



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

Investigation Report 55/15

**Very Serious Marine Casualty**

**Foundering of the fishing vessel KRISTINA  
in the North Sea  
on 18 February 2015**

2 November 2017

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

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

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

Issued by:  
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## 1 SUMMARY

At 0949<sup>1</sup> on 18 February 2015, the German-flagged fishing vessel KRISTINA reported water ingress in the fish hold. At this point, the vessel was in the North Sea in Germany's Exclusive Economic Zone east of an offshore wind farm and about 13 nm north of the German Bight Western Approach traffic separation scheme. Due to the distress call, the nearby Dutch dredger REIMERSWAAL altered course and sailed for the KRISTINA. Maritime Rescue Coordination Centre (MRCC) Bremen alerted other vessels. The KRISTINA started to list when REIMERSWAAL was already in close proximity. This made it possible for the three-member crew of the KRISTINA (who had abandoned the vessel in their immersion suits) to be picked up quickly and safely with the aid of the dredger's rescue boat. The KRISTINA foundered shortly afterwards. The crew of the KRISTINA sailed on the REIMERSWAAL to the port of destination in Harlingen and returned from there to Denmark, where the vessel's operator and the crew are based.

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

## 2 FACTUAL INFORMATION

### 2.1 Photo of ship



Figure 1: Photo of the KRISTINA

### 2.2 Ship particulars

Name of ship:	KRISTINA
Type of ship:	Fishing vessel
Nationality/Flag:	Germany
Port of registry:	Heiligenhafen
Call sign:	DJSW
Fisheries code:	SH 014
Owner:	Kristina Fishing ApS, Hvide Sande
Designated party <sup>2</sup> :	Kristina-Fishing-GmbH, Mölln
Year built:	1980
Shipyard/Yard number:	Hvide Sande Skibs- & Baadebygeri/48
Length overall:	17.31 m
Breadth overall:	4.82 m
Gross tonnage:	47
Draught (max.):	2.4 m
Engine rating:	220 kW
Main engine:	Unknown
(Service) Speed:	Unknown
Hull material:	Hull: wood; Superstructure: aluminium
Minimum safe manning:	3

<sup>2</sup> Pursuant to Article 2(1)(3) [German] Flag Act.

### 2.3 Voyage particulars

Port of departure:	Hvide Sande/Denmark
Type of voyage:	Merchant shipping, international
Cargo information:	Unknown
Manning:	3
Draught at time of accident:	Unknown

### 2.4 Marine casualty information

Type of marine casualty:	Very serious marine casualty; fishing vessel foundered
Date, time:	18/02/2015, 1100
Location:	North Sea, German EEZ <sup>3</sup>
Latitude/Longitude:	φ 54° 24.6'N λ 006° 10.4'E
Ship operation and voyage segment:	High seas
Human factors:	Unknown
Consequences:	Fishing vessel foundered. Crew escaped into the sea uninjured wearing immersion suits and was picked up shortly afterwards by the REIMERSWAAL's fast rescue boat

### 2.5 Shore authority involvement and emergency response

Agencies involved:	MRCC Bremen, RCC Münster, JRCC Den Helder, Waterway Police (WSP) Heiligenhafen, Ship Safety Division (BG Verkehr), Vessel Traffic Service (VTS) Cuxhaven (German North Sea Traffic)
Resources used:	Dredger REIMERSWAAL, rescue cruiser HERMANN MARWEDE, federal police patrol vessel BAYREUTH, multipurpose offshore support vessel GLOMAR COMMANDER
Actions taken:	Crew of the KRISTINA picked up with the help of the REIMERSWAAL's fast rescue boat; KRISTINA's empty liferaft picked up by the GLOMAR COMMANDER
Results achieved:	The KRISTINA's crew was picked up safely, taken on board the REIMERSWAAL and then put ashore in Harlingen

<sup>3</sup> EEZ: Exclusive Economic Zone.

