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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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Fatal man overboard from the single-handed creel fishing vessel, *Saint Peter* (LH22) east of Torness Point, Scotland on 2 May 2021

SUMMARY

On the morning of 2 May 2021, the owner/skipper (the skipper) of the single-handed creel fishing vessel, *Saint Peter*, also known as *St. Peter* (Figure 1), was shooting creels in the North Sea, 1.2 nautical miles (nm) east of Torness Point, Scotland. At about 0830, the skipper accidentally entered the water, probably as a result of being caught in the back rope while shooting, and was kept afloat by a personal flotation device (PFD). There was no easy means for the skipper to reboard *Saint Peter* and he had no equipment to send a distress signal from the water; his body was recovered later that afternoon by a coastguard helicopter.

The MAIB investigation concluded that *Saint Peter*'s working deck arrangement made it difficult for the skipper to work safely separated from the fishing gear while shooting creels.

Given the existing guidance on the risks of single-handed fishing operations and the MAIB's safety recommendations made in the *Sea Mist* report, no further recommendations regarding single-handed fishing are made in this report.

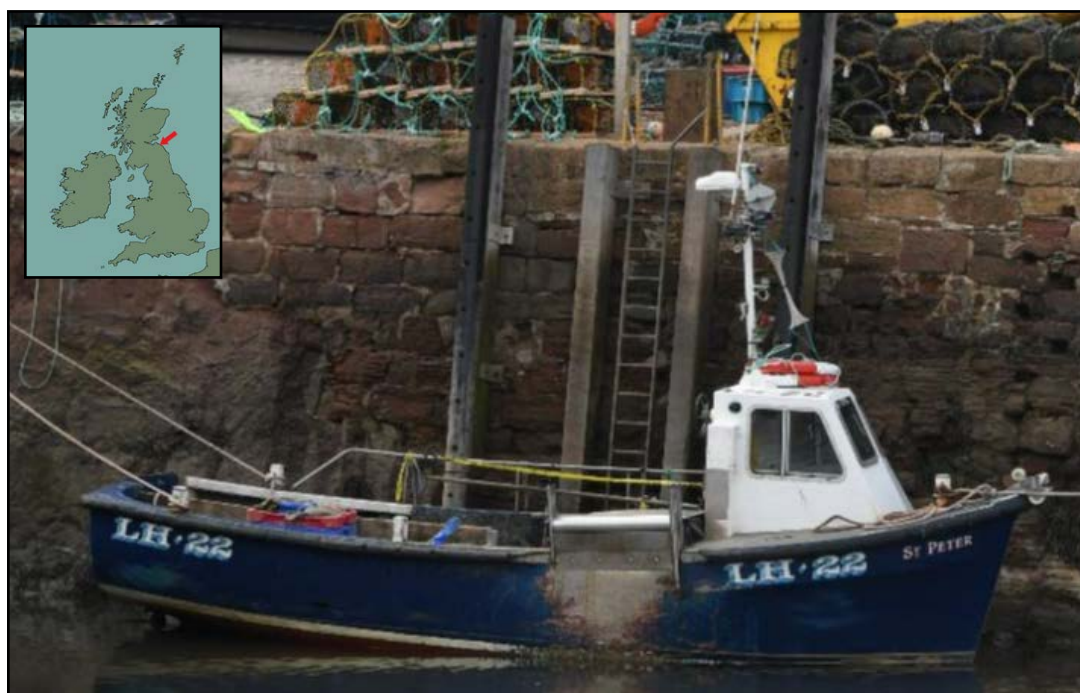


Figure 1: *Saint Peter*

FACTUAL INFORMATION

Narrative

At 0530 on 2 May 2021, the skipper left his home in Cove, Berwickshire, Scotland, and drove to his vessel at the nearby harbour. The weather was overcast, there was a light northerly wind, a 0.7 knots (kts) north-westerly tidal flow and the sea temperature was 8°C. The skipper planned to spend the morning fishing and return home in the early afternoon, ready to join his family for a bank holiday dinner. He manoeuvred *Saint Peter* out of the harbour and made his way to his fishing grounds north of Cove. The skipper turned on the chart plotter at 0612, while enroute, which indicated that he started recovering his strings of creels at around 0635.

At about 0800, crew working on a nearby fishing vessel observed the skipper working on *Saint Peter's* aft deck at an estimated position 2nm north of Torness Point (**Figure 2**). At 0820, *Saint Peter's* chart plotter recorded the vessel travelling at 5.7kts, 1.2nm north-east of Torness Point, then slowing to 0.8kts, before briefly increasing speed to 3.7kts. At 0830, the vessel stopped (**Figure 2**).

From 1032 onwards, some of the skipper's friends and family made several phone calls and sent texts to his mobile phone, which went unanswered.

At about 1530, the skipper's nephew was driving his car south on the coast road past Torness power station, located at Torness Point (**Figure 2**), when he saw *Saint Peter* out to sea. The nephew tried to call the skipper on his mobile phone and became concerned when there was no reply. He contacted the owner of *Rachel May II* (LH23), a fishing vessel berthed in Cove, and shortly afterwards met the owner on board. The two men then tried to contact *Saint Peter* by very high frequency (VHF) radio, but received no answer.

