



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

Summary  
Investigation Report 450/11

**Serious Marine Casualty**

**Ground Contact  
by the Container Vessel FIDUCIA  
off Cebu, Philippines  
on 16 September 2011**

01 June 2012

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, amended most recently by art. 1 G of 22 November 2011, BGBl. [Federal Law Gazette] I, p. 2279, as amended.

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

This report should not be used in court proceedings or proceedings of the Maritime Board. Reference is made to the aforementioned version of art. 34 para. 4 SUG.

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

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## 1 Summary

On the morning of 16 September 2011, the FIDUCIA was anchored in the roads of Cebu waiting for the pilot. The pilot boarded at 1114<sup>1</sup>.

Shortly afterwards, the anchor was on deck. The vessel slowly began to pick up speed and turn to port in order to head for Lauis Ledge Light, which marks the entrance to the traffic separation scheme (TSS).

At a distance of about 2.5 to 3 nm, the CEBU TRADER approached the TSS from the opposite direction. The ship's command of the FIDUCIA checked the CPA and TCPA and concluded that there was enough time to enter the TSS before the CEBU TRADER.

The pilot suddenly recommended that port rudder be set in order to allow the CEBU TRADER to pass on starboard. This was subsequently agreed to by the ship's command.

The third officer plotted the current positions on the nautical chart. Based on the position at 1135, the ship's command concluded that the FIDUCIA was too far west and heading directly for the Lipata Bank.

The reef was supposedly not visible as there was hardly any wind and high tide had just set in. Even the marker buoy was absent. The pilot was then made aware that the vessel was approaching the shoals. He played this down, but nevertheless recommended starboard 10 as the CEBU TRADER had just been passed.

Shortly after, the ship's command noticed a sudden decrease in the depth of the water to less than 10 m. Consequently, the engine was stopped and then set to HALF ASTERN. Despite that, the ship's command could only conclude that the FIDUCIA had run aground.

The ship's command immediately started to take steps to establish the state of the vessel.

Arrangements were made with the pilot to call a tug that could haul the FIDUCIA free. After that, the owner was informed.

After several unsuccessful attempts to haul the vessel free, this was put back to the next high tide at 2400, at which time the FIDUCIA was hauled free as expected and continued her voyage to the port of Cebu.

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<sup>1</sup> All times shown in this report are local = UTC + 8

## 2 SHIP PARTICULARS

### 2.1 Photo



Figure 1: MV FIDUCIA

### 2.2 Particulars

Name of vessel:	FIDUCIA
Type of vessel:	Container vessel
Nationality/flag:	Germany
Port of registry:	Elsfleth
IMO number:	9141132
Call sign:	DDFG
Owner:	MARTIME Gesellschaft für Maritime Dienstleistungen mbH
Year built:	1997
Shipyard/yard number:	Thyssen Nordseewerke GmbH/517
Classification society:	Germanischer Lloyd
Length overall:	168.52 m
Breadth overall:	27.40 m
Gross tonnage:	16,211
Deadweight:	21,060 t
Draught (max.):	9.90 m
Engine rating:	16,000 kW
Main engine:	MITSUBISHI, 8UEC 60 LSA
(Service) Speed:	20 kts
Hull material:	Steel
Hull design:	Double bottom

### 2.3 Voyage particulars

Port of departure:	Manila, Philippines
Port of call:	Cebu, Philippines
Type of voyage:	Merchant shipping International
Cargo information:	538 Containers
Draught at time of accident:	F: 8.05 m, M: 8.10 m, A: 8.15 m
Speed at time of accident:	7-8 kts
Manning:	24
Pilot on board:	Yes
Canal helmsman:	No
Number of passengers:	0

## 2.4 Marine casualty or incident information

Type of marine casualty/incident:	Serious accident, grounding
Date, time:	16 September 2011, 1140
Location:	Approach to the port of Cebu
Latitude/Longitude:	$\phi$ 10°14.56'N $\lambda$ 123°52.86'E
Ship operation and voyage segment:	Harbour mode Arrival
Place on board:	Fore section
Human factors:	Yes, human error Yes, violation
Consequences (for people, vessel, cargo, the environment and other):	Grounding of the vessel without further damage. Only possible to refloat vessel with tug assistance.

