ACCIDENT REPORT

Report on the investigation of the

foundering of the fishing vessel

Freedom II (CN 111)

11 nautical miles south-west of Oban, Scotland

on 21 February 2024

VERY SERIOUS MARINE CASUALTY REPORT NO 8/2026 APRIL 2026

MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

The United Kingdom Merchant Shipping

(Accident Reporting and Investigation)

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NOTE

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

ALB	-	all-weather lifeboat
DSC	-	digital selective calling
EPIRB	-	Emergency Position Indicating Radio Beacon
FSG	-	Fishermen's Safety Guide
GMDSS	-	Global Maritime Distress and Safety System
kts	-	knots
m^3	-	cubic metre
MCA	-	Maritime and Coastguard Agency
MGN	-	Marine Guidance Note
MHz	-	megahertz
MSIS 27	-	Marine Survey Instructions for the Guidance of Surveyors
MSN	-	Merchant Shipping Notice
nm	-	nautical mile
PFD	-	personal flotation device
RNLI	-	Royal National Lifeboat Institution
SAN	-	surveyor advice note
SAR	-	search and rescue
t	-	tonne
UK	-	United Kingdom
UTC	-	universal time coordinated
VHF	-	very high frequency

TIMES: all times used in this report are UTC unless otherwise stated.

Image courtesy of MarineTraffic

Freedom II

SYNOPSIS

On 21 February 2024, the 15.94m prawn trawler *Freedom II* experienced an uncontrolled flood while in the Firth of Lorn, Scotland. Two crew members were evacuated to an attending lifeboat, which then took the vessel under tow. *Freedom II* eventually capsized and foundered. The remaining two crew members abandoned ship into the sea and were recovered uninjured by the lifeboat.

On retrieving the fishing gear in the late morning, the crew on board *Freedom II* noted an excessive vibration coming from the propeller shaft. Following an unsuccessful attempt to stop the vibration, likely caused by a fouled propeller, *Freedom II* set off towards Oban, Scotland, for repairs. During the passage the crew found that the cabin and engine room spaces were flooding. The skipper of *Freedom II* contacted His Majesty's Coastguard, and rescue services were dispatched to assist. *Freedom II* was taken under tow by the Oban all-weather lifeboat. Progressive flooding subsequently led to *Freedom II* foundering at 1535.

The investigation established that the most likely source for the flood was a vibration-induced fracture of the seawater suction pipe for the deck wash pump. The rate of flooding overwhelmed the operational bilge pumps. Additional pumps either failed or could not be used. A salvage pump on board the Oban all-weather lifeboat was not used.

The Royal National Lifeboat Institution conducted a safety learning review as a result of this accident and has reviewed its guidelines, training and policies for the towing and monitoring of a casualty vessel.

The MAIB investigation into the flooding and foundering of the trawler *Opportune* (LK 209) in March 2024 recommended that the Maritime and Coastguard Agency update its guidance to surveyors on fishing vessel seawater pipework to incorporate the guidance on the survey of seawater piping systems contained in its Surveyor Advice Note 29, and to update its *Report of Hull Condition of a Fishing Vessel* to include a report on the condition of the vessel's seawater pipework. It was further recommended to align the contents of its Fishermen's Safety Guide with the flood mitigation guidance contained in Marine Guidance Note 165 (F) – Fishing Vessels: Risk of Flooding.

The Maritime and Coastguard Agency amended its response to the recommendation issued following the investigation into the collision between the pair trawlers *Guiding Light* and *Guiding Star* to take into account the safety issues identified during the *Freedom II* investigation.

In view of the actions already taken, no recommendations have been made.

SECTION 1 – FACTUAL INFORMATION

1.1 PARTICULARS OF *FREEDOM II* AND ACCIDENT

VESSEL PARTICULARS	
Vessel's name	*Freedom II*
Flag	UK
Classification society	Not applicable
IMO number/fishing numbers	CN 111
Type	Stern trawler
Registered owner	Privately owned
Manager(s)	Privately managed
Construction	Wood
Year of build	1975
Length overall	16.74m
Registered length	15.94m
Gross tonnage	74
Minimum safe manning	4
Authorised cargo	Fish
VOYAGE PARTICULARS	
Port of departure	Crinan, Scotland
Port of arrival	Oban, Scotland (intended)
Type of voyage	Coastal
Cargo information	Prawns
Manning	4
MARINE CASUALTY INFORMATION	
Date and time	21 February 2024 at 1535
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	11nm south-west of Oban, Scotland
Place on board	Engine room
Injuries/fatalities	None
Damage/environmental impact	Vessel lost, minimal harm to the environment
Vessel operation	Fishing
Voyage segment	Mid-water
External & internal environment	West to south-west force 4 to 6; sea state 4 to 5 offshore; sea surface temperature 8°C to 9°C; good visibility
Persons on board	4

1.2 NARRATIVE

At approximately 0400 on 21 February 2024, *Freedom II* **(Figure 1)** sailed from the port of Crinan, Scotland to fish for prawns. The skipper initially planned to fish in Loch Linnhe, to the north of Oban but, due to the forecast weather, had decided instead to head west through the Gulf of Corryvreckan to fish in the Firth of Lorn **(Figure 2)**.

Once in the Firth of Lorn, the skipper woke the deckhands (deckhand 1, deckhand 2 and deckhand 3) to start fishing. By about 0700, the crew had shot the fishing gear for the first trawl of the day. At about 1000, the crew started to recover the gear. It took about 20 minutes to bring the cod ends to the surface. With the fishing gear in this position, the skipper engaged ahead propulsion to wash the catch of prawns back into the cod ends. On doing so, the skipper noted a strong vibration coming from the propeller shaft. All on board thought that something had been caught in the propeller, as this had previously been experienced. The crew recovered the nets and emptied the catch. The skipper then tried to clear the fouled propeller by pulsing it ahead and astern about five times. The vibration did not improve and the skipper decided to head to Oban at slow speed to effect repairs.

