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“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.

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## Collision between the pair trawlers *Guiding Light* (H 90) and *Guiding Star* (H 360) resulting in the flooding and sinking of *Guiding Star* 33 nautical miles south-east of Fair Isle, Scotland on 6 October 2022

### SUMMARY

At about 1149<sup>1</sup> on 6 October 2022, the pair trawlers *Guiding Light* and *Guiding Star* collided during a routine fish transfer. *Guiding Star*'s stern was breached, and water flooded the aft compartment. The crew attempted to pump out the floodwater but were unsuccessful, and the vessel foundered about an hour later. The eight crew evacuated to a liferaft, with five recovered to *Guiding Light* and the remaining three winched to safety by a coastguard rescue helicopter.

The investigation found that the skipper on board *Guiding Light* had left the wheelhouse unattended while the two vessels were transferring the cod end and did not perceive the risk of leaving the wheelhouse while in close proximity to the partner vessel. The operation had not been risk assessed, and its success relied on the skippers of both vessels keeping the vessels apart. The investigation also established that the crew were unaware of the potential consequences of flooding and had not been fully prepared for a flooding emergency, such as having essential survival equipment in an accessible location.

The Maritime and Coastguard Agency has been recommended to review its flooding prevention guidance to ensure that the consequences of flooding on fishing vessels are highlighted appropriately. The manager of the vessels has been recommended to evaluate the impact of fishing operations on watchkeeping and make sure that its crews are prepared for flooding emergencies.

Image courtesy of [Fishing News](#)



*Guiding Light and Guiding Star*

<sup>1</sup> All times are British Summer Time – Greenwich Mean Time +1 hour (GMT+1).

## FACTUAL INFORMATION

### Narrative

On 6 October 2022, *Guiding Light* and *Guiding Star* arrived at fishing grounds south-east of Fair Isle, Scotland for their last haul of an intensive six-day fishing trip. At about 0550, the vessels started pair trawling<sup>2</sup> using *Guiding Star*'s net and then towed for about five hours. Once the net was full, *Guiding Star*'s crew hauled in the cod end and moved it around to the hopper on the vessel's starboard side. The skipper let the vessel drift and went on deck to oversee the fish being loaded on board. Once completed, the skipper remained on deck to help the crew remove the unwanted catch and ensure the vessel was battened down and ready for the voyage home.

Meanwhile, the cod end was passed across to *Guiding Light* to take the remaining catch. *Guiding Light*'s skipper manoeuvred close to *Guiding Star*'s port quarter and the crew connected their Gilson winch rope to the dog rope that led down to the cod end. The cod end was hoisted, and the first load of fish was taken on board. *Guiding Light*'s engineer then lowered the cod end back into the water using the Gilson winch. *Guiding Star*'s engineer simultaneously used the power block to lift the net and funnel the remaining fish into the cod end, ready for the second load to be taken on board. As the engineers worked in tandem, the tension came on and off the dog rope, and the vessels drifted closer together until they were 12m to 15m apart.

*Guiding Star*'s skipper returned to the wheelhouse just before the last fish were emptied into *Guiding Light*'s hopper. The two skippers had a short radio call to discuss the catch, after which *Guiding Star*'s skipper went to the back of the wheelhouse to remove their oilskins. Meanwhile, *Guiding Light*'s skipper left the wheelhouse and went on deck to view the catch. The two vessels continued to close together as they pitched and surged in the rough sea. Moments later, at 1149 and with no one at the navigational controls, *Guiding Light*'s stem hit and breached *Guiding Star*'s stern.

*Guiding Star*'s skipper felt a minor impact and proceeded to the aft compartment to assess the damage. The skipper opened the steering gear compartment and found water pouring in from behind the cabin panelling. The skipper immediately instructed the engineer to start the engine room bilge pump and open the aft compartment drain valve, which allowed water to flow into the engine room bilge. The water initially trickled in through the valve but the flow increased after about 10 minutes. The engineer prepared a second bilge pump but became concerned that the aft compartment water level was still rising. The engineer left the engine room and went up to the quarterdeck, hoping to remove the water with a portable salvage pump through the emergency escape hatch leading from the accommodation.

As the floodwater rose above the cabin floor, the skipper turned the vessel into the weather and, at 1204, transmitted a "Mayday" call. Five minutes later, His Majesty's Coastguard (HMCG) dispatched a rescue helicopter, which took off from Sumburgh Airport at 1226. The skipper then instructed the crew to gather the immersion suits and lifejackets and bring them to the upper deck. Two deckhands went into the cabins to collect the survival equipment, but one of them became trapped in their cabin because the floodwater had pressed the door closed. The other deckhand forced the door open and they both waded through the floodwater and exited the compartment via the emergency escape hatch, but without all the survival equipment. The engineer finished rigging the portable salvage pump shortly afterwards and looked into the aft compartment to find it almost full of water. Realising the pump would not cope with the water ingress, the engineer went to the upper deck and launched the liferaft. The skipper ordered the crew to abandon ship as the floodwater erupted through the emergency escape hatch.

