

**Collision between fishing vessels *SAPPHIRE STONE* and
KAREN resulting in the
loss of *KAREN*
11 miles south-east of Campbeltown
22 January 2014**

**Extract from The
United Kingdom
Merchant Shipping
(Accident Reporting and
Investigation) Regulations
2012 – Regulation 5:**

“The sole objective of the investigation of an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of an such investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame.”

NOTE

This report is not written with litigation in mind and, pursuant to Regulation 14(14) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012, shall be inadmissible in any judicial proceedings whose purpose, or one of whose purposes is to attribute or apportion liability or blame.

© Crown copyright, 2014

You may re-use this document/publication (not including departmental or agency logos) free of charge in any format or medium. You must re-use it accurately and not in a misleading context. The material must be acknowledged as Crown copyright and you must give the title of the source publication. Where we have identified any third party copyright material you will need to obtain permission from the copyright holders concerned.

All reports can be found on our website:

www.maib.gov.uk

For all enquiries:

Email: maib@dft.gsi.gov.uk

Tel: 023 8039 5500

Fax: 023 8023 2459

SUMMARY

At 1637 UTC¹ on 22 January 2014, the fishing vessels *Sapphire Stone* and *Karen* collided. At the time of the collision, *Sapphire Stone* was steering a north-westerly course towards Campbeltown to land its catch, while *Karen* was towing its nets on a west-north-westerly course.

Karen was struck on its port quarter and was severely damaged. Its hull was opened to the sea, which caused the aft crew accommodation and main engine room to flood rapidly, resulting in the vessel foundering within 3 minutes of the collision. *Sapphire Stone* suffered minor damage to its stem post.

Attempts by *Karen*'s skipper to send a DSC² distress alert were unsuccessful due to the speed with which the vessel foundered. However, *Karen*'s crew were quickly rescued by the crew of *Sapphire Stone*, and the coastguard was alerted by *Karen*'s EPIRB³, which activated after the vessel sank.

The MAIB investigation identified that neither skipper was keeping an effective visual lookout, and that radar contacts were not being systematically observed, or plotted, to ascertain whether a risk of collision existed. Additionally, *Sapphire Stone*'s skipper had become over-reliant on AIS⁴ information displayed on his chart plotter.

MGN⁵s 313 (F) and 324 (M+F) issued by the Maritime and Coastguard Agency (MCA) explain the need for maintaining a proper lookout, and warn of the danger of over-reliance on chart plotters and AIS target information.

Recommendations have been made to the skippers of both vessels to heed the contents of extant MCA guidance to the fishing industry.

¹ Universal Co-ordinated Time

² Digital Selective Calling

³ Emergency Position Indicating Radio Beacon

⁴ Automatic Identification System

⁵ Marine Guidance Note

FACTUAL INFORMATION

Vessels' backgrounds

Sapphire Stone (Figure 1) was a 20.58m⁶ twin-rigged stern trawler of wooden construction. It had been owned jointly by the skipper, mate and two other persons since 1999. The vessel fished for prawns during the day, normally landing its catch in the evening and remaining alongside overnight.



Figure 1: *Sapphire Stone*

Karen (Figure 2) was a 17.58m stern trawler of wooden construction, and had been owned by its skipper for 5½ years. The vessel also fished for prawns and followed a similar pattern of day fishing to *Sapphire Stone*.

⁶ metre



Figure 2: *Karen*

Environment

The weather conditions at the time of the collision were westerly winds of force 4 -5, slight sea conditions with good visibility. Weather prior to the collision had been squally at times with reduced visibility in rainfall. Sunset was at 1637.

Narrative

Between 1130 and 1200, *Sapphire Stone* and *Karen* both hauled, emptied and re-shot their nets. *Sapphire Stone* was approximately 5½ miles north-north-east of Ailsa Craig and initially started its tow in a south-westerly direction. *Karen* was about 1 mile north-east of Ailsa Craig and it commenced towing initially on a north-westerly heading.

At about 1430, *Sapphire Stone*'s skipper adjusted the vessel's course to west-north-west in order to make ground towards Campbeltown, where he intended to land the catch that evening. At about 1545, he decided to haul the nets and began to steer *Sapphire Stone* in a series of circles while the nets were recovered to prevent them from fouling. At around the same time he looked at his radar display and noticed the contacts of four other fishing vessels (**Figure 3**). He also adjusted the radar sea and rain clutter controls to reduce the effect of a heavy rain shower that was passing through. He cross-referenced the radar picture with that of the chart plotter and was able to identify three of the four radar contacts from the AIS information displayed on the chart plotter. He could not see any AIS information that correlated with the fourth radar contact.