At about 1600, both men left Cove on board *Rachel May II* and made their way to *Saint Peter*. When they approached *Saint Peter*, they realised that no one was on board and, on reaching the vessel, found its engine running and in neutral. A creel string marker buoy was found jammed adjacent to the hauling table and a line led from it, through the vessel's shooting gate in the transom to a string of creels in the water. At about 1620, *Rachel May II's* owner called the coastguard on VHF channel 16 to raise the alarm. He then boarded *Saint Peter* and hauled in the string of creels to check if the skipper was caught within them. He did not find the skipper but noticed that about five creels in the middle of the string were tangled together. Having recovered the string of creels, *Rachel May II's* owner lowered *Saint Peter's* anchor to the seabed to prevent the vessel from drifting.

At 1632, the coastguard tasked Royal National Lifeboat Institution (RNLI) lifeboats and a coastguard helicopter to the accident. The Dunbar all-weather lifeboat (ALB) and inshore lifeboat were launched and began to search north of *Saint Peter's* anchored position. Other fishing vessels that were in the vicinity joined the search.

At 1751, the crew of the coastguard helicopter spotted *Saint Peter's* skipper, floating on his back and wearing a fully inflated PFD, about 3nm north of Torness power station (**Figure 2**). The winchman recovered the skipper to the helicopter and its crew cut away his PFD so that emergency first aid could be carried out during the flight to the Royal Infirmary of Edinburgh, but the skipper was unresponsive. At the same time, the ALB crew returned to *Saint Peter*, cut away the anchor line and towed the vessel to Dunbar.

At 1823, *Saint Peter's* skipper was declared deceased at the hospital.

Saint Peter's skipper

Saint Peter's skipper, Peter Gray, was 64 years old and had worked as a fisherman for 40 years. He had served in the merchant navy for about 5 years in his early career, before returning to settle in Cove where he also served as a volunteer coastguard.

The skipper held a Seafish¹ Under 16.5m Skipper's Certificate (Unrestricted), a GMDSS² Short Range Radio Operator Certificate and had completed all mandatory training courses to operate a UK registered fishing vessel. He had attended a Seafish Safety Awareness course 2 months before the accident.

At the time of the accident, the skipper was wearing oilskins over light clothing, rubber gloves, rubber boots and a 170N PFD, which upon inspection was noted to have automatically inflated.

Reproduced from Admiralty Chart 0175 by permission of HMSO and the UK Hydrographic Office

