



Bundesstelle für Seeunfalluntersuchung
Federal Bureau of Maritime Casualty Investigation
Federal Higher Authority subordinated to the Ministry of Transport,
Building and Urban Affairs

Investigation Report 231/06

Marine Casualty

Collision
between MV LASS SATURN und
Sailing School Ship ROALD AMUNDSEN
on the Heikendorfer Reede
on 4 May 2006

15 February 2007

The 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) of 16 June 2002.

According to this the sole objective of the investigation is to prevent future accidents and malfunctions. The investigation does not serve to ascertain fault, liability or claims.

The present report should not be used in court proceedings or proceedings of the Maritime Board. Reference is made to art. 19 para. 4 SUG.

The German text shall prevail in the interpretation of the Investigation Report.

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

Head: Jörg Kaufmann
Fon: +49 40 31908300
posteingang-bsu@bsh.de

Fax: +49 40 31908340
<http://www.bsu-bund.de>

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1 Summary of the Marine Casualty

At 00:55 a.m.¹ on Thursday, May 4th, 2006, MV LASS SATURN and the Sailing School Ship ROALD AMUNDSEN collided on the Heikendorfer Reede in front of the locks of Kiel to NOK.

In the subsequent VHF conversation, the particulars of the vessels were exchanged. Then LASS SATURN left the scene of the accident and continued her voyage bound to Stettin.

No persons were injured, and no pollution of the environment occurred.

¹ All times mentioned are local times = UTC+2h (CEST).

2 Scene of the Accident

Type of event: Marine casualty
Date/Time: 4 May 2006, 00:55 a.m.
Location: Heikendorfer Reede
Latitude/Longitude: $\varphi 54^{\circ}22' N \lambda 010^{\circ}11' E$

