However, fishers' awareness must be improved and the use of forecasts must become common practice. In some countries forecasts are emitted twice a day or even six times a day by radio and television, but in the majority of countries studied no forecast is emitted at all. It is also important to train skippers and crew members to be prepared for - and deal with - certain common, dangerous situations without panicking.

Mechanical failures are normally the result of insufficient and poor maintenance, especially outboard engines, and bad repairs executed by poorly trained mechanics. In fishing vessels with inboard motors, most mechanical breakdowns are related to battery problems because of poor maintenance, or because they are not properly charged. The solution adopted for battery-related breakdowns in some countries is to have a battery which is only used as a starter battery. In the case of outboard motors, a spare engine was installed on some vessels in Kiribati, but these spare engines often ended up on other vessels because of a lack of awareness by fishers. Mechanical training for mechanics and fishers could help to address the problem, as well as having mandatory spare equipment on board.

As far as collisions between industrial and artisanal fishing vessels are concerned, these accidents occur because of a lack of navigational lights at night and marks during the day, as well as because of a lack of enforcement with regard to restricted artisanal fishing areas.

Other causes of accidents mainly relate to a lack of awareness and training in fishers, and weaknesses in the design and construction of fishing vessels. The design and construction problems can be resolved through training courses on FRP construction, for example. Lack of awareness is more difficult to solve, as it is a cultural factor; however, an increasing awareness of potential dangers among fishers could reduce the amount of accidents at sea enormously. The only way to eradicate it is through awareness and training courses related to sea safety in general, communication and navigation equipment, dangerous situations and/or navigational skills."

<u>Specifically with regard to fishing conditions in Mauritania, pages 98 f. of the study contains the following information:</u>

*"**General:***
Mauritania has only one artisanal fishery port, so, the majority of landings are on the beaches with a total absence of regulation. The estimated number of artisanal fishers is 10 000.

Sea safety legislation:
1. Licence
No information available.

2. Registration
No information available.

3. Mandatory safety, equipment and manning requirements
No information available.

4. Availability and use of safety, navigational and communication equipment and spare engine parts
No information available.

5. Fishing operations: set out sail notice or permission of clearance
No information available.

Fisheries management and safety at sea:
6. Fisheries management and safety at sea
No fisheries management measures are in force relating to safety at sea.

An area reserved for artisanal fishing exists, but it is not respected due to the slackness of surveillance, which facilitates piracy from industrial fishing boats which penetrate into the artisanal fishing zone.

Data recording:
7. Data recording
No information available.

Boatbuilding and vessel design:
8. Boatbuilding and vessel design
None.

Other safety issues:
9. Insurance scheme
No information available.

10. SAR
Neither SAR authorities nor SAR operating systems exist.

There is a proposal for two brigades in Nouakchott and Nouadhibou, with adequate staff and material to intervene quickly in the event of accidents. However, as the national navy concentrates its efforts on the problems of EEZ surveillance, it will be difficult to add the safety of artisanal fishers to their tasks.

11. Main cause of accidents
Bad weather conditions represent 85 percent of the causes of accidents, as the Mauritanian coastline is often hit by violent winds, which provoke the swell phenomenon. The sea then becomes rough, and fishing more and more difficult. As a result of meteorological disturbances and the swell phenomenon, artisanal fishing is impossible or difficult in Mauritania for more than 200 days a year.

Other causes of accidents are human error provoked by a slackening in boat surveillance or a captain's lack of competence or vigilance, in addition to collisions between industrial and artisanal boats.

Safety projects that have been implemented:
In August 1993 a DPA Workshop in Nouakchott on registration, safety at sea and fish trade was undertaken. The resolutions and recommendations adopted were:

the necessity for every artisanal fishing canoe or boat to have a minimum amount of safety material on board to save human lives;

the organization of a training seminar on safety at sea for crews;

the setting up of a safety at sea project at the DPA."

5 CONCLUSIONS

5.1 Safety requirements for fishing boats

The accident and especially the aforementioned study carried out on behalf of the FAO unequivocally demonstrate the serious risks and hazards to life and limb to which fishermen working on small boats in the coastal regions of developing countries are permanently exposed.

Political and economic conditions in most of the coastal states in question are unlikely to change to the extent necessary to effectively and significantly improve safety (or the related legal framework and underlying conditions) in the fisheries sector in the short to medium term.