With the nets stowed on the aft deck, the trawl doors recovered, and the cod ends draped over the transom, the three deckhands went into the shelter deck to sort and box the catch while the skipper remained on watch in the wheelhouse. After about half an hour, deckhand 2 signalled to the skipper that they wanted the deck wash pump started to wash the catch. The skipper operated the switch on the control panel in the wheelhouse to start the pump.

A short time later deckhand 2 repeated the request for the deck wash pump to be started. Confused, the skipper turned the switch for the pump off and then back on again. The skipper listened for the pump to start but heard nothing.

The skipper left the wheelhouse to go to the engine room. As they passed through the galley the skipper heard an alarm sound. Returning to the wheelhouse, the skipper saw that the low-level and mid-level bilge alarms for the engine room were activated and that the bilge pump was running. The screen displaying the closed-circuit television feed from the engine room did not show any obvious flooding. The skipper left the wheelhouse and went to the engine room, where they found water level with the top of the bilges.

The skipper returned to the wheelhouse and checked that the automatic bilge pumps were running and that the engine-driven bilge pump was also switched on. The bilge alarms did not reset so the skipper checked the engine room once more and found the water level had risen. The skipper believed the source of the water to be the propeller shaft stern seal.

The skipper went on deck and briefed the three deckhands. They could see water being discharged from the hose connected to the automatic bilge pumps. After a further check of the engine room, the skipper instructed the deckhands to each swap their personal flotation device (PFD) for a solid foam lifejacket intended for use when abandoning ship, and to gather personal items. When the skipper and deckhand 3 collected their lifejackets from the accommodation, they found water about 30cm above the deck in the cabin. The wooden cover to the shaft line in the cabin had floated free. Other compartments, including the fish hold, were checked and found to be free of water.

Image courtesy of MarineTraffic

Figure 1: *Freedom II*

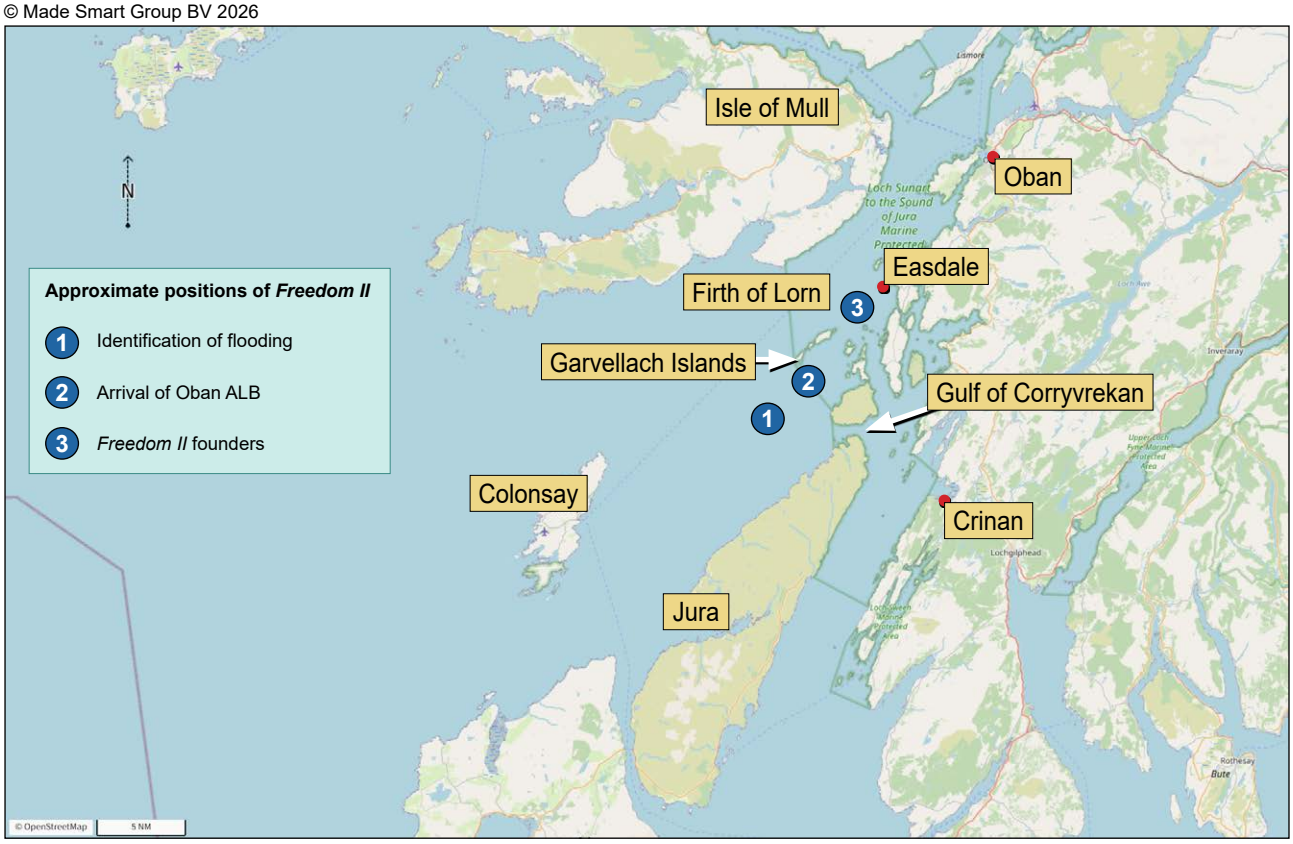

Figure 2: General location of the accident

The skipper tried to start the generator to provide power to a secondary bilge pump but water was being splashed up onto the generator's control panel and it would not start. The skipper left the engine room and instructed the deckhands to rig the salvage pump to draw from the engine room. The skipper then went to the wheelhouse and attempted to call the coastguard via the vessel's Global Maritime Distress and Safety System (GMDSS)[1] very high frequency (VHF) radio. The skipper did not receive an acknowledgement of their call and there was no mobile telephone signal in the area.

Freedom II was rolling heavily due to the amount of free water in the engine room and cabin. Having started the salvage pump on the shelter deck, the crew decided to reposition it above the escape hatch on the aft deck to attempt to pump out the cabin. When the crew tried to restart the salvage pump in its new position its starting cord snapped, putting the pump out of action. The skipper continued to call the coastguard on the VHF radio while instructing the crew to launch the liferaft and secure it to the starboard quarter. No digital selective calling (DSC)[2] alert was transmitted during the incident.