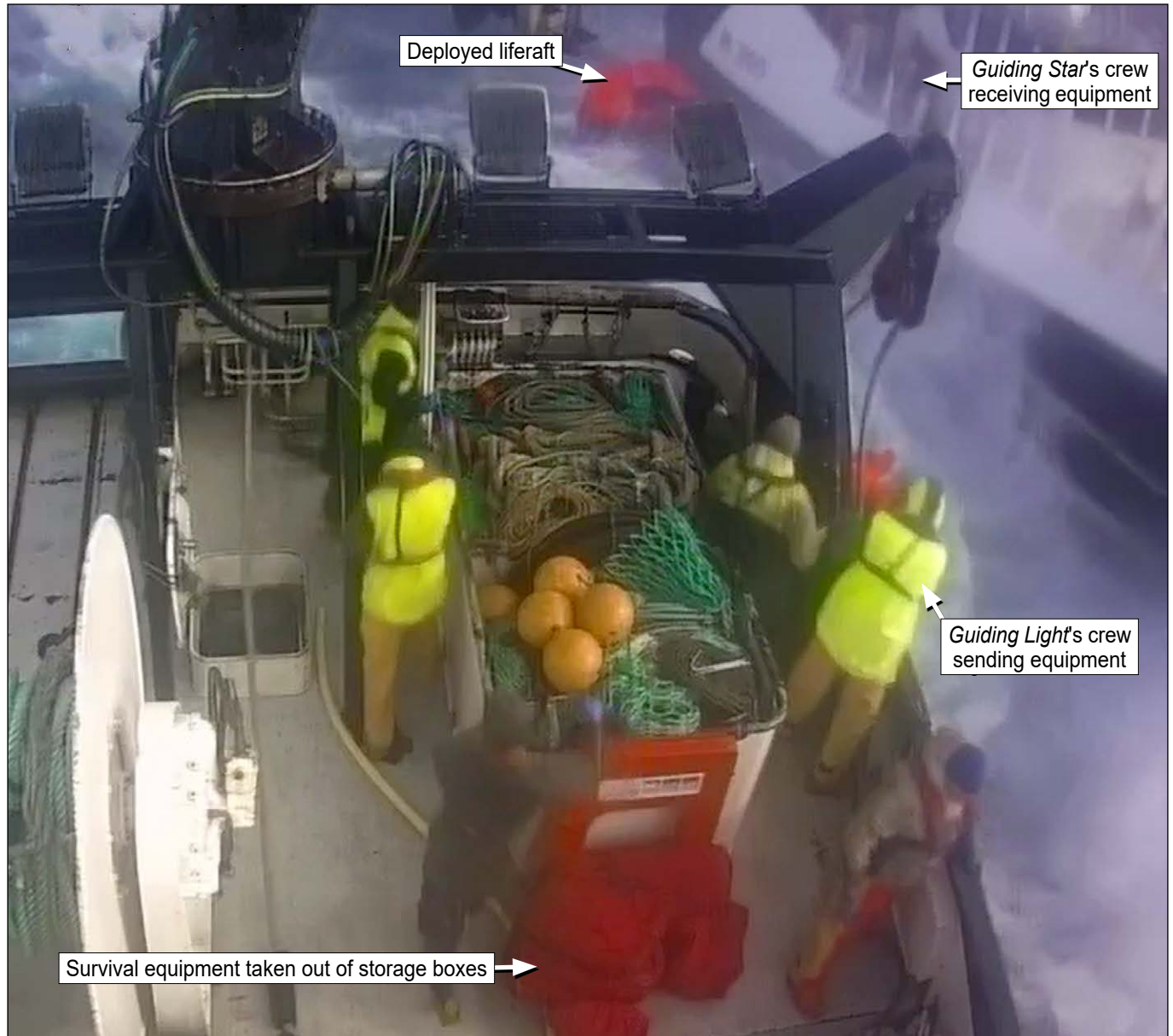
Anticipating a rescue would become necessary, *Guiding Light*'s crew began to prepare boarding ladders, lifelines, and the landing crane and power block. Meanwhile, *Guiding Star*'s skipper realised their crew could not return to the accommodation area. The skipper contacted their counterpart by radio to request lifejackets and immersion suits, which *Guiding Light*'s crew quickly grabbed from storage boxes on the

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<sup>2</sup> A fishing method whereby a large trawl is pulled by two boats working as a team, one at each end of the net. *Guiding Light* and *Guiding Star* were engaged in demersal pair trawling for whitefish.

upper deck. A heaving line was thrown across to *Guiding Star* and secured and the lifejackets were transferred at 1219, followed two minutes later by the immersion suits (**Figure 1**). *Guiding Star's* crew donned the gear as the quarterdeck became submerged. At 1234, with the vessel listed significantly to port, the crew jumped into the liferaft and cut the painter.

Image courtesy of *Guiding Light*



**Figure 1:** CCTV still, showing the transfer of survival equipment from *Guiding Light* to *Guiding Star*

*Guiding Light's* skipper steered the vessel close to the liferaft and the engineer used the power block to lower a rope to hoist two of *Guiding Star's* crew out of the liferaft and onto the quarterdeck. This was observed by the crew on board the rescue helicopter, which had just arrived on scene (**Figure 2**). While trying to recover a third crew member, a large wave capsized the liferaft and its six occupants were thrown into the water. As *Guiding Light* was manoeuvred towards the overturned liferaft, the crew in the water grabbed hold of its lifelines. The power block was repositioned to lift three more crew members out of the water, including the skipper. At about 1249, *Guiding Star* became fully submerged by the stern, with its bow in the air. The radar continued to turn as the vessel sank. The rescue efforts were handed over to the coastguard rescue helicopter and its crew winched the last three *Guiding Star* crew members to safety between 1259 and 1312, before transferring them to hospital<sup>3</sup>. The five rescued crew members on board *Guiding Light* were checked over before the vessel departed the scene for Peterhead, Scotland, arriving at 0155 the following morning.

