

Grounding and subsequent loss of the fishing vessel *Crystal Stream* (LH 147) on Barmore Island, Loch Fyne, Scotland on 6 June 2025

SUMMARY

At about 0006 on 6 June 2025, the UK registered prawn trawler *Crystal Stream* (LH 147) struck an underwater obstruction near Barmore Island, Loch Fyne, Scotland. Following the accident the skipper beached the vessel on the rocky shore on the south-west side of the island, where the crew abandoned to a liferaft.



Crystal Stream (LH 147)

There were no efforts made to salvage *Crystal Stream*, and it was eventually declared a constructive total loss. The vessel was later broken up and removed from the site.

The investigation found that:

- The skipper, who was alone in the wheelhouse at the time of the accident, had fallen asleep.
- It was highly likely the skipper was severely fatigued due to a sleep debt accumulated in the period before the accident.
- The risks associated with lone navigational watchkeeping had not been identified in on board risk assessments.
- The vessel's safety management was inadequate, failing to address key operational areas such as navigational practices, risk assessments, on board safety, crew induction and crew work and rest hours.
- A lack of regular drills led to unfamiliarity with emergency procedures.

A recommendation has been made to *Crystal Stream's* owner, M & I MacKinnon Ltd, to improve safety management on its vessels.

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.

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FACTUAL INFORMATION

Narrative

At about 0330 on 5 June 2025, the fishing vessel *Crystal Stream* departed Tarbert, Argyll and Bute, Scotland (**Figure 1**). On board were the skipper, a mate and two deckhands (deckhands 1 and 2). Deckhand 2 was feeling very unwell. The skipper was at the helm as the vessel headed south towards the fishing grounds in the Firth of Clyde to begin its fourth and final day of fishing that week. At 0350, the skipper handed over the watch to the mate and went below to sleep.

At 0500, the skipper was woken by *Crystal Stream's* reduction in engine revolutions as the vessel reached the fishing grounds. The skipper returned to the wheelhouse to prepare for the first 5-hour tow of the day. By 0530, the tow was underway and *Crystal Stream* was making about 2.5 knots (kts) over the ground. The tow was completed by 1030. The catch was recovered, and the next tow was started. The skipper remained on watch in the wheelhouse, with the windows open and drinking frequent cups of coffee.

At about 1145, a general cargo vessel passed ahead of *Crystal Stream*, prompting the skipper to take avoiding action before continuing the tow. By 1830, the fourth and final tow of the day was underway, and the skipper set a north-westerly course back towards Tarbert.

At about 1930, the skipper and crew ate a large dinner as the vessel approached Inchmarnock Water (**Figure 1**). At about 2200, *Crystal Stream* passed the island of Inchmarnock and deckhand 1 offered to take the watch, but the skipper declined. At 2315, the last tow was completed and the nets were recovered. While the crew sorted the catch on deck, the skipper remained on watch in the wheelhouse and increased the vessel's speed to about 7kts.

At some point between the completion of the last tow and *Crystal Stream's* arrival off the entrance to Tarbert Harbour, the skipper fell asleep at the helm. At about 2345, deckhand 1 saw that the vessel was passing Tarbert and assumed that the skipper had decided to complete an additional tow in Loch Fyne, to the north, before heading into port. Deckhand 1 continued sorting the catch.

Shortly after midnight on 6 June 2025, *Crystal Stream* struck an underwater obstruction. The impact threw deckhand 1 across the catch table and caused the rest of the crew to lose their footing. The impact woke the skipper.

Deckhand 1 and the mate went to the fish hold and discovered water rapidly flooding the space. The mate checked the engine room and found no signs of water ingress before going up to the wheelhouse. Deckhand 1 rigged the salvage pump carried on board to attempt to lower the water level in the fish hold.

At about 0009, the skipper reported the vessel's impact to His Majesty's Coastguard on very high frequency (VHF) radio. The skipper then deliberately grounded *Crystal Stream* on rocks on the south-west shore of Barmore Island. As the vessel developed a port list, the crew donned their lifejackets. Deckhand 1 stopped the salvage pump and closed the fish hold hatch.