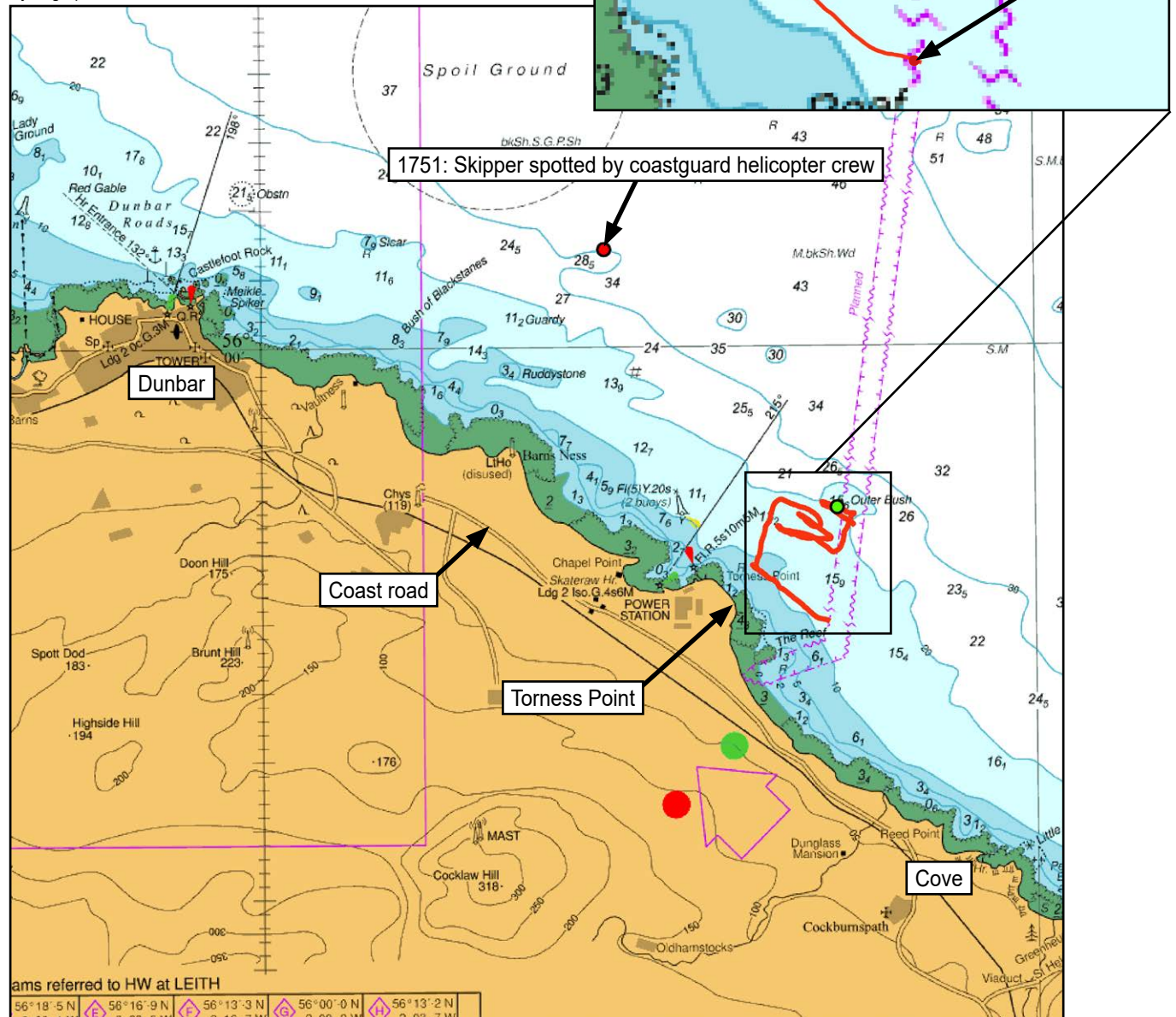


Figure 2: Location of the accident on 2 May 2021 and (inset) track of *Saint Peter* taken from chart plotter

¹ Seafish is a public body that supports the UK seafood sector. Its functions include the provision of safety training to the fishing industry.

² Global Maritime Distress and Safety System.

Doctors at the Royal Infirmary of Edinburgh observed skin discolouration to the skipper's right ankle during their initial examination. A distinctive mark that corresponded to the skipper's ankle injury was noted on his right boot.

The postmortem examination found that the skipper had pre-existing heart disease. There was a superficial head injury to his right temple and facial grazes that extended under his chin but no evidence of brain damage. The cause of death was recorded as *complications of ischaemic³ and hypertensive⁴ heart disease and immersion in water.*

Saint Peter

Saint Peter was a 7.8m glass reinforced plastic fishing vessel built by the skipper in 1993. The vessel had an enclosed wheelhouse; an open aft deck fitted with a hydraulic hauler, hauling table, and catch stowage area; and there was a shooting gate in the transom, which had a drop-in closing board (**Figure 3**). The wheelhouse was fitted with a global positioning system (GPS) receiver, chart plotter and