<sup>3</sup> HMCGB helicopter winch rescue footage: <https://www.youtube.com/watch?v=o7YIRLN4yHY>



**Figure 2:** Power block recovery of the second crew member

## Vessels

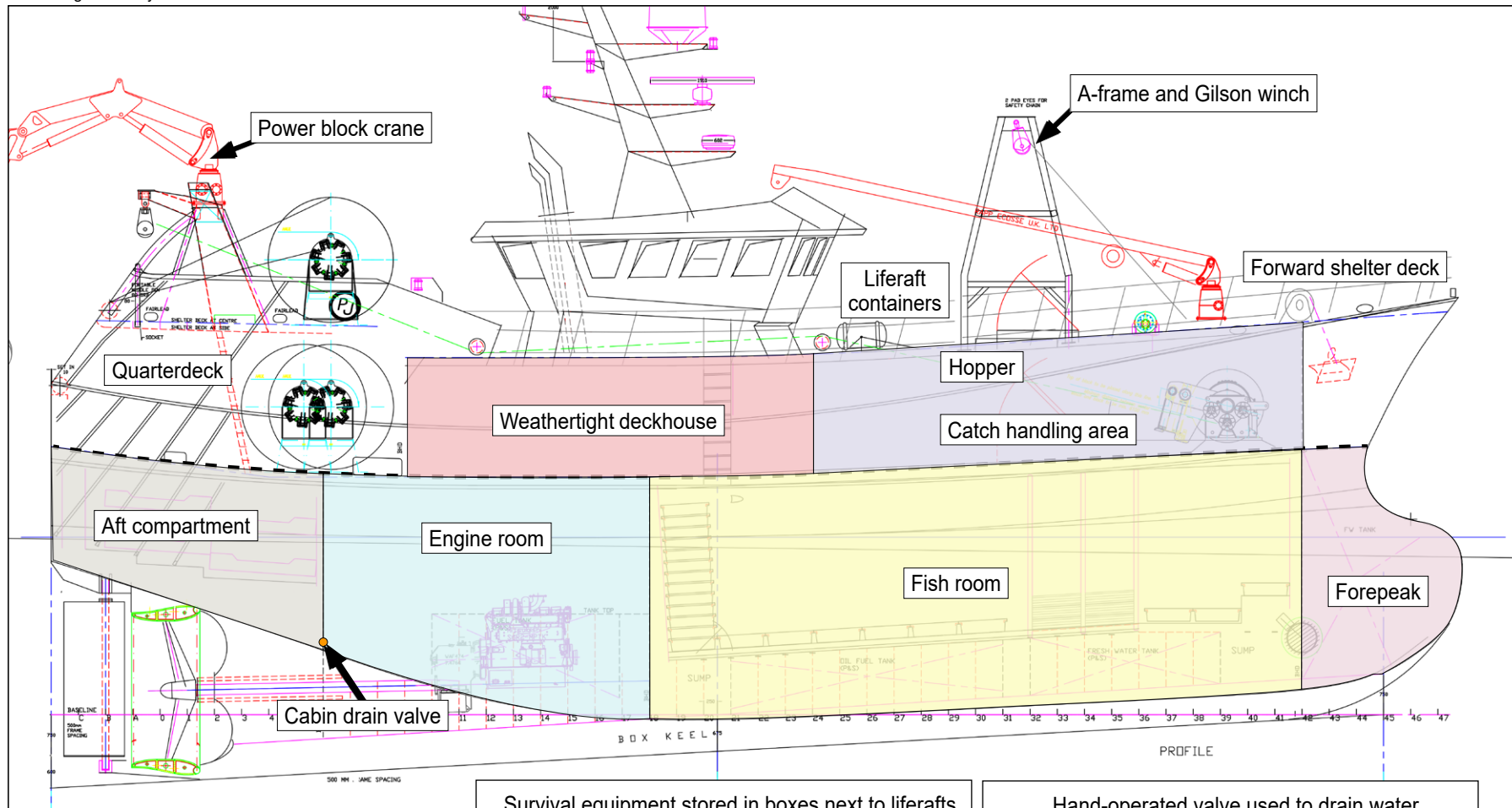
*Guiding Star* and *Guiding Light* were UK registered stern trawlers built in 2014 and 2017, respectively. The vessels were operated as a pair team by Peter & J. Johnstone Limited and would land their catch every six or seven days in Peterhead, Scotland. Both vessels had a conventional design. The main deck featured a weathertight deckhouse that separated the forward catch-handling area from the net-handling area on the quarterdeck. A fore and aft passageway in the deck casing allowed access to the vessels' working areas and engine room, located on the port side of *Guiding Star* and mirrored on *Guiding Light*. Below the main deck were four watertight compartments: forepeak, fish room, engine room, and aft compartment (**Figure 3**). The aft compartment comprised the steering gear and the crew accommodation, accessed via a staircase inside the deckhouse, and an emergency escape hatch that opened onto the quarterdeck.

Both vessels were fitted with machinery of similar specification, including a Gilson winch and A-frame to load fish into the hopper and a landing crane to unload the catch ashore on the forward shelter deck. A power block crane was used on the aft shelter deck for handling the fishing nets, which were usually stored on drums on the quarterdeck below (**Figure 3**).

The engine room had three bilge pumps that provided suction for the engine and fish rooms. In line with Sea Fish Industry Authority (Seafish) Construction Standards<sup>4</sup> at the time of the vessels' builds there was no bilge suction inside the aft compartment. Instead, any accumulated water within the compartment could be drained into the engine room bilge through a 40mm diameter pipe fitted with a hand-operated valve<sup>5</sup> (**Figure 3**).

<sup>4</sup> Until 21 July 2020, Seafish undertook the surveys for newbuild fishing vessels of less than 24m registered length following the standards developed by its marine survey department.

<sup>5</sup> Section 7.5 of the Seafish Construction Standards for New Fishing Vessels from 15m Length Overall to 24m Registered Length allowed peak compartments to be fitted with a drain cock instead of a bilge suction. On 1 March 2019, the interpretation of the standard changed and the aftermost compartment below the weather deck was no longer considered a peak compartment. This meant all such compartments required bilge pumping and bilge level alarm facilities. The 2019 interpretation was not applied retrospectively to existing vessels (see [MIN 631 \(M+F\)](#)).