After a protracted launch of the liferaft that required it to be righted after inflating upside down, deckhand 2, who was physically unable to evacuate the boat unassisted, was helped into the liferaft before the rest of the crew boarded. Once on board the liferaft, the crew, who were unfamiliar with the equipment, were unable to locate the knife to enable them to cut the painter. The skipper went back on board *Crystal Stream* and untied the painter to release the liferaft. The crew were then able to move the liferaft to shore and, at 0049, they safely evacuated onto the island.

At 0116, the Tighnabruaich Royal National Lifeboat Institution inshore lifeboat arrived on scene and recovered *Crystal Stream's* crew and liferaft. Later that day, *Crystal Stream* was observed lying on its port side, partially submerged among the rocks (**Figure 2**). The vessel was subsequently declared a constructive total loss.

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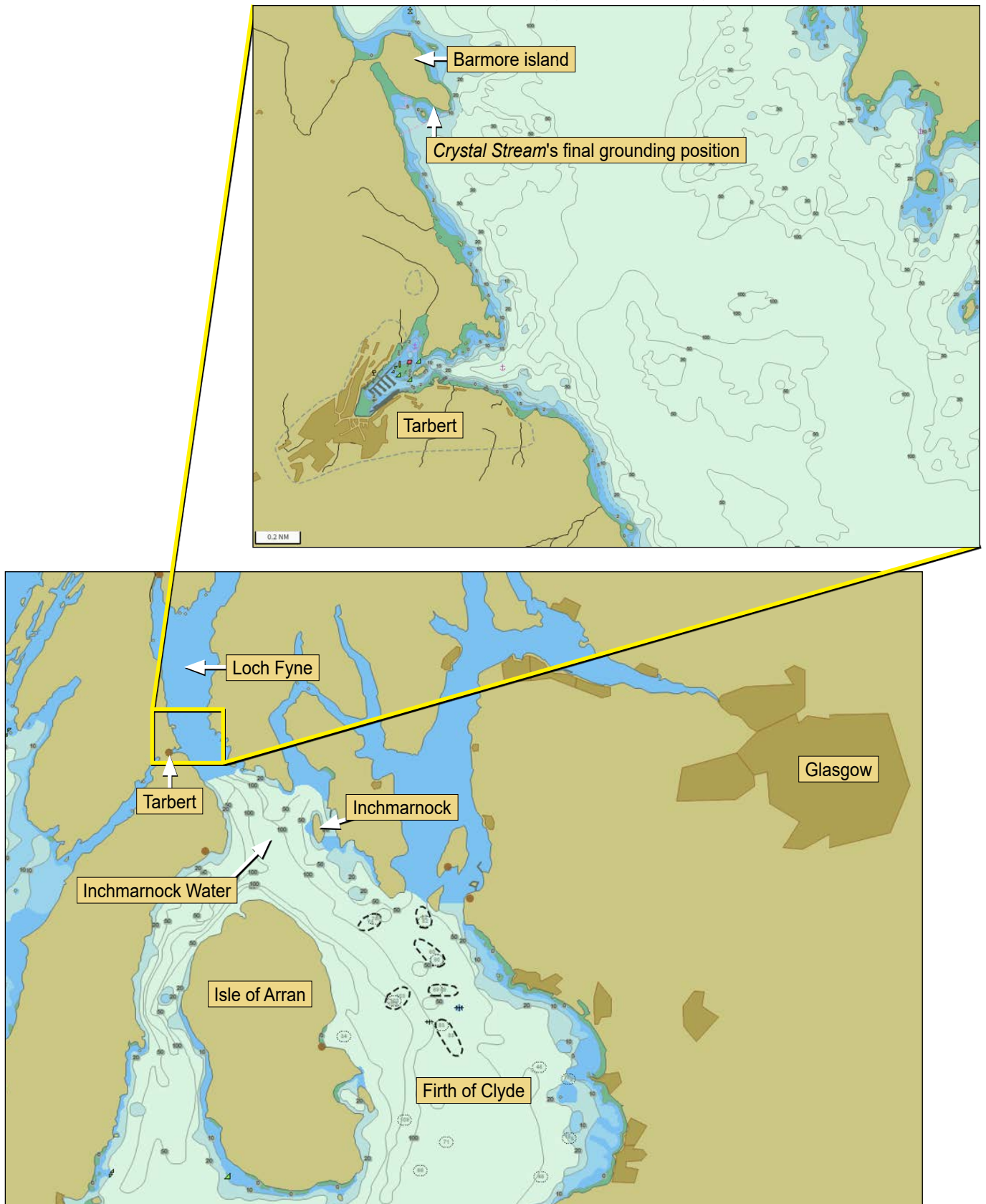