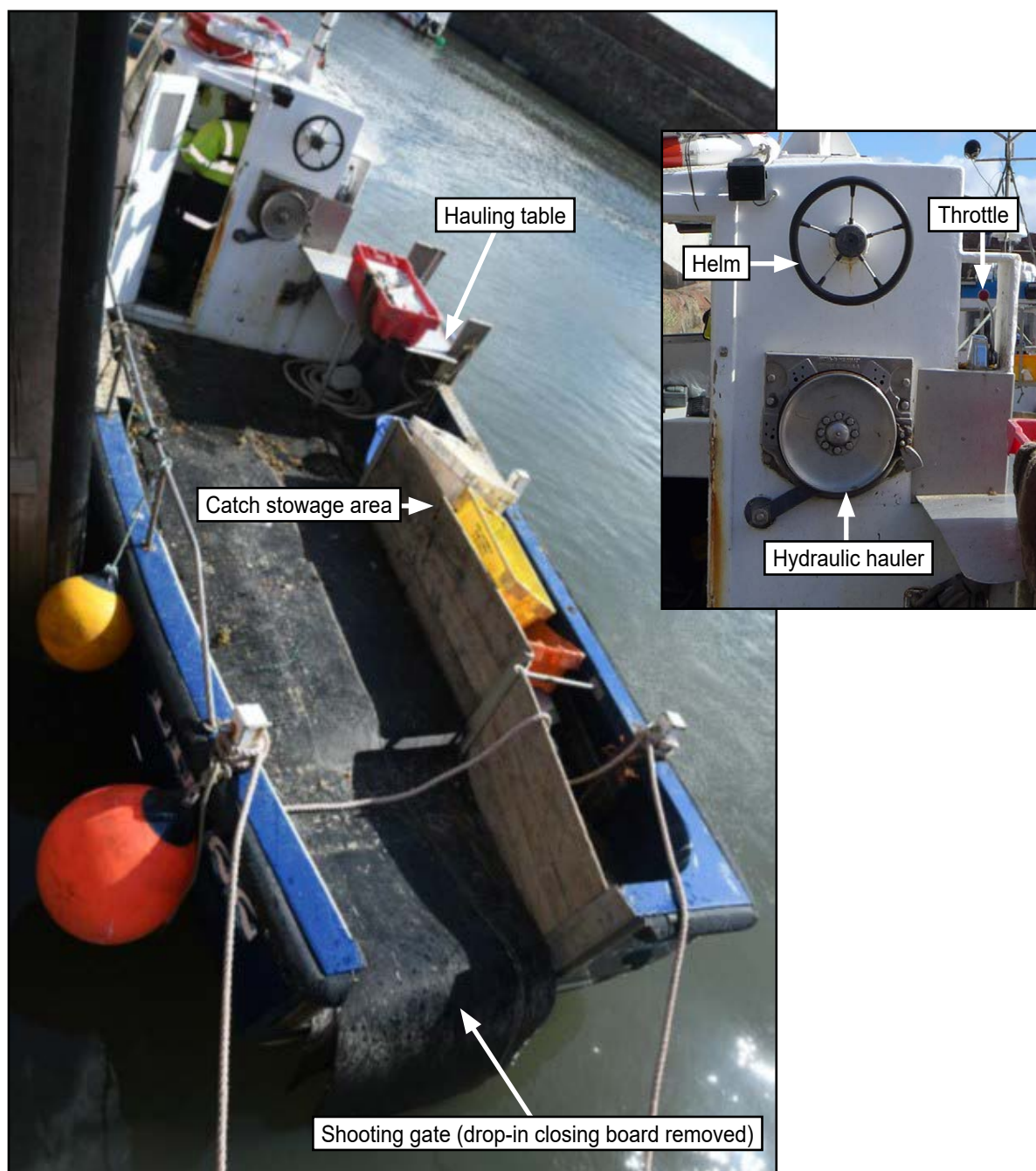


Figure 3: *Saint Peter* aft deck arrangement

³ Ischaemic is the term given to heart problems caused by narrow coronary arteries.

⁴ Hypertensive is a term given to heart problems caused by high blood pressure over an extended time.

VHF radio with digital selective calling (DSC)⁵ capability. *Saint Peter* was powered by a 38kW diesel engine, fitted into an engine bay below the main deck, and had helm and engine throttle controls in the wheelhouse and on the deck next to the hauling table. The wheelhouse throttle control was not operational, and the vessel could only be driven by the controls next to the hauling table.

The skipper operated *Saint Peter* alone between high tides and caught a mixture of crab and lobster. Each string of creels consisted of 20 creels, spaced 22m apart and connected by short leader lines to a 14mm back rope. Cast iron anchor weights, known as end stones, and float lines with buoys and marker flags were connected to each end of the 535m back rope (**Figure 4**). Before shooting, the creels were stacked on the port side of the main deck with the back rope laid out next to them (**Figure 5**).

The skipper's routine for shooting a string of creels was to throw the lead marker buoy and end stone overboard with the vessel driving ahead so that the stack of creels was automatically pulled overboard through the transom gate. It took about 5 minutes to shoot one string of creels.

A string was recovered by bringing the marker buoy on board and heaving in first on the float line and then on the back rope using the hydraulic hauler. The creels were pulled onto the hauling table, where the catch was removed and stowed in plastic crates that were stacked in the catch stowage area. Each creel was then rebaited and stacked on the port side ready for the next shoot. It took about 40 minutes for the skipper to recover, empty, rebait and stack a string of creels.

The skipper landed his catch in Cove and delivered it to a seafood buyer based in Eyemouth. Five partially filled boxes of catch were found on board *Saint Peter* when the vessel was returned to port.

MCA inspection of *Saint Peter*

In 2017, the Maritime and Coastguard Agency (MCA) carried out a 5-yearly inspection of *Saint Peter* in accordance with Merchant Shipping Notice (MSN) 1871 Amendment 1 (F): *The Code of Practice for the Safety of Small Fishing Vessels of less than 15m Length Overall*⁶. The MCA inspection report noted that the *risk assessment for fishing vessels* had been discussed and made reference to the vessel's Seafish Safety Folder⁷. It recorded that the skipper had been advised that, from 1 October 2019, *Saint Peter* would either need to be fitted with an Emergency Position Indicating Radio Beacon (EPIRB) or that the skipper should carry a personal locator beacon (PLB). MSN 1871 recommended that single-handed skippers should carry both an EPIRB and a PLB.

As a result of the MCA inspection in 2017, an EPIRB was fitted to a float free bracket on *Saint Peter's* wheelhouse-mounted mast. The skipper registered the EPIRB with the MCA in January 2021.

Raising the alarm

An EPIRB transmits a 406 megahertz (MHz) distress signal via satellite to the coastguard when it is activated either manually before being thrown overboard, or automatically as it enters seawater. An EPIRB fitted to an automatic release mounting bracket should float free and activate in the event of a vessel sinking.

A PLB is a smaller version of an EPIRB that can be carried by a seafarer. PLBs have to be manually activated to send a 406 MHz distress signal.

Also available are automatic identification system (AIS)⁸ Man Overboard (MOB) transponders that can either be manually activated, or automatically activated. AIS MOB transponder distress signals can be received by vessels in the vicinity that are fitted with AIS receiving equipment, and then used to home-in on the MOB's position. Although 406MHz PLBs with an integrated AIS are available, the activation of a distress signal over 406MHz has to be done manually.

⁵ DSC capability enables a distress message to be sent by means of a single button.

⁶ <https://www.gov.uk/government/publications/msn-1871-amendment-1-code-of-practice-for-safety-of-small-fishing-vessels>

⁷ <https://www.safetyfolder.co.uk/>

⁸ AIS uses short wave VHF radio signals to broadcast the position of a transponder.