**Figure 3:** Vessel layout, showing watertight divisions and weathertight deckhouse and (insets) survival equipment and cabin drain valve



## Crew

*Guiding Light* and *Guiding Star* operated with a crew of seven and eight, respectively. Each vessel had a skipper and engineer, while the remaining crew worked as deckhands. The crews of both vessels were close-knit teams, many of whom had worked on the vessels since they were built. All the crew held the relevant qualifications for their roles on board.

*Guiding Star's* skipper joined the pair team in July 2022, having previously commanded a similar pair trawler. *Guiding Light's* skipper joined the company as a mate in 2010 and took command of *Guiding Light* when it entered service in 2018. Both skippers held a UK Deck Officer Certificate of Competency (Fishing Vessel) Class 2<sup>6</sup>.

The skippers typically rotated with their relief after each landing, although *Guiding Light's* skipper had agreed to an extension and was completing their second consecutive trip at the time of the accident. The skipper had also become ill during their first week away.

## Pair trawling

The pair trawling operation involved one vessel shooting its net and passing one side of the trawl to the partner vessel. To do this, a lightweight heaving line attached to one side of the trawl was thrown from one vessel to the other. Once pulled across, the trawl was shackled onto the partner vessel's trawl warp. The two vessels moved apart while paying out the required amount of trawl warp to lower the gear to the seabed. The vessels towed in unison for up to five hours at 3 to 4 knots.

Both vessels heaved in their warps once the haul was finished and gradually closed together. One of the vessels then took both sides of the trawl to haul it on board, and handled it in the usual manner of a single net trawler. Because the Gilson winch was not powerful enough to lift an entire cod end full of fish, parts of the cod end were 'choked off' using beackets to create manageable 'lifts'.

## Fish transfers

Large hauls were split between the two vessels by passing the cod end between them. This was done up to four times daily to ensure the fish were processed quickly. The crew had developed their own way of transferring the cod end, which was undocumented.

Once the hauling vessel had filled its hopper, the cod end was transferred to the power block at the stern, while the receiving vessel would approach from the port quarter. The skipper on the receiving vessel would manoeuvre close enough to receive a heaving line that had been secured to the dog rope that led to the cod end. The dog rope was hauled on board and attached to the Gilson winch rope using a shackle (**Figure 4**). The vessels would then be manoeuvred a suitable distance apart and drift beam into the wind. Transferring the fish as quickly as possible was desirable in heavy weather to avoid leaving the cod end lying alongside.

The two engineers worked together to control the position of the cod end using the power block and Gilson winch on their respective vessels. The fish were funnelled into the end of the net using the power block. The cod end was hoisted to the receiving vessel's hopper via the Gilson winch (**Figure 4**). The power block was simultaneously used to maintain some slack in the net to avoid pulling the two vessels together, although it needed to be taut enough to stop the fish from spreading throughout the cod end. The remaining catch was loaded into the hopper, which usually required two or three lifts. The net was pulled and slackened between the two vessels during each lift, trapping the fish at the end of the net where it was 'choked' and lifted out of the water (**Figure 4**).

The skipper on the receiving vessel controlled the thruster and propulsion to maintain a safe distance between the two vessels during the transfer, adjusting for weather conditions and tension on the net

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<sup>6</sup> Required by skippers of UK registered fishing vessels of more than 16.5m in length. The holder was qualified to command a fishing vessel up to 30m in length in the Limited Area around the UK and to act as a deck officer on any UK registered fishing vessel inside or outside the Limited Area.



**Figure 4:** The relative position of each vessel during a fish transfer

that could pull the vessels together. The other skipper was not required to manoeuvre as this could increase the risk of the net fouling the propeller. Instead, they monitored the transfer and only intervened if necessary. The dog rope was disconnected when the cod end was empty, and the net was dropped into the water. The receiving vessel then moved astern to increase the sea room, while the other vessel retrieved the net.

### Safety management

*Guiding Light* and *Guiding Star* were certified under Merchant Shipping Notice (MSN) 1872 (F) Amendment 1, *The Code of Safe Working Practice for the Construction and Use of Fishing Vessels of 15m Length Overall to less than 24m Registered Length*. To assist with compliance *Guiding Light's* senior skipper had created a safety folder, which was based on the format on the Safety Folder website<sup>7</sup> and contained safety policies, crew records, the muster plan, risk assessments, and maintenance records. Similar records were maintained on *Guiding Star* but kept locally rather than electronically; these were lost when the vessel foundered.

The risk assessments in *Guiding Light's* safety folder identified several generic hazards to vessel safety, including watchkeeping; ineffective communications; the vessel being operated in conditions beyond its capabilities; and stability issues caused by water ingress. The mitigation measures included having well-trained watchkeepers in the wheelhouse, using hand signals and the talkback system, monitoring the weather forecast, and checking the bilge pumps daily. Fish transfers were not documented as a hazard.

### Watchkeeping and fishing operations

On keeping a safe watch, fishing vessels were expected to adhere to the instructions contained in Marine Guidance Note (MGN) 313 (F) *Keeping a Safe Navigational Watch on Fishing Vessels*, including that the person in charge of the watch:

- *should keep watch in the wheelhouse, which should never be left unmanned; and*
- *should not undertake any other duties that would interfere with the safe navigation of the vessel.*

<sup>7</sup> <https://www.safetyfolder.co.uk>

MGN 313 (F) also required that *any unusual demands on the navigational watch that may arise as a result of fishing operations* should be taken into account. MSN 1872 (F) also provided instructions for fishing operations, specifically the use of a reliable communication system between the wheelhouse and the working deck and crew training in the use of hand signals<sup>8</sup>.