Excerpt from Nautical Chart 13, BA

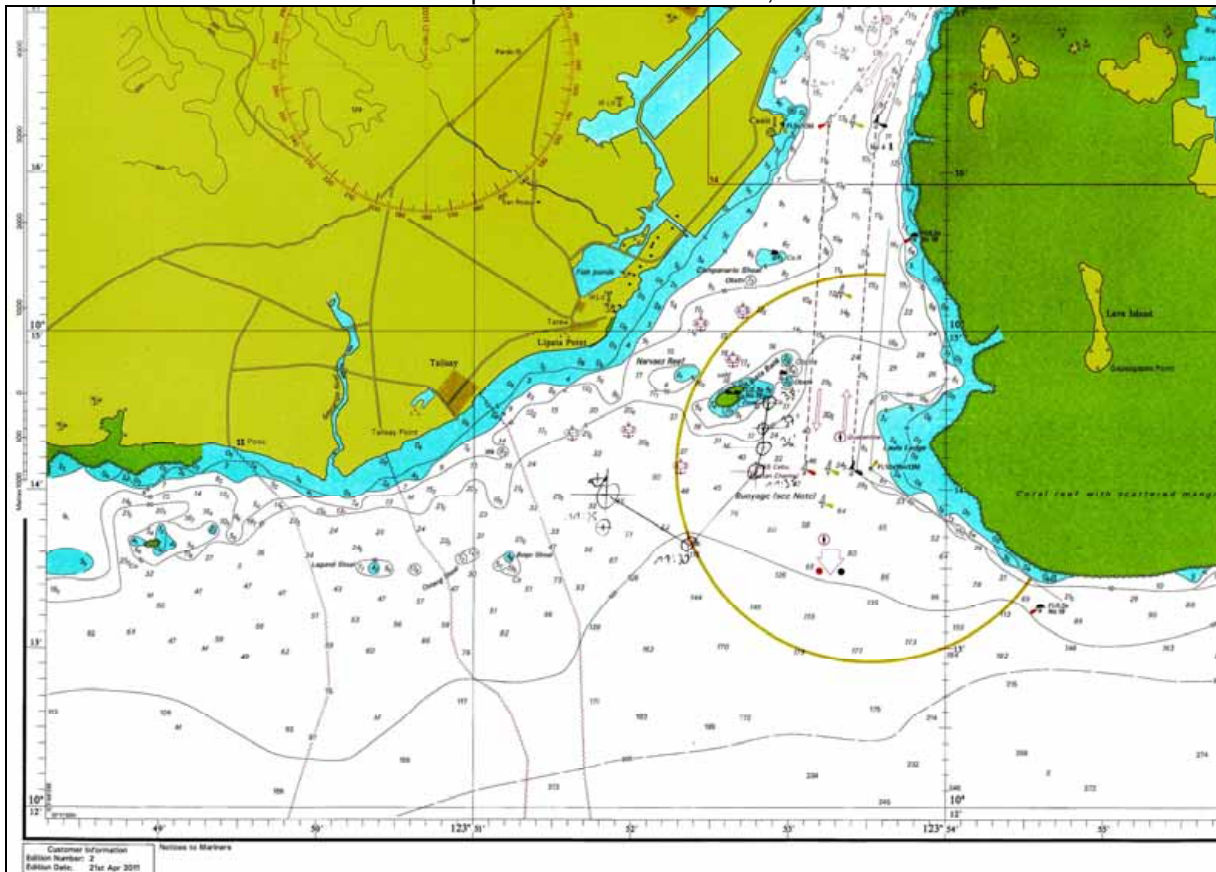


Figure 2: Nautical chart



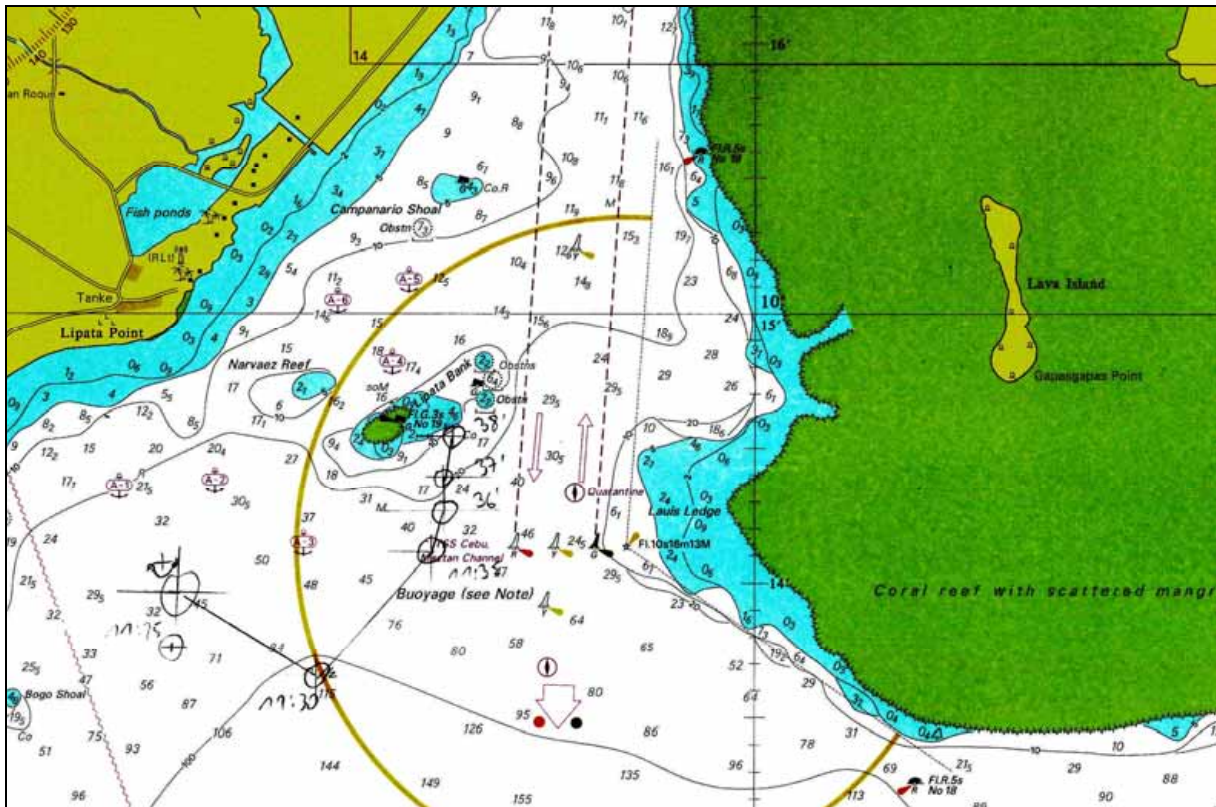


Figure 3: Nautical chart with detailed course of the voyage – marked by the BSU

## 2.5 Shore authority involvement and emergency response

Agencies involved:	Owner
Resources used:	Tugs
Actions taken:	Tugs hold vessel in position; lightened vessel refloated and able to proceed at next high tide
Results achieved:	Voyage continued without damage

### 3 COURSE OF THE ACCIDENT AND INVESTIGATION

#### 3.1 Course of the accident

On the morning of 16 September 2011, the FIDUCIA was anchored in the roads of Cebu waiting for the pilot. The pilot station called the vessel on VHF at about 1040 and advised that the pilot was reportedly now on his way. After that, the crew was informed. The engine was made ready, the pilot ladder lowered and the bosun began to hoist the anchor.

The pilot was on board at 1114. The engine was started shortly after and the last two shackles of the anchor chain hauled in. The pilot was given the pilot card with the characteristics of the vessel and told the current draughts. He responded by saying that he reportedly already knew the vessel and went to a window on the port side of the bridge.

At 1118, the anchor was on deck. Due to the slight northern flow, the bow was pointing towards the south. The vessel slowly began to pick up speed and turn to port in order to head for Luis Ledge Light, which marks the entrance to the traffic separation scheme (TSS). The ship's command was confident that this would enable them to pass the shoals at Lipata Bank with port side without any problems.

A number of small fishing boats approached from the opposite direction. Therefore, it was decided to allow these to pass before continuing further east. The pilot began his advisory role while this manoeuvre was being implemented and recommended that the speed be raised to SLOW AHEAD, at which the FIDUCIA reached 7 to 8 kts.

At a distance of about 2.5 to 3 nm, the CEBU TRADER approached the TSS from the opposite direction. The ship's command checked the CPA and TCPA and concluded that there was enough time to enter the TSS before the CEBU TRADER.

The pilot suddenly recommended that port rudder be set in order to allow the CEBU TRADER to pass on starboard. The ship's command agreed after the draught of the CEBU TRADER was determined by AIS. At 8.40 m, this stood at 20 cm more than that of the FIDUCIA and explained the pilot's proposal.

The third officer navigated and plotted the current positions on the nautical chart. Based on the position at 1135, the ship's command concluded that the FIDUCIA was too far west and heading directly for the Lipata Bank.

The reef was supposedly not visible as high tide had just set in. Even the marker buoys were absent. The pilot was then made aware that the vessel was approaching the shoals. The pilot played this down, but nevertheless recommended starboard 10 as the CEBU TRADER had just been passed.

