

Report on the investigation of
the grounding of
Resplendent
in Bluemull Sound
Shetland Islands
13 June 2001

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The fundamental purpose of investigating an accident under these Regulations is to determine its circumstances and the cause with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame.

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

BA	-	British Admiralty
DGPS	-	Differential Global Positioning System
GPS	-	Global Positioning System
kW	-	Kilowatt
MCA	-	Maritime and Coastguard Agency
MGN	-	Marine Guidance Note
MIN	-	Marine Information Note
MSN	-	Merchant Shipping Notice
UTC	-	Universal Co-ordinated Time
VHF	-	Very High Frequency

SYNOPSIS



Resplendent ran aground in the approaches to the northern entrance to Bluemull Sound, Shetland Islands, at about 0325 (UTC+1) on 13 June 2001, as she headed towards Cullivoe to land her catch. The skipper had attempted to alter course towards the safe water in the Sound using a joystick control but, because the procedure for changing from automatic to manual steering had not been completed correctly, the joystick had no effect. The skipper was not aware that the vessel was not turning as intended until immediately before the vessel grounded. This left insufficient time for any remedial action to be taken. *Resplendent* was refloated the following day. There was no pollution, and damage to the vessel was minor.

Maritime Rescue Sub-Centre (MRSC) Shetland informed the MAIB of the accident by telex at 0434 (UTC+1) on 13 June, and an investigation started later that day.

It is considered several factors contributed to manual steering not being selected as intended, and to the time taken to realise the joystick control was ineffective:

- The skipper had not slept in the 23 hours before the grounding.
- Manual steering was not tested after being selected.
- A rudder angle indicator was not used to check the position of the rudder following movement of the joystick control.
- The skipper was alone in the wheelhouse.
- A telephone call, and a bridge alarm sounding might have disrupted the skipper's concentration.
- Navigation by eye in the prevailing circumstances was inappropriate.

Recommendations to the owner are aimed at improving wheelhouse practices and watchkeeping standards, particularly in relation to steering and navigation procedures and reducing the risks posed by fatigue.

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *fv RESPLENDENT* AND ACCIDENT

Vessel details

Registered owners	:	Riverview Investments Limited and others
Port of registry	:	Peterhead
Flag	:	UK
Type	:	Fishing
Built	:	1999 in Asilleros La Parilla, Spain
Construction	:	Steel
Length overall	:	33m
Gross tonnage	:	587
Draught	:	6.4m
Engine power	:	1,794kW

Accident details

Time and date	:	0325 (UTC+1) on 13 June 2001
Location of incident	:	60°43.36'N 001°00.21'W - Papil Ness, Bluemull Sound, Shetland Islands
Persons on board	:	6
Injuries/fatalities	:	None
Damage	:	Distortion to bilge keel

1.2 BACKGROUND

Resplendent was owned by Riverview Investment. After commissioning, she began fishing in April 2000 and, apart from a 4-month break in fishing caused by an engine defect, the vessel had operated without incident.

After fishing in the North Sea between 22 and 30 May 2001, *Resplendent* sailed from Peterhead at about midnight on 31 May for passage to the fishing grounds off the Shetland Islands. The skipper intended to remain in this area until landing the catch in Cullivoe on 13 June. He then planned to fish for several more days, before heading to Leith, where the vessel was due to enter dry dock on 20 June. The dry-docking had been programmed to repair hull-mounted fishing gear sensors, and to conduct an anode survey.

1.3 NARRATIVE

All times are UTC+1 and all courses are true.

1.3.1 Events leading up to the grounding

From arriving off the Shetland Islands in the morning of 2 June, until completing her last haul at about 2200 on 12 June, *Resplendent* conducted about three to four tows per day, each lasting about 5 hours. She had been fishing for halibut, red fish, cod and haddock.

After the last haul, on 12 June, the vessel headed towards Cullivoe. The skipper was in the wheelhouse and the remaining crew prepared the fish for landing; three in the fish room, and two on the factory deck. Occasionally the skipper was joined by some of the crew during their tea breaks, but was alone most of the time. Navigation was conducted by radar and by eye, and steering was by autopilot. The external wheelhouse door was closed, and the air conditioning was switched off.

