MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

ACCIDENT REPORT

VERY SERIOUS MARINE CASUALTY | REPORT NO 8/2020 | MARCH 2020

Stranding and loss of the fishing vessel *Coelleira* (OB 93) Ve Skerries, Shetland 4 August 2019

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SUMMARY

At about 0124 on 4 August 2019, the Spanish owned UK registered fishing vessel *Coelleira* grounded on Ve Skerries, a low-lying reef off the west coast of the Shetland Islands, Scotland, while on passage to land its catch in Scrabster, Scotland. The vessel immediately listed to port and its 15 crew were evacuated by the coastguard rescue helicopter. Attempts to salvage *Coelleira* were unsuccessful and the vessel broke up and sank. There were no injuries and, although the vessel was carrying about 15 tonnes of diesel oil, there was no significant pollution.

Courtesy of Conor Mulligan, www.marinetraffic.com

Coelleira

MAIB inspectors were not able to board *Coelleira* before it sank and therefore no navigational data was recovered from the vessel.

The investigation concluded that:

- The passage from the fishing grounds to Scrabster was not properly planned and the vessel's position was not being closely monitored.
- An effective lookout was not maintained, and the bridge was unmanned at the time of the grounding.

The investigation also identified that the judgment and performance of the skipper, who was on watch at the time of the grounding, might have been adversely affected by fatigue. The performance and set-up of electronic navigation equipment available in the wheelhouse would also have adversely affected the skipper's ability to monitor the vessel's position and identify navigational hazards.

A recommendation has been made to Blue Pesca Limited, *Coelleira*'s owner, aimed at improving watchkeeping practices and enhancing the safety on any vessel it owns in the future.

FACTUAL INFORMATION

Narrative

At 2030[1] on 3 August 2019, the fishing vessel *Coelleira* was drifting about 18nm to the north of the entrance to Yell Sound, in the Shetland Islands **(Figure 1)**. The vessel's long-line fishing gear had been hauled and was being stowed by the on-watch deckhands along with the catch of fish. The mate was on watch in the wheelhouse. It was dark, the visibility was good, the sea was smooth and the wind was light.

At 2110, the mate put the vessel's engine ahead and set a heading[2] of about 184° on the autopilot to start passage towards Scrabster. The vessel was making good 9 knots (kts) and the passage was expected to take approximately 17 hours. The vessel had completed fishing operations later than expected, and the intention was to complete the passage as quickly as possible. At 2130, the mate called the skipper to take over the navigational watch. Twelve minutes later he adjusted the vessel's heading to 204°.

The skipper arrived in the wheelhouse at 2230 and the mate handed over the navigational watch. He then went to bed, leaving the skipper alone in the wheelhouse. By that time, the on-watch deckhands had finished stowing the fishing gear and packing the fish, and they too had gone to bed.

Between 2304 and 0023 the following morning, the skipper adjusted the heading set on the autopilot on five occasions **(Figure 1)**, primarily to follow the coastline. During this period, the engine speed was not altered, and the skipper remained in the wheelhouse alone and monitored *Coelleira*'s progress by chart plotter and by radar. He also completed administrative tasks such as fish landing records on a computer sited on the starboard side of the wheelhouse **(Figure 2)**. The skipper's frequency of checking the vessel's position is not known.

The last of the alterations to 206° was at 0023 and was intended to keep *Coelleira* as close as possible to the coast in order to save time but remaining approximately 3.5nm to the west of the nearest navigational hazards. The skipper checked the chart plotter after the heading was altered and no navigational dangers were seen ahead. Out of the wheelhouse windows, he saw a lighthouse light in the distance off the port bow and assessed that it was towards the mainland.

Sometime later, the skipper left the wheelhouse. He did not specifically check the vessel's position before he left, nor did he note anything of concern or notice the lighthouse light ahead. The skipper was returning to the wheelhouse when, at 0124, *Coelleira* grounded on The Clubb, Ve Skerries **(Figure 1 inset)** at a speed of 10kts. The skipper was confused by the vessel's position.

Post-grounding actions

Coelleira's crew were woken by the sound of the vessel grounding, and made their way to the wheelhouse, where the skipper conducted a headcount. He instructed the crew to don survival suits and lifejackets, to deploy the liferafts and to check each compartment for water ingress. Accordingly, the crew dressed and launched two liferafts off the vessel's starboard side. *Coelleira* had developed a list of a few degrees to port and was rocking, but the crew found no evidence of water ingress.

