DMAIB
DANISH MARITIME ACCIDENT INVESTIGATION BOARD

BEAUMAIDEN

Marine accident report on grounding

18 OCTOBER 2021

MARINE ACCIDENT REPORT ON BEAUMAIDEN'S GROUNDING ON 18 OCTOBER 2021

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DMAIB
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The report is issued on 12 January 2022.

Photo: BEAUMAIDEN grounded off Sorthat Odde
Source: DMAIB

The investigations are carried out separately from the criminal investigation, without having used legal evidence procedures and with no other basic aim than learning about accidents with the purpose of gaining and promoting an understanding of safety. Consequently, any use of this report for other purposes may lead to erroneous or misleading interpretations.

Content

Introduction

Start of the investigation

On 18 October 2021, Maritime Assistance Service Denmark (MAS Denmark) informed DMAIB that the Dutch registered general cargo ship BEAUMAIDEN had run aground near Sorthat Odde, Bornholm, Denmark. It was reported that the ship had sustained minor damage, there was no pollution and none of the crewmembers were injured. The ship was grounded on a sandstone formation and was not able to come off the ground by own means. The weather forecast predicted deterioating sea conditions which imposed a risk of the ship slamming against the ground with severe hull damage as potential consequence.

During the initial enquiry, DMAIB was not able to ascertain verifiable information about the course of events and the causal circumstances which resulted in the grounding. Additionally, the grounding had attracted public attention because the ship ran aground near a beach area where the ship could be seen by residents. Therefore, the following morning two investigators were deployed to the ship by a fast rescue boat from Roenne Rescue Station.

The aim of DMAIB's investigation was initially to reconstruct the course of events on BEAUMAIDEN prior to, during and after the grounding. Secondly, to establish the causes that led to the grounding.

Narrative

Reconstruction of the course of events

The course of events is presented from the perspective of the involved persons on BEAUMAIDEN to give insights into how the events were perceived during the accident. The narrative is based on interviews with a selected group of crewmembers, logbook records and photo/video documentation taken after the accident. Additional information has been provided by Maritime Assistance Service Denmark (MAS Denmark).

The course of events covers the period from 1200 on 17 October 2021 when BEAUMAIDEN navigated eastbound from TSS South of Gedser (Kadetrenden) until the ship was alongside at Port of Roenne, Bornholm, Denmark on 20 October at 2000 LT.

Background

BEAUMAIDEN was a general cargo ship (see appendix and figure 1) which normally traded in northern Europe. The ship had a crew of seven of various nationalities: Three navigational officers, including the master, one engineer and three ratings of whom one was the ship's cook.

On 15 October 2021 at 1100, BEAUMAIDEN departed from Antwerp loaded with approximately 3,000 t fertiliser and proceeded to Kiel Canal via Elbe River. The destination was Tallinn, Estonia. On 17 October at 1000, BEAUMAIDEN exited Kiel Canal, and the pilot disembarked shortly after. The ship proceeded eastwards in Femern Belt en route to Tallinn under the master´s command (figure 2).