For illustrative purposes only; not to scale

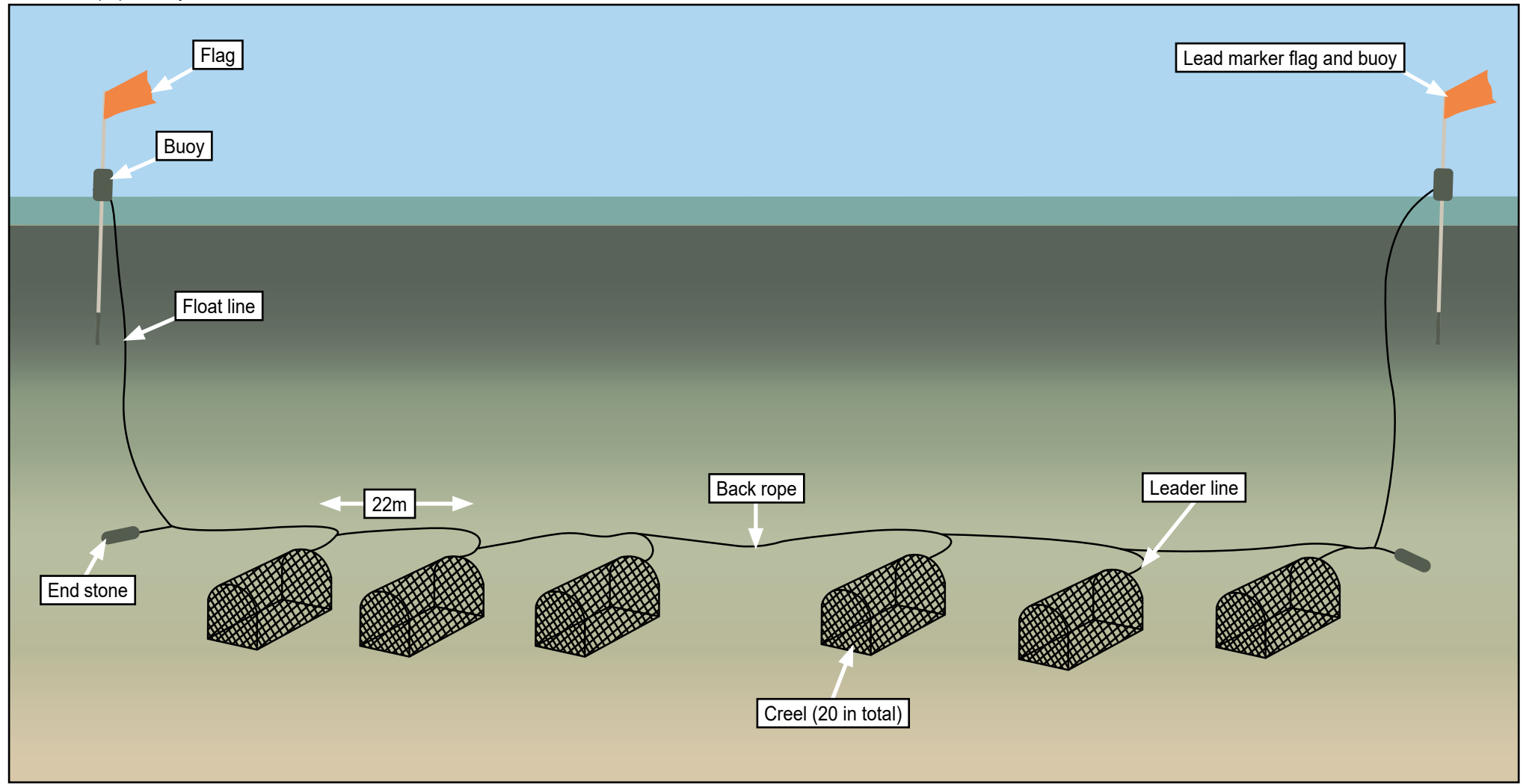


Figure 4: Saint Peter fishing arrangement

For illustrative purposes only: not to scale

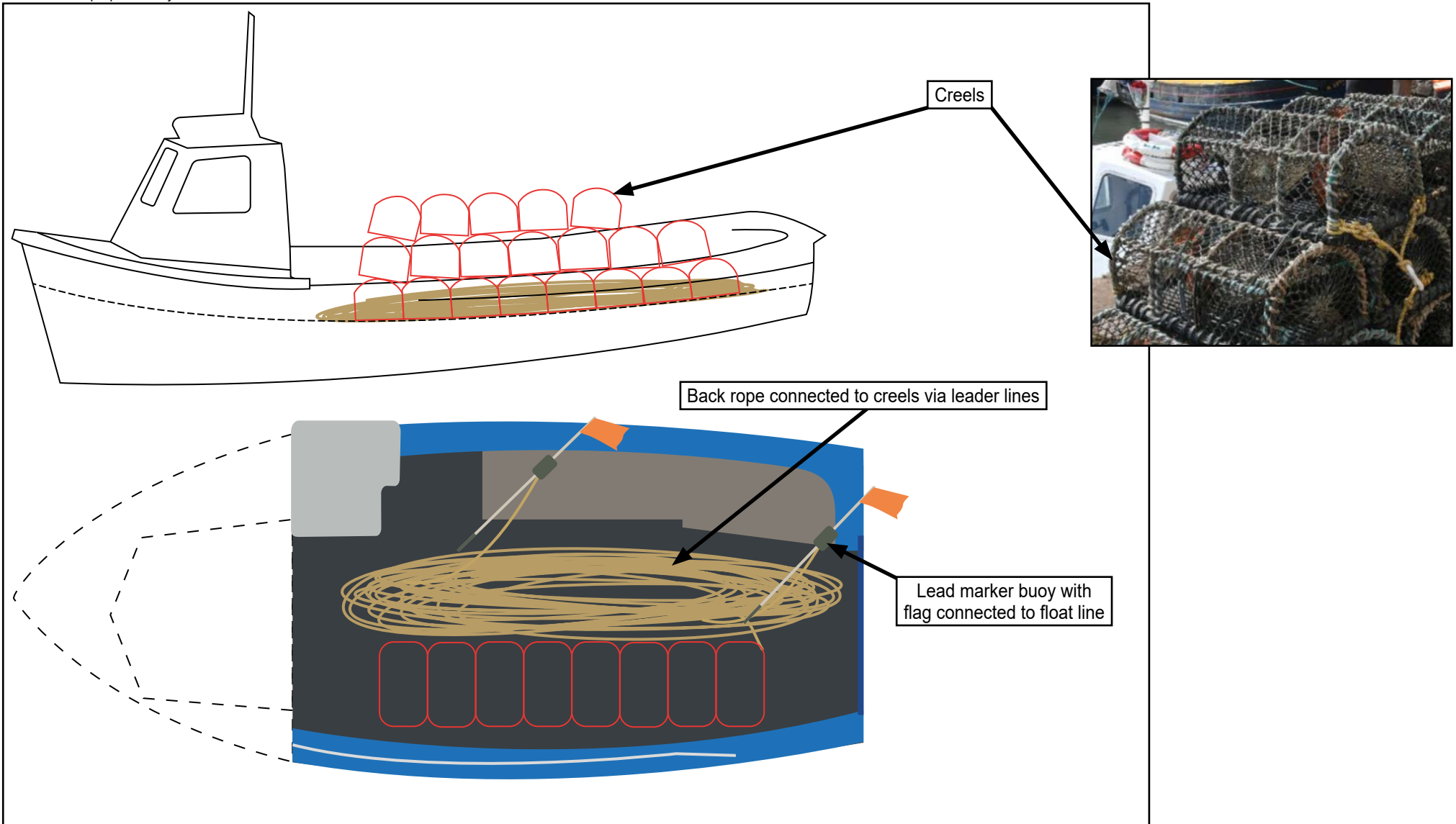


Figure 5: *Saint Peter* shooting arrangement

MSN 1871 required EPIRBs and PLBs to have integrated GPS so that their emergency transmission included an accurate location of the casualty, both of which were to be registered with the MCA.

Emergency procedures and risk assessments

The skipper's emergency procedures for man overboard location and recovery, as recorded in his Seafish Safety Folder, stated:

use life jacket while working at sea and have handy rescue quoits + life buoys. And boarding ladder handy Guardian MOB to locate position casualty. [sic]

At the time of the accident, *Saint Peter* was equipped with lifebuoys but not with a boarding ladder. MOB Guardian⁹ was an emergency locator beacon system supplied by the RNLI; there was no record of a beacon being registered to *Saint Peter* and the the RNLI withdrew the system from service in 2016.

The Seafish Safety Folder contained a risk assessment for shooting and hauling operations, which stated the control measure for unsafe decks was:

keep decks clear and avoid bights in ropes.

The control measure for the risk of a crew member becoming tangled in the back rope when shooting pots was recorded as:

ropes kept clear of footing/avoid walking on. [sic]

There was also a general shooting control measure to have *knives to hand* and *shooting door fitted*. Following the accident, knives were discovered in the wheelhouse and next to the hauler.

