



## CIAIM--16/2017 REPORT

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### Grounding of the vessel SEA DWELLER in the vicinity of the Port of Ceuta anchorage on 9 February 2015

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#### NOTICE

This report was written by the Maritime Accident and Incident Investigation Commission (CIAIM), which is regulated by Article 265 of the Revised Text of the Law on State Ports and the Merchant Marine, approved by Royal Legislative Decree 2/2011 of 5 September, and by Royal Decree 800/2011 of 10 June.

The sole purpose of the CIAIM when investigating maritime accidents and incidents is to prevent future accidents by determining the causes and circumstances that led to the events being investigated.

This report was not written in such a way as to be used in proceedings before legal bodies and it does not seek to assign responsibilities or blame.

Any use of this report for any purpose other than preventing future accidents may lead to faulty conclusions or interpretations.



Figure 1. SEA DWELLER VESSEL



Figure 2. Area of the accident

## 1 SUMMARY

On 9 February 2015 at around 23:18, the SEA DWELLER vessel struck a shoal at position 35°55.35' N, 005°21.83' W as it was sailing toward the anchorage of the Port of Ceuta under adverse sea and wind conditions.

As a result of the collision, a significant breach was created that partially flooded the engine room, causing a loss of helm control and a list to starboard, as a consequence of which the crew proceeded to drop the port anchor and wait for assistance.

The Tarifa Search Coordination Center (CCS Tarifa) mobilized the rescue ship (R/S) LUZ DE MAR and the rescue vessel (R/V) SALVAMAR ATRIA, from Maritime Rescue, and the VB BULLDOG tugboat.

After correcting the list using the ballast tanks and cutting the anchor chain, the vessel was towed by two tugboats to the Port of Ceuta, where it moored at 05:44.

There were no injuries and no signs of pollution.

### 1.1 Investigation

The CIAIM was notified of the accident on 10 February 2015. That same day the event was classified as a "serious accident", and the Commission agreed to open an investigation. The CIAIM board approved the event's classification and the opening of a safety investigation on 19 April 2016. This report was reviewed by the CIAIM at its meeting of 13 June 2017 and, following its approval, was published on October of 2017.

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## 2 OBJECTIVE INFORMATION

**Tabla 1. Information on the ship.**

Name	SEA DWELLER Before November 2004, it was called the SAMHO FRIEND.	
Flag	Registry:	Cyprus
	Port of registry:	Limasol
Identification	IMO Number:	9254006
	Call sign:	P3YX9
	MMSI:	209249000
Type	Tanker	
Main characteristics:	Overall length:	87.31 m
	Length between perpendiculars:	79.80 m
	Beam:	14.00 m
	Molded depth:	7.30 m
	Gross tonnage:	2440 GT
	Net tonnage:	1084 NT
	Dead weight:	3420 t
	Hull material:	Steel
	Propulsion:	Diesel engine (Hanshin LH36LA) with fixed propeller blades
	Powerplant:	1912 kW at 270 rpm
	Registration company:	DNV·GL
Ownership and management	Owner:	Azolimnos Marine Company Limit
	Operator:	Coral Shipping Corp.
	P&I:	Gard P&I (Bermuda) Ltd.
Construction details	Built in 2002 by Samho Shipbuilding Co Ltd in South Korea.	
Minimum safety crew	12	

**Tabla 2. Details of the voyage**

Date	9 February 2015.
Ports of arrival / transit / destination	Departure from Ceuta and arrival planned in Algeciras.
Type of voyage	Sailing toward dock to correct MoU deficiencies
Cargo information	1906 t of heavy fuel oil. 615 t of diesel.
Complement	20 crewmen listed as: <ul style="list-style-type: none"> <li>• 1 captain, from Ukraine.</li> <li>• 1 first officer, from the Philippines.</li> </ul>

<sup>1</sup> *Protection and Indemnity*: maritime protection and liability insurance.

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	<ul style="list-style-type: none"> <li>• 2 second officers, from the Philippines.</li> <li>• 1 chief engineer, from Ukraine.</li> <li>• 1 2nd engineer, from Ukraine.</li> <li>• 1 3rd engineer, from Ukraine.</li> <li>• 1 electrician, from Russia.</li> <li>• 1 firefighter, from the Philippines.</li> <li>• 1 boatswain, from the Philippines.</li> <li>• 2 qualified seamen, from the Philippines.</li> <li>• 1 seaman, from the Philippines.</li> <li>• 2 oilers, from Ukraine.</li> <li>• 2 oilers, from the Philippines.</li> <li>• 1 cook, from the Philippines.</li> <li>• 1 apprentice, from Ukraine</li> <li>• 1 steward, from the Philippines.</li> </ul> <p>They all had the valid titles and specialty certificates required. The captain had been on the ship since 2009, sailing in the same area. The second officer who was on the bridge at the time of the accident had been aboard for five months.</p>
Documentation	<p>The vessel was dispatched to provide fuel supply services in the bay north of Ceuta.</p> <p>The ship had the necessary valid certificates.</p>

Tabla 3. Information on the event

Type of event	Grounding and flooding.
Date and time	9 February 2015 at 23:18 local time
Location	35°55.35'N; 005°21.83'W.
Ship operations and segment of voyage	Underway.
Shipboard location	Engine room.
Damage to ship	Hull breach that partially flooded the engine room.
Injured / missing / fatalities onboard	None.
Contamination	No.
Other damage external to ship	No.
Other personnel injuries	No.