By 1620, the nets had been recovered and the skipper had set a north-westerly course at about 8 knots to clear the fishing vessel *Ribhinn Donn II* to starboard which, according to its AIS vector, was also proceeding in a north-westerly direction. At about the same time, he checked the radar and observed the relative positions of the four radar contacts displayed (**Figure 4**). He cross-referenced these contacts with the chart plotter, and again noted that one of the contacts on his starboard bow at approximately 2 miles range appeared not to be transmitting AIS information. He assumed that this radar contact was another fishing vessel and would be heading in a similar direction to that of *Sapphire Stone* and *Ribhinn Donn II*.

Meanwhile, *Karen*'s skipper remained on watch and had set a west-north-westerly course at about 2½ knots. He continued to monitor the vessel's navigational progress using the chart plotters, which did not have an AIS input. He monitored the movement of other vessels in the area through visual observation and by occasionally checking the radar display. During the afternoon, the skipper was aware of a number of vessels either astern or abeam of *Karen*, all at distances in excess of 1 to 1½ miles.

At about 1620-1625, *Karen*'s skipper went down to the engine room to carry out a number of routine checks on the vessel's machinery. This took him about 5 minutes to complete, and was normal routine when preparing to haul the nets. He then returned to the wheelhouse and checked the radar display, observing no contacts in the immediate vicinity of *Karen*. However, he noticed that there was some radar clutter in the area around *Karen*. He then turned his attention to the chart plotter to monitor the vessel's progress between two underwater obstructions, and to plan where he would next haul the nets.

Meanwhile, as *Sapphire Stone* approached *Ribhinn Donn II*, the skipper's attention was drawn towards its deck lights and he became concerned that it was preparing to haul its nets. He positioned himself on the starboard side of the wheelhouse and continued to visually observe, and monitor, *Ribhinn Donn II* as *Sapphire Stone* overtook it. He then adjusted the vessel's course to starboard to make directly for Campbeltown. During the period of approach, passing, and clearing of *Ribhinn Donn II*, the skipper occasionally checked the chart plotter and radar displays.

At 1637, *Sapphire Stone*'s stem collided with *Karen*'s port quarter, approximately where the shelter met the vessel's gunwale.

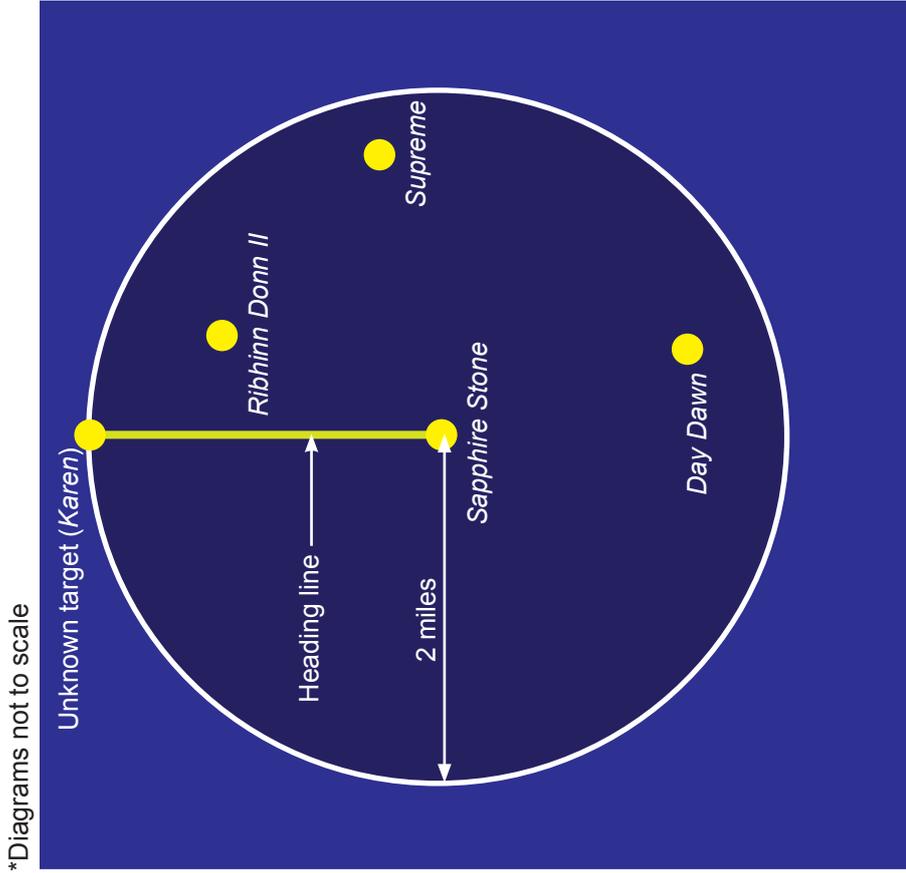


Figure 3: Diagram showing recalled approximate relative positions of contacts on *Sapphire Stone's* radar display at around 1545