Development aid measures serve an important purpose in this context but even they will probably not have any significant positive effects on the overall situation, marked by serious deficits in safety, in the short to medium term.

5.2 Consideration of the deficits by large fishing vessels

Given that the unsatisfactory conditions which regularly characterise the image of traditional fishing in the coastal regions of developing countries are unlikely to change or be changed significantly over the next few years, industrial fishing and other maritime transport have a special responsibility. Their crews must be constantly aware of the fact that as a rule virtually no safety standard whatsoever exists on small fishing vessels and should take this into account in the choice of course, speed and in the organisation of watchkeeping.

In particular in areas where it is reasonable to expect an increase in encounters with small fishing vessels, the deployment of lookout personnel must have the highest priority, regardless of whether or not there is an explicit legal obligation to do so.

5.3 STCW-F ratification

For many years the international community has found it difficult to introduce uniform and binding safety standards in fishing like those seen for a long time in cross-border merchant and passenger shipping.

For example, the Torremolinos International Convention for the Safety of Fishing Vessels, 1977(!), (as amended by a protocol in 1993; referred to as 'Torremolinos' and substantively comparable to SOLAS) has still not entered into force in a binding manner under international law, even though the supplementary Cape Town Convention of 2012 simplified the conditions for this by significantly lowering the relevant threshold agreed therein.[21]

[21] Note: The Convention now provides that the Torremolinos Protocol shall enter into force 12 months after the date on which at least 22 States with a total of at least 3,600 fishing vessels of 24 m in length and over operating on the high seas have expressed their consent to be bound by it. As of today's date (8 February 2019), 11 States (including six EU members: Belgium, Denmark, France, Germany, the Netherlands and Spain) with a total of 1,413 relevant ships have ratified the agreement.

Adopted in 1995, the IMO's STCW-F has also taken many years to enter into force. However, unlike Torremolinos, the conditions required for this were met in 2012 and the STCW-F has been in force since 29 September of that year.

This was or is an important step toward putting an end to the global fisheries sector's traditional problem of keeping up with internationally binding standards for the safety of merchant and passenger shipping.

The STCW-F provides a corrective in important sub-areas, in particular against the background of the special responsibility of industrial shipping vis-à-vis the structurally disadvantaged traditional coastal fishermen stressed above in Section 5.2. Binding standards for training as well as bridge and watchkeeping duties on industrial fishing vessels will undoubtedly help to reduce the hazards and risks posed by the operation of such vessels and the threat to traditional fishing vessels in close-quarter situations.

5.4 Waiver of safety recommendations

Due to the extremely unusual accident scenario (boat founders as a result of being flooded with cooling water discharged by another vessel), the fact that the JAN MARIA no longer flies the German flag, and in particular the fact that the fundamental safety deficits giving rise to the accident and affecting traditional fishing in the coastal waters of developing countries are sufficiently known and of a global nature, safety recommendations seem inappropriate for lack of definable addressees. Accordingly, the publication of safety recommendations has been dispensed with.

Reading through the investigation report and/or the FAO's study or even only extracts from each should be enough to remind us of the dangers that fishermen on small boats face on a daily basis all over the world and of the enormous responsibility other participants in maritime traffic have for avoiding collisions with their colleagues.

6 SOURCES

- Information given by the owner and provided on board the JAN MARIA
- Written accident report by the ship's command of the JAN MARIA
- Transcripts from the police investigation into the accident in Mauritania
- The JAN MARIA's SAT-AIS data from the EMSA's IMDatE database
- Official report on the weather situation off Mauritania at the position 20,25.7' N 017,31' W on 21 March 2017, Weather Forecast division of the DWD, Hamburg, 8 July 2019
- Navigational charts and ship particulars, Federal Maritime and Hydrographic Agency
- Study on behalf of the FAO: 'GLOBAL REVIEW OF SAFETY AT SEA IN THE FISHERIES SECTOR' (FIAO/C1153 (En)) by Adriana Oliva Remolà and Ari Gudmundsson, Rome 2018
- REPORT FROM THE COMMISSION TO THE COUNCIL on the progress of Member States' accession to the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, of the International Maritime Organisation, according to Article 2 of Council Decision (EU) 2015/799 of 28 March 2019 (COM(2019) 157 final)