## Stability and flooding

*Guiding Star* was issued with an approved stability information booklet in 2014, updated in 2020, demonstrating the vessel's compliance with the intact stability criteria of MSN 1872 (F). In line with the regulations, the booklet did not include damage stability information. The working instructions stated that *the levels of stability shown are entirely dependent upon water being excluded from within the main hull and weathertight structures*.

The MCA's Fishermen's Safety Guide contained a section on flooding that provided several recommendations<sup>9</sup>, including:

- *Be aware of the impact of water in a compartment or compartments on stability*
- *Have an action plan to deal with flooding; when to abandon ship should be considered*

The guide also referenced MGN 165 (F) *Fishing vessels: The Risk of Flooding*, published on 1 July 2001<sup>10</sup>. The guidance discussed bilge systems and recommended additional equipment to help reduce the risk of catastrophic flooding. It also stated that *flooding is preventable, but if not prevented, in most cases can be controlled. If discovered early, leaking pipes can be isolated and the flooding controlled by pumping out the affected space [sic]*.

Chapter 5 of the Marine Survey Instructions for the Guidance of Surveyors (MSIS) 27<sup>11</sup> stipulated that *Surveyors should ensure that owners, skippers and crew are aware of the number of fishing vessels lost through flooding and draw their attention to MGN165*. In May 2014, the MCA had also published a flooding guidance leaflet on what could be done to ensure a vessel was not at risk of flooding<sup>12</sup>.

MSN 1872 (F) required regular drills to be carried out, including flooding drills. The Code referred to MGN 570 Amendment No.1 (F): *Fishing Vessels: Emergency Drills* that provided drill guidance and checklists for a variety of emergency situations, including *Hull Damage/Taking Water/Sinking*. It offered generic guidance on developing an action plan for flooding and recommended it be practised and made vessel-specific during drills. The guidance also stated that *drills cannot replace the written risk assessment but are a vital part of the necessary control measures within that risk assessment*.

The vessels' risk assessments did not record actions to take in the event of hull damage or flooding, and the muster plan did not detail specific actions for the crew to take in such emergencies. The vessels' safety folder did include a generic six-point bulleted list for hull damage.

## Survival equipment

*Guiding Light* and *Guiding Star* were each equipped with ten abandon ship lifejackets and immersion suits. While immersion suits were not mandatory for fishing vessels certified under MSN 1872 (F), *Guiding Light's* senior skipper had equipped all the vessels they worked on with immersion suits since witnessing a collision in 1998 between the pair trawlers *Faithful III* and *Challenge II* and the ensuing rescue of *Faithful III's* crew<sup>13</sup>.

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<sup>8</sup> [MSN 1872 \(F\)](#), section 6.1.6.9

<sup>9</sup> [Fishermen's Safety Guide](#), section 6, hull damage/taking water/sinking guidance.

<sup>10</sup> <https://www.gov.uk/government/publications/mgn-165-fishing-vessels-the-risk-of-flooding>

<sup>11</sup> [MSIS 27](#), section 5.1.5, revision 09.21

<sup>12</sup> <https://www.gov.uk/government/publications/prevent-flooding-on-fishing-vessels-guidance-leaflet>

<sup>13</sup> Investigation into the collision between the fishing vessels *Faithful III* (PD 67) and *Challenge II* (UL 33) on 8 April 1998. MAIB report published in November 1998.



The lifejackets and immersion suits on board *Guiding Light* were stored in boxes next to the liferafts on the forward shelter deck (see **Figure 3**). The boxes had been custom-built following an MCA intermediate survey in October 2020, which recommended that the lifejackets be moved above the waterline. An MCA surveyor made a similar note during the intermediate survey of *Guiding Star* in December 2021, recommending *that life jackets are stowed above waterline at a designated space. It was found that the jackets were behind the clothes in crew cupboards in cabin and were not readily accessible* [sic]. This recommendation was not actioned, and the survival equipment remained in the same place at the time of the accident.

MSN 1872 (F) required lifejackets to be stowed *in a deckhouse or other dry and readily accessible position*. Published in 2017, MGN 570 (F) included a section on lifejacket storage highlighting the need for careful thought when deciding where to store the lifejackets and stated that, *Access to the lifejackets should be the main concern of the crew, they will be using emergency exits and access to inside the vessels should not be allowed. Can the crew therefore access the lifejackets easily?* [sic].

### Previous similar accidents

MAIB data indicated it was still common practice for fishing vessel wheelhouses to be left unattended. During the same month that *Guiding Star* and *Guiding Light* collided, the 21m prawn trawler *Ocean Maid* ran aground after the watchkeeper repeatedly left the wheelhouse. Two months earlier, the fishing vessels *Achieve* (FR100) and *Willing Lad* (N102) collided midwater and the evidence suggested that one of the wheelhouses had been left unattended.

In the ten years before this accident, 212 of the accidents reported to the MAIB involved flooding on board UK registered fishing vessels, of which 70 resulted in the loss of the vessel. These statistics included accidents where the flooding source was not identified.

On 3 March 2017, the 23m trawler *Ocean Way* foundered after uncontrolled flooding in the aft compartment (MAIB report 10/2018<sup>14</sup>). The investigation resulted in a recommendation to the MCA to update the *Fishermen's Safety Guide* with guidance on how to respond to flooding emergencies. The content and format of the action plan detailed in the revised guide was almost identical to that in MGN 570 (F): sound the alarm; find the flood; inform the coastguard; fight the flood; prepare lifesaving equipment; and consider abandonment.

## ANALYSIS

### The accident

The collision occurred during a fish transfer, an operation that required *Guiding Light* and *Guiding Star* to be physically connected and close to one another. As the cod end moved between the vessels, the effect of the veering and hauling on the dog rope drew them closer until they were less than a boat's length apart. When the dog rope was disconnected, the weight of the net combined with strong winds and rough seas caused the vessels to continue to be pulled together. Without any intervention by the skippers, the distance between the pair trawlers continued to close until they collided.