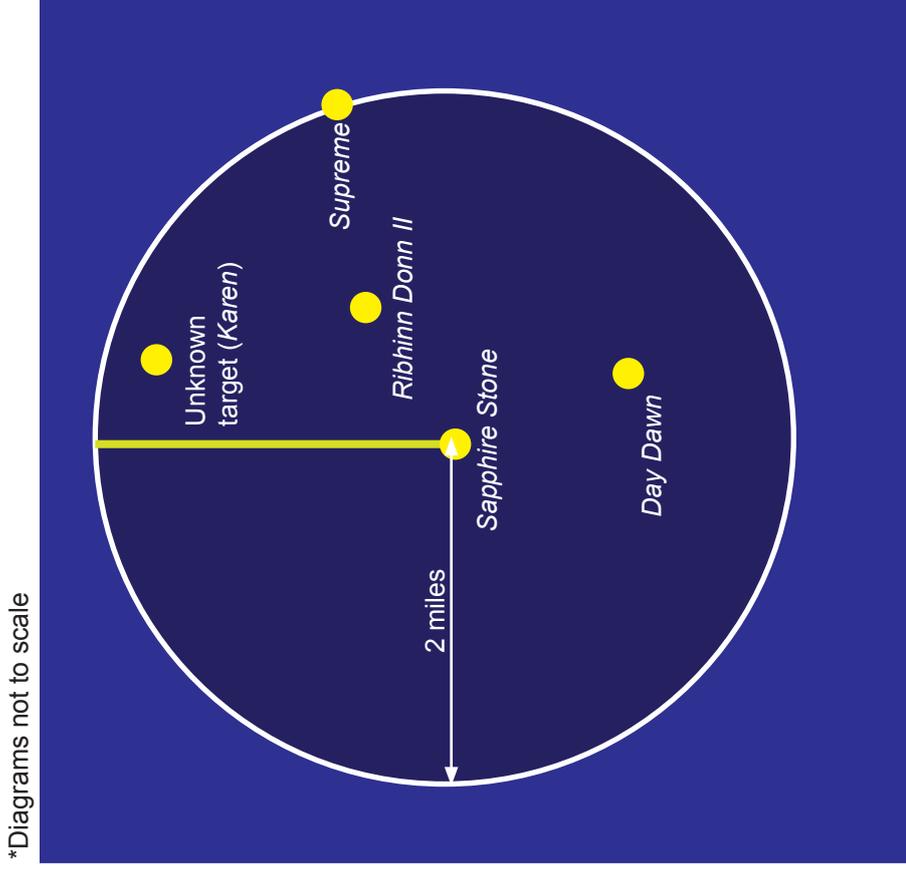


Figure 4: Diagram showing recalled approximate relative positions of contacts on *Sapphire Stone's* radar display at about 1620 (*Sapphire Stone* heading north-westerly)