Figure 1: Accident location and (inset) *Crystal Stream's* fishing grounds



Figure 2: *Crystal Stream* lying on its port side, partially submerged

Environmental conditions

Crystal Stream grounded on a falling tide. At the time of the accident the height of tide at Tarbert was 1.62m above chart datum. Low water was expected at 0200 with a predicted height of 0.97m. There were light winds and clear skies.

Crystal Stream

Crystal Stream was a 16.43m wooden fishing trawler built in 1983. The owners at the time of the accident, M & I MacKinnon Ltd, bought the vessel in 2023. The vessel operated out of Tarbert, fishing for prawns in Loch Fyne and the Firth of Clyde and landing its catch to the owners' transport business.

Crystal Stream's general arrangement included a forepeak tank, fish hold, engine room, crew cabin and wheelhouse. The wheelhouse was equipped with a chart plotter that provided basic navigation functions and a watch alarm, intended to sound after a set period of time to ensure that the watchkeeper was alert. There was no interface to activate the watch alarm when the autopilot was in use and the watch alarm was not operating at the time of the accident.

Survey and Inspection

On 12 September 2023, a Maritime and Coastguard Agency (MCA) surveyor inspected *Crystal Stream* following the vessel's change of ownership. The inspection report identified a need to review and update the safety folder and risk assessments for the vessel. It also

requested evidence that the crew had undertaken the required safety training and held the appropriate qualifications and medical fitness certificates. Additionally, the inspection report noted the need for new crew induction records and hours of rest records to be maintained.

The owners and skipper emailed the MCA with some evidence of the closure of the deficiencies, but did not provide details of the crew's medical certification. On 25 September 2023, *Crystal Stream* was issued with a UK Fishing Vessel Certificate (UKFVC).

Crystal Stream's last out of water survey was undertaken on 10 May 2024. The hull condition was noted as being satisfactory. A subsequent renewal survey on 14 May 2024 identified seven deficiencies, including a lack of crew medical certification for two of the crew on board. No confirmation that the crew held valid medical certificates was documented to close out the deficiency raised. On 21 June 2024, a new UKFVC was issued that was valid until 25 June 2029.

The crew

Crystal Stream's skipper and crew had completed Seafish 1-day basic courses in sea survival, firefighting, first aid and safety awareness. One of the deckhands had also completed a 1-day basic health and safety course. The skipper held an inshore fishing vessel certificate issued in 1998.

The skipper was content with the crew's ability to stand a navigational watch, but preferred to be at the helm when the vessel was fishing or during arrival into and departure from port.

At the time of the accident there was no evidence that the crew held valid ENG1¹ or ML5² medical fitness certificates³. After the accident, deckhand 2 was hospitalised due to their pre-existing illness.

Working routine

The vessel's fishing grounds were located in Loch Fyne and the Firth of Clyde. It was reported that fishing had previously been productive but had deteriorated during the two days before the accident. *Crystal Stream's* established routine was to fish from Monday to Friday, departing from Tarbert in the early hours of the morning and returning either each night or each alternate night dependent on the catch. Weekends were intended to be rest days, but the skipper and crew sometimes completed maintenance during this period.