Tabla 4. Maritime and meteorological conditions

Wind	From the E at 28 to 32 knots (7 on Beaufort scale), gusting to between 40 and 48 knots.
Sea state	Rough seas (significant wave height of 2.5 to 4 m).

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Visibility	Good (in excess of 10 km), reduced after sunset to 9 km. The sun had set at 18:55 at an azimuth of 252° and the moon was not yet visible.
Cloud cover	Cloudy skies.

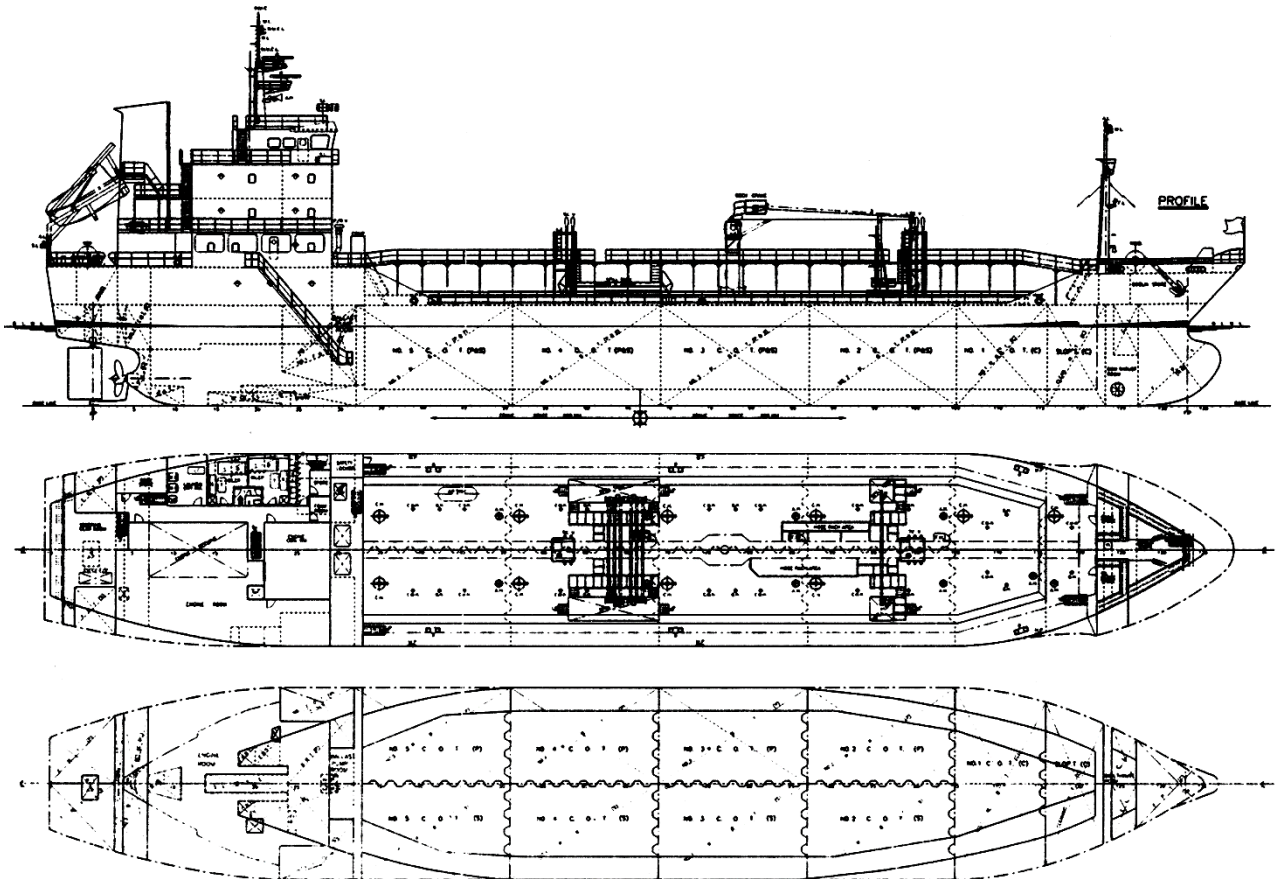


Figure 3. General diagrams of the SEA DWELLER vessel.