Section from the chart 1365, Federal Maritime and Hydrographic Agency

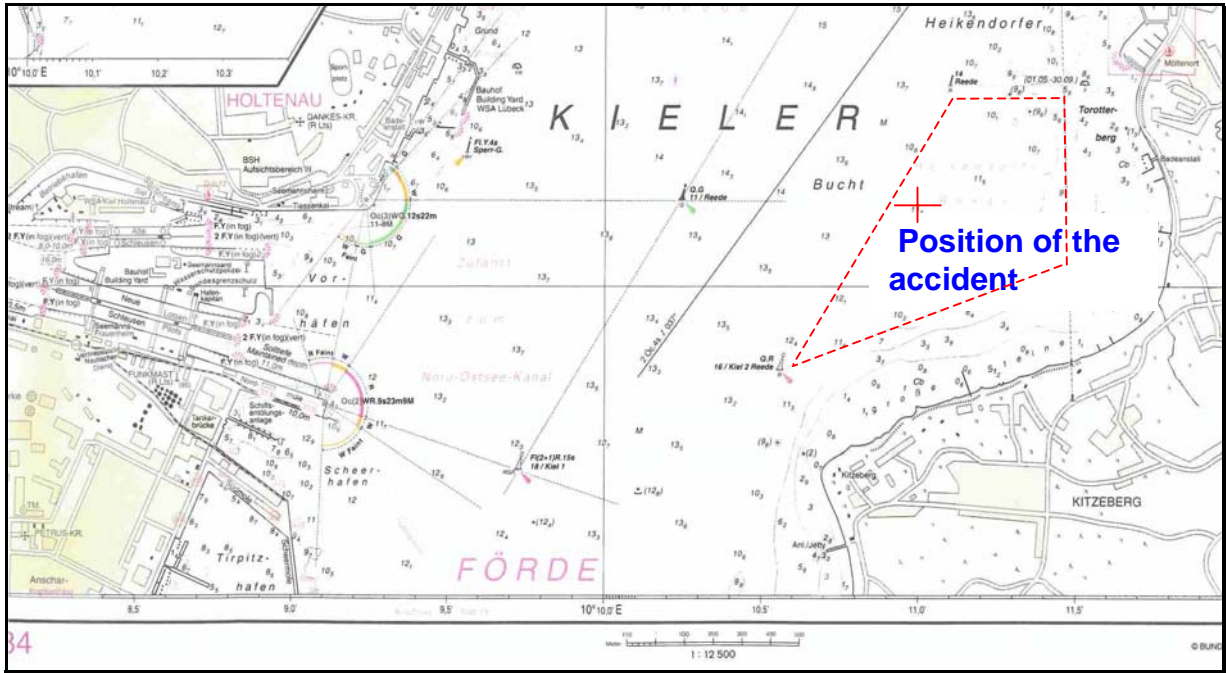


Fig. 1: Chart

3 Particulars of the Vessels

3.1 Photo of MV LASS SATURN



Fig. 2: MV LASS SATURN

3.2 Particulars of MV LASS SATURN

Name of the vessel:	LASS SATURN
Type of the vessel:	Coastal vessel
Nationality/flag:	Federal Republic of Germany
Port of registry:	Rostock
IMO number:	9030515
Call sign:	DQFN
Vessel operator:	S.K.R. Reederei GmbH
Year built:	1993
Shipyard/number:	Rosslauer Schiffswerft GmbH/236
Classification society:	Germanischer Lloyd
Length overall:	74.95 m
Width overall:	11.40 m
Gross tonnage:	1,513
Deadweight:	2,377 t
Draught at the time of the accident:	Front = 3.80 m, midships = 3.90 m, aft = 4.00 m
Engine rating:	596 kW
Main engine:	2 x Cummins schottel drive
Speed:	8.5 kn
Hull material:	Steel
Design of the hull:	Double hull
Number of crew:	5
Number of passengers:	1

3.3 Photo of SSS ROALD AMUNDSEN



Fig. 3: SSS ROALD AMUNDSEN

3.4 Particulars of SSS ROALD AMUNDSEN

Name of the vessel:	ROALD AMUNDSEN
Type of the vessel:	Brig, traditional vessel, sailing school ship
Nationality/flag:	FRG
Port of registry:	Eckernförde
IMO number:	-
Call sign:	DARG
Owner:	LebenLernen auf Segelschiffen e.V.
Year built:	1952
Shipyard/number:	Shipyard of VVW Roßlau
Classification society:	Safety Certificate for Traditional Vessels according to the Vessel Safety Regulation on Safety Requirements for the Construction and Equipment of Traditional Vessels
Length overall:	40.80 m
Width overall:	7.20 m
Gross tonnage:	252
Draught at the time of the accident:	4.20 m
Engine rating:	257 kW
Main engine:	8 cylinder engine Buckau Wolf
Speed:	max. 12 kn
Material of the hull:	Steel
Design of the hull:	riveted, steel on steel frames
Persons on board:	46

4 Course of the Accident

ROALD AMUNDSEN was built at Roßlau/Elbe in 1952 within the scope of a large series of luggers for deep-sea fishing. In 1992 she was rigged as a brig at Wolgast and converted for her present service by the Association “LebenLernen auf Segelschiffen” e.V.

ROALD AMUNDSEN made her first voyage under sails in August 1993.

Hull, engine, and rigging, as well as piping of ROALD AMUNDSEN are completely certified by Germanischer Lloyd according to GL 100 A4.

Radar, echo sounder, GPS, magnetic compass, VHF radio, Inmarsat, minimum short-wave transmitter, four inflatable liferafts, a ship’s boat with an outboard motor, a fire detecting and extinguishing system, personal safety belts and life jackets as navigation and safety equipment together with the experienced core crew provide a high degree of safety.

In the period from 29 April 2006 to 5 May 2006, Cruise number 0138 took place. This cruise was entered as “Ausbildungstoern - Westliche Ostsee” in the cruise plan. [Training cruise — Western Baltic Sea]. Within the scope of this training cruise, ROALD AMUNDSEN anchored at the Heikendorfer Reede in the evening of 3 May 2006, and stayed there overnight.

LASS SATURN was on her voyage from Bremen to Stettin. This route was sailed periodically, so that the vessel’s command had a lot of experience. There were no technical problems with the drive and control units of the Schottel². No overfatigue or influence of alcohol could be proved for the vessel’s command.

A pilot was on board during the passage through the Kiel Canal. The vessel reached the lock of Kiel at 00:16 a.m. and left it at 00:45 a.m. heading for the Kieler Förde³ (to this, see also Fig. 4).

² The propellers are suspended as rotatable pods beneath the vessel. Inside the pod, the electric motor is located, which transmits its power directly via the motor shaft to the propeller. This pod is carried in such a way that it can be turned by 360°, which allows the vessel to be manoeuvred without a rudder by means of a change of direction of the ejected water. This feature gives vessels with pod drives an extremely good manoeuvrability.