At 1249, the coastguard heard the garbled radio calls from *Freedom II*. Over the next 15 minutes, the coastguard operator gathered sufficient information to determine the position and nature of the emergency. The Oban Royal National Lifeboat Institution (RNLI) all-weather lifeboat (ALB) and a search and rescue (SAR) helicopter were tasked to assist *Freedom II*. The coastguard transmitted a "Mayday Relay" to alert other vessels in the area.

By 1302, the water level in *Freedom II*'s engine room had reached halfway up the side of the engine. The skipper stopped the engine.

Deckhands 2 and 3 were instructed to board the liferaft by the skipper, who remained on board with deckhand 1. At this point, no seawater system isolations were made and the sea inlet and discharge valves remained open.

At 1339, the SAR helicopter arrived at the scene. At 1348, the charter boat *Celtic Guardian* also arrived, having been alerted by the coastguard's "Mayday Relay" transmission. The Oban RNLI ALB arrived shortly afterwards **(Figure 3)**. The ALB's coxswain judged that the conditions were too rough to safely transfer the salvage pump that the ALB carried to *Freedom II*. At 1403, the liferaft was set adrift from *Freedom II* and deckhands 2 and 3 were recovered to the ALB.

Celtic Guardian recovered the empty liferaft and returned to Easdale, Scotland, while the ALB took *Freedom II* under tow and started making passage towards Oban. The skipper assessed at this point that the water ingress had slowed significantly and passed that information to the ALB and coastguard. The vessels passed into the relative shelter of the Garvellach Islands.

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[1] A worldwide automated radio signal used to transmit distress messages to rescue authorities and other vessels.

[2] A digital alerting system that, on the press of a single button, can send a vessel's identity, position and the nature of its distress to all DSC-equipped vessels and shore stations within range. *Freedom II*'s DSC was available on VHF radio only.

Image courtesy of the RNLI

Figure 3: *Freedom II* at time of Oban ALB arrival

At 1447, the skipper reported that water levels on board had worsened a little but still believed that *Freedom II* could complete the estimated 4-hour journey to Oban. Concerned about the risk that loose deck plates might hit pipes and risers, the skipper managed to shut off some of the accessible valves. The skipper then telephoned a local supplier to plan for the repair of *Freedom II*.

At 1457, the ALB's coxswain spoke to the skipper and asked if they were content to continue the tow away from the shelter of the Garvellach Islands. The skipper agreed to the plan, though noted that water levels had risen. At 1521, the skipper called the ALB requesting that the tow be slowed down as they intended to try to secure the propeller shaft with a chain, still believing this was the source of the flood. *Freedom II* was taking on more water and was rolling heavily. Deckhand 1 checked the fish hold and saw that it was now almost full of water.

By 1524, it became clear to the ALB's crew that *Freedom II* was at extreme risk of capsize. The ALB crew called the skipper by VHF to advise them to abandon ship, but there was no response so they slipped the towline and circled back to recover the skipper and deckhand 1. On board *Freedom II* the skipper and deckhand 1 went to the starboard quarter, ready for rescue. At 1535, *Freedom II* lolled to port and sank beneath the surface **(Figure 4)**. The skipper and deckhand 1 swam clear of the wreck and were recovered by the ALB.

At 1611, the ALB arrived at Oban and *Freedom II*'s uninjured crew were medically assessed and confirmed well by the waiting ambulance crew. The wreck site was surveyed on 25 February 2024, but the vessel could not be located.