[1] The times in this report are UTC (+1). The time kept on board *Coelleira* was UTC (+2)

[2] The headings indicated in this report are approximate. They are based on ground track information (i.e. courses made good over the ground) transmitted by the vessel's Automatic Identification System.

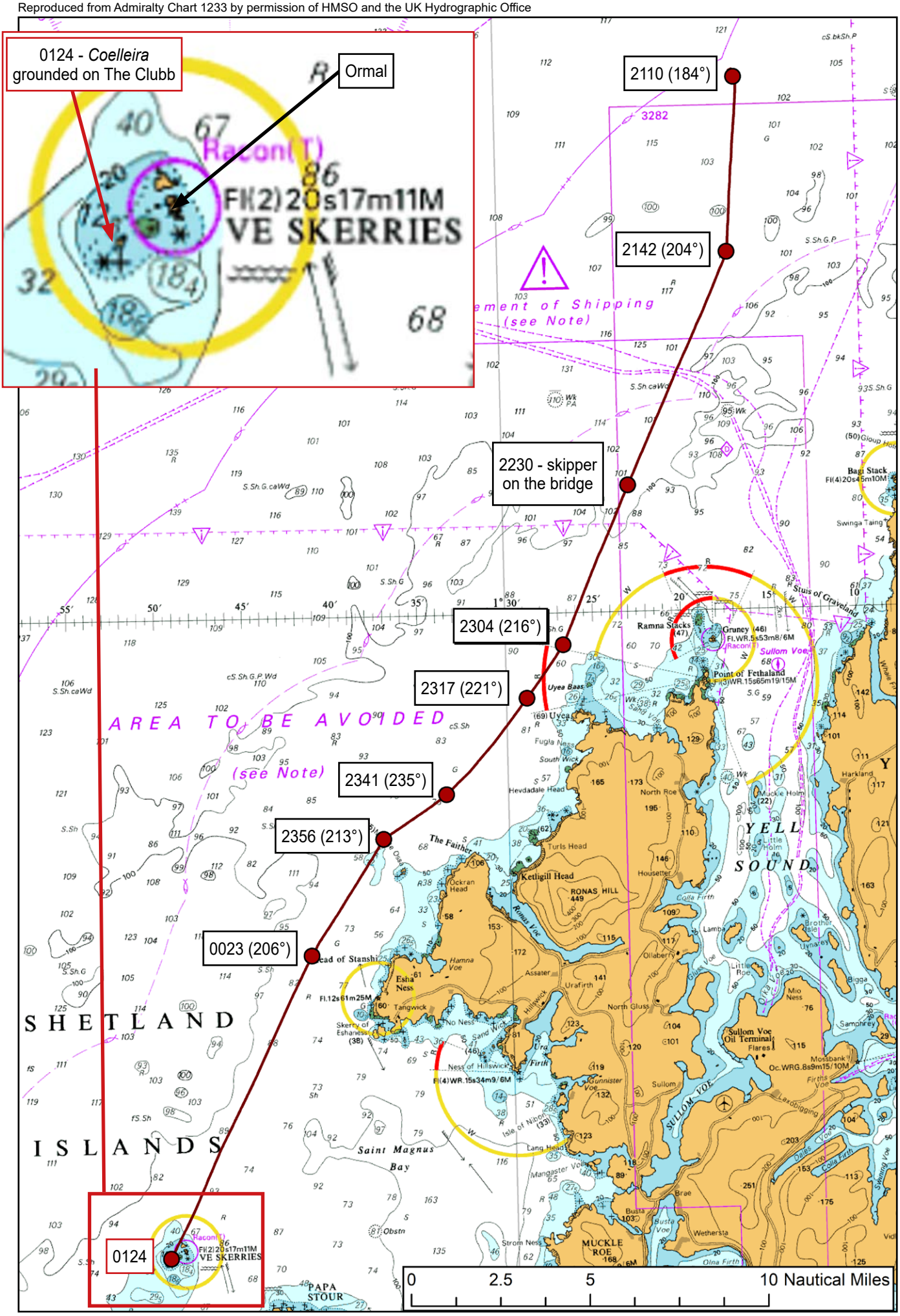

Figure 1: *Coelleira*'s AIS track (**inset:** detail showing Ve Skerries)