The damage sustained to the vessels indicated that *Guiding Light's* stem struck the lower part of *Guiding Star's* transom as the two vessels surged and heaved in the heavy swell, resulting in an incision to *Guiding Star's* stern that extended below the waterline. Floodwater immediately entered *Guiding Star's* hull and started filling the aft compartment. Despite the engineer's efforts to open the drain valve and start the engine room bilge pump, the water level continued to rise. Although the engine room bilge remained almost dry, the rate of flooding exceeded the capacity of the small drain pipe, which was neither designed to handle flooding nor required to do so under the regulations.

*Guiding Star* became trimmed by the stern as the water level rose above the cabin floor. Once the compartment was full, floodwater erupted through the emergency escape hatch that had been left open

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<sup>14</sup> <https://www.gov.uk/maib-reports/flooding-and-sinking-of-stern-trawler-ocean-way>

in readiness for pumping out using the portable salvage pump. The quarterdeck rollers then became fully submerged and floodwater spread across the deck and through the open deckhouse weathertight door on the port side, flooding the passageway and likely causing the vessel's list to port.

The floodwater continued through the deckhouse from the passageway and the internal staircase leading up from the accommodation. As the main deck flooded, the vessel became further trimmed by the stern, eventually becoming upright. The radar scanner, powered by batteries in the engine room, was observed still turning before the vessel submerged, suggesting that the engine room had not yet fully flooded. Closed-circuit television analysis and a review of coastguard records indicated that the vessel foundered within about one hour. In the absence of damage stability, the consequences arising from single-compartment flooding were probably sufficient to cause the loss.

### Unattended wheelhouse

MGN 313 (F) required watchkeepers to stay in the wheelhouse to maintain a safe navigational watch and instructed them to avoid distractions and consider the impact of fishing operations on their primary responsibilities. However, *Guiding Light's* skipper went on deck to view the catch rather than remain at the navigational controls during the fish transfer. This left the wheelhouse unattended when the two vessels were within metres of one another, which was contrary to the pair team's established practice.

Although it was not unusual for *Guiding Light's* wheelhouse to be left unattended for short periods, the skipper normally manoeuvred the vessel astern until well clear of the partner vessel recovering its net before proceeding on deck. On this occasion, the skipper knew that the fish hold would be laden with a quality catch and was excited to view it. Moreover, this catch completed several days of intensive fishing, and the prospect of heading home after two consecutive trips was overwhelming. A combination of illness, fatigue, and heightened stress levels meant the skipper did not have the cognitive resources to remain focused at a critical time, leading them to make a decision that took them away from the navigational controls and unable to intervene to prevent the collision.

Similarly, *Guiding Star's* wheelhouse had been left unattended for a significant time before the fish transfer. The skipper went on deck as usual to oversee the cod end being unloaded following the haul; however, this meant they were unaware of the proximity of *Guiding Light* when the fish transfer began. Leaving the wheelhouse unattended, even for short periods of time, is perilous and can have catastrophic consequences as evidenced by this accident, the grounding of *Ocean Maid* during the same month, and a collision between two fishing vessels two months earlier. MAIB data indicates that unattended wheelhouses are still prevalent in the fishing industry, and the risks of not keeping a safe watch might not be fully appreciated or controlled.

### Divided attention

The skippers' attention was often divided between the wheelhouse and overseeing the fishing operation. Each skipper became actively engaged in the deck activities and, in doing so, dropped their supervisory and watchkeeping responsibilities. The skippers likely felt compelled to be on deck rather than remain in the wheelhouse and delegate another crew member to take charge of the operation and relay information: *Guiding Light's* skipper could not wait until the two vessels were a safe distance apart before going on deck; similarly, *Guiding Star's* skipper remained on deck to oversee the removal of the unwanted catch rather than return to the wheelhouse, despite the activity probably not requiring his authority or presence on deck.

It is likely that this unsafe practice became routine over time and was no longer seen as hazardous by the crew. Despite the importance of the skipper's role in the wheelhouse during the operation, the crew were neither alarmed by the presence of the skippers on deck nor did they challenge it. This likely happened because, despite being experienced and skilled in their roles, the crew members on deck were highly focused on specific tasks and therefore lacked the situational awareness to question the skipper's actions. Empowering the crew and establishing a supervisory role on deck could have helped alleviate the pressure on the skipper, ensuring they had sufficient support and were not left solely responsible for operational and safety oversight.

## Communication

Ineffective communication had been documented as a hazard in the vessels' safety folders, and the mitigation was recorded as hand signals and the talkback system. These control measures did not reflect reality because they were not used between the wheelhouse and the working deck. On favourable days, communication was achieved by the skipper shouting instructions and making hand gestures through the open wheelhouse windows. However, in strong winds, as on the day of the accident, the windows were closed and the talkback was distorted by noise. Consequently, the wheelhouse and the working deck became silos and informal practices developed that only worked in certain conditions. This further incentivised the skippers to be drawn on deck from the wheelhouse.

Similarly, the skippers had no further communication after discussing the catch quality over the radio. While the risk assessment did not cover vessel-to-vessel communication, verbal repetition and positive reporting are highly effective in dynamic and safety-critical environments and would have assured *Guiding Star's* skipper that their *Guiding Light* counterpart was present in the wheelhouse and available to take action during the fish transfer.

## Risk assessment

Fish transfers had not been risk assessed on either vessel, so no formal control measures were in place. Although routine, fish transfers were highly hazardous and required the purposeful manoeuvring of two vessels close together in all weather conditions and in a planned, supervised, and controlled manner. However, the vessels' safety folders lacked specific guidance; instead, the risk assessments comprised several generic hazards and offered limited safeguards. They did not cover trawling activities involving the two vessels coming close together to transfer lines, nets or equipment, which was invariably a significant hazard.