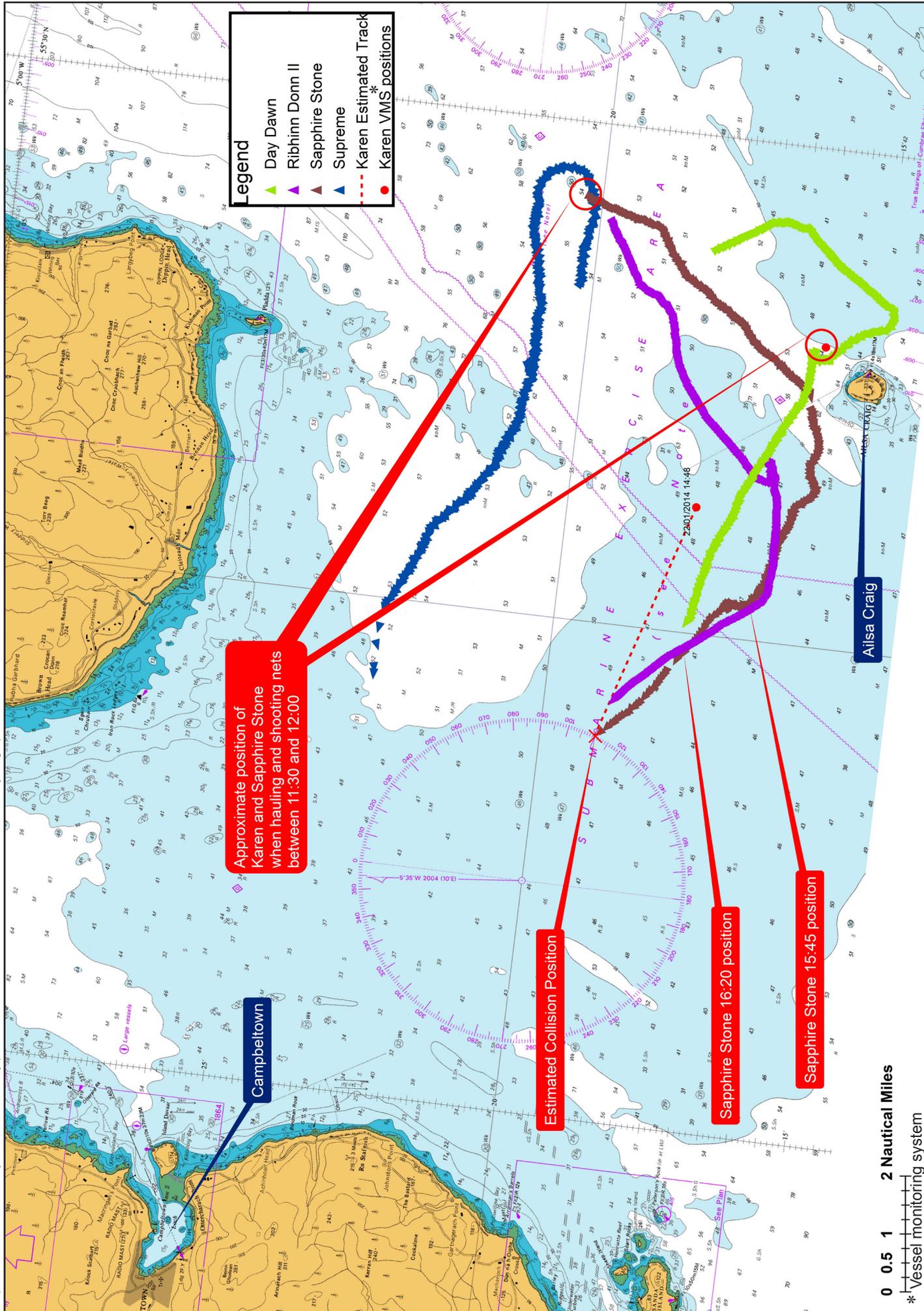


Figure 5: Chartlet showing the positions of Karen and other vessels prior to the collision (based on VMS and AIS information respectively)

Hearing and feeling the impact, *Sapphire Stone*'s skipper placed the vessel's engine astern, and attempted to call *Karen* using the VHF⁷ radio on channel 9 (a working frequency for fishing vessels in the area).

On *Karen*, the skipper crossed to the port side of the wheelhouse and saw the port bow of *Sapphire Stone* at about right angles to his own vessel's heading. One of the two deckhands went to check the port quarter, saw that the gunwale had been seriously damaged, and ran to the wheelhouse.

All three of the vessel's bilge alarms activated immediately following the collision, and the skipper began to carry out a damage assessment. When the deckhand arrived in the wheelhouse, the skipper instructed him to check the crew accommodation from the access hatch while he used the VHF radio on channel 9 to ask *Sapphire Stone* for assistance.

The deckhand returned to the wheelhouse and confirmed that the crew accommodation was flooded. The skipper, concerned by the increasing stern trim, told the two deckhands to prepare the liferaft while he attempted to send a DSC distress alert. This required him to press the activation button for a number of seconds (a feature to prevent false alerts); however, he became increasingly concerned about the vessel's stern trim and he left the wheelhouse before the alert was activated.

Arriving on deck, the skipper assisted the two deckhands in preparing the liferaft and throwing it over the side, instructing one of them to pull the painter to inflate it. Lifejackets were stowed on deck inside the shelter; however, they were now unreachable. By this time, the water had reached shelter deck level, and the skipper and deckhands then entered the sea. The liferaft inflated upside down. The skipper and the deckhands clung on to the inverted raft as *Karen* sank within 3 minutes of the collision.

After a short while, one of the deckhands managed to scramble on top of the raft; this countered the skipper's attempts to pull the raft upright due to the weight of the deckhand. The second deckhand was recovered from the water by *Sapphire Stone*, and shortly afterwards *Karen*'s skipper was successful in righting the liferaft. Both he and the deckhand were then able to enter it and were rescued a short while later by *Sapphire Stone*'s crew.