Resplendent passed the north-western side of Unst at about 0245 on 13 June on a course of about 190°, and at a speed of between 8 and 10 knots (**Figure 1**). As she continued towards the entrance to Bluemull Sound, the skipper saw another fishing vessel to the west, about 1 mile from land; this was the only other vessel in the immediate vicinity. He also talked to a friend via mobile telephone. Towards the end of this conversation, which lasted for about 10 minutes, the fish room's bilge alarm sounded in the wheelhouse. The skipper informed the engineer of this alarm immediately, using the wheelhouse/factory deck intercom.

When *Resplendent* was between 1 and 1.5 miles north of the entrance to Bluemull Sound, the skipper changed from autopilot to manual steering. He then went to the control position on the port side of the wheelhouse, and moved the joystick to apply about 5° of port rudder to turn towards the centre of Bluemull Sound. At this point, the skipper was looking out of the window and did not



Chart showing an approximation of *Resplendent's* track

monitor the rudder angle indicator. Shortly after, he realised that the vessel's head was not moving and moved the joystick to apply a further 5° of port rudder. It was soon evident, however, that the vessel was still not responding and, on checking the rudder angle indicator, he saw that the rudder was at the amidships position.

Assuming that there was a fault with the steering, the skipper moved across the wheelhouse to check the autopilot and steering controls. Before he could take any action, however, *Resplendent* ran aground at about 0325 on the western side of the entrance to Bluemull Sound (**Figure 2**).

Figure 2



Resplendent aground

1.3.2 Events following the grounding

As soon as the skipper realised the vessel was aground, he reduced the propeller pitch using the controls at the centreline position. He then informed the coastguard of the situation on VHF radio channel 16, including that there were no casualties and that the vessel did not seem to be in any immediate danger. The crew then came up to the wheelhouse but were immediately sent below to check for leaks and damage.

The skipper tried to move the vessel by applying full astern pitch but, as this was unsuccessful, pitch was then set to zero and the engine was taken out of gear. The engine was left running, however, to maintain pressure to the hydraulic systems.

By 0448, the fishing vessels *Guardian Angel*, who was possibly seen by the skipper earlier, and *Renown*, which was in Bluemull Sound, had arrived at the scene. At 0516, after the Lerwick lifeboat had also arrived, *Guardian Angel* attempted to pull *Resplendent* clear, but without success.

In the afternoon, *Resplendent's* sister-vessel, *Radiant*, which had been fishing about 50 miles away, arrived. A 40mm wire was passed but, as the wire was being heaved on to a winch on *Resplendent's* port side, *Resplendent* heeled about 45° to port. The wire had to be cut. As *Resplendent* was now lying on her port side, and had lost pressure to her hydraulic systems, the skipper shut down the engine and arranged for all the crew, except himself and the engineer, to be taken off into the Lerwick lifeboat and on to Cullivoe. The skipper and engineer remained on board to try to restore the hydraulic system pressure, which was achieved quickly.

In the evening, the crew re-embarked, accompanied by three insurance surveyors, and preparations were made to refloat the vessel at high water the following morning. To lighten the vessel, the trawl doors and clump weight, weighing about 8 tonnes, along with about 130m of steel wire were paid out. Floats were attached to this equipment to allow recovery at a later stage. The nets and sweeps were also moved aft to lighten the bow, and fuel was pumped into holding tanks to reduce the risk of pollution should the hull have been breached.

Serene, another fishing vessel, arrived at the scene shortly after midnight and, after parting two tow lines between 0300 and 0345, she finally towed *Resplendent* clear of Papil Ness, at about 0430 on 14 June, and took her to Cullivoe. Following an underwater survey of her hull, *Resplendent* sailed from Cullivoe later that evening, and was towed by *Radiant* to Leith (**Figure 3**) where the vessels arrived at about 1400 on 16 June 2001. There was no pollution, and the trawl doors, clump weight and wire were subsequently recovered.

1.4 THE SKIPPER

The 39 year old skipper had been a fisherman since leaving school aged 16. He was experienced in all types of fishing, including seine net, trawl, and pelagic pair trawling. He had served as a skipper for 14 years before gaining his Deck Officer Certificate of Competency (Fishing Vessel) Class 1 in 1999. The skipper owned a one-eighth share in *Resplendent* and had been involved in her design and construction. Previously he had owned shares in *Endurance*, a 23m stern trawler, and *Endeavour*, a similar vessel.