Figure 1: BEAUMAIDEN
Source: DMAIB

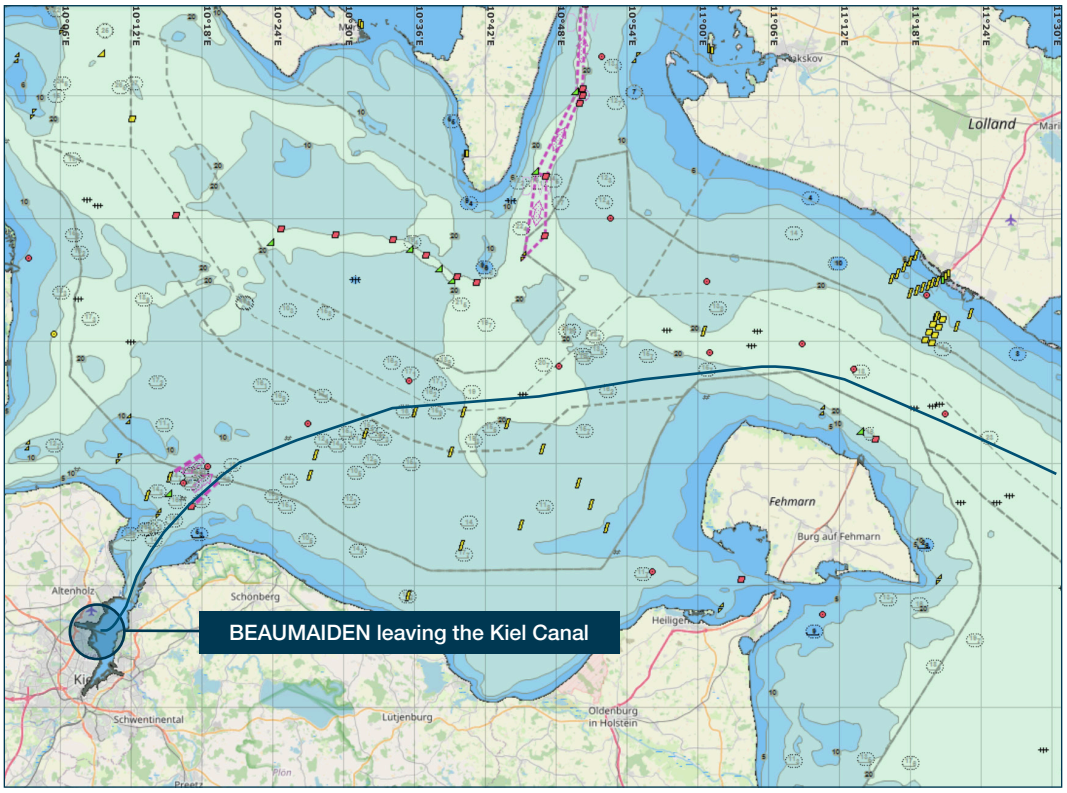

Figure 2: BEAUMAIDEN's route in Femern Belt.
Source: © Made Smart Group BV 2021 © i4 Insight / DMAIB

Course of events

The grounding

At noon time, the master was relieved on the navigational bridge by the 3rd officer. After the handover, he went to his cabin, watched a movie and took a nap. He woke up at 1700 and went to the messroom to have dinner. Afterwards he went to his cabin to watch a movie while he drank a glass of wine.

Just before 2000 the master went to the bridge to relieve the chief officer. They had a short conversation, and the watch was handed over. The chief officer did not notice anything unusual about the master nor did he notice that the master had been drinking wine. By now, it was dark, and the master was alone on the bridge, because it was not common practise to have an able seaman (AB) on duty during night-time to keep lookout.

The ship proceeded in Kadetrenden on course 062°, and the next course change was to be made near Bornholm 4-5 hours later. There was little traffic, and the weather was good. During the watch the master sat in the navigational chair and made several phone calls to friends while he listened to music (figure 3).

Figure 3: Conning station on BEAUMAIDEN.
Source: DMAIB

After a while he went to his cabin to fetch his wine glass. He filled it with wine and brought it to the bridge. The ship kept a steady course and speed, and there was no oncoming or crossing traffic for the master to take into consideration.

A few hours into the watch, the master had to go to the lavatory, but he knew that the toilet on the bridge did not flush properly, so he had to use the toilet in his cabin. After having made a phone call to a friend at home where nobody answered, he went to his cabin three decks below. Whilst in his cabin he felt tired and laid down on the bed to rest. He then fell asleep.

At 0255, MAS Denmark contacted Maritime Operations Center (MOC) and requested them to scramble a rescue vessel to intercept BEAUMAIDEN, because it was on a course heading directly towards the shores of Bornholm. In the following minutes, via the coastal radio station Lyngby Radio (LYRA), MAS Denmark tried to contact the ship by VHF, VHF DSC and by phone without getting any response from the ship. The Danish Police on Bornholm was contacted and advised that BEAUMAIDEN was about to run aground on Bornholm.