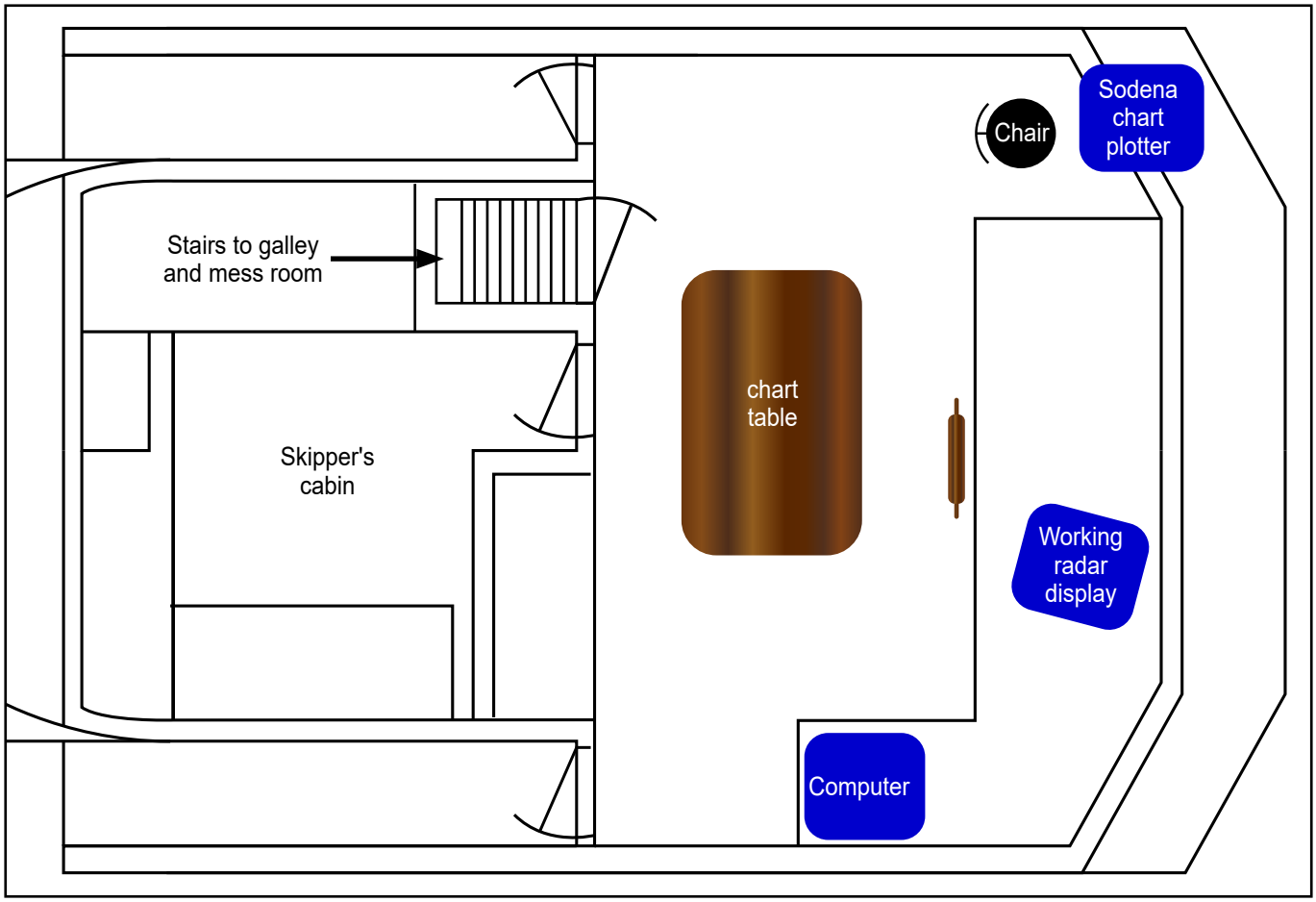

Figure 2: Bridge layout

At 0129, *Coelleira*'s skipper advised Shetland Coastguard via very high frequency radio (VHF) channel 16 that the vessel had grounded on rocks. He also activated distress messages via medium frequency digital selective calling and Inmarsat C, and advised the coastguard that he required assistance to evacuate the crew and that the vessel was not taking on water.

Between 0142 and 0151, Shetland Coastguard tasked the Aith all-weather lifeboat (ALB) and rescue helicopter R900 to assist. *Vos Protector*, an offshore stand-by safety vessel was also diverted to *Coelleira*'s position. R900 arrived on scene at 0228 followed shortly afterwards by the Aith ALB. By 0314, *Coelleira*'s crew had been winched on board R900, which took them to Lerwick, Shetland. None of the crew were injured.