The skipper had visited Cullivoe on a number of occasions before for fuel and to shelter from the weather, but had not been there for 2 years and never in *Resplendent*. It was the first time this vessel had fished in the vicinity of the Shetland Islands. She had previously operated on the east and west coasts of the UK.

Usually the skipper alternated fishing trips but, on this occasion, he was on board for consecutive trips, having embarked on 22 May. While fishing, he tried to get about 6 hours sleep each day, but this was usually split up into periods of between 1 and 3 hours duration. From about 0100 on 11 June until the grounding at about 0325 on 13 June, although the skipper managed 9 hours sleep in 3 separate 3-hour periods, he had not slept at all for about 23 hours when the vessel grounded.

1.5 ENVIRONMENTAL CONDITIONS

The wind was westerly, force 4, and the visibility was about 5 miles in drizzle and haze. Sunrise was at 0332, but it had been permanent twilight throughout the night. The sea was smooth to slight. High water in Bluemull Sound was at 0254 and the predicted tidal stream was southerly from 2344. Referring to tidal streams at the northern entrance to Bluemull Sound, the North Coast of Scotland Pilot states:

..tidal streams are probably more or less rotary anti-clockwise and are weak, the maximum rate not exceeding 0.5 knot, but they are strong W along the N coast of Yell.

Figure 3



Resplendent under tow from Cullivoe

1.6 WHEELHOUSE STEERING

1.6.1 General

Three methods of steering were available and could be selected from within the wheelhouse: manual via joystick control, automatic via a Navitron NT 925G autopilot, and emergency via a hand-wheel. The changeover between manual and automatic steering was achieved by a three-position switch located on the starboard bulkhead of the wheelhouse (**Figure 4**).

Position 1 - manual steering

Position 2 - automatic steering

Position 0 - neither automatic nor hand steering selected

Other than the position of this switch, there were no indications showing the status of the steering equipment. The vessel was normally operated in either hand or automatic steering. The position of this switch at the time of grounding is not known.

Figure 4



The steering changeover switch

1.6.2 Automatic steering

The autopilot was located on a console between the two wheelhouse chairs, behind the centreline engine control position. It was orientated to be operated while seated (**Figures 5 & 6**) with the operator facing forward. The unit had a four-way main control switch:

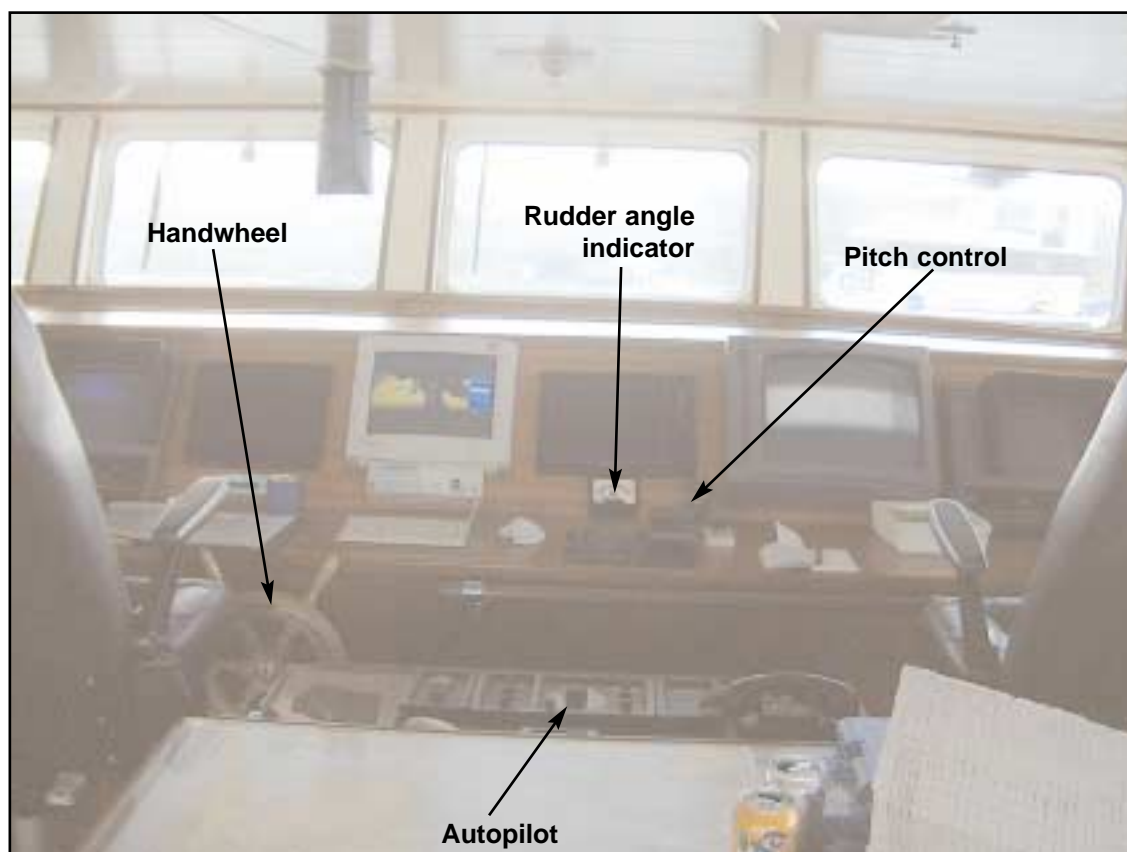
- Off - All autopilot functions off
- Standby - Autopilot indications only (rudder and heading indicators, LED and panel illumination).
- On - All automatic pilot functions operational
- Perm Helm off/reset - All autopilot functions operational with the exception of automatic permanent helm

To steer by autopilot, Position 2 had to be selected on the master changeover switch, and the autopilot had to be switched to 'On' or 'Perm Helm off/reset'. The position of the autopilot switch at the time of grounding is not known. After sailing from Peterhead on 31 May, the vessel experienced an automatic steering failure; her second since February 2001. On both occasions, repairs were effected by changing a relay circuit, and no further problems were reported before or immediately after the grounding.

Figure 5



The autopilot (looking aft)



View of the centreline control position and autopilot

1.6.3 Manual steering

It was usual practice when in manual steering that, in addition to Position 1 being selected on the master changeover switch, the main control switch on the autopilot was also put to standby. However, trials when the vessel was in dry dock in Leith, following the grounding, indicated that when the master changeover switch was in Position 1, rudder movement could be controlled only by the joysticks, regardless of the position of the main control switch on the autopilot. When either Position 2 (autopilot) or Position 0 was selected on the master changeover switch, the joysticks had no effect; there was no override facility.

Joysticks were situated in three positions in the wheelhouse: immediately below the master changeover switch (**Figure 4**), at the aft control position, and at a control position in the port, forward corner of the wheelhouse. The aft and port control positions were also equipped with main engine and bow thruster controls, and a rudder angle indicator. The engine and bow thruster controls, and rudder angle indicator nearest to the joystick below the master changeover switch, were located in the centre of the front console, a few metres away (**Figure 6**).

The joystick below the main changeover switch was seldom used. The joystick aft was used when working the fishing gear, and the one at the port control position was used when manoeuvring to or from alongside. This was because it was usual for *Resplendent* to berth port side to, to give easy access to her fish hatches which were located on that side. Additionally, the view ahead from the port control position was clear (**Figure 7**), whereas the view ahead from the centreline tended to be impaired by the bow. This was because the vessel was usually trimmed by her stern.

At the port and aft control positions, rudder movement was achieved by horizontal movement of the joysticks; left for port, and right for starboard. Rudder movement via the joystick below the master changeover switch, however, was achieved by vertical movement of the joystick; up for port and down for starboard.