## 2.6 Navigational chart

Extract from Navigational Chart 3008, BSH<sup>4</sup>

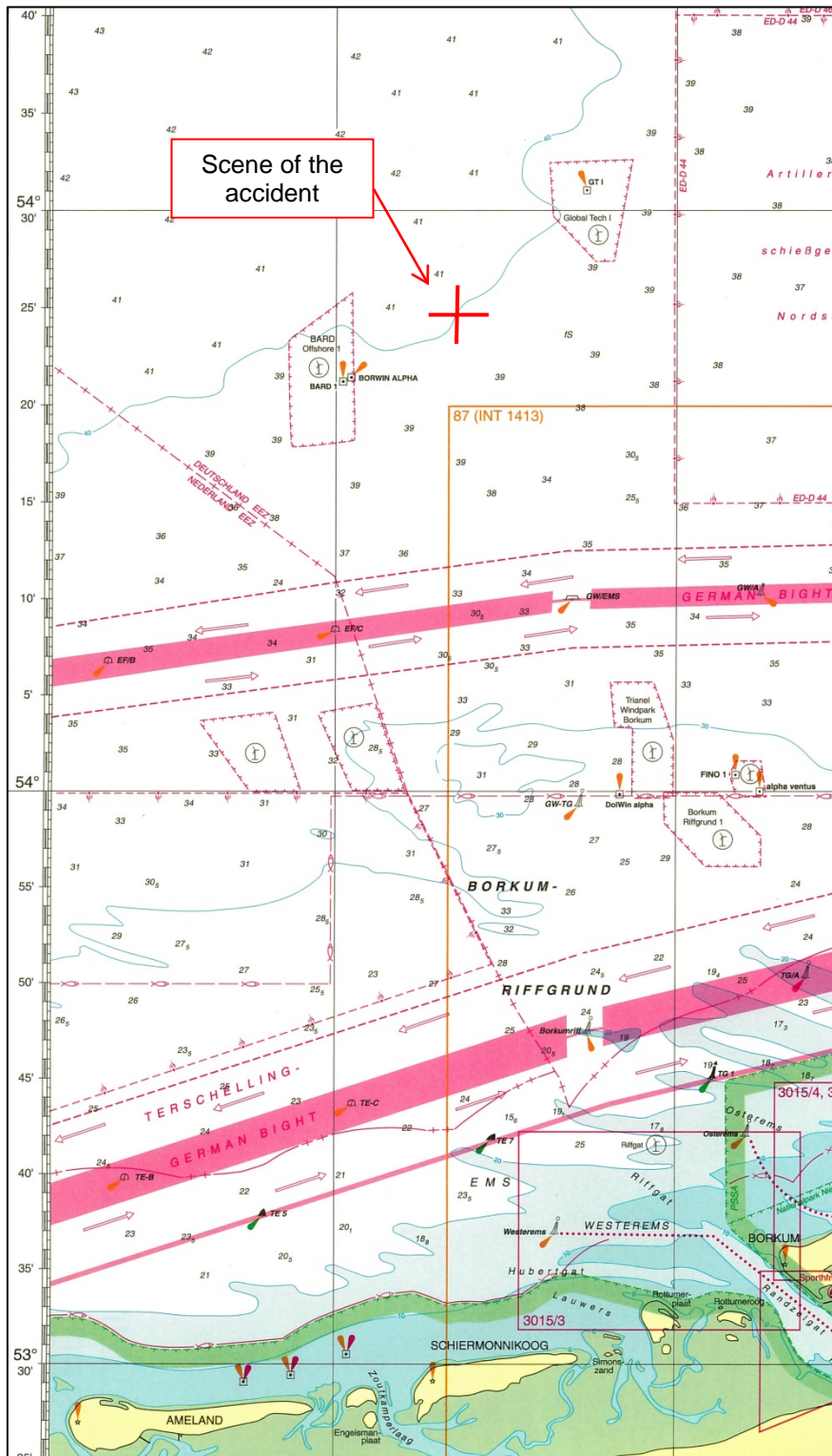


Figure 2: Navigational chart showing the scene of the accident

<sup>4</sup> BSH: Federal Maritime and Hydrographic Agency.

### 3 COURSE OF THE ACCIDENT AND INVESTIGATION

#### 3.1 Course of the accident

The course of the voyage of the German fishing vessel KRISTINA was retraced on basis of the vessel's transmissions for the Vessel Monitoring System (VMS)<sup>5</sup> until the time of the distress call. Accordingly, the voyage started on 17/02/2015 around 1600 in the port of Hvide Sande on Denmark's North Sea coast. Three crew members were on board.

The fishing vessel sailed on a south-westerly course before the distress call was transmitted. The maritime rescue coordination centre of the DGzRS<sup>6</sup> (call sign: MRCC Bremen) was notified on 18/02/2015 at 0949 by German North Sea Traffic<sup>7</sup> that water ingress had reportedly been identified on the KRISTINA. German North Sea Traffic had previously heard that the KRISTINA had requested a portable pump from the GLOMAR COMMANDER. An enquiry with the KRISTINA then revealed further information. Following that, MRCC Bremen instigated a mayday relay and started to call the vessel. At this point, the KRISTINA was about 13 nm north of the German Bight Western Approach traffic separation scheme in the vicinity of two offshore wind farms and within the German EEZ.

The report on this event forwarded by the master of the Dutch dredger REIMERSWAAL to the BSU indicates that the REIMERSWAAL's crew heard the KRISTINA's distress call for the first time at 1005; the KRISTINA's crew had requested pump support after detecting water ingress in the fish hold. The ship's command of the REIMERSWAAL then altered course in the direction of the KRISTINA, increased their speed and informed the KRISTINA and German North Sea Traffic that they were approaching.