Meanwhile, Shetland Coastguard had tasked the emergency towing vessel *Ievoli Black*[3] to assist and had stood down *Vos Protector*.

Attempted salvage

During 4 August, *Coelleira* remained hard aground with its generator still running, and diesel oil mixed with the generator's water discharge **(Figure 3)** was spreading around and downwind of the vessel. The Maritime and Coastguard Agency (MCA) Deputy Counter Pollution and Salvage Officer (DCPSO) and the Deputy to the SOSREP[4] liaised with *Coelleira*'s owners, insurers, the Scottish Standing Environment Group and the Shetland Islands Council to assess the vessel's position, condition and the possibility of re-floating. *Coelleira*'s owners and insurers contracted *Tystie*, a 56t bollard pull tug operated by the Sullom Voe Harbour Authority in Shetland, to assist. The owner and the vessel's agent also travelled from Spain to Shetland. *Coelleira* was carrying approximately 15 tonnes of fish and 15 tonnes of diesel oil and had a draught of about 4m.

[3] *Ievoli Black* was alongside in Stornoway, Hebrides, Scotland and was under contract to the UK Government.

[4] Secretary of State's Representative for Maritime Salvage & Intervention.

Figure 3: *Coelleira* aground

In the early afternoon, *Tystie* arrived at Ve Skerries and *Coelleira*'s skipper, engineer and agent boarded the stranded fishing vessel from a small work boat. No damage or water ingress were found but, while the men were on board, *Coelleira* rolled between 5° and 10° to port, and they quickly evacuated. *Ievoli Black* arrived at Ve Skerries that evening.

Between 5 and 6 August, a further onboard inspection was conducted by a surveyor appointed by *Coelleira*'s owner. The owner also appointed salvors, and the SOSREP established a 500m exclusion zone around the vessel. At high water on 7 August, an attempt by *Ievoli Black* to tow *Coelleira* off the rocks was unsuccessful and the fishing vessel developed a 55° list to port **(Figure 4)**. The following day, a survey identified a 30cm wide crack extending between 4m and 5m along *Coelleira*'s starboard side. Consequently, with worsening weather and sea conditions forecast, the vessel was declared unsalvageable. MV *Constructor*, a dive vessel, was contracted to act as a guardship, recover debris and remove oil if the weather conditions allowed. However, *Coelleira* soon began to break up and eventually slid off the rocks into deeper water and sank.

An underwater inspection of the wreck site is planned during the spring of 2020 to determine *Coelleira*'s condition. A decision will then be made to determine whether salvage and removal of the wreck is feasible and necessary.

Vessel management and recent history

Coelleira was built as a beam trawler in the Netherlands in 1970 but was converted in 2007 to operate as a long-liner. The vessel was of steel construction and 30m Length Overall (LOA). It was the only fishing vessel owned and operated by Blue Pesca Ltd, a Spanish registered company that had an office in Penryn, UK. *Coelleira* typically fished using lines 15nm and 16nm long that each had approximately 5500 hand-baited hooks attached. The vessel's main catch was hake and ling.

Coelleira departed from Celeiro, Spain on 31 May 2019 for a 3-month fishing trip, mainly in UK waters. The vessel arrived in Ullapool, Scotland on 14 June, where the MCA started a scheduled inspection to enable the vessel's International Fishing Vessel Certificate (IFVC) to be renewed. The inspection was