Image courtesy of the RNLI

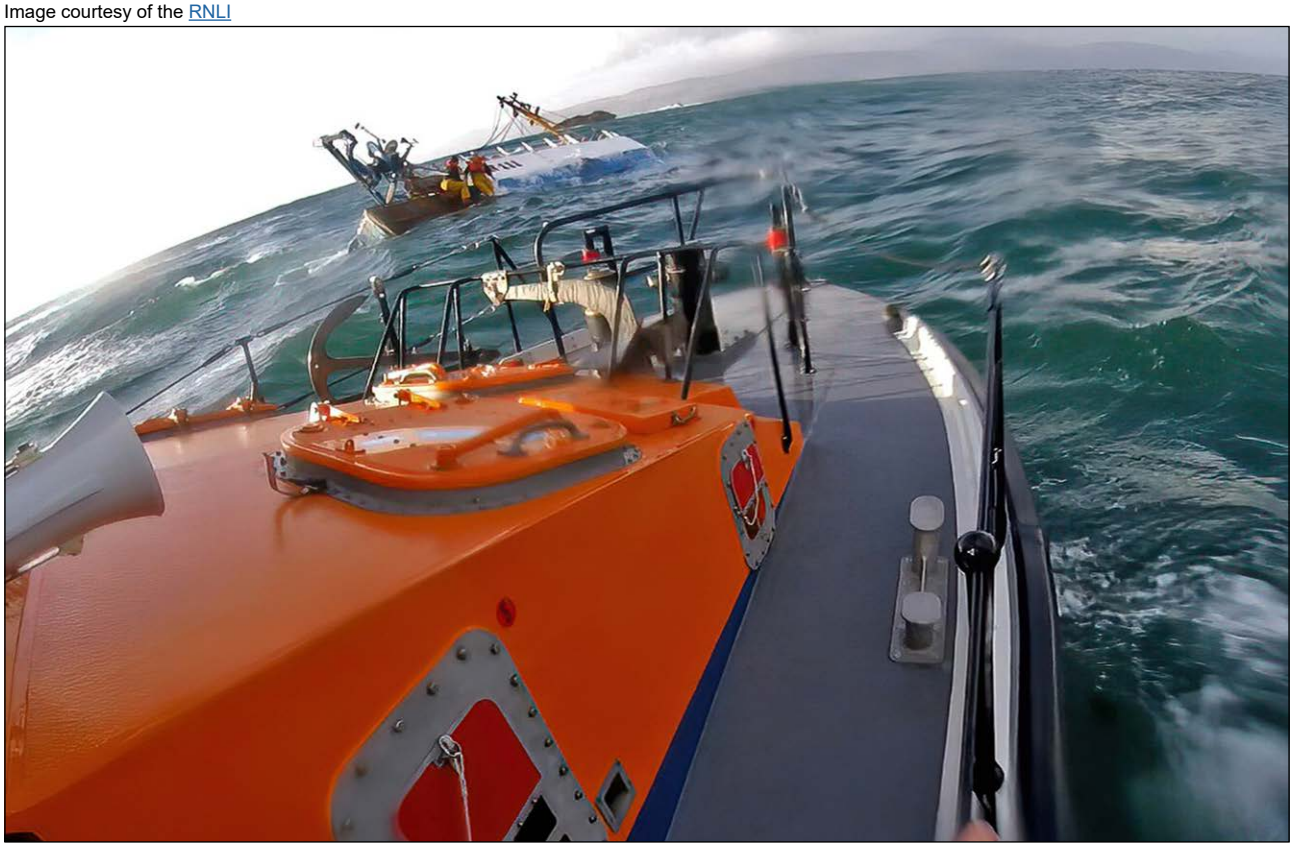

Figure 4: Video still of *Freedom II* as the vessel capsized to port

1.3 ENVIRONMENTAL CONDITIONS

On 21 February 2024, sunrise was at 0735 and the winds were west to south-west force 4 to force 6. The sea conditions were moderate close inshore or when in the lee of the Garvellach Islands, increasing to moderate to rough in the exposed areas of the Firth of Lorn. Visibility was good under cloudy to partly cloudy skies. The air temperature peaked just after midday at 12°C. The sea surface temperature was 8°C to 9°C. Anecdotally, the Firth of Lorn area had poor VHF and mobile phone coverage.

1.4 *FREEDOM II*

1.4.1 General description

Freedom II was a 15.94m wooden-hulled prawn trawler built in 1975 by James Noble (Fraserburgh) Ltd, Scotland.

Freedom II comprised a forward deck, including an access hatch to the fish hold below, enclosed by a shelter that extended aft to just beyond the wheelhouse and galley area ahead of a net pound on the aft deck. Below deck there was a forepeak store, fish hold, engine room, cabin space and a steering gear compartment. There were watertight bulkheads between the forepeak store and the fish hold, and between the cabin space and the steering gear compartment **(Figure 5)**.

For illustrative purposes only: not to scale

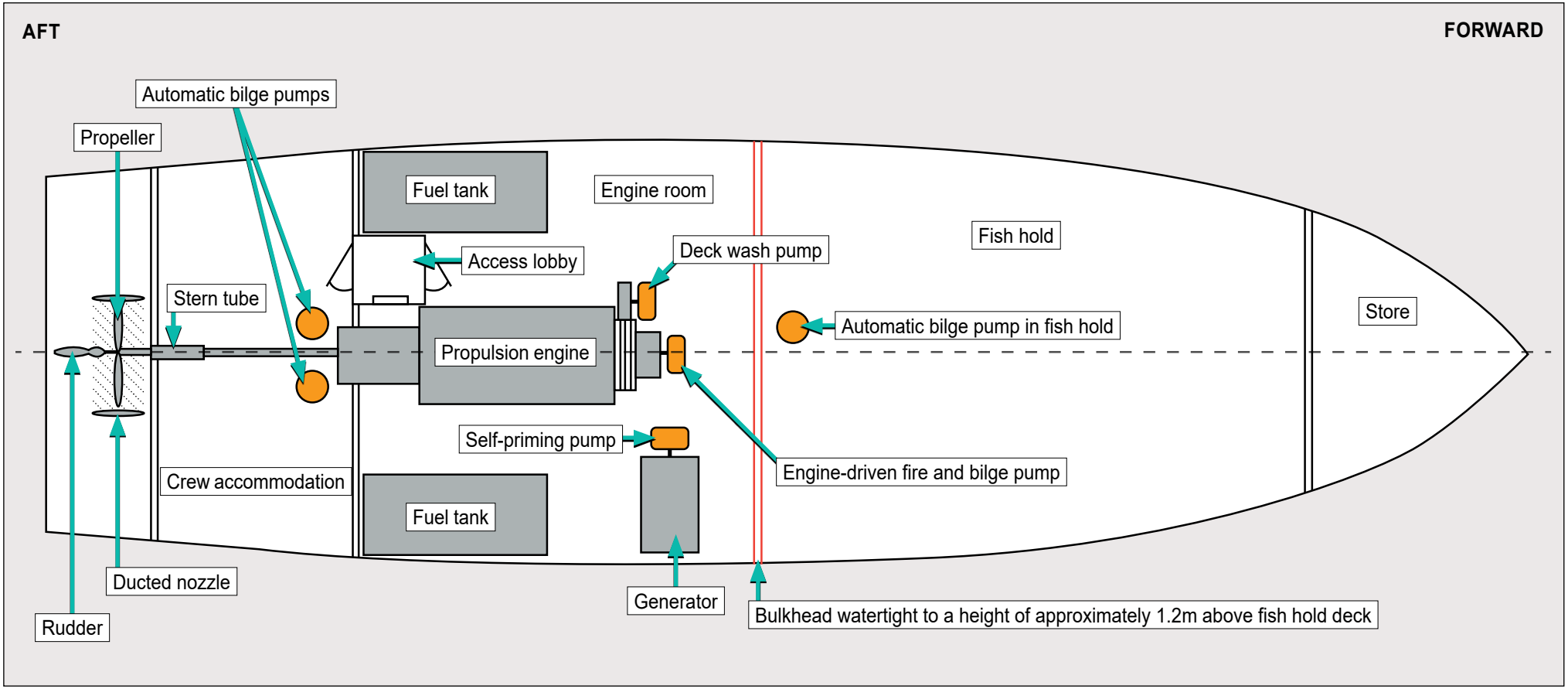

Figure 5: Simplified general arrangement of *Freedom II*

There was an insulated plywood bulkhead between the engine room and the fish hold. The bulkhead's centre section was watertight up to a height of about 1.2m above the deck in the fish hold; the spaces were common above this height. The engine room bilge was common with the cabin space, through which the propeller shaft ran beneath a set of wooden covers in the deck.