Once on board *Sapphire Stone*, *Karen*'s crew were taken to the engine room for warmth, where they were given hot drinks and a change of clothes.

During the rescue operation, which was completed within about 15 minutes, Belfast MRCC⁸ received an alert from *Karen*'s EPIRB via Falmouth Coastguard. Belfast MRCC contacted *Sapphire Stone* on VHF radio channel 16 and was informed that the rescue had been completed and that no immediate assistance was required.

Manning and watchkeeping

Sapphire Stone's skipper was 48 years old and held a UK Second Hand Special Certificate of Competency first issued in 1986. He had been skipper of *Sapphire Stone* since its purchase in 1999.

Karen's skipper was 55 years old and held a UK Class II Deck (Fishing) Certificate of Competency first issued in 1988. He had been skipper of *Karen* since its purchase in 2008.

Regulations and guidance on watchkeeping

MGN 313 (F) 'Keeping a Safe Navigational Watch on Fishing Vessels' explains the need for a proper lookout to be maintained at all times to comply with Rule 5 of the COLREGS⁹ and that this should include

⁷ Very High Frequency

⁸ Maritime Rescue Co-ordination Centre

⁹ International Regulations for Preventing Collisions at Sea

early detection and monitoring of other vessels in the area to comply with Rule 7. Furthermore it warns of the dangers of over-reliance on video plotters and specifically cites their direct contribution to recent collisions.

MGN 324 (M+F) 'Radio: Operational Guidance on the Use of VHF Radio and Automatic Identification Systems (AIS) at Sea' highlights that '*AIS information is not provided for in the COLREGS*' and therefore decisions should be based on visual and/or radar information. Additionally, it warns that one of the '*inherent limitations of AIS*' is that '*other ships, in particular leisure craft, fishing boats and warships... might not be fitted with AIS*'.

Rule 7 of the COLREGS, 'Risk of Collision' states '*Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of the risk of collision and radar plotting or equivalent systematic observation of detected objects*'. It also states '*Assumptions shall not be made on the basis of scanty information, especially scanty radar information*'.

Rule 17 requires a stand-on vessel to maintain its course and speed when a risk of collision with another vessel exists. However, Section (a) (ii) of the Rule permits the stand-on vessel to take avoiding action where it becomes apparent that a vessel required to keep out of its way is not taking appropriate action, and Section (b) of the Rule requires that the stand-on vessel takes avoiding action where it finds itself so close that a collision cannot be avoided by the actions of the give-way vessel alone.

Rule 18 places the responsibility on a power-driven vessel to keep clear of a vessel engaged in fishing.

The MCA's 'Fishermen's Safety Guide' includes guidance on watchkeeping, and draws attention to MGN 313 (F). In its recognition of the challenges of promulgating MGNs and other safety information to owners and skippers of fishing vessels, the MCA includes a copy of the 'Fishermen's Safety Guide' and other topical leaflets inside its 'Fishing Vessel Certificates Wallet,' which had previously been provided to the skippers of *Karen* and *Sapphire Stone*.

Similar accidents

The MAIB investigation into the collision between *Lady Hamilton of Helford* and *Blithe Spirit* (MAIB report 8/2008) highlighted a number of factors that impeded *Lady Hamilton of Helford* skipper's ability to detect *Blithe Spirit*. One of these was that he was focused on avoiding fishing marks ahead, and was monitoring the chart plotter to ensure his vessel was in the correct position to shoot its nets.

The MAIB report into the foundering of fishing vessel *Achieve* (MAIB report 3/2014) concluded that because the distress message transmitted by VHF radio was incomplete, rescue attempts were delayed by 45 minutes. As a result of its findings, the MAIB published a safety flyer to the fishing industry that emphasised the importance of using DSC to transmit distress alerts.

ANALYSIS

Sapphire Stone's skipper set a north-westerly course to clear *Ribhinn Donn II* to starboard. He became focused on *Ribhinn Donn II* as *Sapphire Stone* overtook it and then adjusted his vessel's course to starboard. *Karen* was towing in a west-north-westerly direction. *Sapphire Stone* and *Karen* were then on a collision course with each other. However, neither skipper detected the other vessel and therefore took no avoiding action before the vessels collided.

Sapphire Stone's skipper did not detect Karen

Three potential triggers could have alerted *Sapphire Stone's* skipper to *Karen's* presence and the impending risk of collision:

1. Visual observation of its relative bearing to ascertain if it was steady, indicating a risk of collision.
2. Systematic observation of its radar contact, or
3. AIS contact information displayed on *Sapphire Stone's* chart plotter.