MRCC Bremen subsequently alerted the Helgoland-based rescue cruiser HERMANN MARWEDE, which had a distance of some 70 nm to cover, however. The offer of assistance of the federal police patrol vessel BAYREUTH, which was a similar distance away, was also accepted. In addition, a SAR helicopter of the German Navy in Glücksburg took off at the request of MRCC Bremen. Contact was also made with JRCC Den Helder with the aim of obtaining the support of a helicopter from there. The GLOMAR COMMANDER, a standby vessel for wind farms in the vicinity, also changed her course in the direction of the fishing vessel.

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<sup>5</sup> Vessel Monitoring System – A satellite-based system which regularly transmits information about course, speed and position of fishing vessels  $\geq 12$  m over all to fishery authorities.

<sup>6</sup> DGzRS: German Maritime Search and Rescue Association.

<sup>7</sup> Call sign of the maritime traffic control service operated by VTS Cuxhaven in the German EEZ and the west coast of Schleswig-Holstein.





Figure 3: The KRISTINA upon arrival of the REIMERSWAAL

The REIMERSWAAL was the first vessel to reach the KRISTINA at 1023. Although the fishing vessel was still floating in a normal position at this point, she was already submerged to her main deck (see Figure 3). The REIMERSWAAL's crew started to prepare for the deployment of her fast rescue boat and were in radio contact with the crew of the KRISTINA. At 1045, the crew of the KRISTINA reported they were abandoning the bridge and moving to the main deck. When the KRISTINA began to list to starboard at 1047, her crew jumped overboard in their immersion suits. They were also carrying a portable VHF radio. The REIMERSWAAL's crew immediately deployed their fast rescue boat. She was operated by two people and sailed for the KRISTINA, whose crew was picked up shortly afterwards. The KRISTINA was already foundering at the stern while her crew was being picked up. When the fast rescue boat returned, only the bow of the fishing vessel was visible. Everyone was safely on board the REIMERSWAAL at 1100 (the point at which the KRISTINA foundered). The GLOMAR COMMANDER arrived at the scene of the accident shortly after.



Figure 4: The KRISTINA's crew has abandoned the fishing vessel



Figure 5: Situation shortly before the rescue

The EPIRB<sup>8</sup> and a liferaft deployed automatically as the fishing vessel was foundering. The alarm of the EPIRB was picked up by the control centre at 1055, forwarded to RCC<sup>9</sup> Münster and transmitted from there to the DGzRS. The liferaft was picked up by the GLOMAR COMMANDER.

<sup>8</sup> EPIRB: Emergency position-indicating radio beacon. Alerting by means of a satellite-based system.

<sup>9</sup> RCC: Rescue coordination centre.



Figure 6: KRISTINA and automatically deployed liferaft

Since the uninjured crew of the KRISTINA did not require further assistance on board the REIMERSWAAL, the rescue operation was discontinued. In consultation with those involved, the dredger continued to her port of destination in Harlingen, which she reached at about 2130, and the crew of the KRISTINA travelled home from there.

### 3.2 Investigation

The control centre of the federal police notified the BSU of the marine casualty at 1115 on 18 February 2015. In this context, there was also contact with waterway police Heiligenhafen.

To gain an initial overview, the BSU asked the master of the REIMERSWAAL to submit a report, as well as photos and videos, which he complied with. The border police in Harlingen also provided assistance.

The report of the REIMERSWAAL's master indicated that one German skipper and two deckhands (one Danish and one Latvian national) were on board at the time of the accident. All of them reside in Denmark.

#### 3.2.1 Owner and designated party

The KRISTINA was owned by the Danish company Kristina Fishing ApS, which is based in Hvide Sande, Denmark. Two Danish nationals were registered as executive directors of the company. One of the executive directors was also the skipper of the fishing vessel. Companies based in a Member State of the European Union have the option of flying the German flag on their vessels if they designate at least one

responsible party residing or based in Germany to represent their interests before the German administration. To this end, the Mölln-based Kristina-Fishing-GmbH was founded in 2002. The Danish skipper was registered as executive director of this company. Kristina-Fishing-GmbH was also the operator of the vessel.

The competent flag authority was the BSH. After an assessment of the designated party and their undertaking, the applicant company was granted the right to fly the German flag. This is not unusual and enables foreign companies to make use of German fishing quotas, for example.

Kristina-Fishing-GmbH was a member of the Cuxhaven-based producer association Nord- und Ostseefischer GmbH. The head office of Kristina-Fishing-GmbH was relocated to Cuxhaven in 2012 as well. With that in mind, the producer association was requested to make contact with the fishing vessel's operator/skipper with a view to obtaining documents and information about the accident. The operator/skipper failed to comply with this request.