In the absence of any specific guidance, the pair team had developed their own local, unwritten procedure for fish transfers. There was an assumption that the vessel receiving the fish would be kept at a safe distance from the other vessel until the operation was completed but, while this had been a reliable safeguard in the past, the barriers to prevent the accident were removed once both skippers left their respective wheelhouses.

## Awareness of vessel survivability

*Guiding Star* conformed to the regulatory stability requirements, but the criteria only applied to the vessel in an undamaged state, and no stability modelling was undertaken to evaluate what could happen if a compartment flooded. In the absence of damage stability, the vessel was potentially at risk of foundering during a flooding scenario. When floodwater entered *Guiding Star's* hull it would have caused a rapid reduction in buoyancy and loss of stability. This danger was noted in the working instructions of the vessel's stability information booklet; however, its vulnerability to loss was neither apparent nor communicated to the crew, so they did not consider or appreciate the consequences.

The crew believed they could control the flooding and save the vessel, but the bilge pumps were not designed to manage floodwater and there was insufficient time to use the portable salvage pump. Additionally, the deckhouse was constructed with weathertight doors that offered protection from the weather but were not designed to stop progressive flooding. It is unlikely that adding a dedicated bilge pump in the aft compartment, as required for new fishing vessels, would have changed the outcome.

The crews of *Guiding Light* and *Guiding Star* did not have an onboard procedure to follow in the event of flooding and lacked a dedicated vessel-specific action plan in line with the *Fishermen's Safety Guide*. The crews were unaware of the potential severity of the consequences of flooding and reacted to the situation as it developed. While the safety folder contained an emergency checklist for hull damage, this was not used and offered limited generic guidance. Regular flooding drills were not conducted, which meant the crew were not as prepared as they could have been to deal with this emergency.

The *Fishermen's Safety Guide* introduced the requirement for flood action plans following the loss of *Ocean Way*. The aim was to help crews develop vessel-specific actions in the event of significant flooding, meaning that skippers and crew must understand the effect of significant flooding on their vessels to help them make effective decisions about abandonment in an emergency.

## Flooding guidance

While the MCA guidance suggested having an action plan to deal with flooding and when to consider abandoning the ship, which the vessel did not have, crews were referred to MGN 165 (F) for flooding risks, which focused on bilge pumping as the primary control against water ingress. The assured belief that bilge pumping will control flooding and save a vessel brings inherent risks and is only viable if it can eject water faster than the rate of ingress. Although an important control measure against flooding, bilge pumping will often only buy more time before abandonment becomes necessary rather than save the vessel. This is supported by MAIB data, which indicates that about one in three reported fishing vessel accidents involving flooding result in the loss of the vessel.

The MAIB's data into the loss of many fishing vessels due to progressive flooding where bilge pumping had not controlled the flooding, suggests that MGN 165 (F) is outdated and no longer represents the survivability of most fishing vessels. It would also benefit from consolidation with the MCA's flooding guidance leaflet, which was referenced in surveyors' guidance but was not easily accessible to the end user. Further, while MGN 570 (F) also offered guidance on flooding, it duplicated much of what was contained in the *Fishermen's Safety Guide*, so further consolidation could be beneficial in this area.

## Survival equipment

Both vessels carried immersion suits because *Guiding Light's* senior skipper had witnessed their impact on survivability in cold waters, a decision which *Guiding Star's* crew believed saved their lives. The immersion suits helped prevent cold incapacitation<sup>15</sup> when the crew entered the liferaft, which had filled with water in the rough seas, and enabled them to carry out the necessary survival tasks. Further risk of drowning or heart failure due to cold water shock<sup>16</sup> would have been introduced when the liferaft capsized and the crew entered the water. While two of the crew were recovered quickly, three of them spent 12 to 25 minutes in the water before being winched to safety. When a person is without an immersion suit and is not rescued within about 5 minutes, it is highly likely that they will be either unable to help themselves or will become unconscious<sup>17</sup>. Within 2 to 15 minutes of entering the water, hands and feet lose useful movement, leading to the progressive incapacitation of arms and legs and impeding the ability to swim, or take survival action in the water such as keeping hold of the liferaft lifelines.

*Guiding Star's* crew could not access their immersion suits or lifejackets during the emergency because the survival equipment was stored in the crew cabins below the waterline, inside the flooded aft compartment. A deckhand became trapped in their cabin while attempting to retrieve their lifesaving equipment, which could have had potentially fatal consequences had another deckhand not been able to come to their aid. Allowing crew members into flooded compartments is inherently dangerous and, as highlighted in MGN 570 (F), fishermen should consider these risks and understand the most suitable place to store lifejackets for quick access.

Storing the lifejackets and immersion suits on the forward shelter deck might have been a safer option. The equipment would therefore be readily accessible to the crew when launching the liferaft for vessel abandonment, avoiding the need for anyone to enter a flooded deckhouse. The crew on *Guiding Light* had followed the MCA's advice and installed dedicated boxes on the forward shelter deck near the liferaft; however, the crew of *Guiding Star* did not implement any changes and the survival equipment

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<sup>15</sup> Cold incapacitation causes blood vessels to become constricted and results in the blood flow to the extremities being restricted, leading to a loss of useful movement in the hands and feet followed by incapacitation of arms and legs.

<sup>16</sup> Cold water shock is an immediate reaction to entering the water and is associated with a gasp reflex, hyperventilation and a rapid increase in heart rate and blood pressure as the body encounters the cold water. Panic can cause hyperventilation to continue after the initial physiological effects of cold water shock have subsided.