³ The lock-master registers the time when the lines of a vessel leaving the lock are cast off.

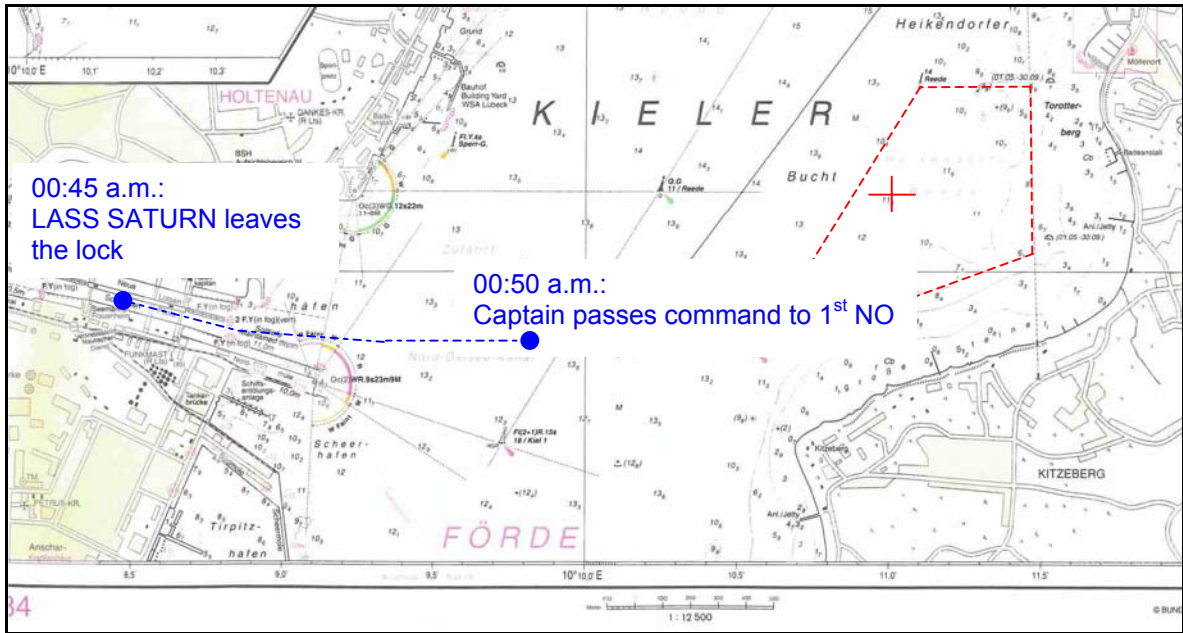


Fig. 4: Course of the voyage of LASS SATURN

As the 1st Officer had already been sailing on this type of vessel under this circumstances for two years, the Master was in no doubt about passing on the command to him already at 00:50 a.m. The 1st Officer switched on the autopilot and immediately altered the course to port side, in order to head for the next way-point drawn in by the chart (see Fig. 5).