At that precise moment, the ship's command noticed a sudden decrease in the depth of the water to less than 10 m, at which the engine was stopped and then set to HALF ASTERN. Despite that, the ship's command could only conclude that the speed was 0 kt and realised that the FIDUCIA had run aground. The pilot did not want to admit to this to begin with and eventually began to discuss the fact that the ship's command had carried out manoeuvres that he had not recommended. The ship's command hardly bothered to interact with this; instead, they began to take steps to establish the state of the vessel. The chief engineer was instructed to check all the oil tanks, amongst other things. He said that the engine had not sustained any damage and was reportedly in proper working order.

However, additional astern manoeuvres were unsuccessful. The chief officer was instructed to check all the ballast water tanks in order to preclude water ingress here, too. Furthermore, he was to establish which tanks could be pumped out to enable the vessel to refloat.

The bosun, together with the rating on watch, was ordered to measure the depth of water along the vessel manually.

Arrangements were made with the pilot to call a tug which could haul the FIDUCIA free. After that, the owner was informed.

### **3.2 Action taken to refloat the vessel**

The second and third officers started work on the bridge at 1200 and gathered all the data relevant to refloating the vessel: exact water depths surrounding the vessel, nautical charts, tidal calculations, and tank plans.

The chief officer was in his office and pumped any ballast water possible out of the tanks to reduce the draught. This was completed at about 1345.

The summoned tugs arrived at 1300 and a number of attempts to haul the FIDUCIA free started; however, all of them failed. At about 1515, it was decided to stop and wait for the next high tide at midnight. Tugs and pilot left the vessel. The ship's command, owner and GL consulted with each other and developed a plan to lighten the vessel in order to allow her to refloat at the next high tide.

At 2246 the first tug and at 2300 the second was fast again. They waited until the water reached the highest level and at 2354 both applied pressure to the FIDUCIA, which was now floating. At 2400 she was free and proceeded to the port under her own steam. At 0024, the vessel was moored at her berth.

Germanischer Lloyd arranged for divers to survey the underwater hull of the FIDUCIA on 17 September 2011 and stated that the paint abrasions thus found on the front part of the keel were harmless. It was explicitly noted that no water contamination was recorded, that the steering gear passed a test, and that the play of the crank web was unchanged. Moreover, the tank soundings revealed that no water had entered the vessel. In summary, it can be concluded that the accident passed without serious consequences and left no damage apart from paint abrasions.

### **3.3 Investigation**

A Danelec voyage data recorder (VDR) was on board. This was backed up by the ship's command, enabling the BSU to reconstruct the data on the course of the accident very well.

Figure 4 shows the initial situation. The vessel is lying at anchor with her bow pointing towards the southwest as the pilot station calls and gives notice of the pilot on VHF. The traffic separation scheme in which – approaching from the south – the vessel was to turn can be seen clearly on the eastern side of the radar image. With the exception of two lengths, the anchor is hoisted at 1114 and the pilot enters the bridge (Figure 5). In Figure 6, the anchor is on deck and the FIDUCIA slowly picks up speed in order to turn towards port and head for the TSS.