On BEAUMAIDEN the chief engineer was asleep in his cabin when he was suddenly awoken by the ship violently vibrating. He hurried out of his cabin and out on the aft deck where he saw the wake from the propeller. It was dark outside, and he noticed that the bearing to the lights from shore was not changing which indicated that the ship was stopped. Straightaway he realised that the ship had run aground. The time was 0325.

From the aft deck he went into the accommodation and ran up the stairs to the navigational bridge. When he opened the door to the bridge, he heard loud music, noise from numerous alarms and found the bridge empty. He rushed to the conning station and put the propeller pitch to zero, but he did not know how to silence the alerts from the various instrumentation, or how to stop the music. He then went downstairs and woke up the chief officer and informed him about the situation. The chief engineer told the chief officer to go to the bow thruster room to check if there was any water ingress. Meanwhile he went to the engine room to check for water ingress and switch from power supply from the main engine shaft generator to the auxiliary engine generator.

The chief officer went to the master's cabin and woke him up and went to the bridge to silence the alerts. The chief officer called the AB and OS and instructed them to inspect the bow thruster room, forecastle and perform soundings of the tanks.

On the bridge the master and the chief officer had a conversation about what had happened. They tried to make a manoeuvre astern while the chief engineer monitored the main engine system in the engine room. But the ship did not move, and the chief engineer stopped the main engine. The time was 0346, approximately half an hour after the grounding (figure 4).

Figure 4: BEAUMAIDEN grounded
Source: DMAIB

After the grounding

The master talked to the shore authorities and was informed that the ship was detained, and the crew should not attempt to bring the ship afloat before an assessment of the damages was made and a salvage plan had been approved. An initial assessment of the damages was made by the crew. The tanks and surrounding water depth were sounded, and the hull was inspected. No water ingress was observed, but minor indentations in the forepeak was found.

At approximately 0525, the police arrived on board. They suspected that the master was under the influence of alcohol, and he was therefore brought ashore for a blood alcohol test. The chief officer was left in command of the ship.

The following days the company arranged for the ship's hull to be inspected by divers and contracted a tug to bring BEAUMAIDEN afloat. It was determined that the ship had run aground on sand/sand stone, and thus the hull did not show any sign of significant damage, only some minor cracks in some welding seams and indentations to the hull.

In the morning of 20 October, the tug FAIRPLAY XVIII was made fast to BEAUMAIDEN. Several attempts were made to bring the ship afloat and some damage was sustained to a ballast tank which took in water. In the late afternoon on 20 October, BEAUMAIDEN was afloat and was brought to the Port of Roenne, Bornholm, where it was alongside in the early evening.

Investigation

SCOPE OF THE INVESTIGATION

The course of events showed that the ship's navigational bridge was left unmanned for a period prior to the grounding. DMAIB's investigation aimed to uncover why it went unnoticed by the other crewmembers.

The following topics will be examined:

- The factual circumstances of the grounding.
- The ship's bridge watch including the bridge watch alarm system, the lookout and handover practises.

The grounding

Firstly, the investigation focused on establishing how long the navigational bridge had been unmanned, and when the ship departed from the planned route.

The master of BEAUMAIDEN went to the bridge and relieved the chief officer just before 2000. A few minutes later, the ship reached a waypoint, but it only required a minor course change from 062° to 066°. The distance to the next waypoint at the southern part of TSS Bornholm's Gat was 51 nautical miles. At a speed of approximately 10 knots, the next turn would be about five hours after the change of watch, i.e. according to the route plan the master did not have to make any course changes on his watch (figure 5).