<sup>17</sup> [MGN 571 \(F\) Fishing vessels: Prevention of Man Overboard.](#)

remained inside crew cabins. It is unfortunate that the vessels' manager did not intervene to ensure survival equipment locations were aligned across its vessels. It is fortunate that *Guiding Star's* crew were able to abandon ship with survival equipment due to the quick transfer of replacement gear from *Guiding Light*. Proper consideration must be given to the location of the survival equipment for timely use in an emergency.

### **Abandon ship and rescue**

*Guiding Star's* crew successfully abandoned the vessel without any serious injuries despite the vessel foundering within about one hour of the collision. The crew worked together to evacuate to the liferaft in challenging conditions with immersion suits and lifejackets donned, and the skipper's composed response ensured that a coastguard rescue helicopter was on scene in time to winch the three stricken crew members to safety.

*Guiding Light's* crew acted quickly to alert their counterparts to the severity of the situation and the engineer's resourceful use of the power block to recover five crew members ensured a successful rescue effort. Although the crew had not completed any man overboard drills, they had conducted abandonment drills regularly and were familiar with their deck equipment, which proved to be essential during the rescue. The skipper's decisive actions on their return to the wheelhouse helped facilitate the transfer of survival equipment before abandonment and ensure the vessel was kept clear of the debris from the sinking vessel.

## CONCLUSIONS

- *Guiding Light* and *Guiding Star* collided during a routine fish transfer. *Guiding Star* suffered a catastrophic hull breach to its aft compartment and subsequently foundered because of uncontrolled and progressive flooding.
- The vessels collided because *Guiding Light's* skipper left the wheelhouse unattended. The skipper did not have the cognitive resources to remain focused on watchkeeping at a critical time, which led to a decision that took them away from the navigational controls and unable to intervene to prevent a collision.
- The skippers of *Guiding Light* and *Guiding Star* were compelled to leave the wheelhouse due to ineffective communications and the absence of a supervisor on deck to oversee fishing operations.
- The fish transfer operation had not been risk assessed and its success relied solely on the receiving vessel's skipper keeping clear of the vessel with its net in the water rather than formal control measures.
- *Guiding Star's* crew were unfamiliar with the vessel's survivability and had neither assessed the risks posed by flooding nor developed appropriate procedures.
- Industry guidance focused primarily on bilge pumping as a preventative measure to control flooding rather than highlighting the vulnerability of fishing vessels without damage stability.
- The commendable decision to equip both vessels with immersion suits significantly improved the crew's chances of survival and likely saved the lives of those who entered the water.
- The lifejackets and immersion suits on board *Guiding Star* were stored in crew cabins, rendering them inaccessible before abandonment because they were located inside a flooded compartment.

## ACTION TAKEN

### MAIB actions

The **MAIB** has issued a safety flyer to the fishing industry highlighting the lessons to be learned from this accident.

### Actions taken by other organisations

The **Maritime and Coastguard Agency** has expanded the stability module for the proposed new syllabuses for class 1 and class 2 Deck Officer Certificates of Competency (Fishing Vessels) to highlight the vulnerability of fishing vessels without damage stability. Topics include understanding the dangers of flooding; measures to take in the event of flooding emergencies; and considerations for abandonment.

**Peter & J. Johnstone Limited** has updated *Guiding Light's* risk assessment matrix to include fish transfers.

## RECOMMENDATIONS

The **Maritime and Coastguard Agency** is recommended to:

**2024/134** On the next review of MGN 165 (F), ensure that the consequences of flooding on fishing vessels are highlighted appropriately and update the guidance to surveyors to ensure that crew preparedness for a flooding emergency is checked and that the crew are aware of the actions to take.

**Peter & J. Johnstone Limited** is recommended to:

**2024/135** Ensure the best practice guidance in MGN 313 (F) is followed, in particular that the wheelhouse is not left unattended and the impact of fishing operations on the navigational watch is evaluated.

**2024/136** Ensure skippers are familiar with their vessel's survivability and understand and practise the actions to take in the event of flooding during regular flooding drills. This should include reviewing the survival equipment's location to ensure it is readily accessible in case of an emergency.

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

## VESSEL PARTICULARS

Vessel's name	<i>Guiding Light</i>	<i>Guiding Star</i>
Flag	UK	UK
Classification society	Not applicable	Not applicable
IMO number/fishing number	9840025/H 90	9699488/H 360
Type	Stern/pair trawler	Stern/pair trawler
Registered owner	Guiding Light Limited	Livingstone Fishing LLP
Manager(s)	Peter & J. Johnstone Limited	Peter & J. Johnstone Limited
Construction	Steel	Steel
Year of build	2017	2014
Length overall	25.98m	26.01m
Registered length	23.99m	23.94m
Gross tonnage	262	261
Minimum safe manning	7	Not recorded
Authorised cargo	Fish	Fish

## VOYAGE PARTICULARS

Port of departure	Peterhead, Scotland	Peterhead, Scotland
Port of arrival	Peterhead, Scotland	Peterhead, Scotland (intended)
Type of voyage	Fishing	Fishing
Cargo information	Whitefish	Whitefish
Manning	7	8

## MARINE CASUALTY INFORMATION

Date and time	6 October 2022 at about 1149	
Type of marine casualty or incident	Very Serious Marine Casualty	
Location of incident	33 nautical miles south-east of Fair Isle, Scotland	
Place on board	Hull	Hull
Injuries/fatalities	None	None
Damage/environmental impact	Impact damage to the bulbous bow, requiring internal and external welding repairs.	Total loss. Penetration through the stern. Fishing gear debris and possible fuel oil pollution.
Ship operation	Fish transfer	Fish transfer
Voyage segment	Mid-water	Mid-water
External & internal environment	Gale force winds; rough to very rough seas; moderate swell; good visibility with sea spray; sea surface temperature 12.4°C	
Persons on board	7	8