At around 1545, *Sapphire Stone's* skipper checked his radar display and chart plotter and was content that no vessels were likely to pose a problem while he altered course as necessary to recover the nets (**Figure 3**).

When the skipper next checked the radar display, at about 1620, *Sapphire Stone* was steering a steady course (**Figure 4**). The skipper did not systematically observe *Karen* visually, or its radar contact, to establish whether it was on a steady relative bearing or to establish its course and speed. Instead, he assumed that *Karen* was towing in a similar direction to that of *Sapphire Stone* and *Ribhinn Donn II*.

Since fitting AIS to *Sapphire Stone*, and integrating it to the chart plotter, the skipper had increasingly relied on AIS information for detecting the presence of, and risk of collision posed by, other vessels. As *Karen* was not fitted with AIS, no information was displayed on the chart plotter. Therefore, the skipper was not alerted to its presence and was unable to ascertain its course, speed or risk of collision in the manner to which he had become accustomed. Fishing vessels of *Karen's* length were not required to be fitted with AIS until 31 May 2014.

Finally, as *Sapphire Stone* came up on *Ribhinn Donn II*, the skipper's attention was drawn towards its deck lights. This distraction caused the skipper to focus entirely on passing *Ribhinn Donn II* and resulted in loss of situational awareness. It stopped him from maintaining an effective all round lookout, and hence, he remained oblivious to the approaching threat posed by *Karen* prior to the collision.

Karen's skipper did not detect Sapphire Stone

In the period prior to carrying out his engine room checks, *Karen's* skipper occasionally checked the radar display. However his lack of systematic radar contact observation, and the slow closing speed of *Sapphire Stone* meant that when he left the wheelhouse he had not detected that a potential risk of collision existed.

By the time the skipper returned to the wheelhouse and checked the radar display, it is possible that *Sapphire Stone's* radar contact was in the clutter surrounding *Karen* and therefore difficult to distinguish.

Because of their distance from *Karen*, the skipper did not consider the other contacts on the radar display to be of concern. Therefore, he concentrated on monitoring *Karen's* navigational progress on the chart plotter. The MAIB report following the collision between *Lady Hamilton of Helford* and *Blithe Spirit* highlighted a similar safety issue, in that *Lady Hamilton of Helford's* skipper's attention was focused on the screen of the chart plotter, and this impeded his ability to detect the presence of *Blithe Spirit*.

From the skipper's position at the chart plotter, *Karen's* wheelhouse provided good visibility through a horizontal arc ahead from abaft the port beam to the starboard quarter. However, his view aft of the port beam was obstructed by the vessel's accommodation (**Figure 6**). As *Sapphire Stone* was approaching on *Karen's* port quarter, and this blind area was unchecked, the skipper remained unaware of its approach until the collision occurred.