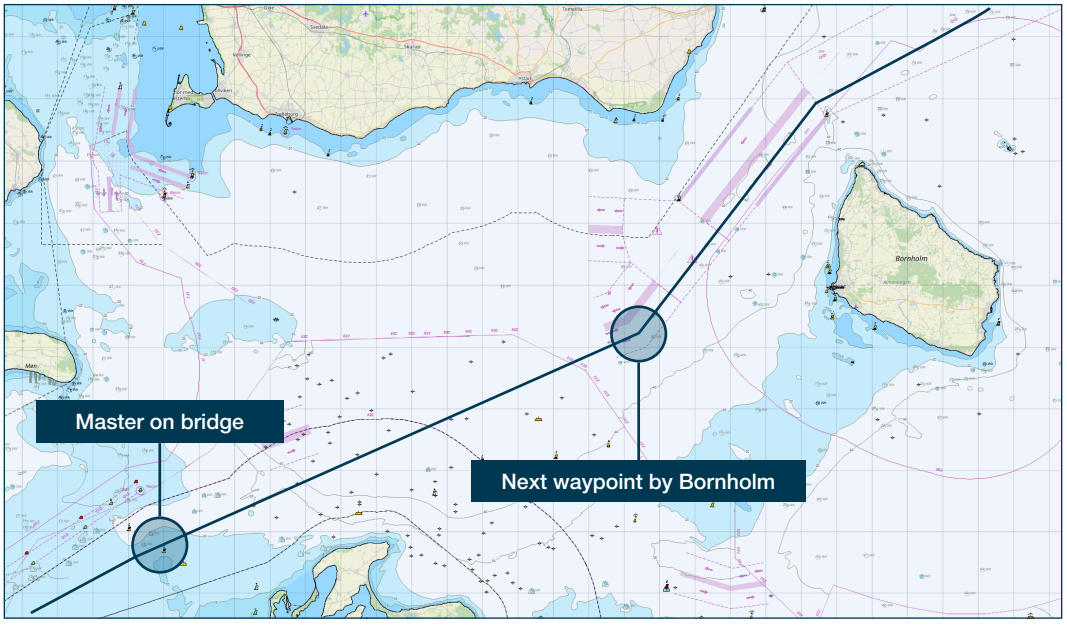

Figure 5: BEAUMAIDEN planned route.
Source: © Made Smart Group BV 2021 © i4 Insight / DMAIB

An examination of the master's phone records showed that the last call was made at 2322 after which he went to his cabin at approximately 2330. At 0120, BEAUMAIDEN passed the waypoint in the southern part of TSS Bornholm's Gat where the ship's course should have been changed to 038°, but the ship continued on course 066°, heading directly towards Bornholm, where it went aground at 0325 (figure 6).

The ship went aground approximately 0.2 nautical miles from shore within the 6 m depth contour in an area where the seabed consisted mainly of sand and sand stone (figure 7).