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Tabla 5. Response by officials on land and reaction by emergency services

Organizations involved	Maritime Search and Rescue Society (SASEMAR).
Resources used	R/S LUZ DE MAR. R/V SALVAMAR ATRIA. VB BULLDOG tugboat.
Response time	Immediate.
Measures taken	Mobilization of maritime resources.
Results	The ship was towed to the Port of Ceuta.

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### 3 DETAILED DESCRIPTION

This description of the event is based on available information, statements and reports. All times are local.

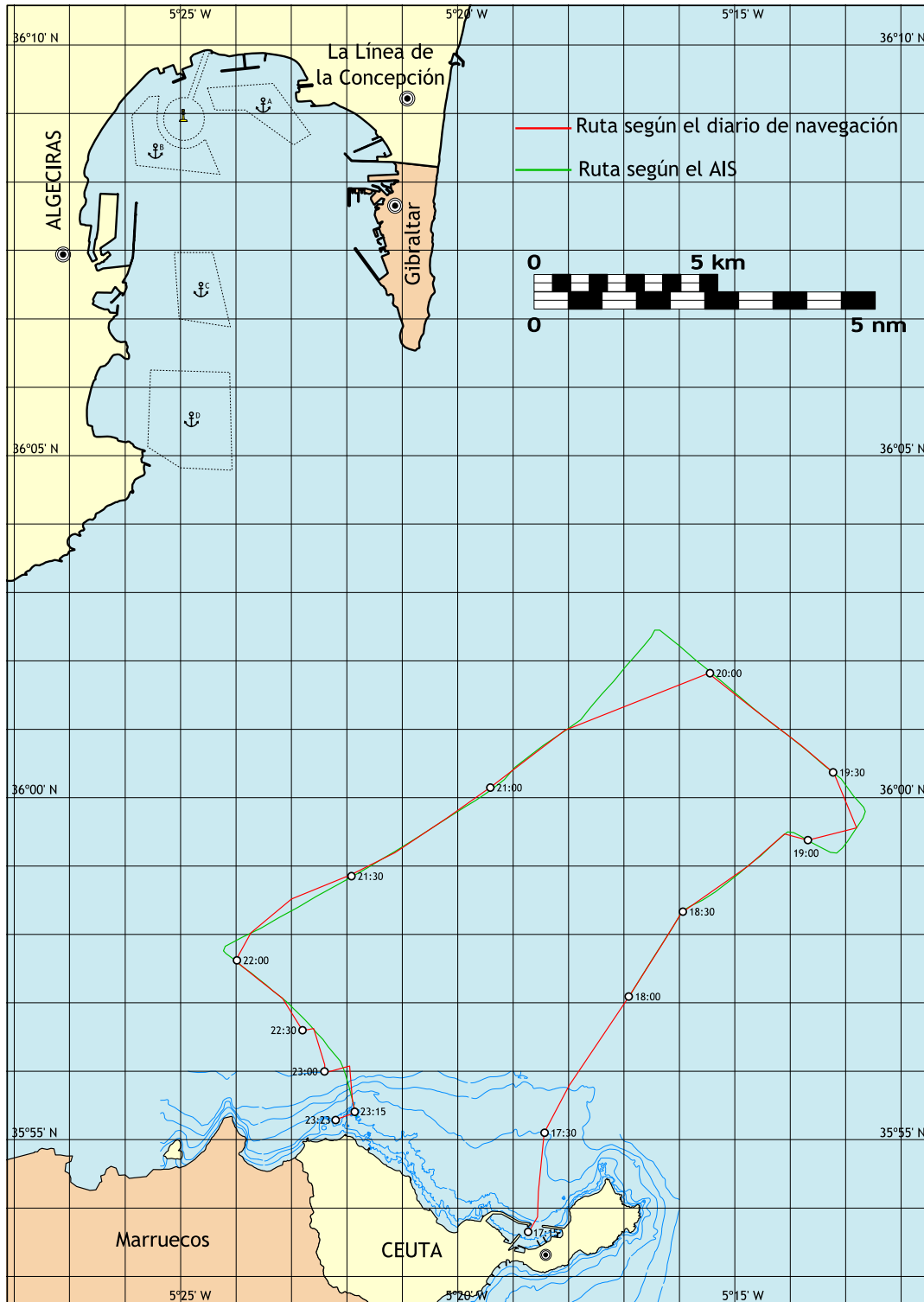


Figure 4. Ship's route before accident with time stamps

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On 9 February 2015, the SEA DWELLER was docked at the Port of Ceuta, where it had undergone an expanded inspection under the Paris MoU<sup>2</sup>, which had detected a series of deficiencies and specified corrective measures.