Ref.: 450/11

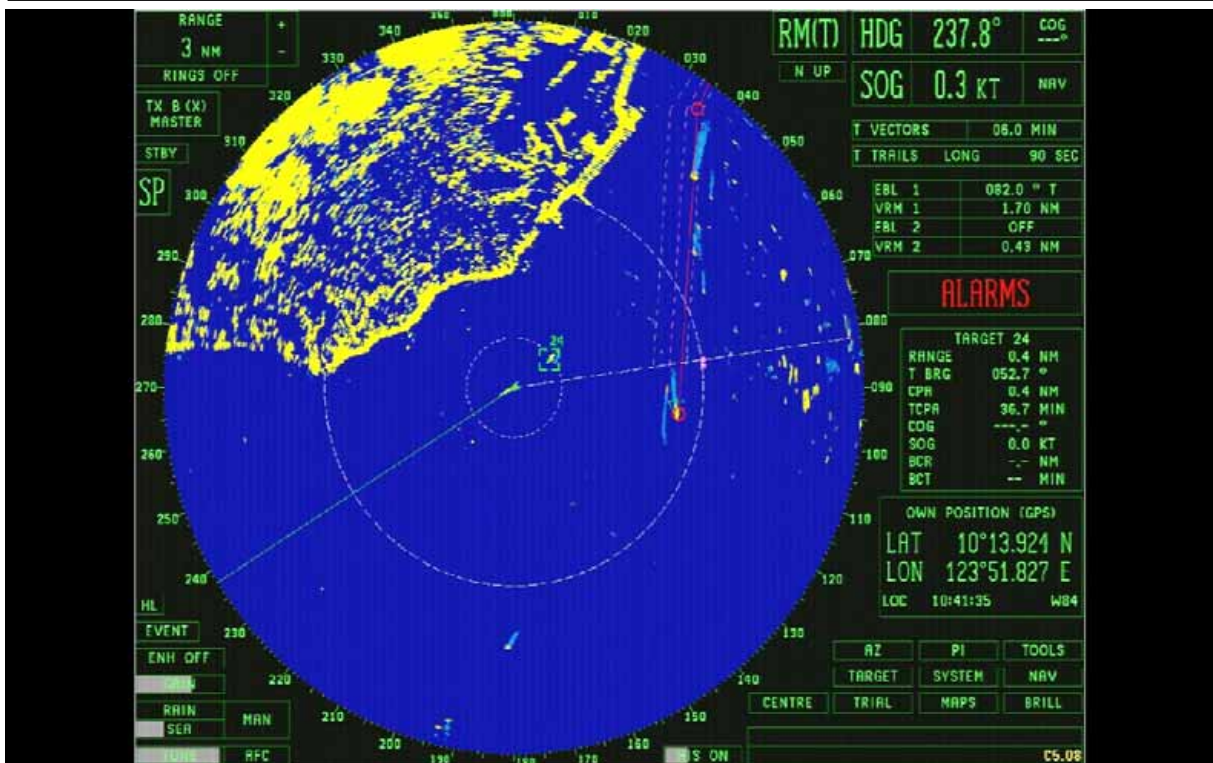


Figure 4: Initial situation



Figure 5: Pilot on bridge



Ref.: 450/11



Figure 6: Anchor on deck

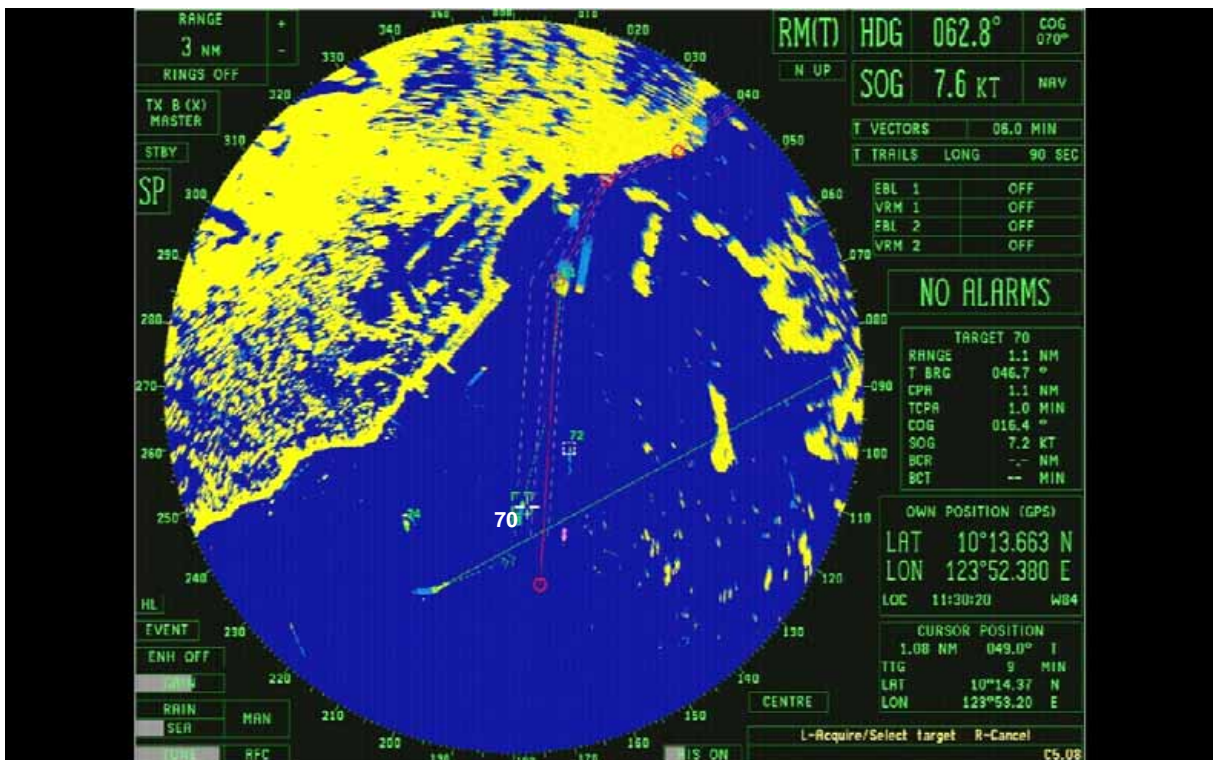


Figure 7: Fishing boats pass

The fishing boats that had just been allowed to pass can be seen next to number 70<sup>2</sup> in Figure 7. The speed of the FIDUCIA is now almost 8 kts.

<sup>2</sup> The target numbers generated by the radar were magnified by the BSU.

Figure 8 shows the first contact with the CEBU TRADER on radar 2 at 1131. This vessel's data are shown under target number 52.

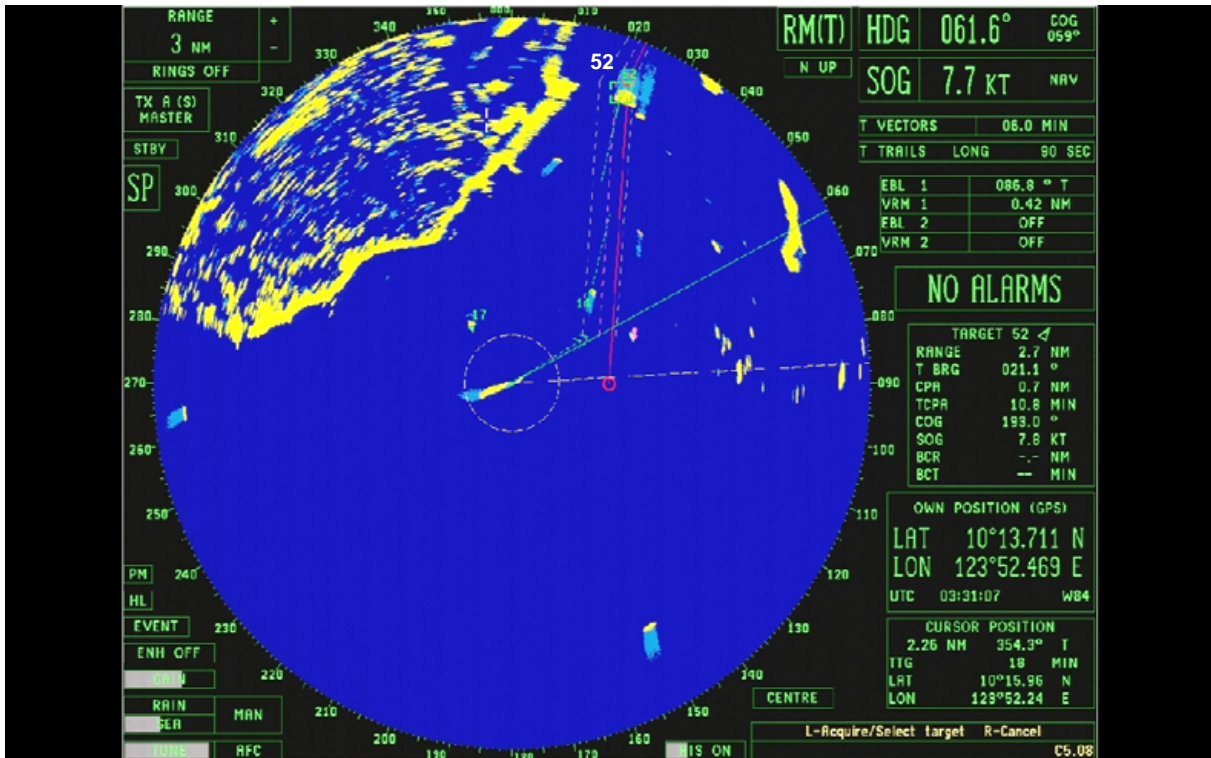


Figure 8: First contact with the CEBU TRADER

Just one minute later, the FIDUCIA clearly turns to port (Figure 9). This is the result of the consultation between the pilot and ship's command. Prior to that, the pilot had agreed with his colleague on the CEBU TRADER that her draught was even greater and therefore she should remain more centrally on the fairway. The ship's command of the FIDUCIA established the current data using the AIS data of the CEBU TRADER (Figure 10).

At about 1135, the ship's command concluded that the FIDUCIA was too far west and thus moving towards the shoals. The pilot was informed of this, but played it down. The AIS data in Figure 11 show that the CEBU TRADER will pass at a distance of some 0.26 nm in about 4 minutes.