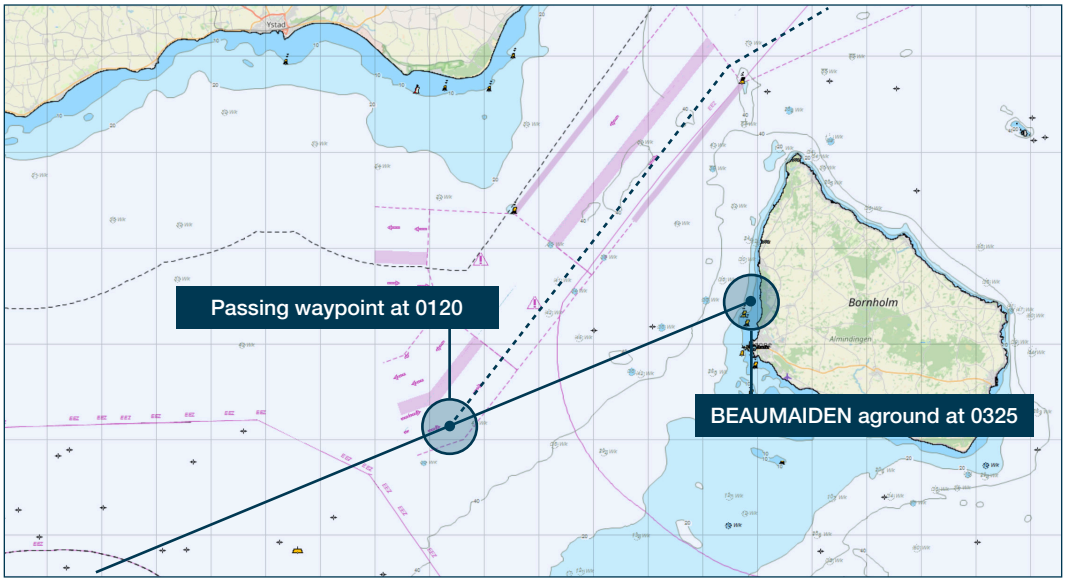

Figure 6: BEAUMAIDEN passing the waypoint
Source: © Made Smart Group BV 2021 © i4 Insight / DMAIB

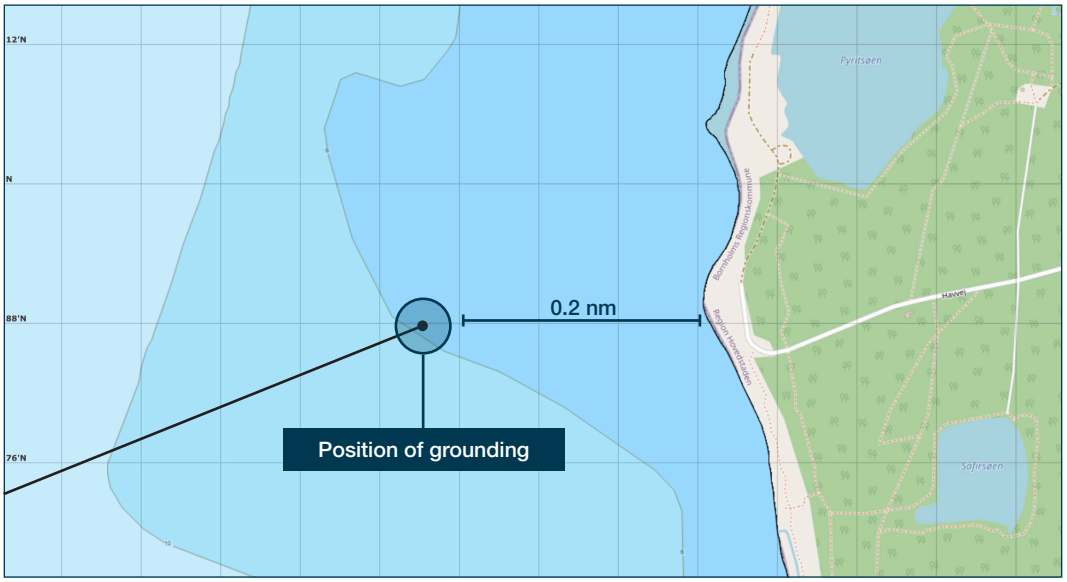

Figure 7: Location of grounding by Sorthat Odde
Source: © Made Smart Group BV 2021 © i4 Insight / DMAIB

The examination of the ship's hull performed by divers established that the ship stood on a shallow area abaft midship by frames 41-45 and was lifted about one metre, decreasing the draught from 5.40 to 4.40 metres (figure 8). Damages to the hull in the forepeak and minor indentations in the hull were observed.

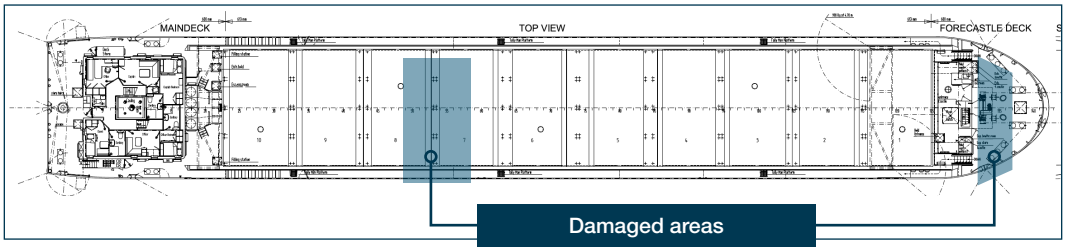

Figure 8: Location of grounding
Source: © Made Smart Group BV 2021 © i4 Insight / DMAIB

Bridge watch

The bridge was left unmanned for four hours without the other crewmembers noticing, because the mechanisms for warning them were not in place. i.e., the bridge watch alarm, the lookout, and the handover practises.