### 3.2.2 Fishing vessel KRISTINA

The KRISTINA was apparently sailing for fishing grounds in the English Channel. Another skipper was on board for this transfer voyage. The actual skipper and owner apparently intended to board<sup>10</sup> at a port on the Dutch coast.

The findings on the fishing vessel KRISTINA are based on the national tonnage certificate<sup>11</sup> and the file of the Ship Safety Division (BG Verkehr)<sup>12</sup>, which the investigators examined on 10 March 2015 and 24 July 2017. The following was found in the process.

The below sailing permits and safety certificates for fishing vessels of less than 24 m had been issued for the vessel:

– Interim sailing permit <sup>13</sup>	Issued: 09/08/2007	Valid: 31/12/2007
– Interim sailing permit <sup>14</sup>	Issued: 05/01/2008	Valid: 30/04/2008
– Interim sailing permit <sup>15</sup>	Issued: 29/07/2008	Valid: 31/01/2009
– Interim sailing permit <sup>16</sup>	Issued: 09/03/2009	Valid: 31/08/2009

<sup>10</sup> Source: <<https://hvidesande.nu/kutter-sunket-det-sydlig-nordsoen>> or <<http://www.fiskerforum.dk/erhvervsnyt/hvidesande.asp?nyld=6021&prodid=23>> (7 February 2016).

<sup>11</sup> Issued by the BSH on 13 March 2007.

<sup>12</sup> German Social Accident Insurance Institution for Commercial Transport, Postal Logistics and Telecommunication (BG Verkehr).

<sup>13</sup> Coastal fishing.

<sup>14</sup> Coastal fixed-net fishing in the coastal fisheries sector.

<sup>15</sup> As above.

<sup>16</sup> As above.

- |  |                    |                   |
|--|--------------------|-------------------|
| – Interim sailing permit <sup>17</sup>   | Issued: 05/11/2009 | Valid: 04/04/2010 |
| – Safety certificate for fishing vessels <sup>18</sup>   | Issued: 30/08/2011 | Valid: 31/12/2011 |
| – Safety certificate for fishing vessels <sup>19</sup>   | Issued: 12/10/2011 | Valid: 09/03/2014 |
| – Safety certificate for fishing vessels <sup>20</sup>   | Issued: 21/02/2013 | Valid: 13/05/2015 |
| – Safety certificate for fishing vessels <sup>21</sup>   | Issued: 01/08/2014 | Valid: 31/10/2014 |
| – Renewal of the above certificate by letter from Ship Safety Division (BG Verkehr) from 30/10/2014 until 31/12/2014 |                    |                   |
| – Safety certificate for fishing vessels <sup>22</sup>   | Issued: 13/01/2015 | Valid: 13/05/2015 |

The following minimum safety manning certificates were issued to specify manning levels:

- |                                      |                    |                   |
|--------------------------------------|--------------------|-------------------|
| – Minimum safety manning certificate | Issued: 23/08/2007 | Valid: 31/08/2012 |
| – Minimum safety manning certificate | Issued: 19/05/2008 | Valid: 31/08/2012 |
| – Minimum safety manning certificate | Issued: 10/08/2012 | Valid: 31/08/2017 |
| – Minimum safety manning certificate | Issued: 21/02/2013 | Valid: 31/08/2017 |

Surveyors of the Ship Safety Division (BG Verkehr) prepared a total of 18 reports concerning surveys of the KRISTINA. A summary of the survey history and associated events follows:

- **Report 1:** Ship survey report (pre-flagging survey); in the water  
**Coastal fishing**  
 Conducted on: 18/01/2007      14 conditions      For remedy by: Proceeding to sea  
 The following condition was imposed in point 11: "[...] panelling in the fish hold and forward accommodation must be removed over a broad area to permit a survey of the structure."<sup>23</sup>

<sup>17</sup> As above.

<sup>18</sup> Coastal fishing up to 35 nm off the coast and/or 35 nm from the islands offshore.

<sup>19</sup> Fishing in the Baltic Sea, in the North Sea and within an area bounded by latitude 63° north from the coast of Norway up to longitude 10° west, from there southward to 60 nm north of the Irish coast, further at a distance of 60 nm to the west Irish coast to 50° 30' north and 10° west, and from there on a straight line to Ouessant.

<sup>20</sup> As above.

<sup>21</sup> As above.

<sup>22</sup> As above.

<sup>23</sup> Underlined by the BSU.

**Report 2:** Engine survey report (pre-flagging survey); in the water  
Conducted on: 18/01/2007      25 conditions      For remedy by: Flagging

- **Report 3:** Engine survey report (survey of the bottom, shaft, propeller, steering gear); on dry land  
Conducted on: 18/04/2007      Four conditions      For remedy by: -

**Report 4:** Ship survey report (internal structure); on dry land  
Conducted on: 18/04/2007      No conditions  
"The planking in the fish hold was removed in places; between the frames the fish hold is completely filled with foam. Accordingly, the outer planking is not visible from inside. No visible deficiencies on other visible structures, deck beams or frames."