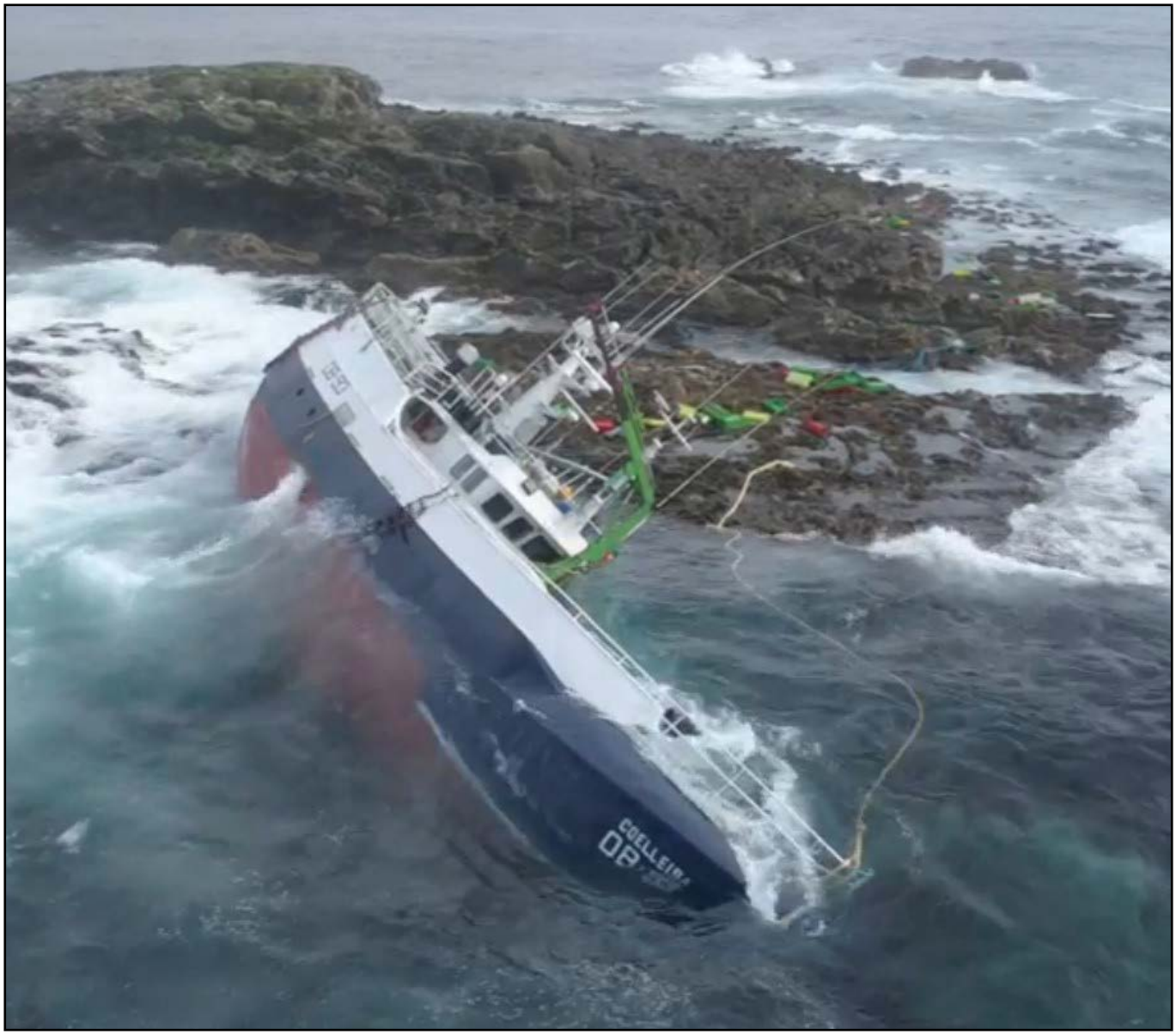

Figure 4: *Coelleira* post-salvage attempt

suspended due to the number of deficiencies identified, and *Coelleira* was detained. The grounds for the detention were based mainly on the vessel's condition, but one of the deficiencies identified was that appropriate navigational charts for the intended area of operation were not carried. Following the rectification of the deficiencies, the MCA issued a short-term IFVC and *Coelleira* sailed from Ullapool on 17 July 2019 for passage to the fishing grounds. *Coelleira*'s catch from the vessel's first few days of fishing was landed in Scrabster during a 6½ hour overnight stay between 26 and 27 July 2019.

It was the owner's intention that *Coelleira* would land its catch into Scrabster or occasionally Killybegs or Castletown, Ireland each week and that the catch would be transported to Spanish and French markets. The vessel's owner also intended that the vessel would return to northern Spain on completion of the trip and would remain in port for 1 month to enable routine maintenance to be completed.

Navigation equipment

The navigation equipment fitted in *Coelleira*'s wheelhouse **(Figure 2)** included a Robertson autopilot, a chart table, a global positioning system receiver, Maxsea and Sodena Turbowin electronic chart plotters, and two radar displays. One of the radars was not working because its scanner had been damaged when struck by the rescue boat davit arm. The working radar was usually kept on the 6nm range scale when fishing and on the 3nm range scale when on passage. The vessel also carried an automatic identification system (AIS) transceiver on which the vessel status was set to *'engaged in fishing'*.