1.4.2 Propeller and shaft line

A ducted nozzle was fitted around *Freedom II*'s propeller. The propeller shaft passed through an outer seal, a grease lubricated stern tube, and inner seal into the aft end of the cabin space, where it lay about 600mm below deck level. A wooden cover in the cabin's deck could be removed for inspection purposes. The propeller shaft was connected to the output shaft of the gearbox, which in turn was connected to the propulsion engine.

It was not uncommon for the propeller to become fouled when fishing. This would present as a marked vibration throughout the vessel and the skipper's practice was to pulse the propeller ahead and astern to free the obstruction. When this had previously failed to clear the propeller the skipper had returned to harbour at slow speed, where divers cleared the fouling. The propeller had required repair twice in 2021, once due to damage by *Freedom II*'s nets.

Excessive vibration to the vessel caused by damage to the propeller had previously been sufficient to fracture welds on the mast of one of the skipper's previous fishing vessels.

1.4.3 Crew

Freedom II's crew comprised a skipper and three deckhands. The skipper was a UK national who had owned and operated the vessel since 2007. Deckhand 1 and deckhand 2 were Latvian nationals and the vessel's nominated watchkeepers. Deckhand 1 had worked on *Freedom II* for about 15 years. Deckhand 2 had worked on *Freedom II* since 2018. Deckhand 3 was a UK national who had been working on board *Freedom II* for 10 days at the time of the accident.

In 2021, the skipper, deckhand 1 and deckhand 2 had all completed the mandatory 1-day basic safety training courses required by the Maritime and Coastguard Agency (MCA). Deckhand 3 had only recently returned to sea. Their training record showed that they had completed most of their safety training in 2014. There was no record of deckhand 3 having completed a 1-day basic health and safety course or attended a 1-day safety awareness and risk assessment course for experienced fishers.

1.4.4 Induction and drills

The skipper had conducted a vessel induction with deckhand 3, who was new to *Freedom II*. The skipper maintained a physical folder of safety information and guidance material that reportedly contained a guide to starting the portable salvage pump and indicated the stowage location of the abandon ship lifejackets. The skipper had required deckhand 3 to complete a practical demonstration of their understanding of the vessel's equipment and layout before permitting them to sail on board.

The skipper organised regular drills for the crew, and MCA surveyors observed the conduct of drills during routine surveys and inspections of the vessel. All records were lost when *Freedom II* sank.

1.4.5 Lifesaving equipment

Before the flood, *Freedom II*'s skipper and deckhands were each wearing a 170 Newton PFD provided for their day-to-day use. Once the flood had increased the risk of having to abandon ship, the skipper had instructed the deckhands to don the solid foam lifejackets provided for that purpose.

Freedom II carried a single eight-person liferaft and two lifebuoys. Following an MCA recommendation, a single immersion suit was carried to assist with recovery of a person from the water.

Freedom II had an Emergency Position Indicating Radio Beacon (EPIRB) that was registered with the UK Beacon Registry. The EPIRB activated when the vessel foundered.

1.4.6 Bilge pumping arrangements

Freedom II was fitted with two automatic bilge pumps in the forward end of the cabin space, mounted at the lowest part of the common engine room and cabin space bilge. These bilge pumps had a combined rated pumping capacity of approximately 15m³ per hour. There was a third automatic pump in the fish hold. The bilge pumps were powered by the vessel's batteries and were independent from the propulsion engine and auxiliary generator. They were normally switched to automatic operation and would start if the liquid level in the bilge activated a float switch.

There was an engine-driven fire and bilge pump with a rated pumping capacity of approximately 11m³ per hour. Further, there were two pumps powered by the auxiliary generator: a self-priming pump with a rated pumping capacity of approximately 3m³ per hour and a portable submersible pump with an approximate pumping capacity of 5m^3 to 10m³ per hour that could be plugged into a power socket on board **(**see **Figure 5)**.

A portable diesel engine-driven salvage pump with a rated pumping capacity of approximately 32m^3 per hour was stowed inside the shelter deck area. During a drill in December 2023, the portable salvage pump was noted by the skipper to be in poor condition with heavily corroded electrical connections. The portable salvage pump was maintained and made operational at that time and a replacement salvage pump had been purchased, though had not been placed on board by the time of the accident while awaiting the supply of appropriate couplings.

1.4.7 Deck wash pump

The self-priming deck wash pump was connected to the drive shaft of the propulsion engine through an electromagnetic clutch operated by a switch in the wheelhouse. The deck wash pump had a similar pumping capacity to the fire and bilge pump and was sited approximately 300mm above the engine room floor plates. Seawater was piped from a sea cock in the hull beneath the port forward end of the propulsion engine to a strainer on the inlet to the deck wash pump **(Figure 6)**. The total length of the suction pipe assembly was approximately 1m. The discharge from the deck wash pump was piped up to the deckhead then forward to the shelter deck area, where it was connected to a hose for use by the crew.

The copper alloy suction pipework did not contain a flexible coupling or bellows piece to allow for any relative movement of the deck wash pump assembly. The available evidence indicated that the pipe assembly leading from the hull fitting to the engine-driven deck wash pump was unsupported.