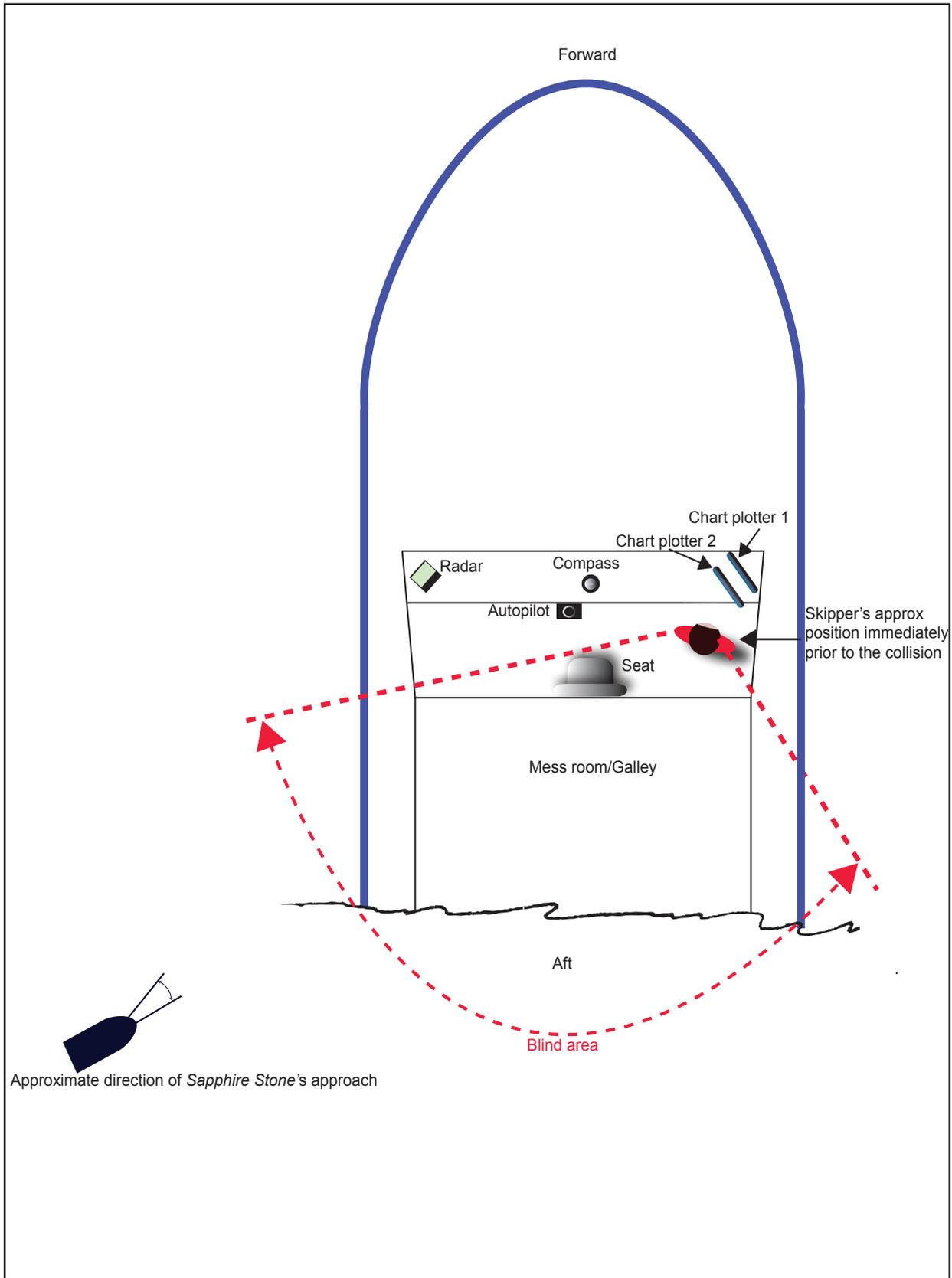


Figure 6: Diagram showing *Karen's* blind area from the skipper's position at the chart plotter and approximate direction of *Saphire Stone's* approach (not to scale)

Watchkeeping on both vessels

Sapphire Stone was not engaged in fishing and was underway and making way. Rule 18 of the COLREGS therefore applied, requiring *Sapphire Stone* to keep clear of *Karen*. *Karen*, as a stand-on vessel, was required to maintain its course and speed. However, *Karen* was permitted to take action if it became apparent that *Sapphire Stone* was not taking avoiding action, and was required to take avoiding action when it became apparent that action taken by *Sapphire Stone* alone would be insufficient to prevent collision in accordance with Rule 17 (b) of the COLREGS. Neither skipper was able to discharge these responsibilities because neither had detected the presence of the other vessel, or established that a risk of collision existed.

Neither skipper was maintaining a proper visual lookout or systematically observing radar contacts in their vicinity. Therefore, albeit for different reasons, they had assumed that the other vessel did not pose a navigational threat before sufficient observations had been made to properly assess the risk of collision, contrary to the requirements of Rule 7.

Both MGN 313 (F) and 324 (M+F) provide practical, useful guidance and explanation of the fundamental principles for maintaining an effective navigational watch on board fishing vessels. Had either skipper been aware of the contents of these documents, they might have managed the available radar information differently and placed greater value on the importance of maintaining a proper, all-round, visual lookout to increase situational awareness in accordance with Rule 5 of the COLREGS. Additionally, had *Sapphire Stone*'s skipper understood that some vessels in the vicinity might not be equipped with AIS he might have placed less reliance on the system for collision avoidance.

Raising the alarm

The successful rescue of *Karen*'s skipper and crew by those of *Sapphire Stone* is acknowledged. However, a similar situation under different circumstances could have led to far more serious consequences.

The stowage of lifejackets in a readily accessible location inside *Karen*'s shelter was a wise precaution. However, the speed with which the vessel sank following the collision caused the skipper and crew to enter the sea without them.

As *Karen*'s skipper had not felt able to remain in the wheelhouse to transmit a DSC alert, and the VHF radio communication between the two vessels had been on channel 9, which was not monitored by the coastguard, the coastguard had not been alerted to *Karen*'s peril. This caused an unnecessary delay in scrambling SAR¹⁰ assets until the alert was received from *Karen*'s EPIRB after it floated free when the vessel sank.