Coelleira's primary means of navigation was paper charts. The vessel's chart plotters had been fitted in 2007 to support its fishing operations. However, the Maxsea chart plotter no longer worked and was not used. The Sodena chart plotter used C-Map electronic charts, but no records were available to indicate either which charts were installed or whether those installed had been updated. It was reported that the hydrographic information displayed on the chart plotter was not as detailed as that shown on the paper charts. The intended passage from the fishing grounds to Scrabster was not drawn on paper charts or input into the Sodena chart plotter.

Other electronic equipment fitted in the wheelhouse included a personal computer and a television. The skipper's cabin was located aft of the wheelhouse, and the galley and mess room were located on the main deck below.

Crew

Coelleira's crew comprised the skipper, mate, an engineer, an oiler, a cook and 10 deckhands, and were a mix of Spanish, Portuguese and Indonesian nationals. All the crew worked a cycle of 3 months on board followed by 1 month off. The deckhands were divided into two watches.

Coelleira's skipper was a 56-year-old Spanish national. He was a career fisherman and held a Spanish STCW[5] Certificate of Competency and a UK Certificate of Equivalent Competency, which authorised him to be a master of UK registered fishing vessels less than 50m LOA. The skipper was an experienced fisherman and had worked on board fishing vessels off Galicia, Spain, around the Azores, in the Indian Ocean, and off the Falkland Islands. He first joined *Coelleira* in July 2018.

The mate was the 'patrón de pesca'[6] (fishing skipper) and shared the navigational watches with the skipper. The mate maintained the wheelhouse watch during shooting and hauling operations and the skipper kept the watch while the fishing gear was soaking[7] and when on passage to and from the fishing grounds. The skipper also took over the navigational watch at mealtimes to enable the mate to eat.

The skipper and mate's watch pattern was irregular because it was dependent on the fishing operations. On 3 August, the skipper had the opportunity to rest when not on watch between 1300 and 1900, and again between 1945 and 2230.

The skipper had been on watch during *Coelleira*'s passage from the fishing grounds to the north of the Shetland Islands to Scrabster in the week before the grounding. On that occasion, the vessel passed 1.5nm to the west of Ve Skerries.

Location and tidal information

Ve Skerries is a group of five low-lying reefs comprising below water and above water rocks 3nm north-west of Papa Stour off the west coast of Shetland **(Figure 1)**. Ve Skerries Light, a white concrete tower with an elevation of 17m stands on Ormal **(Figure 1 inset** and **Figure 3)**, the most easterly of the above water rocks. The white light on the lighthouse has a geographical range of 11nm and flashes twice every 20 seconds. The lighthouse is also fitted with a racon (T)[8]. With reference to Ve Skerries, The Admiralty North Coast of Scotland Pilots (NP53) states:

> *Mariners are cautioned against navigating within 5 cables of the group especially in heavy weather or poor visibility.*

[5] International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended (STCW Convention).

[6] In common with other Spanish owned and operated fishing vessels, *Coelleira* carried a patrón de pesca to oversee the fishing operations and a patrón de costa (the skipper) to supervise the navigation.

[7] Soaking is a term used to describe when baited long-lines are in the water.

[8] A radar beacon which, when triggered by a ship' s radar, will return a distinctive signal. In this case, the Morse character 'T'.

On 3 August 2019, the predicted high water at West Burra Firth was at 2352 (2.5m), the next low water was at 0605 (0.2m) the following morning. At the time of *Coelleira*'s grounding, the predicted height of tide was 2.1m above chart datum and the predicted tidal stream was setting towards 139° at 0.7kt.

ANALYSIS

The grounding

Coelleira was heading directly towards Ve Skerries as soon as the vessel's heading was adjusted at 0023 **(Figure 1)**. During the following hour, in which the vessel made good a course of 206° at a speed of 9-10kts, the skipper did not recognise the impending danger ahead. Although he saw a light off the vessel's port bow during the transit, he did not associate it with the lighthouse on Ormal. The skipper also did not see the racon from the lighthouse or returns from the low-lying reefs on the radar display, Ve Skerries ahead of the vessel on the chart plotter, or, the lighthouse light as he left the wheelhouse. Such omissions reflect a combination of an absence of passage planning, ineffective lookout and position monitoring, and possibly inaccurate or incomplete electronic chart data.