- **Report 5:** Engine survey report (flagging)  
Conducted on: 26/07/2007      24 conditions      For remedy by: Flagging  
Note by the BSU:
  - Three of the 25 points referred to in Report 2 were not mentioned again. Three new conditions were imposed, however.
  - The BSH issued the flagging certificate on 16/07/2007.

**Report 6:** Ship survey report (inclining test)  
Conducted on: 26/07/2007      No conditions

**Report 7:** Ship survey report  
Conducted on: 26/07/2007      Six conditions      For remedy by: Proceeding to sea  
Note by the BSU: Two of the conditions referred to were already imposed in Report 1. One condition at point 9 of Report 1 (technical approval of the navigational system) was met. Four new conditions.

- Reports sent by specialised firms to the Ship Safety Division (BG Verkehr) concerning installation of the audible and visual bilge alarm (point 14 of Report 2) and the successfully completed insulation measurement of the electrical system (MEGA test), point 10 of the conditions in Report 1, on 02/08/2007.

Drawing of the piping (point 1 of the conditions in Report 1) sent by specialised firm to the Ship Safety Division (BG Verkehr) on 10/08/2007.

- **Report 8:** Engine survey report (post-flagging survey, sound-pressure measurement)  
Conducted on: 09/08/2007      For remedy by: 31/12/2007  
"The following conditions from Survey Report 5 of 26/07/2007 were reviewed and have been dealt with: points 2/3/5/6/8/9/10/13/14/15/17/18/19/20/21/23." Seven other points were being worked on at the time.  
There was also a finding that five points from Report 7 were already dealt with, meaning one more condition ("Personal Flotation Devices must be taken on board.") was outstanding.  
Moreover, two additional conditions that had to be dealt with before proceeding to sea were imposed.  
The sound-pressure measurement was completed. The central administration still needed to assess the outcome. Note by the BSU: There is no indication of this in the ship's file.

- 
- **Report 9:** Ship survey report (post-survey)  
Conducted on: 29/07/2008      No conditions      For remedy by: -  
"With the exception of preparing the fire safety plan, all the deficiencies of 09/08/2007 were dealt with. The office commissioned with this [...] will submit the plan [...] later."
  
  - **Report 10:** Ship survey report  
Conducted on: 09/03/2009      Two conditions      For remedy by: –  
"Safety equipment and fittings complete and satisfactory."  
Conditions concerning the inspection of radio equipment and first-aid kit.
  
  - Report (11?):** Engine survey report; on dry land  
Conducted on: 09/03/2009      Eight conditions      For remedy by: Post-survey  
"No visible deficiencies in hull or structure. The main deck was re-caulked in places. ... The propeller shaft was drawn."
  
  - **Report 12:** Ship survey report (post-survey and guideline)  
Conducted on: 05/11/2009      Five conditions      For remedy by: 31/12/2010  
Conditions: "5) Install engine room fire extinguishing system that can be activated outside the engine room; must contain 1 kg of powder per cubic metre of open space."  
Note by the BSU: According to the report, the conditions referred to are based upon Germany's guideline for fishing vessels less than 24 m, which entered into force in 2009. "Equipment of vessel with GMDSS intermediate wave system currently underway; final technical approval through Germanischer Lloyd DK."  
"Conditions from engine survey of 09/03/2009 [Report 10] dealt with."
  
  - On 14/07/2011, the operator requested that a safety certificate be issued for the vessel. The Ship Safety Division (BG Verkehr) stated in its response that a safety certificate had never been issued. In contrast, the sailing permit was invalid since 04/04/2010. The Ship Safety Division (BG Verkehr) also advised that a technical approval had not been conducted for the radio equipment, that it had not been notified that deficiencies from the last survey [Report 12] had been remedied, and that the last bottom survey was conducted in March 2009. Therefore, the basis for issuing a certificate was not given.
  
  - **Report 13:** Ship survey report  
**Coastal fishing up to 35 nm off the coast**  
Conducted on: 30/08/2011      Three conditions      For remedy by: Proceeding to sea  
"Apart from the engine room fire extinguishing system, equipment pursuant to Germany's guideline for fishing vessels less than 24 m complete."  
.  
**Report 14:** Engine survey report (bottom, shaft, propeller, engine); on dry land  
Conducted on: 30/08/2011      Nine conditions      For remedy by: 31/12/2011  
Note by the BSU:
    - The condition concerning replacement of the hose in the toilet's sea water line by a flame-resistant hose or fixed line had already been imposed in Report 9. The hose had been renewed but the material was unclear. Accordingly, the condition was re-imposed.
    - The condition concerning insulation of the auxiliary engine's exhaust pipe in the vicinity of the exhaust manifold directly on the engine with a heat-insulating jacket (fuel-proof surface) was issued analogously in Reports 5 and 8.
-