Ref.: 450/11

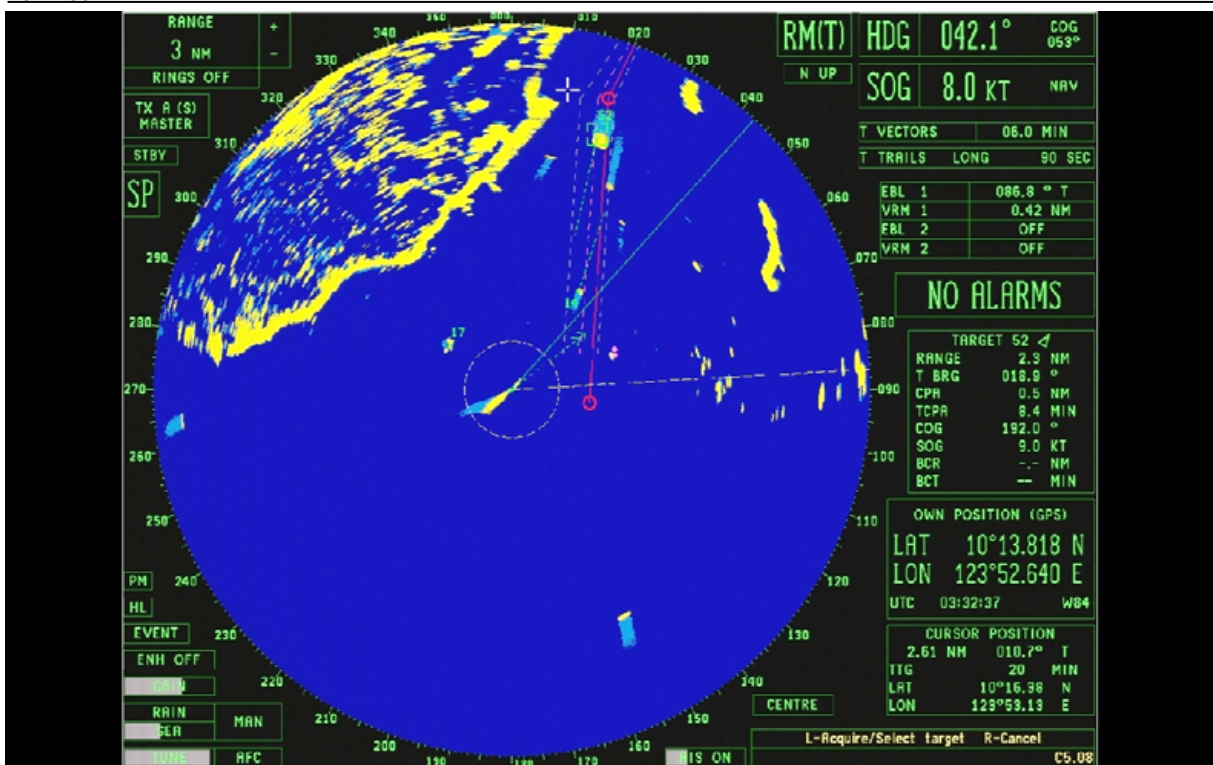


Figure 9: Consultation between master and pilot

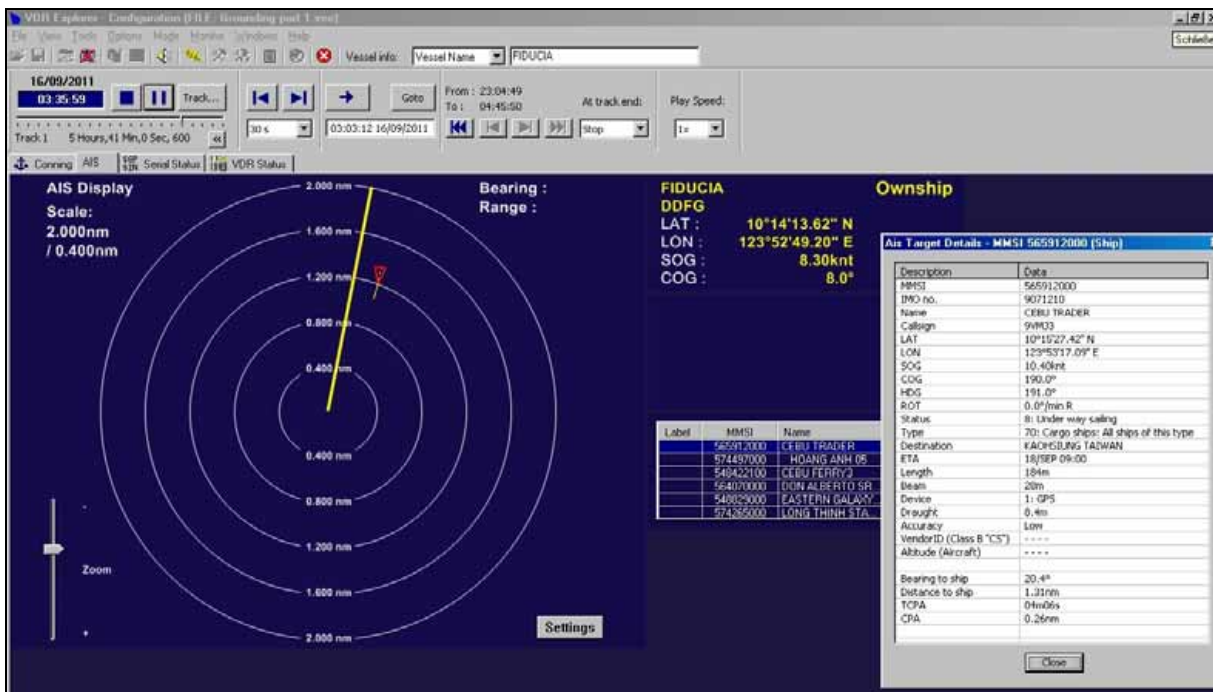


Figure 10: AIS data on the CEBU TRADER





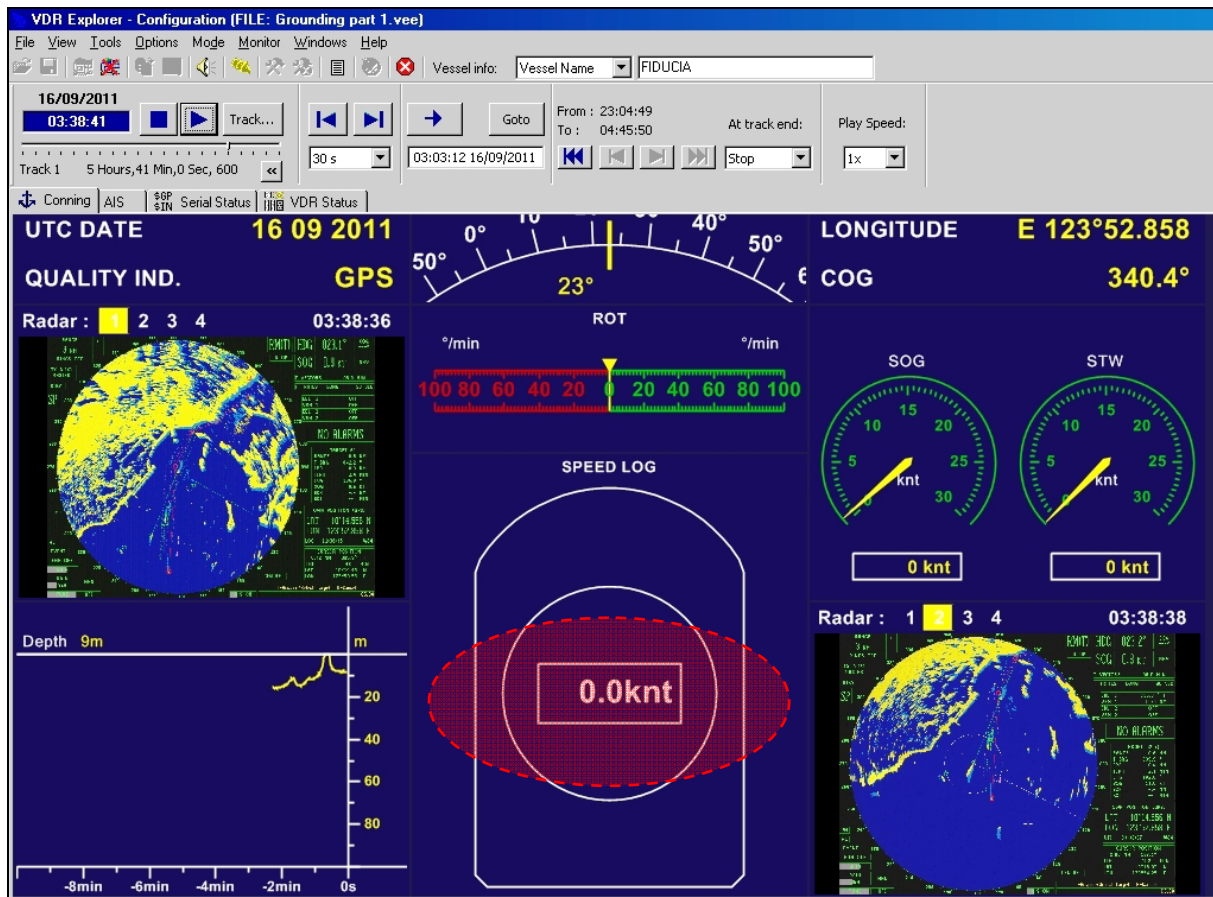


Figure 13: Grounding – speed = ZERO

Figure 14 shows the radar image at the time of the grounding. FULL ASTERN has already been set by the ship's command, but this has no effect. The audio recording of the VDR indicates that the pilot does not realise that the FIDUCIA has run aground until 1141. Figure 15 illustrates very clearly that all the instruments are at ZERO. Figure 16 shows the radar screen at that moment. Figure 17 demonstrates the passing distance to the CEBU TRADER with a CPA of 0.34 nm.