Passage planning, lookout and position monitoring

Coelleira's passage plan from the fishing grounds to Scrabster was based on following the Shetland coast **(Figure 1)** rather than a plotted route. The skipper relied on his limited knowledge of the area and adjusted the vessel's heading to remain between 1.25nm and 2nm clear of charted dangers. The five course alterations between 2304 and 0023 indicate that the skipper was monitoring *Coelleira*'s position and was using the radar and/or the chart plotter to monitor distances. They also suggest that the skipper's navigation was reactive rather than planned. The skipper's aim was to arrive in Scrabster as soon as possible, but he chose to follow the coast rather than a more direct and marginally shorter route that was clear of many navigational dangers **(Figure 5)**. This decision might have been made because the vessel did not carry a sufficiently small-scale chart.

When *Coelleira*'s heading was adjusted to 206° at 0023, which was an alteration of only 7°, the skipper did not realise he was turning *Coelleira* directly towards Ve Skerries. Ve Skerries were 10nm ahead and therefore would not have been displayed on the radar at the 3nm range scale. Whether or not the reefs were displayed on the chart plotter would have depended on the scale selected and the quality of the electronic chart, and at a range of 10nm the light on Ormal also might not have been readily apparent due to its geographical range (11nm) together with its characteristics (flashing twice every 20 seconds). Although the adjustment of heading was small, and was possibly made in an attempt to save time, the absence of any reference to a small-scale chart and a planned route on either paper charts or in the chart plotter, along with not periodically adjusting the range on the radar display and chart plotter, denied the skipper opportunities to identify the presence of the reefs ahead.

That *Coelleira*'s heading remained unaltered during the 61 minutes from the alteration to 206° until grounding, reflects that the skipper's lookout and monitoring of the vessel's position was ineffective when he was in the wheelhouse, and non-existent when he was not. Even if Ve Skerries were not displayed on the chart plotter, the light on Ormal would have become increasingly bright on a steady bearing, and the low-lying reefs and the racon would have been displayed on the radar when within 3nm. At a speed of 10kts, this would have been 18 minutes before *Coelleira* grounded, indicating that the skipper was not monitoring the vessel's position, and was probably not in the wheelhouse, for a significant period prior to the grounding.

Awareness and arousal

It is possible that *Coelleira*'s skipper's attention to the vessel's navigation was diminished by his focus on the administrative tasks he was completing on the wheelhouse computer. From the skipper's perspective, the vessel was in open water and not heading into danger. Consequently, undertaking such tasks might have seemed an efficient use of time. However, it is equally possible that his performance, particularly his alertness, was also influenced by fatigue and the time of day.

Reproduced from Admiralty Chart 0245 by permission of HMSO and the UK Hydrographic Office

Figure 5: *Coelleira*'s track from its fishing grounds compared to a direct route to Scrabster

Coelleira's crew had been fishing for over 2 weeks since the vessel had sailed from Ullapool on 17 July. During this period, the demands of the skipper's wheelhouse watchkeeping routine when fishing and when on passage to, from and between the fishing grounds had resulted in a disrupted sleep pattern. His opportunity to rest was limited, and amounted to less than 9 hours in two separate periods during the 24 hours before the vessel grounded. Furthermore, apart from meal breaks, the skipper was scheduled to remain on watch until the vessel arrived in Scrabster about 13 hours later. This routine did not comply with Merchant Shipping Notice (MSN) 1884 (F) (*International Labour Organization Work in Fishing Convention (No. 188): Working Time. Application of the Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 as amended*), which requires fishermen to have not less than 10 hours' rest in any 24-hour period and 77 hours in each 7 days, and for which no exceptions had been requested by the vessel's owner.

Disruptions to sleep and circadian rhythms[9] can lead to the accumulation of fatigue. In addition, alertness and performance tend to be at their lowest during the early hours of the morning as the human circadian rhythm is synchronised with the normal pattern of daytime wakefulness and sleep at night. Consequently, between 0023 and 0124 (0123 and 0224 on board *Coelleira*), the skipper's circadian rhythm is likely to have been towards its low point. He was also alone in the wheelhouse, the navigation watch was quiet and there was no watch alarm fitted to keep the skipper active. As a result, the skipper's levels of awareness and alertness were potentially well below those usually required and expected when watchkeeping close to the shore at night.