- The condition concerning installation of a fixed fire extinguishing system in the engine room had already been imposed in Report 12.
- Records on the completion of the conditions in Reports 13 and 14 sent to the Ship Safety Division (BG Verkehr) by the German skipper.
- Application to extend the navigation area to 90 nm off the coast sent to the Ship Safety Division (BG Verkehr) in October 2011.
- **Report 15:** Ship survey report (inclining test)  
 Conducted on: 07/08/2012      No conditions
- The operator applied for an extension in the navigation area to 200 nm off the coast in January 2013. The Ship Safety Division (BG Verkehr) denied this, as the operator had failed to submit the report on the survey of the radio system required annually (here for 2012) and the vessel was still not equipped with a radio system according to A2.
- **Report 15** [sic]: Engine survey report (bottom, engine); on dry land  
 Conducted on: 17/02/2014      13 conditions      For remedy by: 31/07/2014  
 Findings made include the following:
  - "Survey of the planking in the fish hold not possible because this area is clad with aluminium panels."
  - "Caulking from the main deck seeping into the engine room aft."  
 This gave rise to these conditions: "1) The propeller shaft must be drawn because of excessive play on the shaft. DEADLINE: by 31/07/2014. "Several panels must be removed from the trim in the fish hold by this deadline and the area presented for surveying." "3) Re-caulk various parts of the shell and replace the missing bungs above the bolted joints in the planking."  
 Note by the BSU:
    - The condition concerning adjustment of the wire at the fuel quick-closing valve aft on the starboard side because the valve does not close properly was already imposed in Reports 11 (point 6) and 14 (point 1).
- **Report 16:** Ship survey report  
**Offshore fishing**  
 Conducted on: 19/02/2014      Four conditions      For remedy by: -  
 "1) Stability information must be revised because an anti-rolling tank was mounted on the wheelhouse; [...]"  
 "4) Safety certificate renewed until 31/07/2014 (the shaft must be presented for another inspection by that date."
- **Report 17:** Engine survey report (post-survey)  
**Coastal fishing up to 35 nm off the coast**  
 Conducted on: 01/08/2014      Five conditions      For remedy by: 31/10/2014  
 "Deficiencies 1 (draw propeller shaft), 3 (re-caulk shell, replace bungs), [...] in Report 15 of 17/02/2014 were remedied." All the points in Report 16 of 19/02/2014 are dealt with. A copy of the revised stability information will be [...] sent to Hamburg in the next few days. Points 2, 7 and 11 in Report 15 [of 17/02/2014] are currently being dealt with. The following condition is also imposed: 1) A compression pressure check and an endoscopic investigation must be carried out on the main engine."  
 A safety certificate for fishing vessels less than 24 m was issued (valid until 31/10/2014).



Note by the BSU:

- The survey report does not explicitly address the completion of the second part of the condition in point 1 of Report 15 of 17/02/2014. On the contrary, Report 17 only refers to the propeller shaft.
- The revised stability information was not in the ship's file when it was reviewed by the Ship Safety Division (BG Verkehr) on 24/07/2017.

The reasons for the renewal of the safety certificate until 31 December 2014 or until 13 May 2015 were not evident, as with the exception of the report on the endoscopic investigation and the compression pressure check, no other documents or reports were in the ship's file that indicated the outstanding conditions had been dealt with.

The Ship Safety Division (BG Verkehr) wrote to the operator on 26 March 2015 and requested a statement on the cause and course of the accident. This request went unanswered.

### **3.2.3 Weather and sea conditions**

The REIMERSWAAL's master stated in his report that a south-westerly wind of 30 kts (7 Bft) prevailed. Accordingly, swell approached from west-south-west at 2.5 m to 3 m. The jack-up vessel WIND LIFT 1 situated in the vicinity reported a wind force of 28 kts (6 Bft) and swell height of 1.75 m to 2.5 m.

Water temperature stood at about 5°C.

## 4 ANALYSIS

### 4.1 Course of the accident

The description of the course of the accident remains incomplete, as information was not given to the BSU and/or documents were not provided. The investigators endeavoured to establish contact with the parties involved via the producer group association Nord- und Ostseefischer GmbH, but to no avail.

The WSP were only provided certain items of personal information on the crew members and owner by a Danish auditing company. In addition, uncommented invoices for work carried out in a shipyard in Hvide Sande during calendar weeks 29 to 30 of 2014 and 1 of 2015 were submitted. No information on the cause or course of the accident was provided.

Furthermore, the request of the Ship Safety Division (BG Verkehr) to comment on the events on board and cite possible causes of the foundering was not complied with.