Before *Crystal Stream's* early morning departure from Tarbert on 5 June 2025, the crew had completed three days of prawn fishing on board the vessel. The skipper was feeling tired. **Figure 3** details the skipper's hours of work and rest for the six days leading up to the accident. The poor catch and operational difficulties on board placed a degree of stress on the skipper.

¹ The standard medical fitness certificate for UK seafarers on seagoing vessels.

² A domestic medical fitness certificate for seafarers.

³ The crew on *Crystal Stream* were required to hold either an ENG1 or an ML5 medical fitness certificate.

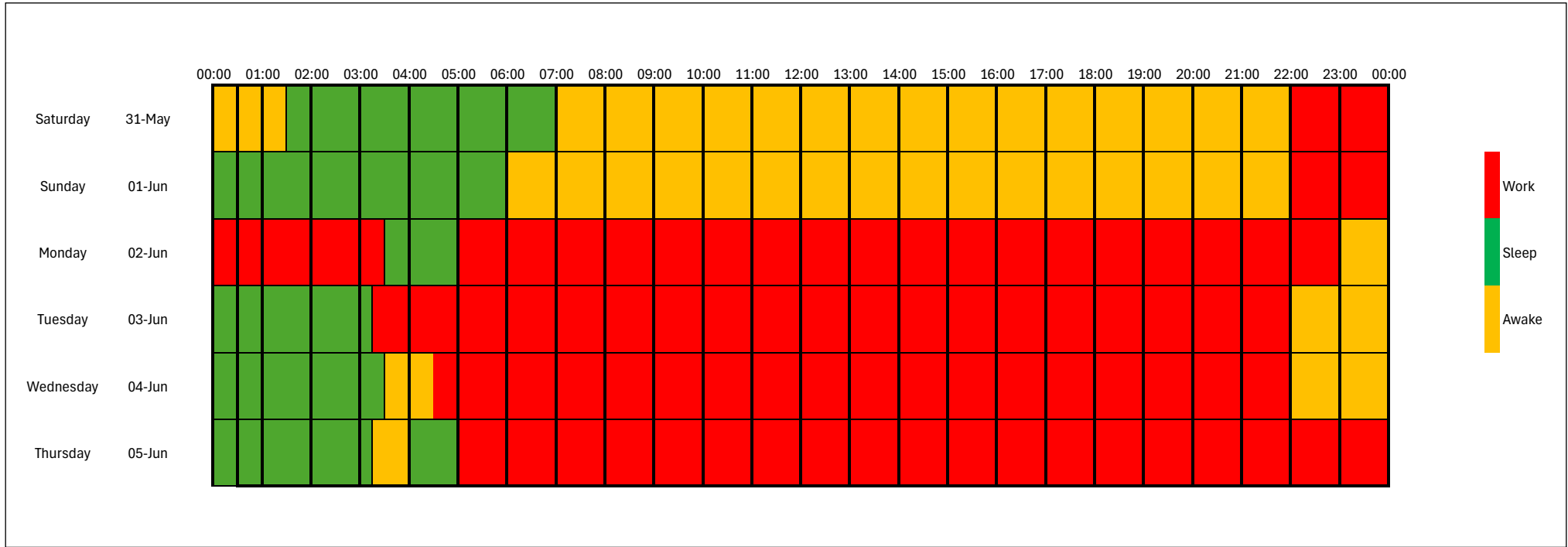


Figure 3: Skipper's hours of work and rest

Watchkeeping practices

Crystal Stream's skipper generally did not use the electronic plotter when conducting the navigational watch. The skipper permitted the crew to navigate during transit, but not during fishing operations or when arriving at or departing from Tarbert. The skipper was frequently alone in the wheelhouse while the deckhands attended to other duties or rested. The skipper needed to go to the engine room on multiple occasions while on watch to engage a clutch for the hydraulic system. This was an arduous task.

The autopilot fitted on board *Crystal Stream* was configured to follow a magnetic compass heading set by the user. It did not interface with the vessel's plotter to allow for the automatic following of a preset track. The skipper had engaged the autopilot to steer *Crystal Stream* back towards Tarbert on the evening of the accident.