Figure 7



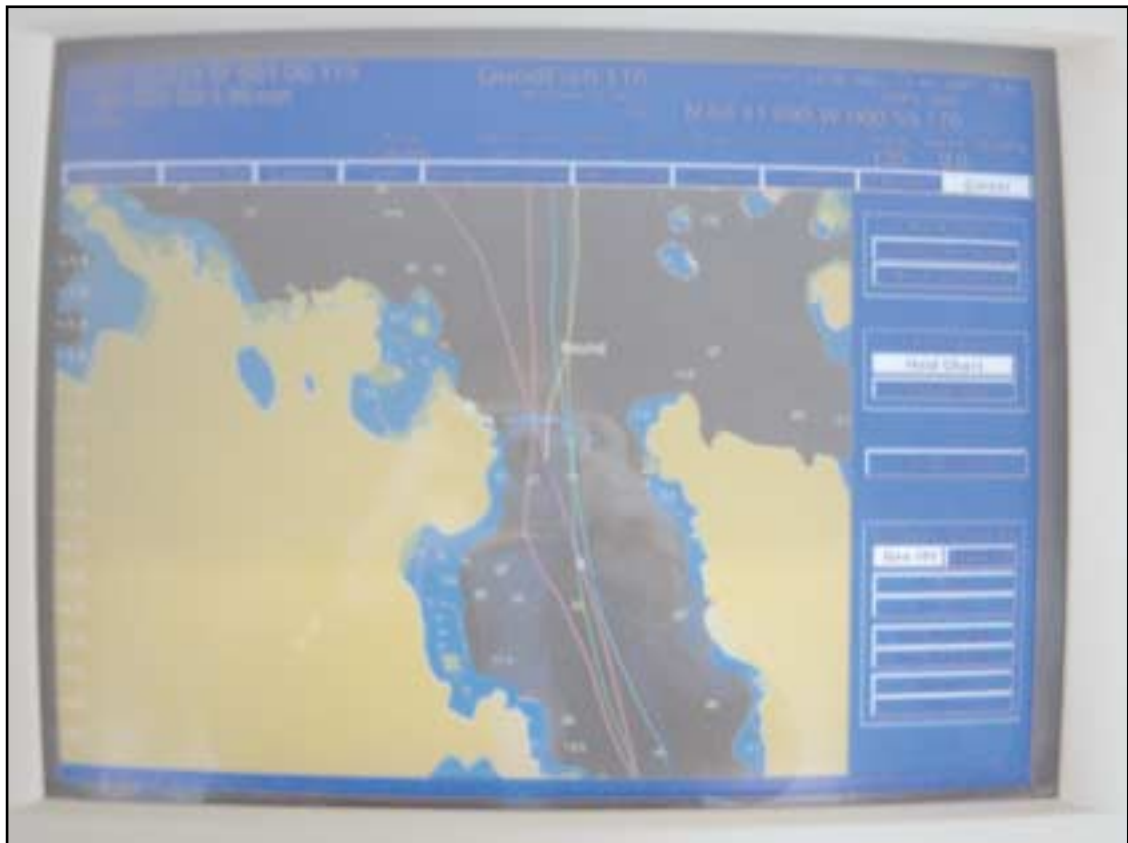
View from the port control position

1.7 NAVIGATION EQUIPMENT

The wheelhouse was fitted with two video plotters, a Racal Decca Fishmaster, which was not in use at the time of grounding, and a Quodfish 110. The Quodfish was operating on a scale of 1:20,000 and received inputs from DGPS and GPS receivers. Five tracks, recorded during the skipper's previous trips, leading from the north into Bluemull Sound, were displayed (**Figure 8**), but none were being used. A Decca Bridgemaster radar display sited on the starboard side of the front console was operating on a 12-mile range scale, and a second on the port side was operating on either a 3 or 6-mile range scale as selected by the skipper. Neither the video plotters, nor radar displays, could be monitored from the port control position. Chart BA 4140 was the only paper chart held on board covering the area in which the vessel was operating. This chart covers the whole of the North Sea, and is of a scale of 1:500,000. The largest scale BA charts available for this area are BA 3282 (1:70,000) and BA 3292 (1:30,000).

A Navitron NT920W watch alarm was fitted and was integral to the autopilot. A low-level alarm would sound on the bridge every 4 minutes, and if not reset within 1 minute, a high-level alarm, audible in the accommodation areas, would sound.

Figure 8



The Quodfish video plotter showing previous tracks

1.8 MARINE GUIDANCE NOTES

1.8.1 General

The vessel held all relevant copies of MGNs, MSNs, and MINs.