For illustrative purposes only: not to scale

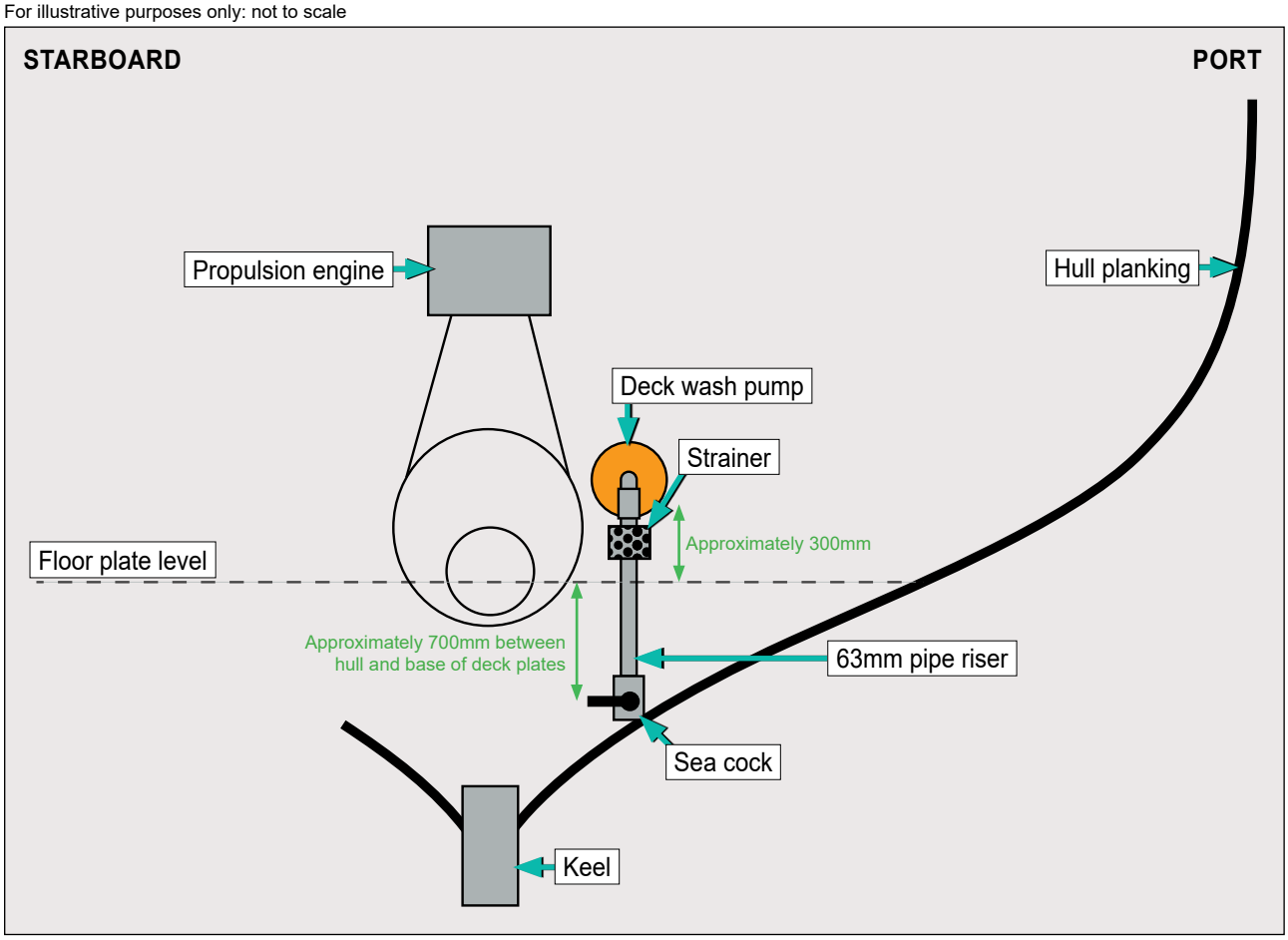

Figure 6: Deck wash pump supply system (not to scale)

1.4.8 Risk management

In 2016, the MCA recorded that the skipper *appeared to have a positive approach to safety*. During a survey in 2021, the MCA surveyor had made recommendations for improvements to *Freedom II*'s man overboard risk assessment, but recorded no other comments about the vessel's documented risk assessments.

The skipper had assessed the risk of flooding and had modified most of the seawater inlet and discharge valves to enable them to be operated from above the engine room floor plates. The skipper had also rerouted the bilge pump pipework to discharge through a hose on deck instead of through-hull penetrations.

1.4.9 Surveys

Freedom II underwent an MCA survey at 5-yearly intervals for the renewal of its UK Fishing Vessel Certificate. MCA surveyors also carried out a mid-point inspection during the 5-year survey cycle. *Freedom II*'s last renewal survey was completed in August 2021 and the vessel held a certificate valid until 31 July 2026.

The report of the survey completed in August 2021 contained a checklist requiring an assessment of the condition of seawater pipework. No concerns had been noted on the survey report by the attending surveyor.

Freedom II's last out of water inspection was conducted in May 2023. The rubber sheathing installed to the vessel's hull to protect it from trawl door strikes was replaced. The hull was reportedly in good condition. The attending MCA surveyor did not comment on the condition of *Freedom II*'s seawater pipework at that survey.

1.5 OBAN ALL-WEATHER LIFEBOAT

1.5.1 Vessel particulars

The Oban RNLI Trent Class ALB had seven crew on board, including the coxswain. The ALB was capable of towing vessels in distress and also carried a small inflatable boat.

1.5.2 Salvage pump

The ALB carried a diesel engine-driven portable salvage pump in a watertight container for transfer to casualty vessels. The salvage pump was capable of discharging at 47m³ per hour. The ALB's crew had recently conducted training on the use of the pump.

1.5.3 Towing

The ALB was equipped with a 200m towline and had a dedicated towing bollard on the aft deck. The towline was connected to a 15m bridle. The bridle was passed through *Freedom II*'s port and starboard forecastle fairleads and connected to bollards in the vessel's bow. The ALB crew payed out the majority of the towline while towing *Freedom II*.

1.5.4 Royal National Lifeboat Institution guidance

The RNLI published various documents to support its crews to provide assistance to a casualty vessel. These included:

- Towing and Marine Salvage Policy;
- Coxswain and Helm Handbook;
- Towing Manual;
- Trent Class Towing standard operating procedure; and
- Working with a Casualty Vessel standard operating procedure.

The Towing and Marine Salvage Policy stated that the *primary purpose of the RNLI is the preservation of life, not the preservation of property*.

The Towing Manual, Towing and Marine Salvage Policy and Trent Class Towing standard operating procedure all stressed that a tow should only be undertaken if it was the best way to preserve life or if it was *believed that such an object might pose a significant risk to navigation, or there is a strong likelihood that it could be mistaken in the future as another casualty, causing a new search to be instigated*.