Safety management

The owners of *Crystal Stream* entrusted the vessel's day-to-day safety management to the skipper, who maintained a safety folder both in paper form on board the vessel and online via an external service provider. The online safety folder contained a single risk assessment concerned with boarding and disembarking the vessel. At the last survey by an MCA surveyor, a single risk assessment was recorded, related to man overboard procedures. This document had last been reviewed on 30 March 2022. There was no documented safety management system (SMS) in place on board.

There were no induction or emergency drills participation procedures for crew joining *Crystal Stream*. The crew were unfamiliar with the liferaft's equipment. Additionally, no reference checklists were available to help the crew respond to an emergency. There was no evidence of any system to manage the crew's hours of rest on board *Crystal Stream*.

REGULATION AND GUIDANCE

Merchant Shipping Notice (MSN) 1872 (F) Amendment 1⁴ required risk assessments to be completed, and detailed the need for emergency procedures, drills, and maintaining relevant records of such activities. The drills were required to ensure that:

the crew thoroughly understand and are exercised in the duties which they have to perform with respect to the handling and operation of all life-saving, fire fighting, flooding control and survival equipment.

The medical fitness standards for the crews of UK registered fishing vessels were set out in MSN 1883 (F) Amendment 5⁵. This notice required fishermen working on fishing vessels of less than 24m in length, or one at sea for less than 72 hours, to hold either an ENG1 or an ML5 medical fitness certificate.

On the requirements for hours of crew rest, MSN 1884 (F) Amendment 1⁶ outlined the application of the Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 and provided guidance. Fishing vessel crews were entitled to a minimum of 10 hours of rest in any 24-hour period and 77 hours of rest in any 7-day period. The regulations allowed for authorised exceptions if a compensatory rest equal to the shortfall was taken within a set period. The regulations required records of the hours of work and rest to be maintained.

⁴ 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.

⁵ MSN 1883 (F) Amendment 5 – Work in Fishing Convention (No. 188) Medical Examination and Certification for Fishers.

⁶ MSN 1884 (F) Amendment 1 – International Labour Organization Work In Fishing Convention (No. 188): Working Time – Application of the Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 as amended.

Marine Guidance Note (MGN) 137 (M+F)⁷ provided guidance on the legal requirements for keeping a proper lookout. The MGN strongly advised vessels *not to operate with the officer of the navigational watch acting as the sole look-out during periods of darkness*. It also highlighted that a failure to maintain a proper lookout may *endanger the ship or persons*.

Further guidance on fitness for duty, lookout and the use of navigational equipment was provided in MGN 313 (F)⁸, which strongly recommended that *any automatic pilot fitted should incorporate a watch alarm*. On remaining alert during watchkeeping, MGN 313 (F) advised *moving around frequently, and ensuring good ventilation*.

In November 2018, the MCA published MGN 596 (F)⁹ to provide guidance on the newly developed Fishing Safety Management Code and how it might be implemented. The MGN included an aide-memoire to assist fishing vessel operators with the development of an on board safety management system.

The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 placed a general duty on an employer to *ensure the health and safety of workers and other persons so far as is reasonably practicable*. This requirement was supported by the MCA's Fishermen's Safety Guide, which provided guidance on safe working practices and emergency procedures for fishing vessel crews. On managing safety, the Fishermen's Safety Guide included advice for skippers on how to establish a safety management system aligned with the contents of MGN 596 (F).

Previous accidents

On 7 September 2011, the scallop dredger *Golden Promise* grounded while on passage to its intended fishing grounds. The skipper was the lone watchkeeper and fell asleep, missing a course alteration that led to the grounding. The MAIB investigation (MAIB report 3/2012¹⁰) concluded that the skipper was probably fatigued by their working pattern, exacerbated by prolonged wakefulness in the period immediately before the accident.