Industry guidelines for single-handed fishing operations

The MCA's Fishermen's Safety Guide¹⁰ stated:

Single handed operations are not recommended due to the high level of risk involved. [sic]

It then identified hazards associated with single-handed fishing:

No help available if injured

If you fall overboard, there is no one to raise the alarm or stop the vessel or help recover you to the vessel

In the event of a sudden vessel loss then there is no one to raise the alarm

The suggested hazard mitigations were to wear a PFD, use safety lines, rig an overboard ladder, equip the vessel with an EPIRB and carry a PLB.

The guide also identified specific risks to potting¹¹ vessels. For example:

Crewman becoming entangled in the rope and dragged overboard

Several pots are dragged out of sequence endangering the crew and being struck by a pot

The recommended mitigations for these risks were:

Ensure that the layout of the vessel allows safe and efficient working of pots/creels. Look for possible snag points that the rope or pots may snag on when shooting

To lessen the danger of crew members becoming entangled with rope, consider if it is possible to install a barrier to contain the rope clear of the area where the crew are handling the pots

Consider if an improved layout may be possible to enable the pots to be shot directly off the deck via a transom gate or shooting ramp whilst the crew are safely stood clear in a forward position

⁹ MOB Guardian was called Guardian MOB in the skipper's risk assessment.