1.8.2 Keeping a safe navigational watch

Guidance on keeping a safe navigational watch on fishing vessels is contained in MGN 84 (F) and regarding fitness for duty states:

Both the skipper and the watchkeepers should take full account of the quality and quantity of rest taken when determining fitness for duty. Particular danger exists when the watchkeeper is alone.....Watchkeepers should ensure they remain alert by moving around frequently, and ensuring good ventilation.

1.8.3 Use of automatic pilots

Guidance on the use of automatic pilots is contained in MGN 54 (M+F) and states:

Masters, skippers and all watchkeeping personnel must be familiar with the procedure for changing over from automatic to manual steering and must ensure that sufficient time is allowed for the operation. Clear instructions must be provided at the control console.....

The master shall ensure that manual steering is tested.....before entering any areas where navigation demands special caution.

SECTION 2 - ANALYSIS

2.1 AIM

The purpose of the analysis is to determine the contributing causes and circumstances of the accident as a basis for making recommendations to prevent similar accidents occurring in the future.

2.2 STATUS OF STEERING EQUIPMENT

The skipper had engaged automatic steering by selecting Position 2 on the master changeover switch and switching the autopilot main control switch to 'On' at the start of the passage to Cullivoe, and thought he changed to manual steering as the vessel closed Bluemull Sound. His observation of the rudder being at the amidships position, several minutes after moving the port control joystick, however, casts doubt on the status of the steering equipment. The amidships position of the rudder might have been due to one of several possibilities.

First, the vessel might have experienced a steering equipment failure of some form. This possibility cannot be discounted but, as the only previous problems with the steering equipment were associated with the automatic steering and, as the steering equipment was found to be functioning correctly following the grounding, there is little supporting evidence.

Second, because the skipper's estimation of the relationship between joystick and rudder movement was based on experience, and was not verified by monitoring of the rudder angle indicator, he might have misjudged the joystick movement. For the rudder to be at the amidships position following successive movements to port, however, it must have been positioned to starboard from when manual steering was selected until after the skipper's final movement to port. The carriage of starboard rudder, during this period, would have probably resulted in *Resplendent's* head swinging to starboard, particularly as she would already have had a tendency to seek the wind, which was on her starboard beam. The skipper, however, observed no such swing.

Finally, the action taken by the skipper to change from automatic to manual steering, might not have been in accordance with the required procedure. Several permutations of actions were possible which would have resulted in manual steering not being selected and rendering the joysticks ineffective:

- a. The master changeover switch might have been left at Position 2 (automatic) and the automatic control unit switch at 'On'. In this case automatic steering would have remained selected.
- b. The master changeover switch might have been left at Position 2 (automatic) but the automatic control unit switch moved to 'Standby' or 'Off'. In this case, neither manual nor automatic steering would have been selected.

- c. The master changeover switch might have been moved to Position 0. This would also have resulted in neither automatic nor manual steering being selected, irrespective of the position of the switch on the automatic control unit.

Unfortunately, since the positions of the switches on both the master changeover, and automatic steering units, when *Resplendent* grounded are not known, the status of her steering equipment cannot be determined. However, as neither mechanical failure, nor misjudgment by the skipper, were likely to have caused the rudder to be at the amidships position after the skipper had attempted to apply port rudder via the joystick, it is considered that the ineffectiveness of the joystick to control the rudder was caused by manual steering not being selected.

2.3 STEERING CHANGEOVER PROCEDURE AND TESTING

Although the procedure for changing from automatic to manual steering was straightforward (master changeover switch from Position 2 through Position 0 to Position 1, and the switch on the automatic steering unit to 'Standby'), there remained scope for error, even though the skipper was very familiar with the steering system, and had changed from automatic to manual steering many times. Familiarity with a procedure cannot guarantee it will be conducted correctly on every occasion.

MGN 54(M+F) highlights the need to ensure that sufficient time is allowed to test manual steering once it has been selected. This is particularly relevant in *Resplendent*, where the preferred positions for steering via joystick (aft and port) were some distance from the master changeover unit, and where there were no indications to show whether manual or automatic steering was selected.