Ref.: 450/11

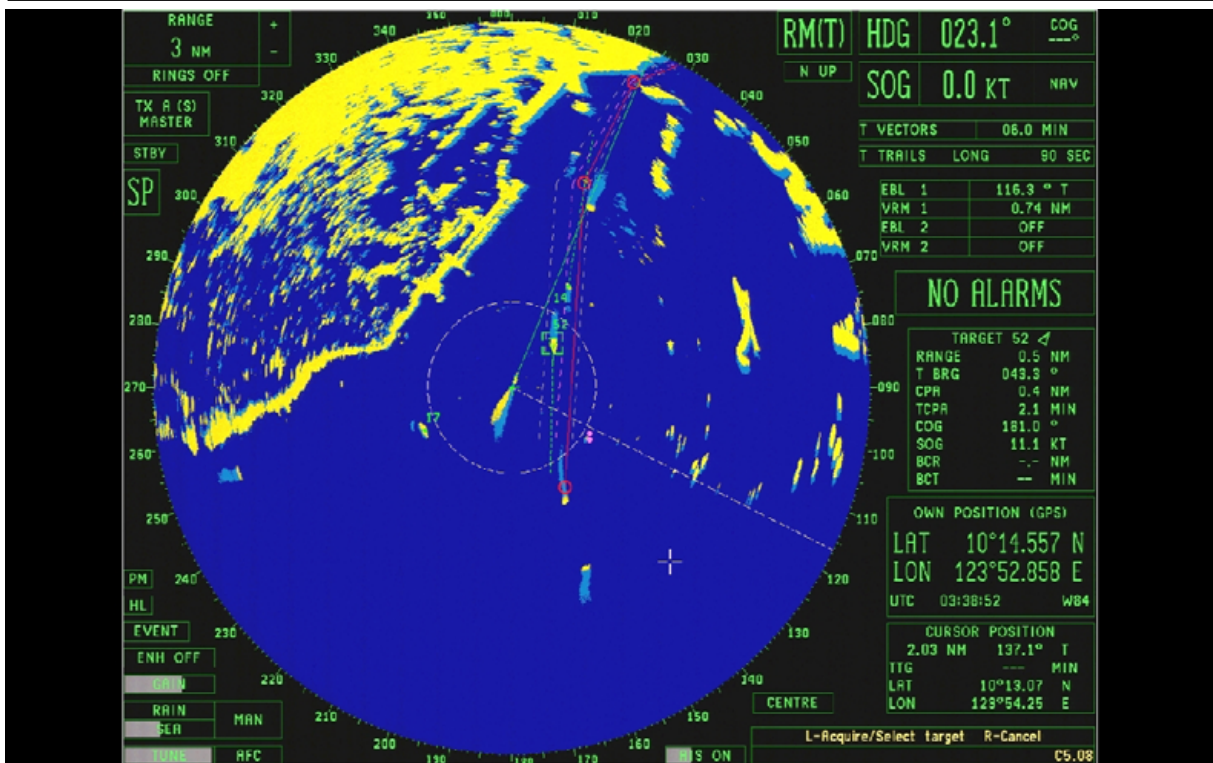


Figure 14: Radar screen when the vessel grounded

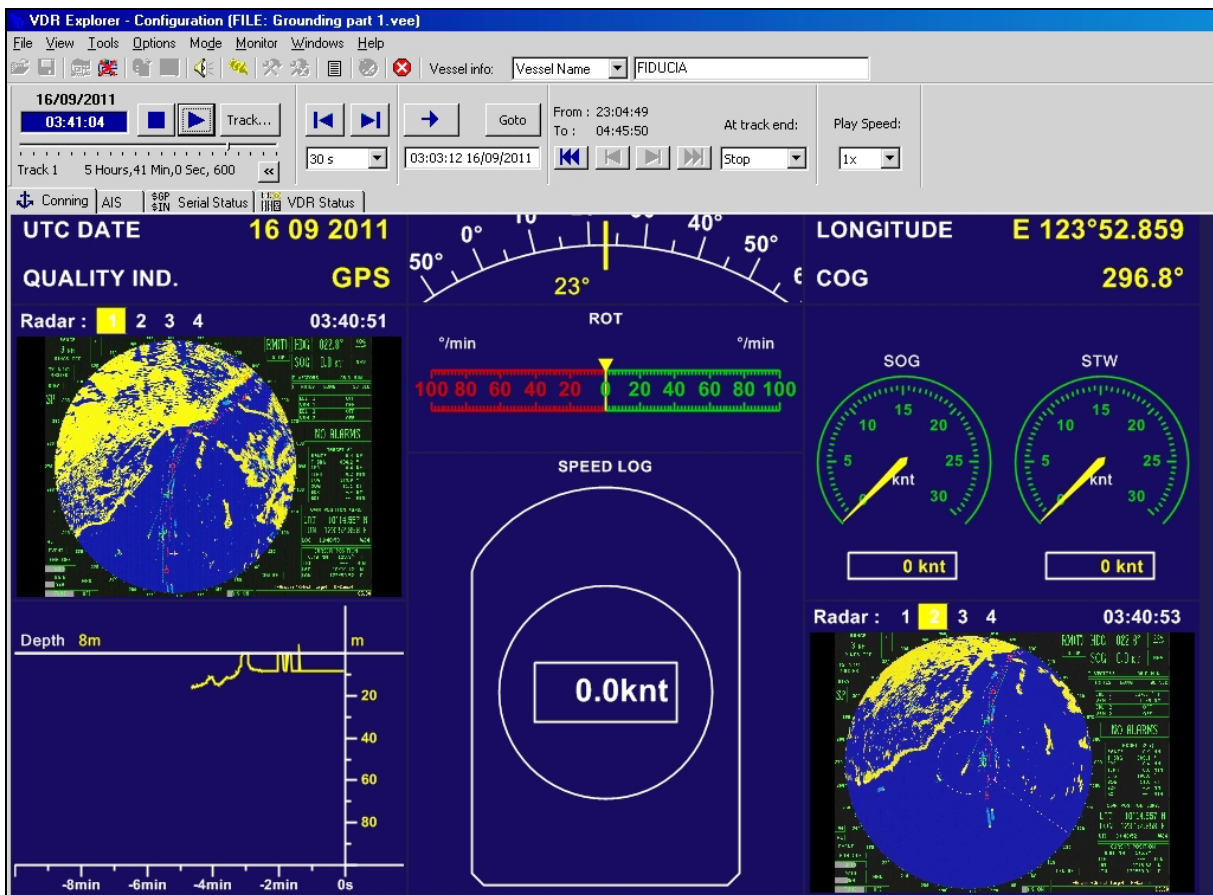


Figure 15: Readings after the grounding

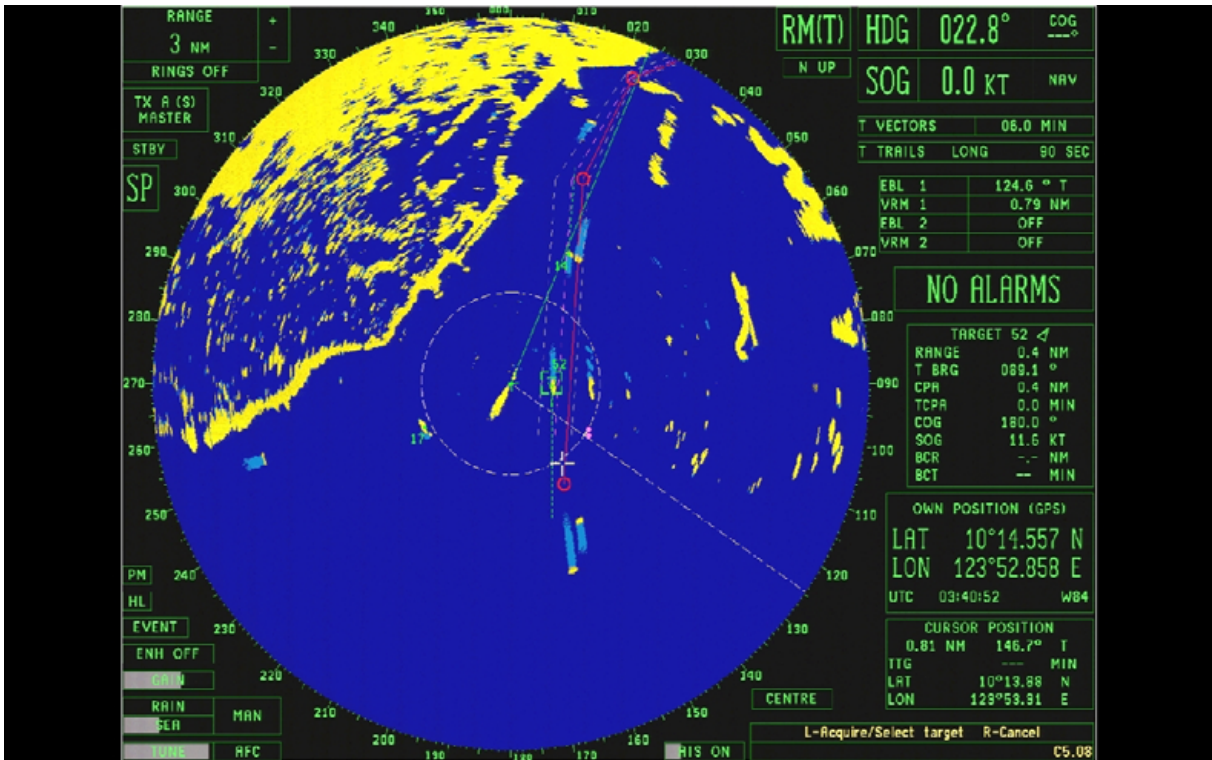


Figure 16: Radar screen after the grounding

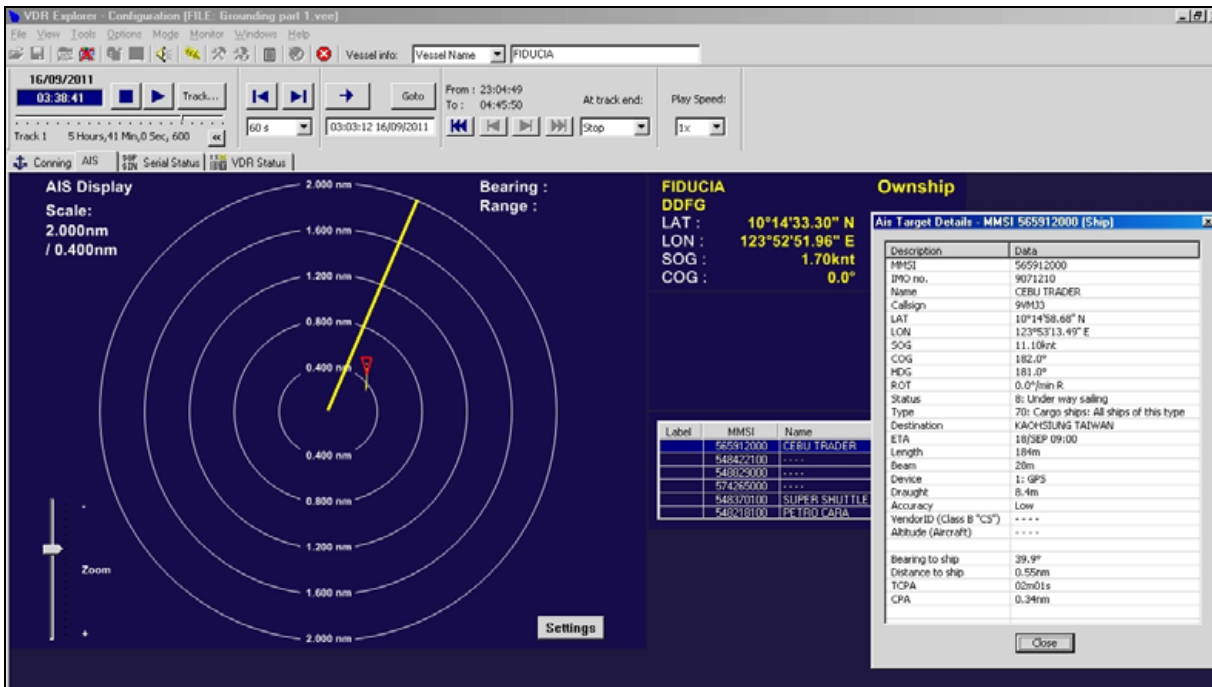


Figure 17: Passing distance to the CEBU TRADER

### 3.4 Actions taken

The owner concluded its internal investigation with a report. This was placed at the disposal of the BSU on 21 December 2011. After a brief description of the course of the accident the report moves on to the investigation into the cause and defines measures to be observed by all the ship's commands of the owner forthwith:

1. when a pilot reaches the bridge, the master should inform him about the characteristics of the vessel. This includes manoeuvrability and the vessel's position. Ideally, the position should be shown on the nautical chart. Any uncertainties should be cleared up at this point at the latest. The master should ask the pilot about his intentions and discuss the passage plan. This should put the master in a position to detect even small deviations in the performance of the pilot;
2. in particular, if the pilot does not make use of the navigational equipment and relies solely on his visual perception, then the master and his officer on watch should carefully plot the position of their vessel and that of other vessels using ARPA and AIS;
3. since pilots tend to consult with each other in their native language, the master should endeavour constantly to remain close to the pilots and query all of his external communications;
4. if during pilotage other vessels approach from the opposite direction, especially if a tight passing distance is to be expected, then the master should approach the pilot early on and ask him about his passage planning;
5. if a situation emerges that gives rise to doubt on the part of the master, then a prompt reduction in the speed of the vessel is always a good option in order to gain time and/or reduce potential damage;
6. the master and/or officer on watch should plot the position of their vessel at intervals such that they are confident at all times. Even if a passage plan envisages an interval of 10 or only five minutes, it may also be necessary to determine the positions in even smaller intervals. All available technical resources should be used for this.

The owner is aware that proper and practicable bridge team management procedures are key factors for avoiding such accidents. Therefore, the owner has decided to arrange for all of its masters to participate in continuing education courses in bridge team management. In particular, these courses should actively cover cooperation between the ship's command and pilot.

The first course of this kind was conducted in November 2011 in Elsfleth.

The owner informed the entire fleet on the marine casualty and investigation thereof, including the consequences.