After finishing the inspection, the ship was scheduled to go to Algeciras to undergo a hull cleaning and underwater inspection.

At 16:35, the ship was ready to depart. Confirmation was received from the shipping agent to prepare for the ship's arrival in Algeciras. According to the initial information received, the SEA DWELLER vessel was third in line for boarding the Algeciras pilot and entering the anchorage at Algeciras.

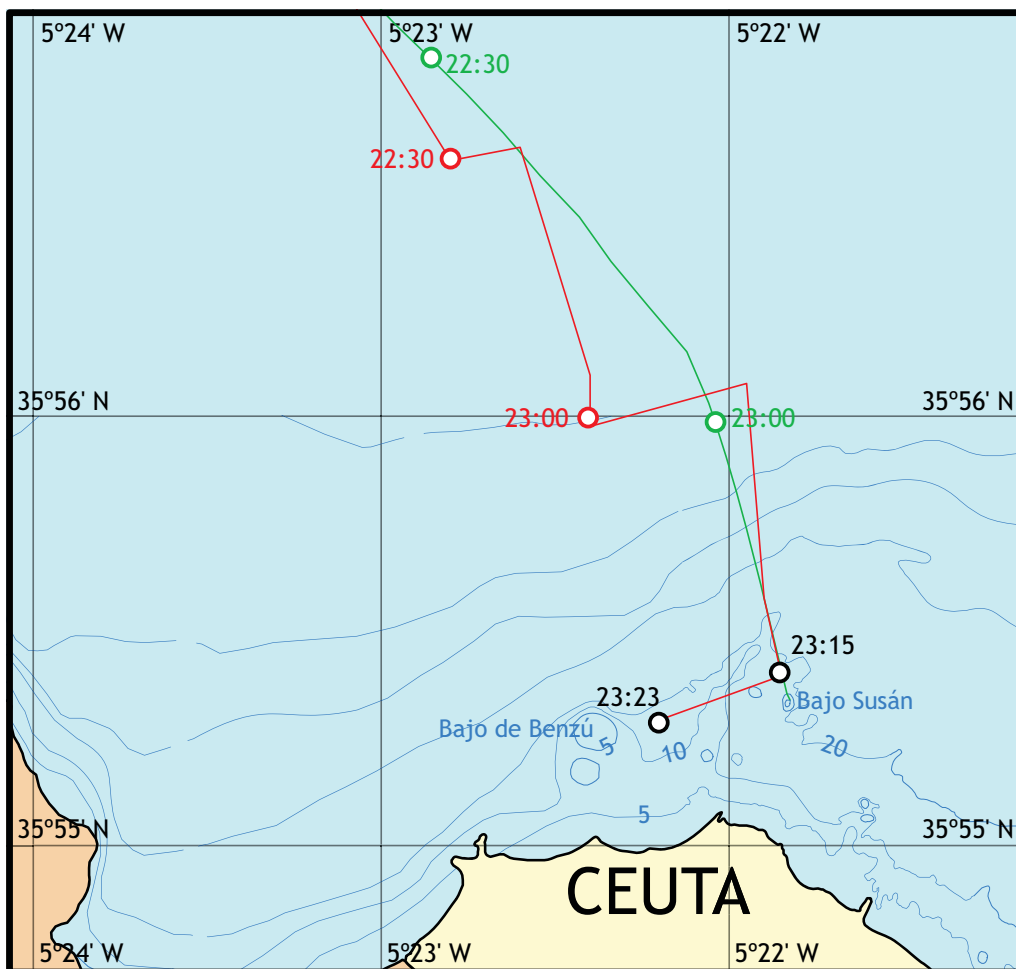


Figure 5. Bathymetry in the area of the accident.

At 16:54, the Ceuta pilot boarded the SEA DWELLER to begin the maneuvers to exit the Port of Ceuta. After leaving the bay of Ceuta and once the pilot left the ship, the weather conditions they encountered were bad, with maximum wave heights of 7 to 8 meters and wind from the E gusting to over 40 knots. Given these conditions, the ship did not proceed directly to Algeciras and at approximately 17:30, it changed course to the NE (Figure 4).

<sup>2</sup> Paris Memorandum of Understanding on the control of ships under Port State Control.



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Minutes later, the shipping agent informed the ship that the Port of Algeciras was closed due to bad weather and that the Algeciras pilot was not available. The ship would have to wait for the pilot to become available, but no estimated wait time was given.

While sailing on a NE course, the ship requested permission from the shipping agent to return to the Port of Ceuta. The port authority reported that both the Port of Ceuta and its anchorage were closed due to the bad weather.