On 16 November 2023, the fishing vessel *Sustain* grounded after the skipper fell asleep while on watch. The MAIB investigation (MAIB report 9/2025¹¹) found that the normal fishing routines led to the build-up of a significant sleep debt, which made the skipper less resilient to extended periods of wakefulness. The skipper was noncompliant with hours of work and rest regulations at the time of the accident.

On 22 May 2024, two deckhands entered the water from the potter *Weston Bay* off the UK's east coast resulting in one fatality. The MAIB investigation (MAIB report 9/2026¹²) found that the crew were unfamiliar with the vessel's equipment and its limitations, leaving them unprepared for the emergency they faced.

⁷ MGN 137 (M+F) – Look-out During Periods of Darkness and Restricted Visibility.

⁸ MGN 313 (F) – Keeping a Safe Navigational Watch on Fishing Vessels.

⁹ MGN 596 (F) – Fishing Safety Management Code: Helping to Improve the Management of Safety on Fishing Vessels.

¹⁰ [MAIB report 3/2012: Golden Promise](#)

¹¹ [MAIB report 9/2025: Sustain](#)

¹² [MAIB report 9/2026: Weston Bay](#)

ANALYSIS

The accident

Crystal Stream struck an underwater obstruction while on passage. The skipper had fallen asleep while acting as the lone watchkeeper in the wheelhouse.

After an initial attempt was made to pump out the water entering *Crystal Stream*, the skipper deliberately grounded the vessel on Barmore Island and the crew abandoned to a liferaft. Once aground, the damage to *Crystal Stream* caused its fish hold to flood. As the tide fell further, the vessel rolled onto its port side and was partially submerged.

Fatigue

The skipper of *Crystal Stream* was managing their own rest periods at the time of the accident. However, their rest schedule did not meet the minimum requirements set out in MSN 1884 (F) Amendment 1 to reduce the risk of fatigue.

In the 24 hours before the grounding the skipper had a little over 4 hours rest, divided between two separate periods. In the six days leading up to the accident, the skipper's rest totalled just over 24 hours (**Figure 3**). The skipper's rest fell far short of that required by the legislation. Analysis of the skipper's sleep patterns indicated a significant sleep debt had accumulated in the week leading up to the accident, making it highly likely they were severely fatigued.

The MCA's guidance highlighted that insufficient rest could lead to sleep debt, and that this increased the likelihood of unintentional sleep. The opportunity for the skipper to take additional rest and reduce their sleep debt was missed when they declined a deckhand's offer to take the watch on the evening of the accident.

Environmental factors such as the warm wheelhouse and reduced visual stimuli due to the darkness probably contributed to the feeling of drowsiness. The skipper was feeling tired throughout the day so drank coffee and, in line with MGN 313 (F) guidance, kept the wheelhouse windows open and moved around. However, this was insufficient to counter the effects of the accumulated fatigue.

Similar to the accidents on board *Sustain* and *Golden Promise* the risks associated with the effects of fatigue were unrecognised by the person responsible for applying the requirements intended to mitigate them. Operational needs were prioritised over rest requirements, resulting in a working pattern that promoted fatigue and placed the vessel and crew at risk.

Watchkeeping practices

Crystal Stream was being operated by a lone watchkeeper and without any formal assessment of the risks identified in MGN 137 (M+F). The crew would therefore be placed at risk should the lone watchkeeper become incapacitated or an ineffective lookout be maintained.

Fatigue was almost certainly a contributory factor. Operating alone for extended periods increased the risk of reduced alertness and micro-sleeps. Combined with the absence of a functioning watch alarm, these conditions resulted in an ineffective watch being maintained and placed the crew at risk.

The deficiencies identified during the MCA's inspection were systemic rather than isolated, reflecting a failure to follow regulatory requirements and established guidance. This significantly increased the risk of collision or grounding.

Emergency response

The crew's unfamiliarity with the vessel's lifesaving equipment and the procedures for safe abandonment resulted in a prolonged and disorganised evacuation. This delay placed them at significant risk as critical survival equipment was not deployed promptly and the abandonment process lacked coordination.