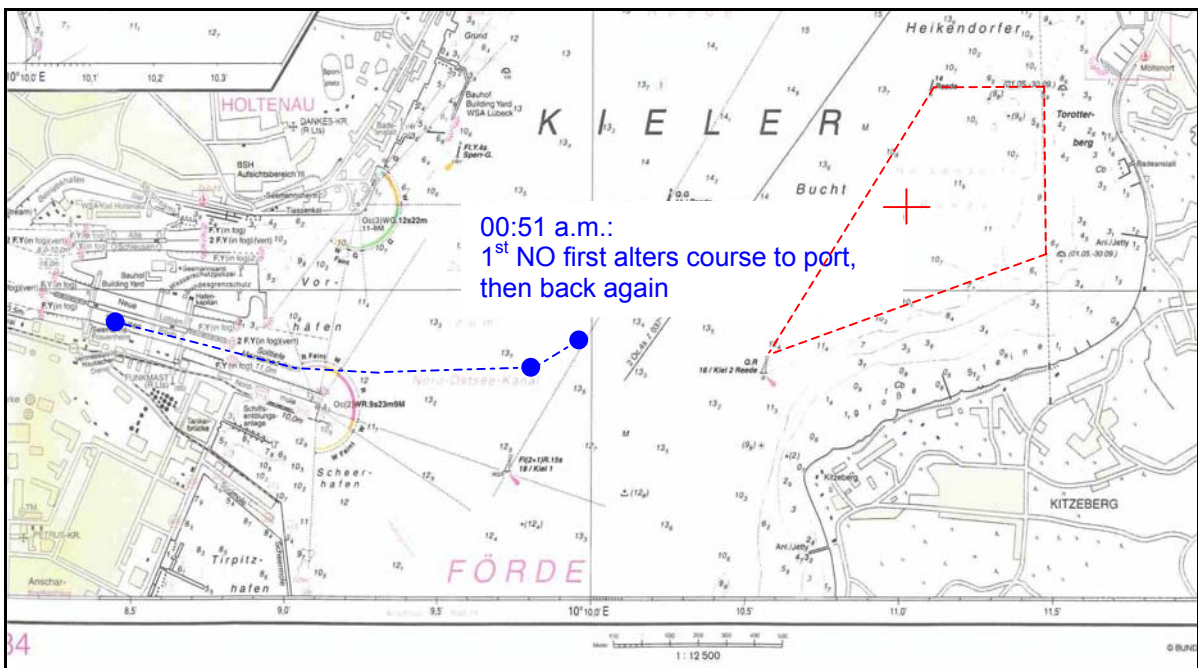


Fig. 5: Course of the voyage

Shortly after that the Master, who was still on the bridge, pointed out that the course had to be altered to starboard again, in order to follow the buoy line from Kiel 1, Kiel 2 up to buoy 14. Then he left the bridge, assuming that within the next three minutes one of the three seamen, who at this moment were still busy on deck, would go to the bridge in order to keep the lookout. Accordingly, the 1st Officer returned to the previous eastbound course, so that the Kiel 2 buoy was lying slightly to starboard (see Fig. 6). Shortly before the buoy was passed at his starboard side, he put the helm to port in order to get to the new course of 30°. Shortly after that he noticed a light on the right side ahead, which he could not identify at first. When it came near, he recognized the moored sailing ship, switched the autopilot back to manual operation and put the helm hard to port (see Fig. 6).