After making a second request, the ship was authorized to enter the Port of Ceuta, but the vessel did not proceed there directly. At 19:30, the captain decided that it was safer to proceed on a course of 310° to Algeciras. They were sailing at 5 knots and were 15 miles away from Algeciras. They contacted the Algeciras pilot to ask about the situation in the bay of Algeciras and the plans for the SEA DWELLER. The pilot replied that entry operations into the Port of Algeciras were suspended until the next day at 09:00, and that they would have to wait five or six hours before dropping anchor at the Algeciras anchorage. The Algeciras pilot also informed the vessel that it was not allowed to be adrift inside the bay of Algeciras.



Figure 6. Flooding in the engine room.

At approximately 20:30, the captain decided to return to Ceuta but because of the adverse weather conditions, he stayed on a heading of 240° until he could safely proceed to Ceuta. During this voyage, the ship was rolling heavily.

At 21:50, the ship started to change course toward the bay of Ceuta.

At 22:00, the ship was on a course of 130°. The captain was trying to take the ship close to the coast to protect it from the winds. According to the crew's statement, they continued on a 130° heading as they exited nautical chart 1448, for the bay of Algeciras, and entered chart 2742, which covers the Ceuta maritime area.

The captain ordered the second officer on watch to take a distance to the coast, and the latter reported that the ship was approaching the shoal of Susán. The captain immediately ordered to change course to port to try to clear the shoal to starboard.

At 23:18, while changing course, the ship struck the Susán shoal.

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The ship immediately started to turn to starboard to course 180°. Due to the strong wind and to the rolling, the ship again ran aground.

The captain ordered a backing bell. At that point the ship started to list to starboard, and so the captain ordered that the port anchor be released.

The DPA<sup>3</sup> and the Ceuta Port Authority were informed of the accident and a tug was requested to assist.

The crew proceeded to sound the empty space in the tanks to ensure the integrity of the ballast and cargo tanks, and after informing the DPA that the ship was listing to starboard, they agreed to fill the port bow ballast tanks.

At 23:30, CCS Tarifa noticed that the ship was drifting from the Ceuta anchorage toward the west, approaching land, and so they contacted the ship to ask if there were any problems and if they needed to be towed. The ship confirmed that it needed help and it was instructed to drop anchor, since it could not use its engines. The ship stopped 2.8 cable lengths<sup>4</sup> away from land and 2 cable lengths away from the Benzú shoal.

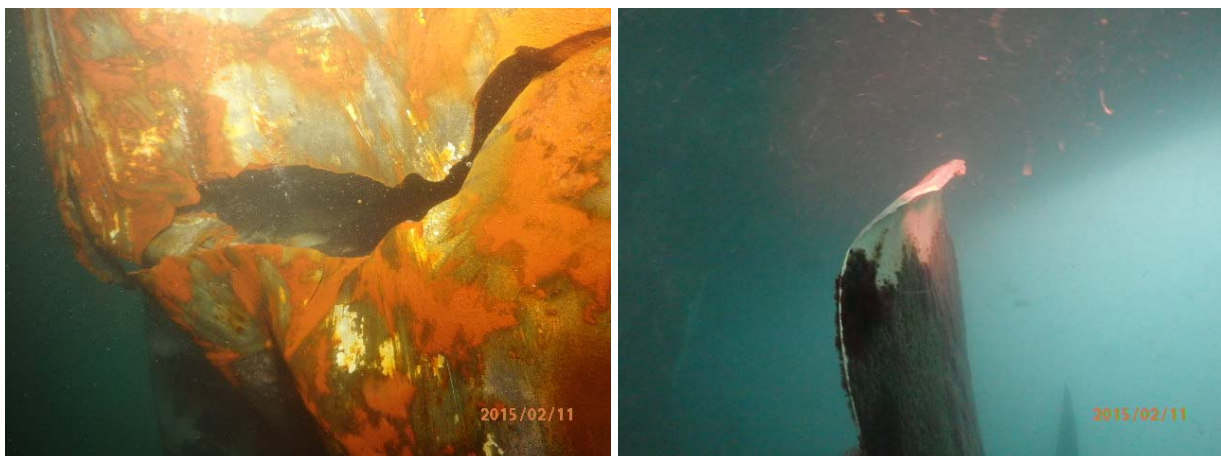


Figure 7. Damage to the hull and propeller

At 23:37, the CCS Tarifa dispatched the R/V SALVAMAR ATRIA and the R/S LUZ DE MAR.

At 23:53, the CCS Tarifa contacted the SEA DWELLER, which reported its cargo (1906 t of heavy fuel oil, 615 t of diesel and lubricant for use aboard in the engine room) and that they were at anchor with the list under control.

On 10 February 2015 at 00:22, the crew reported that they were at anchor with the port anchor, which had four lengths of chain in the water. The engine room was also flooded to a depth of 6 m (Figure 6). They had no electricity.