While acknowledging the challenges faced by *Sapphire Stone*'s crew in effecting the rescue, the importance of alerting the coastguard as quickly as possible cannot be understated. This was highlighted in the MAIB's safety flyer to the fishing industry following its investigation of the foundering of *Achieve*¹¹. Appropriate actions by *Sapphire Stone*'s skipper would have been to transmit a 'Mayday Relay' using DSC and VHF radio channel 16 as soon as practicable after the collision occurred.

No distress message was transmitted by either of the crews and *Karen* sank very quickly. However, *Karen*'s EPIRB did operate as intended and demonstrates the indisputable value of fitting this equipment.

¹⁰ Search and Rescue

¹¹ www.maib.gov.uk/cms_resources.cfm?file=/Achieve_Flyer.pdf

CONCLUSIONS

- *Sapphire Stone* was required to keep clear of *Karen*. *Karen* was required to take action when a collision could not be avoided by the actions of *Sapphire Stone* alone. However, neither skipper was aware of the other vessel's close proximity prior to the collision.
- Neither skipper was maintaining a proper visual lookout as required by Rule 5 of the COLREGS; or systematically observing or plotting radar contacts to ascertain whether a risk of collision existed as required by Rule 7.
- The MCA has provided guidance on watchkeeping best practice, and use of AIS in MGNs 313 (F) and 324 (M+F).
- Since fitting an AIS unit and integrating it with the vessel's chart plotter *Sapphire Stone*'s skipper had increasingly relied on AIS information for detecting and monitoring other vessels. *Karen* was not fitted (nor was required to be fitted) with AIS, which meant that *Sapphire Stone*'s skipper was neither alerted to *Karen*'s presence, nor able to assess whether risk of collision existed in the manner to which he had become accustomed.
- *Sapphire Stone*'s skipper was distracted by *Ribhinn Donn II*'s deck lights, which resulted in loss of situational awareness.
- From his position in the wheelhouse, *Karen*'s skipper's view aft from the port beam was obstructed by the vessel's accommodation.
- The absence of a DSC alert and/or distress message being transmitted on VHF radio channel 16 caused an unnecessary delay in the coastguard responding to the emergency which, under different circumstances, could have led to far more serious consequences.
- The successful activation, transmission, and receipt of the alert from *Karen*'s EPIRB demonstrates the indisputable value of fitting the equipment.

ACTION TAKEN

The skipper of *Sapphire Stone* has:

Repositioned a number of electronic navigation aids within *Sapphire Stone*'s wheelhouse to improve visibility.

RECOMMENDATIONS

The skippers of *Sapphire Stone* and *Karen* are recommended to:

2014/135 Take steps to improve the standard of watchkeeping on board their vessels, taking particular account of the guidance contained in:

MGN 313 (F) 'Keeping a Safe Navigation watch on Fishing Vessels'; and

MGN 324 (M+F) 'Radio: Operational Guidance on the Use of VHF Radio and Automatic Identification Systems (AIS) at Sea'.

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

SHIP PARTICULARS

Vessel's name	<i>Sapphire Stone</i>	<i>Karen</i>
Flag	United Kingdom	United Kingdom
Classification society	Not applicable	Not applicable
Fishing numbers	B221	CN88
Type	Stern trawler	Stern trawler
Registered owner	Privately owned	Privately owned
Manager(s)	Privately managed	Privately managed
Year of build	1968	1961
Construction	Wood	Wood
Length overall	20.58m	17.58m
Registered length	19.3m	15.99m
Gross tonnage	103	50
Minimum safe manning	Not applicable	Not applicable
Authorised cargo	Not applicable	Not applicable

VOYAGE PARTICULARS

Port of departure	Campbeltown	Campbeltown
Port of arrival	Campbeltown	Not applicable
Type of voyage	Other	Other
Cargo information	Fish	Fish
Manning	4	3

MARINE CASUALTY INFORMATION

Date and time	22 January 2014 at 1637	
Type of marine casualty or incident	Very Serious Marine Casualty	
Location of incident	11 miles south-east of Campbeltown	
Place on board	Ship	Ship
Injuries/fatalities	None	None
Damage/environmental impact	Minor damage to vessel stem	Vessel lost
Ship operation	In passage	Fishing - towing
Voyage segment	Mid-water	Mid-water
External & internal environment	Good with occasional squalls, westerly wind force 4-5, slight sea state, good visibility – moderate in rain, sunset 1637	
Persons on board	4	3