Similar to the accident on *Weston Bay*, the absence of regular drills and safety awareness sessions meant that emergency procedures were not embedded in routine practice. This was contrary to the requirements of MSN 1872 (F) Amendment 1, which highlighted the need for drills and training to ensure that the crew were able to respond to emergency situations.

The combination of inadequate drills, unfamiliarity with lifesaving equipment, reduced crew capability due to medical fitness, and systemic training failures created conditions that delayed the evacuation and placed the crew at risk.

Safety management

Crystal Stream's operation lacked effective oversight. There was no safety management system in place to support the safe operation of the vessel.

The crew's working schedule did not ensure that the crew were well rested, and there was no framework for familiarisation and training. The crew relied on their learned experience rather than a shared understanding of the risks they faced.

The risk assessment available online was both outdated and inadequate for the breadth of the vessel's operations. Similarly, during the 2024 survey of the vessel, the MCA surveyor reminded the owner of the need to regularly review risk assessments on board. The system used to identify and manage risk on board did not provide support to the crew in their day-to-day activities.

The lack of appropriate medical fitness certification for *Crystal Stream's* crew had previously been identified during MCA surveys and inspections, but these findings had not resulted in any corrective action. The lack of assurance of the crew's fitness to work on board *Crystal Stream* placed them, and their colleagues, at risk.

The systemic weakness in the management of *Crystal Stream* contributed to an environment where operational risks were neither fully understood nor effectively managed. This weakness meant that the crew were inadequately prepared for foreseeable emergencies, and the vessel's owner did not meet its obligation to comply with applicable regulations and consider the guidance contained in MGN 596 (F) and the Fishermen's Safety Guide. The absence of a structured approach to safety management meant that critical areas such as navigational practices, on board safety, medical fitness and crew work and rest hours were not addressed.

CONCLUSIONS

- *Crystal Stream* grounded when the skipper fell asleep while on watch. It is highly likely that the skipper was severely fatigued due to a sleep debt accumulated in the week leading to the accident.
- The vessel's safety management was inadequate, failing to address key operational areas such as navigational practices, risk assessments, on board safety, medical fitness, and crew work and rest hours.
- The lack of induction procedures and regular drills meant that *Crystal Stream's* crew were unfamiliar with the vessel's lifesaving equipment and emergency procedures.

ACTION TAKEN

MAIB actions

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

Actions taken by other organisations

M & I MacKinnon Ltd has installed watch alarms on its fleet of vessels.

RECOMMENDATIONS

M & I MacKinnon Ltd is recommended to:

2026/136 Improve the safety management of its vessels through:

- The adoption of a safety management system aligned with the Fishing Safety Management Code.
- The implementation of watchkeeping procedures aligned with the guidance in MGN 313 (F) and the Fishermen's Safety Guide.
- The implementation of a fleetwide fatigue management system to ensure that crew on board its vessels are provided with adequate rest in line with MSN 1884 (F) Amendment 1.

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

VESSEL PARTICULARS

Vessel's name	<i>Crystal Stream</i>
Flag	UK
Classification society	Not applicable
IMO number/fishing numbers	LH 147
Type	Prawn trawler
Registered owner	Privately owned
Manager(s)	M & I MacKinnon Ltd
Year of build	1984
Construction	Wood
Length overall	17.78m
Registered length	16.43m
Gross tonnage	112.34
Minimum safe manning	Not applicable
Authorised cargo	Fish

VOYAGE PARTICULARS

Port of departure	Tarbert, Argyll
Intended port of arrival	Tarbert, Argyll
Type of voyage	Coastal
Cargo information	Prawns
Manning	4

MARINE CASUALTY INFORMATION

Date and time	6 June 2025 at about 0006
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	Barmore Island, Argyll and Bute, Scotland
Place on board	Hull
Injuries/fatalities	Minor injuries
Damage/environmental impact	Minor pollution
Vessel operation	Underway
Voyage segment	Mid-water
External & internal environment	Dark; fine and clear; slight seas.
Persons on board	4