The Towing Manual advised that RNLI crews should keep the possibility of *casualty vessels sinking or swamping in the front of their minds and act accordingly*. Further, the manual advised crews to check the casualty vessel regularly *for any warning signs of sinking*, but did not outline how to conduct reviews of the situation or what else might be done where a flood was worsening but without clear signs that the vessel was definitively sinking. The manual advised that the tow should be abandoned *should the casualty vessel start sinking*.

The Coxswain and Helm Handbook also provided advice and guidance on floods and the stability impact of floods on a vessel. This included detail on the free surface effect of water in a vessel, the potential need to head towards shallow water to clear channels and hazards, and the use of the salvage pump.

1.6 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 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, increasing the risk of drowning or heart failure.

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. This in turn leads to progressive incapacitation that impedes the ability to swim.

1.7 FREE SURFACE EFFECT

Free surface effect occurs when a vessel's tank or compartment is partially filled with a liquid. Any incline of the vessel causes the liquid to move and acts to reduce the vessel's stability. This adverse effect can lead to a vessel being incapable of remaining upright, taking up an angle of heel known as lolling. It is possible for a free surface effect to reduce the vessel's stability to the extent that it capsizes.

1.8 REGULATIONS AND GUIDANCE

1.8.1 The Code of Safe Working Practice for the Construction and Use of Fishing Vessels

In November 2018, the MCA published Merchant Shipping Notice (MSN) 1872 (F) Amendment 1[3]. This MSN stated that watertight bulkheads on existing vessels were *acceptable provided that such arrangement continues to remain efficient in service*.

[3] 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.

Existing vessels were not required to meet any damage stability requirements. *Freedom II* was an existing vessel when MSN 1872 (F) Amendment 1 came into force.

The MSN stated that existing vessels should have more than one bilge pumping system available. While the main pump was to be power-driven, the secondary pump could be power-driven, a portable salvage pump, or a submersible pump. All were required to be powered separately from the main bilge pump. MSN 1872 (F) Amendment 1 advised that further guidance for bilge alarms and bilge pumps was provided in Marine Guidance Note (MGN) 165 (F) Fishing Vessels: The Risk of Flooding.

Chapter 4 of MSN 1872 (F) Amendment 1 required new or replacement seawater piping installations of less than 100mm diameter and fittings for cooling water systems to be made of *aluminium bronze, cupro-nickel or similar corrosion resistant material*.

Chapter 8 of MSN 1872 (F) Amendment 1 covered emergency procedures. It included the requirement to carry out training and drills at intervals of not more than one month. It also required flooding drills to be incorporated into the training programme, directing fishers to MGN 570 (F) Amendment No.1 Fishing Vessels: Emergency Drills for further guidance.

1.8.2 The risk of flooding

Published in July 2001, MGN 165 (F)[4] provided guidance on the construction and operation of bilge systems, noting that flooding was the primary cause of fishing vessel losses.

The MGN recommended owners and skippers to:

> *consider using additional or alternative equipment, such as salvage pumps, propeller shaft-mounted pumps and secondary bilge alarms, to reduce the risk of catastrophic flooding*

The MGN advised owners and skippers to consider carrying more equipment than the regulations stipulated, and to ensure that *main bulkheads are as watertight as practicable* and to try to *keep the number of sea inlet valves to a minimum*.

Section 7 of MGN 165 (F) listed the steps to take in an emergency:

- *Immediately try to find the cause of the flooding and shut the right sea valve. <u>If in doubt, close all sea valves until the flooding stops.</u>*
- *Start pumping the bilge as soon as possible.*
- *Do not concentrate on other matters, such as recovering the fishing gear. <u>Deal with the flooding first.</u>*

[4] MGN 165 (F) Amendment 1 was published in June 2025.

The risk of catastrophic flooding was also highlighted in MGN 190 (F)[5], which advised the *possibility of* premature pipe failure due *to 'in service' vibration or similar cyclical loading* in seawater systems. This MGN discussed causes and preventative measures to minimise the risk of failures, recommending the appropriate positioning, and lining with rubber, of a sufficient number of pipe supports.

1.8.3 Emergency drills

Published on 10 June 2022, MGN 570 (F) Amendment No.1 provided guidance on various emergency drill scenarios, including *Hull Damage/Taking Water/Sinking*. **Table 1** details the MGN's generic primary and secondary flood response actions.

Primary action	Secondary action	Vessel dependent action	Skipper/crew awareness
Sound alarm	• Crew to muster stations with warm clothing/ lifejackets on	-	• Be aware of muster station • Understand most suitable place to store lifejackets • Access lifejackets quickly • Know how to don lifejackets • Be aware of suitable clothing
Check for water ingress	• Check location and amount of water ingress • Take tank soundings, it might be a fore peak tank breach rather than a hold	• Monitor bilge pumps and alarms	• Be aware of how to check alarms • Be aware of methods for stopping water ingress • Be aware how to take tank soundings
Inform coastguard via DSC	• Send DSC Alert and follow up with VHF call	-	• Be aware of correct procedure
Prepare to fight flooding	• Keep skipper aware of water levels/speed of ingress • Collect damage control kit	• Consider if bailer/ bucket will remove water • Consider if pumps will cope • Consider if additional pumps will help • Request portable pumps	• Be aware of bilge pump capabilities • Be aware how to operate bilge pumps • Able to conduct effective communication with skipper • Be aware how to use damage control kit

[5] MGN 190 (F) – Fishing Vessels: The Premature Failure of Copper Pipes in Engine Cooling Water Systems.

Primary action	Secondary action	Vessel dependent action	Skipper/crew awareness
Prepare LSA[6]	-	• Secure liferafts/ rescue boats in safe area • Provide safe means of boarding	• Know how to release and deploy liferaft
Consider abandon ship	• Close oil and fuel vents • Consider stability of vessel	• Consider evacuation of non-essential crew	-

Table 1: MGN 570 (F) Amendment No.1 flood response guidance

1.8.4 Guidance available to fishermen

The MCA's Fishermen's Safety Guide (FSG)[7] was published in 2014 and subsequently updated in 2020. The FSG was intended to help everyone in the fishing industry to *identify hazards, assess risks and put in place control measures*. The FSG highlighted the benefits of conducting regular drills, and referenced MGN 570 (F) Amendment No.1 for further guidance. The FSG also highlighted the dangers of a free surface effect of water in the vessel, particularly its impact on stability.