Bridge navigational watch alarm

The purpose of a bridge navigational watch alarm system (BNWAS) is to monitor bridge activity and detect operator incapacity. The system monitors the awareness of the watchkeeping officer (OOW) and automatically alerts another navigational officer or the master, if for any reason the OOW becomes incapable of performing the OOW's duties.

This purpose is achieved by a series of indications and alarms to alert first the OOW and, if he does not respond, then to alert another qualified OOW or the master. Additionally, the BNWAS may provide the OOW with a means of calling for immediate assistance if required. The BNWAS should be operational whenever the ship's heading or track control system is activated, and inhibited when this system is not activated. Once activated, the BNWAS alarm system should remain dormant for a period of between 3 and 12 minutes. At the end of this dormant period, the alarm system should initiate a series of visual and audible indications on the bridge and in selected cabins. If not reset, the alarms will finally result in an audible general alarm on the entire ship.

On BEAUMAIDEN the BNWAS was mounted on the main console by the conning station approximately 140 cm from the navigational chair (figure 9). During the visit on board, DMAIB performed a function test of the system, and it was found to be in working order (figure 10).

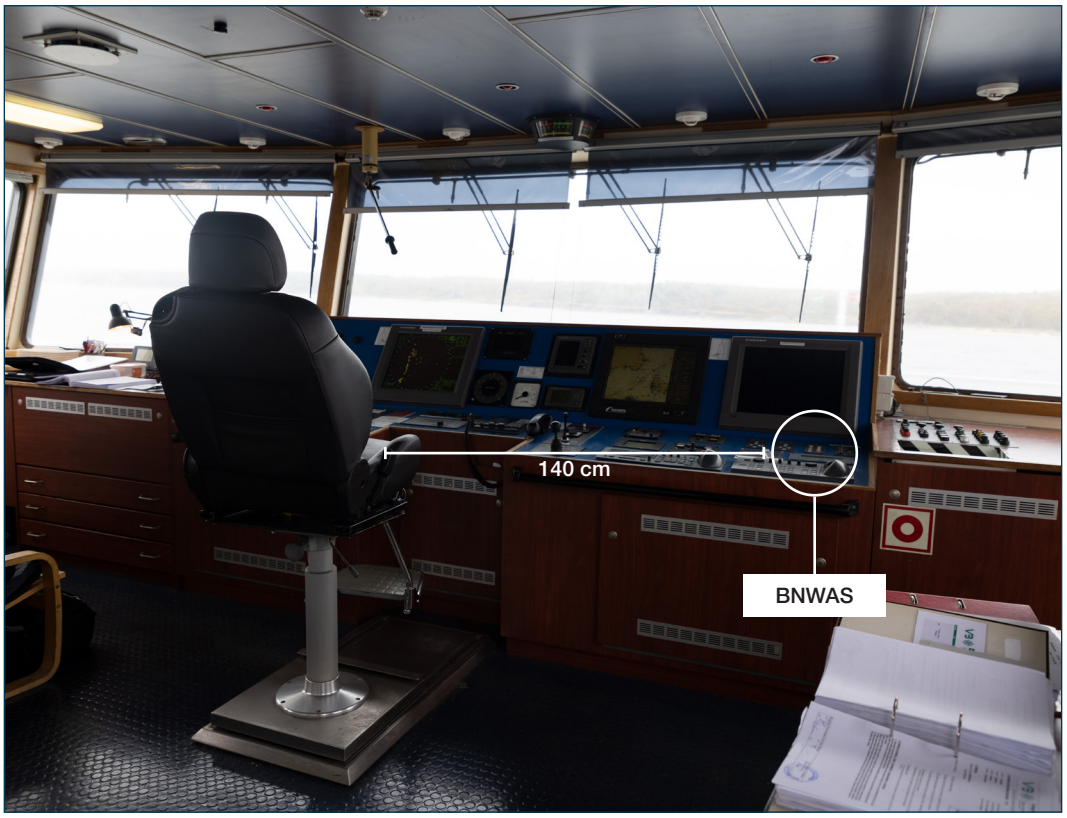

Figure 9: BNWAS by the conning station.
Source: DMAIB

Figure 10: BNWAS during DMAIB test procedure.
Source: DMAIB

During normal operation the system was reset by the OOW pressing the reset button on the BNWAS panel. Alternative reset arrangements can be incorporated to initiate the reset function from other equipment on the bridge capable of registering operator actions, e.g. radar and ECDIS controls. However, on BEAUMAIDEN there was no such integration with other equipment, and the OOW therefore had to stand up from the navigational chair every 3-12 minutes to reach the reset button.

The BNWAS was activated by using a key which was in the master's possession, but at the time of the grounding the system was not activated, and the key was not available on the bridge. DMAIB's inquiries into bridge watch practises on BEAUMAIDEN indicated that the BNWAS was normally not used by the onboard crew, because it was found to be troublesome to constantly reset the system, when the reset button could not be reached from the navigational chair. Thus, on the day of the grounding the BNWAS could not alert the other crewmembers about the bridge being unmanned.

Lookout on bridge at dark hours

There were three navigational officers who had watchkeeping duties: the master, the chief officer and the 3rd officer. At sea, the three deck ratings had four hours lookout duty during daytime and four hours during dark hours. During daytime, when the ship was at sea, all ratings had additional duties which mainly entailed various maintenance work on deck.