¹⁰ <https://www.gov.uk/government/publications/fishermens-safety-guide>

¹¹ A pot is another name for creel.

In reference to the number of creels that could be safely handled, the guide asked:

Is the number of pots in each 'string' limited by the number of pots that can be easily and safely worked in the available deck space on the vessel?

Would it be significantly safer to reduce the number of pots per string and to work extra strings?

A condensed version of the information in the *Fishermen's Safety Guide* was reiterated in the MCA publication *Single handed fishing*¹².

The Seafish website provided guidance to fishermen on how to prepare risk assessments.

The Fishing Industry Safety Group (FISG)¹³ *Home and Dry* safety campaign¹⁴ provided guidance to the fishing industry on the conduct of emergency drills, the use of PFDs, methods of reboarding vessels from the water and the importance of risk assessments.

The RNLI website detailed the use of ladders for MOB recovery and showed alternative ways to reboard a vessel from the water, such as hanging tyres over the side.

Cold water immersion

Sudden immersion in water temperatures of less than 15°C can result in cold water shock and/or cold incapacitation.

Cold water shock happens within the first 30 seconds to 2 minutes and is associated with a gasp reflex, hyperventilation and a rapid increase in heart rate and blood pressure as the body encounters cold water. These involuntary reactions can result in cardiac arrest, especially if the casualty has an existing cardiovascular condition. Panic can cause hyperventilation to continue after the initial physiological effects of cold water shock have subsided.

Cold incapacitation usually occurs within 2 to 15 minutes of entering the water. The blood vessels become constricted as the body tries to preserve heat and protect vital organs. This results in the blood flow to the extremities being restricted, causing cooling and consequent deterioration in the functioning of muscles and nerve ends. Hands and feet lose useful movement, leading to the progressive incapacitation of arms and legs and impeding the ability to swim and reboard a vessel.

The survival time in calm water temperatures below 10°C is about 1 hour¹⁵ while wearing work clothes.

Previous accidents

The MAIB investigated ten fishing vessel fatalities around the UK coast in 2021, three of which occurred on board single-handed vessels.

In July 2019, the owner/skipper of the single-handed creel fishing vessel, *May C*, fell overboard and drowned (MAIB report 16/2020¹⁶). The skipper was not wearing a PFD and was not carrying a PLB, so had no means of raising the alarm once in the water.

In March 2019, the owner/skipper of the single-handed creel fishing vessel, *Sea Mist*, caught his boot in a back rope while shooting creels; he was pulled overboard and drowned (MAIB report 14/2019¹⁷). He was not wearing a PFD and there were no barriers on the working deck to separate the skipper from the fishing gear. The MAIB made recommendations to FISG to evaluate and, as appropriate, revise the safety guidance for single-handed fishermen provided by the MCA and Seafish to ensure that it remained fit for purpose and, specifically, to improve its promulgation to single-handed fishermen.

¹² <https://www.gov.uk/government/publications/single-handed-fishing>

¹³ FISG is a stakeholder group, the aim of which is to improve the safety of commercial fishing at sea.

¹⁴ <https://www.homeanddry.uk/>

¹⁵ Review of Probable Survival Times for Immersion in the North Sea, published by the Health and Safety Executive, 1996.

¹⁶ <https://www.gov.uk/maib-reports/man-overboard-from-single-handed-creel-boat-may-c-with-loss-of-1-life>

¹⁷ <https://www.gov.uk/maib-reports/man-overboard-from-single-handed-creel-boat-sea-mist-with-loss-of-1-life>

In February 2018, a crew member of the creel fishing vessel *North Star* was caught in the fishing gear while shooting creels and dragged overboard (MAIB report 19/2018¹⁸). He was recovered from the water by his crew mates within 10 minutes but died from drowning. The MAIB made a recommendation to the owners of *North Star* to improve the safety culture of its crew, and to the MCA to improve its support to commercial fishing vessel owners.

ANALYSIS

Overview

There were no eyewitnesses to this accident, but it is highly probable that *Saint Peter's* skipper became caught in his fishing gear during shooting while trying to untangle a string of creels and was pulled overboard into the water. He was unable to reboard his vessel and, at an indeterminate time after the accident, suffered a fatal heart attack.

The accident

Saint Peter's speed at 0820 indicated that the skipper was shooting creels. It is highly probable that the tangle found in the middle of the string occurred shortly after that time. The vessel's engine had been put into neutral so that its speed decreased before the skipper moved aft on the working deck to clear the tangle. The corresponding marks on the skipper's boot and ankle indicate that he became caught in the bight of a rope. It is likely that, as the tangle of creels became free and they were released through the shooting gate, the skipper stood on a bight of back rope that tightened around his ankle. It is highly probable the skipper was unable to resist the pull from the weight of creels as they fell into the sea, and he was dragged overboard through the shooting gate. The skipper's PFD inflated when he entered the water and his boot released from the bight of rope, enabling him to surface. It is highly likely that the effects of cold water shock induced a heart attack when the skipper was in the water, which proved fatal due to his pre-existing heart condition.