After changing to manual steering, however, the skipper did not test it. This could have been quickly achieved by comparing the movement of any of the joysticks against a rudder angle indicator. Although the vertical movement of the joystick on the master changeover unit might cause confusion and should, therefore, be used with caution when manoeuvring, had it been used by the skipper to test the manual steering, the incorrect positioning of the switches would have been quickly identified. This would have allowed corrective action to be taken before the vessel entered shoal waters. It is also probable that had the skipper tested the steering from the port control position, or monitored the rudder angle indicator when first moving the joystick to port, there would still have been sufficient time to prevent the grounding.

2.4 IDENTIFICATION OF A PROBLEM

By using a joystick to manoeuvre without first testing manual steering or monitoring a rudder angle indicator, the skipper was not immediately aware that a problem existed. This only became apparent to him after several minutes, when he realised the vessel's head was not moving and saw the rudder was amidships. The actual time taken for the skipper to realise there was a problem is difficult to determine. However, as manual steering was selected between 1 and 1.5 miles from the entrance to Bluemull Sound when at between 8 and 10 knots, *Resplendent* must have grounded between 6 and 11 minutes later. This was a substantial period for the skipper not to notice that the vessel was not turning to port as planned, especially as the vessel is reported to be responsive to the helm. Also, as *Resplendent* grounded within seconds of the skipper realising there was a problem, she must have been extremely close to the position where she grounded. **Figure 2** shows *Resplendent* grounded close to the visible shoreline, and it is surprising the skipper was not alerted by the proximity of the obvious dangers ahead.

2.5 CONCENTRATION AND ALERTNESS

2.5.1 Fatigue

The skipper had been on board for 22 days, during which time he had experienced a disrupted sleeping pattern, but had tried to achieve 6 hours sleep per day. This was not always possible, however, and at the time of grounding he had not slept for 23 hours. Under such circumstances, the skipper would undoubtedly have been feeling the effects of fatigue, which might have affected his awareness and ability to concentrate. This in turn might have resulted in his failing to select manual steering as intended, along with his delay in noticing that the joystick control was having no effect on the rudder, and his lack of appreciation of the proximity of the land ahead.

Falling asleep while on watch is an obvious and frequent manifestation of fatigue among fishermen, caused by a disrupted sleeping pattern and lack of sleep. Other effects, however, on both short-term performance and long-term health, are just as commonplace and are equally undesirable. An accident at sea is just as likely to result from a watchkeeper being unable to maintain his concentration, as it is from him/her falling asleep, and both may be the consequence of fatigue. Ensuring wheelhouse watchkeepers are properly rested is one way of reducing the risk of fatigue, but other actions, including those stated in the MGN 84 (F), are also required. In particular, had a second person accompanied the skipper in the wheelhouse as the vessel approached confined waters, it is possible his presence might have helped to keep the skipper alert, or at least raised the alarm of the proximity of the danger ahead, in sufficient time for remedial action to be taken.

2.5.2 Distractions

Although it has not been possible to determine the exact timings of the events leading up to the grounding, it is feasible the skipper was distracted from the navigational situation by the sounding of the fish room's bilge alarm and his telephone call to a friend. As these distractions occurred shortly before, or at about the same time he selected manual steering, in conjunction with his fatigued state, they might have influenced his actions. While the distraction of the fish room's bilge alarm was unavoidable, indeed necessary, that of the telephone call was not.

2.5.3 Use of navigation aids

The skipper relied on radar and eye for the safe navigation of his vessel; he was not following any of the tracks available in the video plotter and, therefore, did not have a planned alteration of course. Also, without the aid of a large-scale paper chart, the skipper might not have had a full appreciation of the navigational hazards. Navigating in this way relies on the judgment and local knowledge of the watchkeeper, which may be appropriate in some circumstances. In this case, however, where the skipper was tired and had not visited the area for 2 years, it is considered to have been inappropriate.

From the port control position, the skipper could see ahead (**Figure 7**) but could not see either of the radar displays, which would have helped him to monitor the turn to port and measure the distance from the shore. The only means readily available to the skipper to check that *Resplendent* was turning, was by visually monitoring the vessel's head relative to the sea and shoreline. However, although the sensitivity of this method would have been reduced because the skipper was standing off the centreline and the vessel had a short deck forward of the wheelhouse, had the skipper been more alert, the vessel's failure to turn to port as intended, and the closing dangers ahead, should still have been quickly apparent.