According to the company's work schedule, the AB who had the 04-08 lookout duty also worked as cook and was to prepare breakfast between 07-08. Another company procedure (Scheduled daily work hours at sea) prescribed that the navigational officers should have a lookout on bridge during dark hours. How those conflicting goals were supposed to be resolved was not described in the company's procedures.

In practise the ship's crew found it difficult to meet the requirement of having the deck ratings performing lookout duty at hours of darkness while also completing the required maintenance tasks on deck. Specifically, the AB who was the ship's cook did not manage to perform all the prescribed duties and practically worked full time as the ship's cook. Therefore, the navigational officers were typically alone on the bridge during hours of darkness.

Handover practise

There was a company procedure for the handover of the navigational watch which listed what the relieving officer should pay attention to prior to taking over the watch, e.g. own ship's position and speed, other vessels in the vicinity, environmental conditions, etc. Occasionally, the master agreed with the relieving officer that he would wake him by calling him on the telephone about ten minutes before the change of watch, so he had ample time to hand over the watch.

The company policies also prescribed that the relieved officer should assess the condition of the relieving officer ensuring that the officer was fit for duty. The chief officer did not notice anything unusual about the master before he took over the watch even though he had some wine prior going to the bridge. After the grounding, The Danish Police determined that he was under the influence of alcohol after establishing the master's actual blood alcohol level. That information cannot be disclosed in this context, because it is individually identifiable health information, which is confidential.

Consuming alcohol was allowed on board, and beer was available for the crew to buy from the bonded stores. It was the master's responsibility to arrange for delivery of alcohol on board and to keep the record of its distribution among the crewmembers. The company policy on the consumption of alcohol was displayed on the bridge bulkhead. It stated that it was not permitted to be under influence of alcohol during watchkeeping. DMAIB's investigations on board after the grounding indicated that it was common practise among some crewmembers to occasionally consume alcohol.

Analysis & conclusion

Causal factors of the grounding

The investigation established that the ship's OOW left the navigational bridge and went to use the toilet in his cabin. Once there he fell asleep and left the bridge unmanned for a period of approximately four hours prior to the grounding. The OOW's alcohol consumption might have contributed to the feeling of sleepiness and his proneness to falling asleep and not waking up during the grounding. It is likely that the influence of alcohol impaired his judgement and contributed to the decision to leave the bridge and to rest on the bed whilst in his cabin.