Wheelhouse watchkeeping practices

The watchkeeping practices on board *Coelleira* were at variance with the guidance provided in Marine Guidance Note (MGN) 313 (F) (*Keeping a safe navigational watch on fishing vessels*), which with respect to the composition of navigational watches includes:

- *The wheelhouse must not be left unattended at any time;*
- *The weather conditions, visibility and time of day. Although the size of the crew and the wheelhouse may not permit a continuous two person watch, two people should always be on watch during the hours of darkness and in poor weather conditions;*
- *The proximity of navigational hazards and any other hazards which may require additional navigational duties to be undertaken;*
- *The use and operational condition of navigational aids such as radar, echo sounder, automatic pilot, and position-fixing equipment(s).*

In this case, the skipper had been alone in the wheelhouse during darkness after taking over the watch and was not in the wheelhouse when the vessel grounded. The passage had not been planned and checked either on paper charts or on the chart plotter. Therefore an accurate assessment of the likely proximity of navigational hazards had not been made, and the vessel's position was not plotted and verified on the paper chart. Furthermore, one of the vessel's radars and the Maxsea chart plotter were not working, and the reported lack of detail of the information on the Sodena plotter and the absence of any records to show that its C-Map charts had been updated since 2007, both indicate that this plotter, although reported as working, was not sufficiently accurate to be used for navigation.

Although many fishing vessels continue to have paper charts nominated as the primary means of navigation, few fishermen use them. Instead, as in this case, they prefer to use radars and chart plotters due to the advantages afforded by real time positioning. However, unless the nominated primary means of navigation is ECDIS[10] (fishing vessels 24m LOA or over) or chart plotters complying with Sea Fish Industry Authority specifications (fishing vessels less than 24m LOA), checks on the coverage and updating of the electronic charts are likely to remain inconsistent.

[9] A circadian rhythm is a natural, internal process that regulates the sleep-wake cycle and repeats roughly every 24 hours.

[10]Electronic chart display and information system.

CONCLUSIONS

- The route from the fishing grounds to Scrabster was not drawn on the paper charts or entered into the electronic chart plotter.
- The vessel's heading was adjusted to follow the coastline using information from the radar and chart plotter. Due to ineffective lookout and position monitoring, the skipper was not aware that the vessel was heading directly towards Ve Skerries following an adjustment of heading at 0023.
- The skipper had experienced a disrupted sleep pattern and his levels of awareness and alertness were potentially well below those usually required and expected when watchkeeping close to the shore at night. He saw a light off the port bow but did not associate it with the light marking Ve Skerries.
- Ve Skerries was possibly not displayed on the chart plotter due to the quality of the chart data or detected by radar due to the range scale selected.
- The wheelhouse had been unattended for some time when the vessel grounded.
- The watchkeeping routines and practices were at variance with regulations regarding rest periods, and fishing industry guidance regarding keeping a safe navigational watch.

ACTION TAKEN

MAIB actions

The MAIB has issued a Safety Flyer to the fishing industry highlighting the lessons to be learned from this accident.

RECOMMENDATIONS

Blue Pesca Ltd is recommended to:

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- Requirements for rest detailed in MSN 1884 (F).
- Guidance on keeping a safe navigational watch detailed in MGN 313 (F).
- The coverage and updating of electronic charts.

Safety recommendations shall in no case create a presumption of blame or liability

SHIP PARTICULARS	
Vessel's name	*Coelleira*
Flag	UK
Classification society	Not applicable
IMO number/fishing numbers	OB 93
Type	Fishing vessel – long-liner
Registered owner	Blue Pesca Ltd
Manager(s)	Not applicable
Year of build	1970
Construction	Steel
Length overall	30m
Registered length	26.55m
Gross tonnage	210
Minimum safe manning	Not applicable
Authorised cargo	Not applicable

VOYAGE PARTICULARS	
Port of departure	Scrabster
Port of arrival	Not applicable
Type of voyage	Domestic
Cargo information	Fish
Manning	Not applicable

MARINE CASUALTY INFORMATION	
Date and time	4 August 2019, 0024
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	The Clubb, Ve Skerries, Shetland, Scotland
Place on board	Not applicable
Injuries/fatalities	None
Damage/environmental impact	Vessel lost. No significant pollution.
Ship operation	On passage
Voyage segment	Open water
External & internal environment	Dark with good visibility and light winds. The sea was smooth, and the predicted tidal stream was 139° at 0.7kt
Persons on board	15