At 00:28, the maritime captain at Ceuta, in contact with the VB BULLDOG tugboat and with the SEA DWELLER, agreed that the tugboat would hold the ship in place with a rope until the arrival of the R/S LUZ DE MAR, so as to then tow it into the Port of Ceuta.

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<sup>3</sup> *Designated Person Ashore*: Individual designated by the shipping company to handle operational safety.

<sup>4</sup> 1 cable length = 0.1 nautical miles = 185.2 m.

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At 00:45 a rope was passed over from the ship's midpoint.

At 00:53, the ship's stern draft reading was 8 to 9 m and rising as the ship took on more water. The ship's crew planned to cut the anchor chain when the two ropes were secured.

At 01:25, the R/S LUZ DE MAR was pulling on the stern and the VB BULLDOG was holding the bow. Although the anchor and chain were still in the water, the ship's distance from land was increasing.

At 01:28, the VB BULLDOG tugboat started pulling on the bow, accompanied by the R/S LUZ DE MAR.

At 02:26, the tow line from the VB BULLDOG tugboat broke, but the R/S LUZ DE MAR was prepared to tie a bow line.

At 02:37, the bow line was secured to the R/S LUZ DE MAR.

At 02:55, two stern lines were secured to the VB BULLDOG tugboat.

At 03:54, the Ceuta pilot boarded the SEA DWELLER.

At 05:44, the SEA DWELLER was moored in Ceuta. The ship's engine room was partially flooded, but no losses were identified from the fuel, lubricant or other tanks.

At 06:00, after completing the mooring operation, the crew again checked the levels in the tanks. They confirmed that water had entered the number 5 starboard ballast tank, the starboard diesel tank and that the engine room was partially flooded.



Figure 8. Vessel moored in Ceuta after running aground.

## 4 ANALYSIS

### 4.1 Nautical charts

The ship did not have ECDIS electronic chart equipment and was navigating using paper charts 3758, 1448 and 2742 from the British Admiralty, for the Strait of Gibraltar, the Alboran Sea and the bays of Algeciras and Ceuta.



Figure 9. Chart 3578.



Figure 10. Chart 1448.



Figure 11. Chart 2742.

Chart 3578 is a general purpose nautical chart (one which covers large areas with few soundings) for the Eastern part of the Strait of Gibraltar, while the other two are higher resolution nautical charts for each of these areas.

Tabla 6. Details of the nautical charts used before the accident.

Chart name	Eastern Approaches to the Strait of Gibraltar	Gibraltar bay	Ceuta
Number	3578	1448	2742
Editor	United Kingdom Hydrographic Office (UKHO) - British Admiralty		
Paper size	980 mm × 630 mm	670 mm × 1000 mm	1076 mm × 749 mm
Scale	1:150000	1:30000	1:10000
Northern limit	36°31.00' N	36°13.00' N	35°56.25' N
Southern limit	35°40.00' N	35°56.77' N	35°52.20' N
Eastern limit	3°55.00' W	5°15.13' W	5°15.00' W
Western limit	5°33.00' W	5°28.50' W	5°22.15' W
Projection	Mercator with WGS 84.		

As Tabla 6 shows, the two detailed charts do not overlap and leave a small strip that is not covered by either. The width of this strip is approximately half a nautical mile in a north-south direction, see Figure 12.

## 4.2 Weather and maritime conditions during the journey

According to a report issued by Spain's National Weather Agency (AEMET), weather conditions between 14:00 UTC and 23:00 UTC on 9 February 2015 were fairly stable, with no tendency to intensify or subside during this period. The conditions were as follows:

Wind and wave action at the Port of Ceuta anchorage:

- Wind: from the ESE (100), very gusty, with average speeds from 26 to 28 knots (Beaufort 6), gusting to 35 to 40 knots.
- Sea state: Rough (significant wave height between 2.5 and 4 m).

Wind and wave action on Ceuta-Algeciras route:

- Wind: from the E (90) at 28 to 32 knots (Beaufort 7), gusting to 40 to 48 knots.
- Sea state: Rough (significant wave height between 2.5 and 4 m).

A portion of the maritime high-seas bulletin issued by AEMET on the morning on 9 February is reprinted below:

*"Storm warning for the Strait.*

*Strait: E 7, occasionally 8, subsiding tomorrow to 5 or 6. Rough seas waning to strong surf. Occasional rain with morning storms. Regular or good."*

The weather conditions during the voyage matched those forecast by the AEMET and issued in its morning bulletin. The captain was thus aware, or should have been aware, of the wind and wave conditions that he would encounter during the voyage before leaving the Port of Ceuta.

The actual conditions during the voyage were not worse than forecast, meaning that the worsening conditions mentioned by the captain must have referred to the difference in wind between the Ceuta anchorage and the Strait.