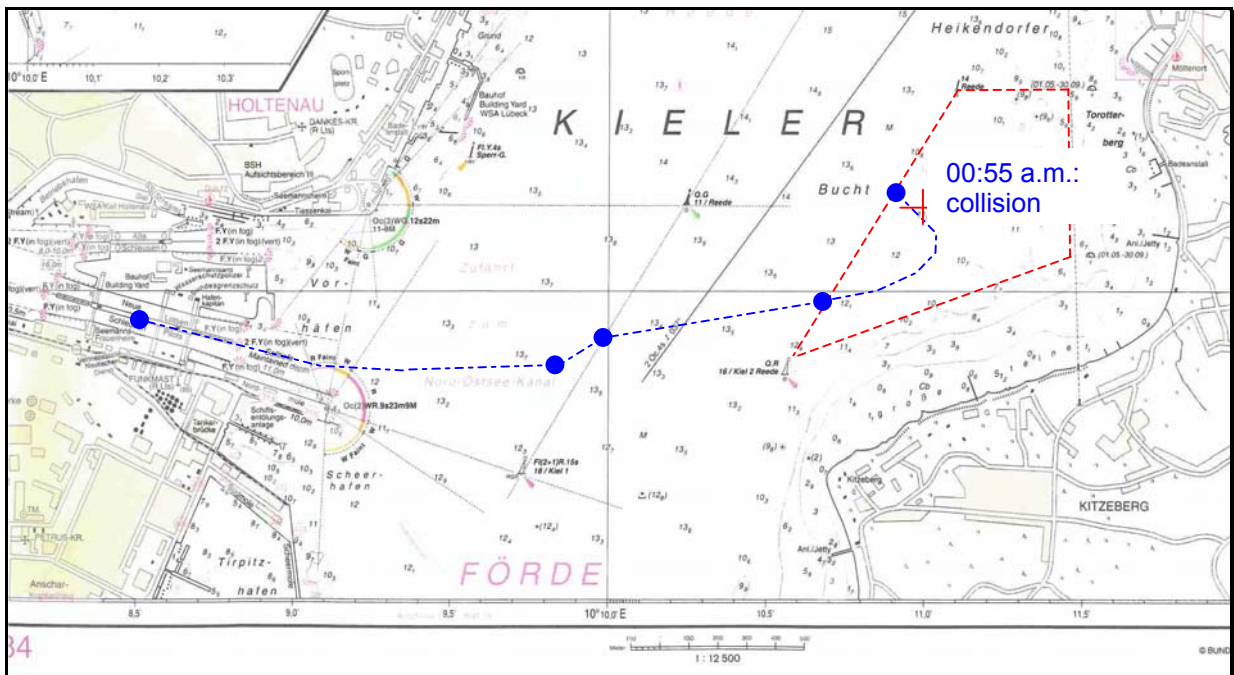


Fig. 6: Course of the voyage

As soon as the starboard side of LASS SATURN was passed by the stern of ROALD AMUNDSEN, he had applied “Hard starboard“, in order to stop the port side turn of the ship, thus preventing, if possible, the own stern from a collision. However, this manoeuvre did not succeed. The starboard side of LASS SATURN grazed the stern of ROALD AMUNDSEN at 00:55 a.m.

The traditional sailing ship was moored there since 23:16 p.m. within the scope of her training voyage. Two men kept anchor watch on deck. The lighting of the moored vessel complied with the regulation. The vessel was lying in the direction east-to-west, i.e. the bow pointed to the east.

At about 00:50 a.m., the ship’s boat of ROALD AMUNDSEN was secured by the crew on the starboard side. It had transported a passenger to the shore. Except for the anchor watch, all participants of the voyage subsequently gathered in the messroom, in order to evaluate the facts of the day.

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The anchor watch on duty in the stern area alerted the crew a 00:55 a.m. and reported a dangerous approach when he saw that LASS SATURN was heading directly for the stern of ROALD AMUNDSEN.

At the time of the collision the speed of LASS SATURN was about 8 kn. The 1st Officer reduced the speed after the collision and informed the Master. Shortly afterwards the Master showed up on the bridge, increased the speed again and reacted to the VHF call of ROALD AMUNDSEN. Both parties involved in the accident exchanged their particulars. The Master sent the 1st Officer to the forecabin in order to inspect the damages. When the latter advised that the damages were limited to a small dent (with a diameter of about 70 cm) and abrasions of paint, the Master decided to continue the voyage. The position of the collision was not recorded by the bridge crew of LASS SATURN.



Fig. 7: ROALD AMUNDSEN – View of the damages

No persons were injured, and there were no pollutions of the environment.

Via VHF channel 12, the operational channel for the locks of Kiel-Holtenau, the accident was reported by a member of the crew of ROALD AMUNDSEN. The lock-master of Kiel received this call and passed on the accident report, among others, to the water police (WSP) of Kiel. The latter initiated first investigations on board the ROALD AMUNDSEN and also informed the BSU. After the WSP boat first prevented LASS SATURN from sailing on, a questioning on board the LASS SATURN could not be performed due to technical problems occurring on the WSP boat.

The Vessel Traffic Centres of Kiel-Holtenau and Travemünde do not record any radar data of this region. The lock-masters of Kiel-Holtenau dispose of a radar of this area, but do not use it for the supervision of the traffic on the Förde, as this does not fall within their tasks.

A VHF recording on the relevant period did not exist either.

As AIS⁴ data are recorded by the Waterways and Shipping Office (WSA) of Brunsbüttel, a verification of the data showed that the AIS-Sender of LASS SATURN stopped transmitting during the passage through the NOK. This was not a reason of the accident. The vessel operator was informed about this fact.

5 Analysis

The description presented by the bridge crew of LASS SATURN cannot be followed but conditionally.

The distance from the lock of Kiel to the confirmed position of the accident is about 1.5 sm. The times stated for “leaving the lock” at 00:45 a.m. and for the time of the collision at 00:55 a.m. result in a mathematical average speed for LASS SATURN of 9 kn over ground. The maximum speed stated for LASS SATURN is 8.5 kn. Even if inaccuracies are taken into consideration for the stated times, there is not enough time left for the alterations of course stated, as a phase of acceleration must be taken into consideration.