SECTION 3 - CONCLUSIONS

3.1 FINDINGS

1. *Resplendent* grounded on Papil Ness in the approaches to the northern entrance to Bluemull Sound at about 0325 on 13 June 2001 while on passage to Cullivoe to land her catch. [1.3.1]
2. The vessel had been fishing off the Shetland Islands since 2 June. [1.3.1]
3. It was daylight and visibility was about 5 miles in drizzle. [1.5]
4. She was towed clear of Papil Ness by *fv Serene* at about 0430 on 14 June, and then on to Cullivoe. [1.3.2]
5. The skipper was alone in the wheelhouse when the vessel grounded.[1.3.1]
6. Navigation was conducted by radar and eye; no large-scale paper charts were held, and neither of the two video plotters was utilised. [1.7]
7. The skipper was experienced, owned a one-eighth share in the vessel, and had been involved in her design and construction.[1.4]
8. The skipper had experienced a disrupted sleeping pattern throughout the fishing trip, and had not slept for about 23 hours when the vessel grounded. [1.4]
9. The vessel could be steered from the wheelhouse by either automatic, manual (joystick) or emergency (hand-wheel) control.[1.6]
10. The skipper took action to change from automatic to manual steering before attempting to alter course to port towards the entrance to Bluemull Sound. [1.3.1]
11. The skipper moved the joystick at the port control position to apply about 5° of port rudder on two occasions, but did not monitor a rudder angle indicator.[1.3.1]
12. It took the skipper several minutes to realise the movement of the joystick was not having any effect on rudder movement. [1.3.1]
13. The vessel grounded almost immediately after the skipper became aware the joystick steering was ineffective.[1.3.1]

3.2 CAUSE

The skipper attempted to turn the vessel via joystick control of the rudder but, as manual steering had not been selected, the vessel maintained her heading towards the shoreline until she grounded.

3.3 CONTRIBUTORY CAUSES

1. The ineffectiveness of the joystick to control the rudder was caused by manual steering not being selected. [2.1]
2. Manual steering was not tested after the skipper had taken action to select it. [2.2, 2.3]
3. A rudder angle indicator was not used to check the position of the rudder when using the joystick control. [2.2, 2.3]
4. The skipper took at least 6 minutes to realise the vessel was not responding to the movements made via joystick steering, and was not alerted by the proximity of the visible dangers closing ahead. [2.3]
5. The skipper had been on board for 22 days, during which time he had experienced a disrupted sleeping pattern and had not slept for 23 hours when the grounding occurred. [2.4.1]
6. The skipper was alone in the wheelhouse. [2.4.1]
7. The skipper might have been distracted by his telephone conversation with a friend, and the fish room's bilge alarm sounding shortly before or at the time he was taking action to select manual steering. [2.4.2]
8. The skipper was navigating by eye, which was inappropriate given that he had not slept for 23 hours, had not visited the area for 2 years, and that no large-scale chart of the area was held on board. [2.4.3]
9. The skipper was unable to monitor either of the radar displays from the port control position. [2.4.3]

SECTION 4 - RECOMMENDATIONS

The owner, Riverview Investments, is recommended to:

1. Follow the guidance in MGN 84(F) and ensure that wheelhouse watches in its vessels are kept only by crew who are adequately rested and fit for duty.
2. Instruct all wheelhouse watchkeepers to follow the guidance in MGN 54 (M&F), particularly with regard to the testing of manual steering.
3. Encourage all wheelhouse watchkeepers to monitor the position of the rudder when manual steering is selected.
4. Discourage wheelhouse watchkeepers from using mobile telephones for private calls when on watch.
5. Ensure that at least two people are on watch in the wheelhouse, when in or approaching confined or busy waters.
6. Provide appropriate large-scale charts on board its vessels.
7. Encourage its skippers to use all available navigation aids, particularly in or approaching shoal waters.
8. Review, and where deemed necessary, adjust wheelhouse ergonomics to optimise watchkeeping and navigational efficiency.

**Marine Accident Investigation Branch
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