DMAIB's investigation aimed to uncover how it went unnoticed by the other crewmembers that nobody was in control of the ship for such a prolonged period.

There can be several reasons for the navigational bridge to become unmanned, e.g. the OOW can fall asleep, become ill or lose consciousness, etc., which can have adverse consequences, unless safeguards are in place. On BEAUMAIDEN those safeguards were not effective for various reasons:

- The master was compelled to leave the bridge, because the toilet on the bridge did not flush properly.
- It was a practise on board to not have a lookout on the bridge during night-time, because the work schedule did not allow for all the duties to be performed. Therefore, the master decided to let the OOW be alone on the bridge during night-time.
- The bridge navigational watch alarm system was disabled, because it was in an inconvenient place, and the master considered it annoying to constantly move from the navigational chair to reset the alarm.

The dangers of not having these safeguards in place was exacerbated by the master's consumption of alcohol prior to and during the navigational watch. Although alcohol was a causal factor in the grounding, the investigation also unveiled other problems related to the safe navigational watchkeeping on BEAUMAIDEN, which contributed to the ship's grounding.

Preventive measures

Actions taken by Vertom Bereederungs GmbH & Co. KG

DMAIB received information that the ship management company Vertom Bereederungs GmbH & Co. KG has initiated following preventive actions as a response to the accident:

”Following the grounding of BEAUMAIDEN the company will revise the drug and alcohol policy and uphold a zero tolerance policy to drugs and alcohol on board the company’s ships.”

Appendix

SHIP PARTICULARS

Name of vessel:	BEAUMAIDEN
Type of vessel:	General cargo ship
Nationality/flag:	Netherlands
Port of registry:	Rotterdam
Call sign:	PHOU
IMO no.:	9401257
DOC company:	Valparola Beaumaiden BV
IMO company no. (DOC):	6083974
Classification society:	DNV-GL
Year built:	2008
Shipyard/yard number:	Sava, Ad Brodogradiliste/13
Overall length:	88.60 m
Breadth overall:	12.51 m
Draught max.:	5.41 m
Gross tonnage:	2,545
Engine rating:	1,520kW
Service speed:	11.50 knots
Hull material:	Steel
Hull design:	Double hull

VOYAGE DATA

Port of departure:	Antwerp, Belgium
Port of call:	Tallinn, Estonia
Type of voyage:	International
Cargo information:	Fertilizer
Manning:	7
Pilot on board:	No
Number of passengers:	None

WEATHER DATA

Wind – speed, direction:	Northeast – 5 m/s
Wave height:	0.5 m
Current- speed, direction:	South – 0.15 knots
Visibility:	Good
Weather conditions:	Cloudy
Light/dark:	Dark

MARINE CASUALTY INFORMATION

Type of marine casualty:	Grounding
IMO classification:	Serious
Date, time:	18 October 2021 – 0326 (UTC+2)
Location:	Off Bornholm, Denmark
Position:	55°08,89 N 014°41,82 E
Ship's operation:	Underway, midwater
Place on board:	Navigational bridge
Human factor data:	Yes
Consequences:	Ship hull damaged below waterline.

SHORE AUTHORITY INVOLVEMENT AND EMERGENCY RESPONSE

Involved parties:	Danish Naval Home Guard, Admiral Danish Fleet
Resources used:	Roenne Rescue Station (FRB 19) HJORTOE MHV-903 (Naval Home Guard) GUNNAR SEIDENFADEN Y561
Actions taken:	Oil pollution prevention.
Results achieved:	Stabilisation of patients, medical treatment

RELEVANT PERSONS

Master:	37 years old. Had served with the ship for six weeks and had been employed by the company for 7 months.
Chief engineer:	36 years old. Had served with the ship and had been employed with the company for six weeks.
Chief officer:	38 years old. Had served with the ship for four days and had been employed by the company for 11 years.