The chart of LASS SATURN shows that the vessel should have headed for “way-point 406” at a course of 067°, in order to subsequently continue her voyage at a course of 037° in the transit bearing to Jägersberg. If the 067° course line on the nautical chart is produced beyond the way-point, it will exactly strike the anchorage of ROALD AMUNDSEN. In this respect it is assumed that the 1st Officer followed the Master’s instruction to go farther to the east by continuing their course of 067° already set on the autopilot, instead of turning to the new 037° course. The reason why the 1st Officer did not notice the anchored vessel but at a very late stage is unknown. This might possibly be explained by the fact that from the time of taking over the watch, the 1st Officer oriented himself by the vessel sailing in front of him, but then possibly mistook its stern light with that of the moored vessel and thus headed for ROALD AMUNDSEN.

⁴ AIS: Automatic Identification System = self-organizing system for the automatic mutual identification of vessels.

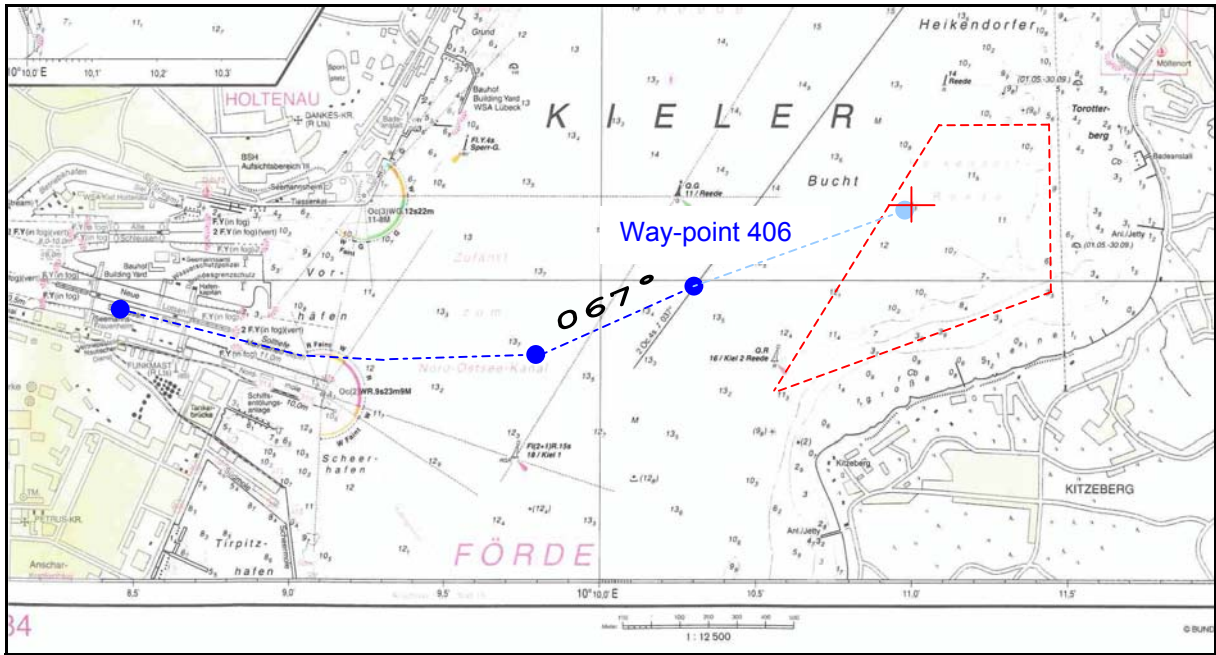


Fig. 8: Assumed course of the voyage

It could not be comprehended why the 1st Officer finally steered LASS SATURN into this situation. However, this evasivon manoeuvre did not prevent the collision. The lack of a proper lookout is considered to have caused the accident. Neither was there a second person present on the bridge who could exercise this prescribed function, nor did the 1st Officer notice the moored vessel by means of an appropriate observation of the radar. A promoting factor may have been that the 1st Officer took over the watch coming directly from his manoeuvring station to the bridge after leaving the lock, while the Captain was eager to pass on the watch quickly, in order to observe his own of rest period.

Sources

- Investigations by the Water Police (WSP)
- Written and oral declarations made by the
 - Vessel's command
 - shipping companies
 - Federal Waterways and Shipping Administration
- Witnesses' statements
- Photographs of the vessels submitted by the owners
- Section from the chart INT 1365 and particulars of the vessels from the Federal Maritime and Hydrographic Agency (BSH)