The foundering occurred so slowly that the crew had the opportunity to seek assistance by radio, don the immersion suits, and carry a portable VHF device when they abandoned the vessel. The liferaft inflated automatically and the EPIRB activated when the vessel foundered. Accordingly, the crew would also have had good chances of survival in a sea area in which no vessels were situated at the time of the accident, too. The rescue by the REIMERSWAAL's crew was fast and proficient.

### 4.2 Cause of the accident

To establish the situation, the crew of the ATAIR used a submersible robot to investigate the wreck of the KRISTINA on 09/03/2015. The wreck was located at a depth of 40 m. No particular irregularities were observed during the dive. From the perspective of the shipping police, the Federal Waterways and Shipping Administration sees no reason for a salvage. The wreck was plotted accordingly in the navigational charts.

A detailed analysis of the cause of the accident is not possible for lack of information. The investigators believe the most likely cause of the accident is the KRISTINA's structural condition. This can be concluded from the below observations and considerations:

- The KRISTINA's crew reported to the REIMERSWAAL that there was water ingress in the fish hold. Moreover, water ingress in the engine room was described in reports on the internet, which on the face of it are also based on statements made by the crew of the KRISTINA.<sup>24</sup> The crew also expressed the same to VTS Cuxhaven.
- The sea was rough at the time the vessel foundered. Since the KRISTINA was neither fishing nor carrying any cargo, the investigators believe there were no excessive loads on her structure.

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<sup>24</sup> <<https://hvidesande.nu/kutter-sunket-det-sydlig-nordsoen>> or <<http://www.fiskerforum.dk/erhvervsnyt/hvidesande.asp?nyId=6021&prodid=23>>, (7 February 2016).

- No report of a collision with an unidentified object was made. Consequently, the BSU believes that normal failure of the wooden hull is conceivable.
- The analysis of the survey records of the Ship Safety Division (BG Verkehr) strongly indicates that it was not possible to inspect the area behind the fish hold's panelling in the necessary detail (at least during the period under German flag) because the space between the frames was filled with foam<sup>25</sup> and/or that an inspection of this area was not made (Report 17 and comments) since 2007 (Report 4). Furthermore, there was no evidence to indicate that the back ventilation of the structure<sup>26</sup> in the fish hold ordered by the Ship Safety Division (BG Verkehr) in 2007 was realised. For this purpose, the foam material put behind the panelling in the fish hold for insulation should have been removed. This measure was not reported, however. Moreover, the following findings were made during the surveys by the Ship Safety Division (BG Verkehr):
    - Report 15 (17 February 2014) contained a condition concerning re-caulking various parts of the shell and replacing missing bungs above the bolted joints in the planking.
    - It was found in the same report that the caulking on the main deck in the area of the engine room was in need of repair.

This means that it is not entirely unlikely that the fishing vessel's maintenance status also gave rise to deficiencies that adversely affected the watertight integrity of the hull in the area of the fish hold. Due to the lack of back ventilation and non-existent opportunity for inspection, it is possible that water entering the area of the fish hold would have weakened the fishing vessel's structure and planking unnoticed. Inasmuch, the BSU assumes that there could have been a weak point in the area of the fish hold.

Given the overall circumstances, the BSU sees no need to salvage the fishing vessel, either.

The above points were discussed with the Ship Safety Division (BG Verkehr) in advance and given the overall circumstances, the Division assumed that the surveyor did actually survey the fish hold's planking on 1 August 2014 (Report 17), even though this was not explicitly documented. The Ship Safety Division believes that a collision with a larger floating object that went unnoticed due to the weather conditions is more likely to have caused the water ingress.

#### **4.3 Issue of certificates and inspections by the Ship Safety Division (BG Verkehr)**

During the analysis of the ship's file of the Ship Safety Division (BG Verkehr), it became apparent that there were extended periods in which the KRISTINA did not possess valid certificates. The recordings of the VMS indicate that fishing still continued during these periods. Accordingly, the vessel operated without a valid certificate in 2008 for about three months, 2009 also for about three months, and

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<sup>25</sup> Report 4 of 18 April 2007.

<sup>26</sup> Report 1 of 18 January 2007.

from 2010 to 2011 for about 17 months. This was neither scrutinised nor was it questioned.

Extensive pre/post-flagging work was necessary on the KRISTINA. This resulted primarily from the different requirements of the particular flag State. In particular, it gave rise to the extensive conditions in 2007 (Reports 1 to 8). The following became apparent while considering the remainder of the survey history:

- Deficiencies reported as being dealt with were referred to again subsequently. The record does not indicate clearly whether the corresponding points were noted again only on the basis of incorrect documentation or had actually reoccurred.
- Certain deficiencies were repeated, e.g. the absent fire extinguishing system for the engine room in Report 14 or the defective fuel quick-closing valve in Report 15 of 17/02/2014. This apparently had no further consequences, however.
- Some reports listed deficiencies not documented as being dealt with in the subsequent reports. Moreover, the operator had not reported the fact that they had been dealt with to the Ship Safety Division (BG Verkehr), despite an instruction with cut-off date in the report in question (e.g. Reports 11 and 12).
- The operator failed to report conversions affecting stability, such as the installation of an anti-rolling tank on the wheelhouse (Report 16), to the Ship Safety Division (BG Verkehr) independently, as would have actually been his duty.