## 4 CONCLUSIONS

The marine casualty passed without serious consequences. There were neither injuries nor environmental pollution. The paint abrasions on the keel of the FIDUCIA were considered to be so insignificant that GL allowed the vessel to continue and have the damage repaired on her next routine docking. The BSU's investigation of this incident is based on the SUG of 2002. It was classified as a serious marine casualty because the vessel was freed with tug assistance. The owner and the ship's command gave their assurance that the tugs were called only to prevent the FIDUCIA from veering out laterally and avoid possible damage to the propeller due to engine manoeuvres.

The practise on the bridge of the FIDUCIA – entrusting the conning with a pilot who knows his area of operation and the vessel – is certainly common. Nevertheless, the ship's command must know the position of their vessel and the intentions of the pilot at all times. Simple radar bearings with minimum or maximum distances that must be complied with and a prior exchange of information on the planning are sufficient for this. Radars that displayed the TSS on their screen by means of lines were used on board the FIDUCIA. This makes it difficult to understand why it was not determined that the FIDUCIA was too far west until the 1135 position.

Pilots play an advisory role. In this case, he apparently gave improper advice in that he navigated the FIDUCIA too far to the west in order to avoid the oncoming CEBU TRADER. This represented a deviation from the original plan of the ship's command, which involved entering the eastern fairway of the TSS before the CEBU TRADER.

The issue of communication between pilots also exists in German waters. They often switch to their native language, meaning the ship's command does not understand what is being discussed between the pilots. Here, both sides are encouraged to maintain the communication between pilots and ship officers.

The effort made to seek solutions in the internal investigation report of the owner is noteworthy. The accident is presented and analysed in a short and precise manner. Again, we come to the conclusion that cooperation with pilots must be stepped up. The prompt implementation of bridge team management courses, especially with the ship's command of the FIDUCIA, which had just disembarked, shows clearly that the owner is anxious to avoid such marine casualties in the future.

In this case, the objective of the BSU's safety investigations, helping to improve maritime safety, has already been accounted for by the wide-ranging measures of the owner. Therefore, with this summary report the BSU is addressing all pilots, ship's commands and their shipping companies so that this issue remains topical.

## 5 SOURCES

- Written statements
  - Ship's command
  - Owner
  - Classification society
- Witness accounts
- Nautical charts and vessel particulars, Federal Maritime and Hydrographic Agency (BSH)
- Recordings of the voyage data recorder