Saint Peter stopped as the slack in the back rope was taken up and the end marker buoy became snagged on board; the vessel was then anchored by the float line attached to the string of creels on the seabed.

Personal flotation device and survivability

When he entered the water, the skipper's PFD automatically activated, fully inflated, and kept him afloat with his face out of the water, which prevented him from drowning. The PFD kept the skipper afloat for approximately 9 hours until he was located by the coastguard helicopter. The PFD improved his chances of being safely rescued, but the cold water temperature limited his survival time to about 1 hour.

Ability to reboard *Saint Peter*

Once the skipper was in the water, his only option to self-rescue was to swim back to *Saint Peter* against the wind and current and then attempt to reboard by pulling himself through the shooting gate using the float line. This would have been very difficult while wearing saturated clothing that included boots and gloves, and while suffering from the effects of cold water shock. Had he been able to swim back to *Saint Peter*, the rigging of a boarding ladder, as stated in his risk assessment, or MOB ladder or overside tyre arrangement, as recommended in industry guidance, would have improved his chances of successfully reboarding.

Raising the alarm

The methods available for the skipper to send a distress signal to the coastguard were either to operate the DSC function of *Saint Peter's* VHF radio or to manually operate the mast-mounted EPIRB. However, as both were on board the vessel, these became inaccessible as soon as he entered the water without any means of reboarding. Also, the skipper did not have a registered MOB Guardian or acquire an

¹⁸ <https://www.gov.uk/maib-reports/man-overboard-from-creel-fishing-vessel-north-star-with-loss-of-1-life>

alternative means of raising the alarm from the water when MOB Guardian was withdrawn from service. If the skipper had been carrying a PLB he could have activated it on entering the water and this would have immediately alerted the coastguard that he was in distress, and provided them with his accurate location. Alternatively, an AIS MOB transponder could have automatically started to transmit a distress signal as soon as he entered the water, which might have been noticed by AIS equipped vessels operating in the area.

Saint Peter was equipped with an EPIRB; so carrying a PLB was a voluntary recommended addition for single-handed fishermen and not a mandatory requirement. However, had the skipper been carrying a PLB, and been able to activate it, it would certainly have resulted in an earlier rescue, and possibly saved his life.

Operation of *Saint Peter*

Industry guidelines identified single-handed fishing operations as high risk and not recommended, but nonetheless plenty of guidance was provided to single-handed fishermen to mitigate against the risks of their occupation. *Saint Peter's* skipper had carried out a risk assessment and put in place some risk controls such as wearing a PFD and carrying knives while at sea, but other safety measures such as the use of safety lines had not been adopted.

Saint Peter's working deck was cluttered with creels and rope when shooting, making it difficult for the skipper to stay safely separated from the moving fishing gear, especially if the gear became tangled and required manual intervention. An alternative deck layout and fishing gear configuration, possibly with a reduced number of creels, and deck dividers or pound boards could have kept the skipper clear of the running back rope. This would have enabled him to throw the marker buoy and end stone overboard and, if necessary, deal with tangled creels without the risk of standing on the back rope.

CONCLUSIONS

- The skipper died because he entered the water and was unable to reboard. It is most likely he suffered heart failure because of cold water shock, the risk of which was increased by his pre-existing heart condition.
- It is highly likely that the skipper moved aft on the deck to untangle some creels that had become snagged while shooting, and his leg became caught in the back rope and he was dragged overboard.
- The skipper's PFD inflated automatically, which kept him afloat with his airway clear of the water and prevented him from drowning.
- It would have been extremely difficult for the skipper to reboard *Saint Peter* in saturated clothing and without the aid of a ladder or other boarding device.
- The skipper was not wearing a PLB or other means of raising an alarm.
- The risk of becoming tangled in the fishing gear was increased while shooting as there was no physical barrier to separate the skipper from the back rope.

ACTION TAKEN

MAIB actions

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

RECOMMENDATIONS

Given the existing industry guidance on the risks of single-handed fishing operations and the MAIB's safety recommendations made in the *Sea Mist* report, no further recommendations regarding single-handed fishing are made in this report.

VESSEL PARTICULARS

Vessel's name	<i>Saint Peter</i>
Flag	UK
Classification society	Not applicable
IMO number/fishing numbers	LH22
Type	Creel fishing vessel
Registered owner	Privately owned
Manager(s)	Not applicable
Year of build	1993
Construction	Glass reinforced plastic
Length overall	7.8m
Gross tonnage	2.8
Minimum safe manning	Not applicable
Authorised cargo	Not applicable

VOYAGE PARTICULARS

Port of departure	Cove, Scotland
Port of arrival	Cove, Scotland (intended)
Type of voyage	Fishing
Cargo information	Not applicable
Manning	1

MARINE CASUALTY INFORMATION

Date and time	2 May 2021, between 0800 and 1000
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	1.2nm north-east of Torness Point, Scotland
Place on board	Deck
Injuries/fatalities	One fatality
Damage/environmental impact	None
Ship operation	Fishing
Voyage segment	At sea
External & internal environment	Wind: northerly force 2-3, sea state: smooth, visibility: good
Persons on board	1