The Ship Safety Division (BG Verkehr) also found that fishing vessels are not subject to an annual survey schedule. The first intermediate survey is conducted two years after a safety certificate valid for five years is issued. Previously revealed deficiencies that were supposed to be addressed before proceeding to sea could reoccur prior to the intermediate survey referred to. This possibility is envisaged as regards the issue of adjusting the wires at the fuel quick-closing valve, for example.

## 5 Conclusions

### 5.1 The operator

The KRISTINA's operator, Kristina-Fishing-GmbH, did not satisfy its obligations to the Ship Safety Division (BG Verkehr) fully. Some of the deficiencies found were not (or not within the deadline set) remedied or the fact that they had been remedied was not reported to the Ship Safety Division (BG Verkehr) within the deadlines set. Moreover, the BSU assumes that the fishing vessel was operated without a valid safety certificate for extended periods.

The majority of the conditions imposed by the Ship Safety Division (BG Verkehr) in the course of operation under German flag were not connected with the foundering of the KRISTINA. The operator's handling of conditions imposed by the Ship Safety Division (BG Verkehr) and operation of the vessel without a valid safety certificate on multiple occasions implies that its understanding of safety was wanting.

The vessel was issued with a valid safety certificate for fishing vessels less than 24 m at the time of the accident. She was also in possession of a valid minimum safe manning certificate.

Given the fact that the KRISTINA no longer exists as a fishing vessel and that the operator has discontinued its undertaking, the publication of associated safety recommendations is being dispensed with.

Neither the former ship owners nor the crew members commented on the draft investigation report.

### 5.2 Ship Safety Division (BG Verkehr)

With regard to compliance with survey deadlines and ensuring that ship documents are valid, the Ship Safety Division (BG Verkehr) is of the basic opinion that this is incumbent upon the operator or skipper. Nevertheless, the use of a new database in the future will allow the Division to take on a certain service function, which has not been feasible thus far with the existing database according to information from the Ship Safety Division (BG Verkehr) to the BSU.

The BSU can understand the basic opinion of the Ship Safety Division (BG Verkehr) with regard to the obligations of an operator. On the other hand, it would expect the Ship Safety Division (BG Verkehr) to respond more decisively in the case of deficiencies found repeatedly or the operation of vessels without a safety certificate. This may be more appropriate for the basic attitude<sup>27</sup> to safety observed by the BSU in the case of the operators of fishing vessels, in particular, even though it exceeds the scope of the duties of the Ship Safety Division (BG Verkehr) in terms of the proclaimed safety partnership in the shipping industry.

As already stated, most of the deficiencies found on the KRISTINA had no impact on the course of this accident. The non-existent opportunity for inspection on this vessel

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<sup>27</sup> Investigation Reports 101/06 – JAN MARIA, 07/10 – ORTEGAL UNO and 203/15 – ORTEGAL TRES.

caused by filling with foam the vessel's structure behind the fish hold was nonetheless accepted by the surveyors from the Ship Safety Division (BG Verkehr), i.e. a modification was not insisted upon. This obstructed the condition concerning back ventilation.

The review of the ship's file on the KRISTINA of the Ship Safety Division (BG Verkehr) implies that the existing documentation system is only partially suitable for tracking conditions and the handling thereof effectively. With that in mind, the BSU suggests that the documentation system be improved.

## **6 Actions taken**

The Ship Safety Division (BG Verkehr) will be putting a new database into operation on 5 September 2017. This database will replace the previous system. The future database will facilitate detailed documentation and handling of all ship-related events. This will also entail vastly improved tracking of deficiencies and documentation of their completion. The Ship Safety Division (BG Verkehr) believes that the new database will enable it to focus more clearly on the implementation of conditions established, as well as to document and clarify why only interim certificates were issued in certain cases.

Given the introduction of a new database notified by the Ship Safety Division, which should enable timely documentation, the publication of an associated safety recommendation is being dispensed with.

## **7 SOURCES**

- Inquiries of WSP Heiligenhafen
- Navigational chart and ship particulars, BSH
- Ship's file, Ship Safety Division (BG Verkehr)
- Wreck report, ATAIR
- Extract from the shipping register at Local Court Kiel
- Report of the REIMERSWAAL's master; videos and photographs (basis of Figures 3-6)