### 4.3 Course and speed

A few minutes before 23:00, the captain ordered the helm to follow course 130°. Despite following a gyroscopic heading of 130°, the ship's effective course was 170°.

This leeway was caused by the strong wind from the east (7 on the Beaufort scale) and by the rough seas, also from the east.

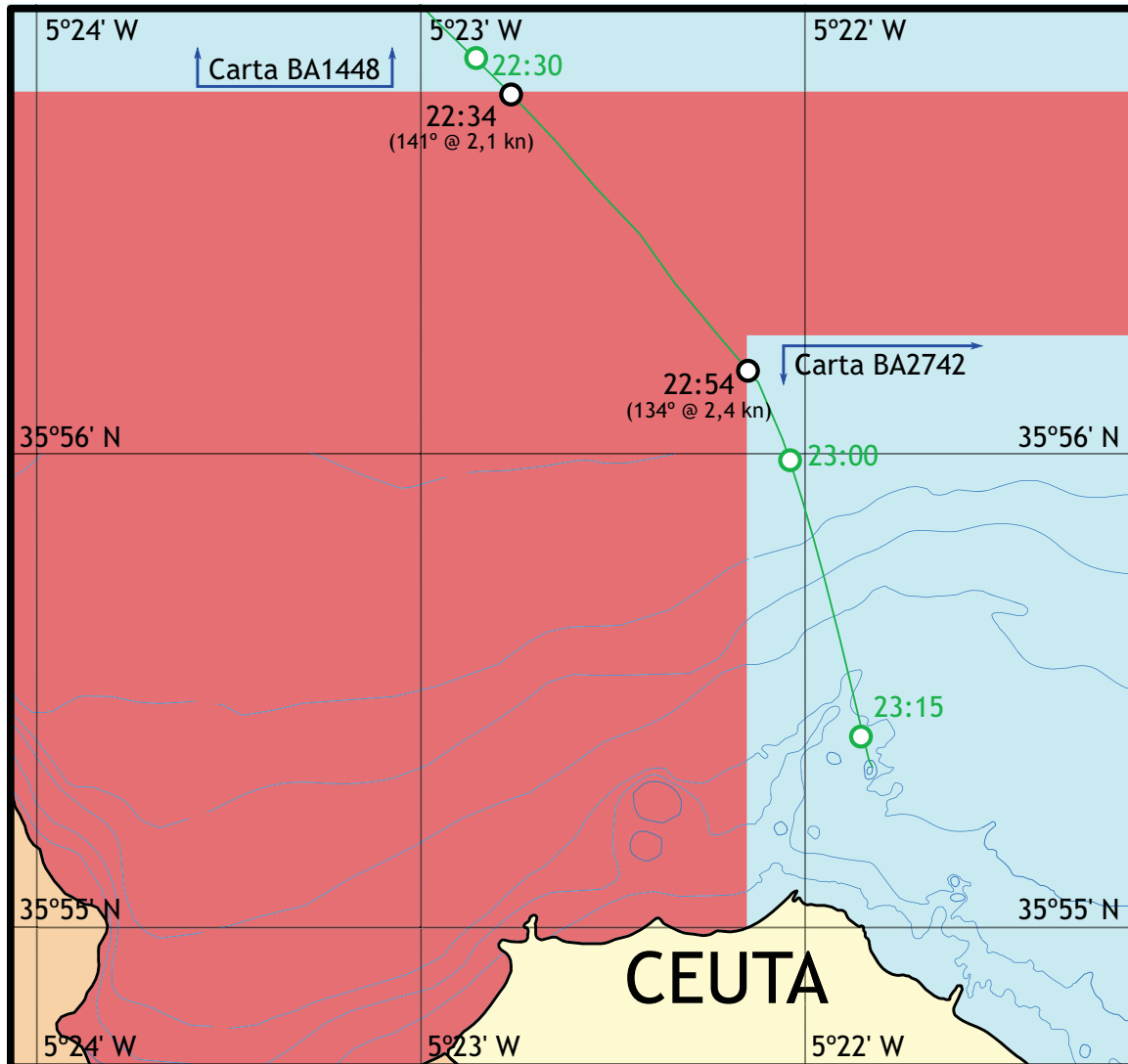


Figure 12. Coverage of the nautical charts.

According to the captain, his decision to sail at such a low speed was a direct consequence of the bad weather conditions, since the waves were causing the ship to pitch violently, even lifting the stern completely out of the water and exposing the propeller to the air at higher speeds.

According to the captain and the chief engineer, the only way to keep the engine from exceeding its RPM limit is to keep it at low speed to avoid excessive pitching and, if the propeller exited the water, to maintain the RPMs within range. These statements demonstrate a lack of knowledge of the main engine's operation and its control elements, since it is equipped with speed and overspeed regulators precisely to avoid the effects described by both.

#### 4.4 Detection of the Susán shoal

According to data from the AIS<sup>5</sup>, the ship left the coverage area of chart 1448 at 22:34 and reentered chart 2742 at 22:54. This indicates that it was only navigating without a detailed chart of the area for 20 minutes, with general chart 3578 with soundings in excess of 300 meters. Similarly, between the time it reentered chart 2742 and the accident, 21 minutes elapsed, which was sufficient time to find their position on the new chart and identify the presence of the shoals.

According to the crew's statements, the second officer was taking positions from the GPS received and plotting them on the paper chart, as shown in Figure 13. The captain was seeking to shelter the ship along the coast to protect it from the bad weather conditions. Despite being aware of their proximity to the coast and labeling an area on the chart to keep away from, it was not until two minutes before the accident that they noticed the existence of shoals just ahead of them. At that point, they still had 32 m under the keel. The captain ordered full port turn.



Figure 13. Detail of shoals on chart 2742.

Given the bad weather conditions, this action only managed to keep the bow from striking the shoal, but not the stern. The starboard part of the ship, from the midpoint to the stern, impacted the Susán shoal, causing considerable damage.

#### 4.5 Damage

The ship sustained damage to various parts, as listed below:

- Bending of the rudder with no apparent cracks.
- Bending of the four propeller blades with loss of material (Figure 7).
- Cracks and bending of the starboard bilge along the entire length of the engine room (between frames 7 and 51).
- Broken starboard bilge keel (between frames 43 and 51).
- Scratches to bow dome caused by the anchor chain.

The cracks in the bilge allowed water to enter and flood the engine room, which subsequently led to a loss of power.

<sup>5</sup> Automatic Identification System.

#### 4.6 Commercial pressure

The strategic location of the Strait of Gibraltar, through which over 100,000 ships sail annually, as well as the natural features of the Bay of Algeciras for anchoring, as well as its exceptional shelter and depth conditions, make it an ideal location for bunkering<sup>6</sup> operations both at anchor and alongside

There are more than twenty companies in the Algeciras, Ceuta and Gibraltar area that provide bunkering services. As a result, the competition in this area of activity in the Strait of Gibraltar is fierce, and companies are quick to take advantage of any opportunity to make a profit.

In this case, the SEA DWELLER was used to supply fuel (bunkering) to other ships in the bay north of Ceuta. On the day of the accident, despite the bad weather conditions that prevailed in the Strait of Gibraltar, the company decided to have the ship cross from Ceuta to Algeciras so that it could undergo a hull submarine cleaning and survey. Even though the reason for the trip was maintenance, and not commercial, the ship did not leave its cargo in Ceuta, instead taking it with it to avoid the delays and expenses associated with unloading at the terminal in Ceuta.

#### 4.7 Navigation arrangements on the bridge

On the bridge were the captain, who was watching the radar, the chief engineer, controlling the engines, and the second officer, in charge of the ship's course. The second officer transferred the position indicated by the GPS to the paper chart.

According to the captain's statement, from 23:00 until 23:15, the captain had no information on the ship's position since he was minding the maneuver and the second officer did not keep him apprised of the presence of shoals. He became aware of their presence when they were barely half a cable length from the shoal, by which time it was impossible to avoid running aground. In the minutes before the accident, he was also unaware of the pronounced leeway of the ship, which was on a heading of 130° but on a course of 170°.

Given their compromised situation, with the ship near the coast in a storm and, according to the captain, unable to use the full potential of their propulsion plant, the captain could have planned the maneuver in more detail, demanding constant information from the second officer on their proximity to shoals or their leeway. The statements from the three officers present on the bridge during the voyage indicate that they did not communicate effectively. This may have resulted from an inefficient way of working on the bridge, already ingrained aboard, and possibly stemming from the language and cultural differences of the different members of the crew.

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<sup>6</sup> Bunkering is a refueling operation in which ships rely on small boats or barges acting as traveling gas stations.



## 5 CONCLUSIONS

From its analysis of the accident, this Commission concludes that it was caused by the delay in detecting a shoal area and the impossibility of maneuvering in such a short length of time. The following factors contributed to the accident:

- Leaving port without taking the weather forecast into account.
- Improper navigational planning.
- Lack of communication and ineffective teamwork between the officers on watch in the bridge.

## 6 SAFETY RECOMMENDATIONS

It is recommended that the captain:

1. Adequately plan the navigation, evaluating the risks and benefits of sailing close to shore and the measures to take if they maneuver too close to shore.

It is recommended that the shipping company:

2. Train its bridge officers on Bridge Resource Management.

## 7 SAFETY LESSONS

Higher priority must be given to the safety of its ships and crews than to its commercial activity.

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