On *Hull damage/taking water/sinking*, section 6 of the FSG reiterated the detail provided in MGN 570 (F) Amendment No.1 **(**see **Table 1)** and directed fishermen to MGN 165 (F) for further guidance on flood prevention.

The FSG provided an overview of the GMDSS communications system and the need to ensure the crew's capability to communicate with rescue services. The FSG described DSC distress alerts as *a preformatted distress message,…used to initiate emergency communications with ships and rescue coordination centres*.

The MCA's separate GMDSS VHF DSC procedures for small boat users[8] stated that a distress alert should *Only be used in the event of grave and imminent danger **and** assistance is required*.

A DSC distress alert automatically repeated its transmission at regular intervals until an acknowledgement was received from a coast station or another vessel. The narrow bandwidth of the digital signal also provided an improvement in the range of the transmission, compared to a voice transmission.

[6] Lifesaving appliances.

[7] Fishermen's Safety Guide

[8] Updated 24 July 2024.

1.8.5 Survey and inspection guidance

The MCA's Marine Survey Instructions for the Guidance of Surveyors (MSIS) and surveyor advice note (SAN) guidance provided directions on the conduct of fishing vessel surveys.

Chapter 2 of MSIS 27 – Survey and Inspection of Fishing Vessels covered construction, watertight and weathertight integrity. For wooden fishing vessels, detailed guidance was provided on the examination of hull fastenings and surveyors were instructed to take into account *the fact that many existing wooden vessels were not built with watertight bulkheads*. MSIS 27 reiterated the requirement for a vessel of *Freedom II*'s size to be fitted with two independently powered bilge pumps. Additionally, MSIS 27 advised surveyors to recommend the carriage of a salvage pump.

In October 2016, the MCA produced SAN 29 – Surveying Marine Engine Cooling & Salt Water Piping Systems. SAN 29 provided information to surveyors on the different materials used in fishing vessel pipework as well as guidance on how to inspect each type and the challenges they posed. While SAN 29 highlighted that the use of cupronickel pipework would *resolve concerns about corrosion*, it also advised that surveys should *check non-ferrous pipework is secure and supported without being strained* and that *Failure of a welded joint may indicate a local vibration and the need for extra pipe supports or a flexible connection*.

SAN 29 contained a Report on Hull Condition proforma for recording the details of the survey carried out. The content of SAN 29 was intended to be included in MSIS 27. As of September 2025, SAN 29 had not been incorporated into MSIS 27 and remained an internal MCA reference document.

MCA surveyors were required to witness at least two emergency drills during inspections and surveys, one of which needed to be a manoverboard drill. The guidance in MSIS 27 referred surveyors to the requirements set out in MSN 1872 (F) Amendment 1 and the supporting guidance provided in MGN 570 (F) Amendment No.1, and the FSG. The listed emergency drill scenarios that could be assessed during a survey were:

- *Man Overboard,*
- *Hull damage/taking water/sinking,*
- *Fire, Engine Room, Accommodation or Factory Deck Fire,*
- *Collision/Grounding,*
- *Muster and Abandon Ship*
- *Emergency Anchoring;*

1.9 PREVIOUS/SIMILAR ACCIDENTS

1.9.1 *Ocean Way* – flooding and foundering

On 3 March 2017, trawler *Ocean Way* flooded and foundered off the Shetland Islands. The investigation (MAIB report 10/2018[9]) found that the port trawl door had probably struck and holed the hull, leading to a flood in the vessel's aft compartment. The flood could not be contained because the rate of floodwater ingress exceeded the capacity of the vessel's pumps. The MCA was recommended to update the FSG to include guidance on the preparation for, and response to, flooding emergencies.

1.9.2 *Piedras* – flooding and foundering

On 1 June 2022, the fishing vessel *Piedras* experienced an uncontrolled flood and subsequently foundered (MAIB report 5/2024[10]). The crew abandoned to the one working liferaft and were rescued uninjured by a nearby fishing vessel.

The investigation was unable to establish the exact source of the flood or why it spread and ultimately led to the loss of *Piedras*. However, the report concluded that the crew had not applied the measures described in MGN 165 (F) and the FSG.

1.9.3 *Guiding Light* and *Guiding Star* – crew preparedness

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 *Guiding Star* foundered about an hour later.

The investigation (MAIB report 13/2024[11]) established that the crew were unaware of the potential consequences of a flood and had not been fully prepared for a flooding emergency. A recommendation was made to the MCA to ensure that the consequences of flooding on fishing vessels were highlighted appropriately and to update the guidance to surveyors to ensure that crew preparedness for a flooding emergency was checked and that crew were aware of the actions to take. The recommendation resulted in the MCA publishing an updated version of MGN 165 (F) in June 2025.

1.9.4 *Opportune* – flooding and foundering

On 24 March 2024, the stern trawler *Opportune* foundered off the Shetland Islands, Scotland. The investigation (MAIB report 3/2026[12]) concluded that *Opportune* foundered due to a rapid and uncontrolled engine room flood. The crew abandoned ship into the vessel's liferafts shortly before the vessel sank.

The MCA was recommended to amend MSIS 27 to incorporate SAN 29 to increase internal awareness among MCA surveyors and to make it publicly available to fishing vessel owners. The recommendation also included an update to the MCA's *Report of Hull Condition of a Fishing Vessel* to include a report on the condition of

[9] MAIB report 10/2018: Ocean Way

[10] MAIB report 5/2024: Piedras

[11] MAIB report 13/2024: Guiding Light and Guiding Star

[12] MAIB report 3/2026: Opportune

the vessel's seawater pipework system. A further recommendation was made to the MCA to align the flood mitigation guidance contained in the Fishermen's Safety Guide with that contained in MGN 165 (F).

1.9.5 MAIB flood data on fishing vessels

The MAIB received 230 reports of fishing vessel floods between 2013 and 2022, of which 78 (34%) resulted in the loss of the vessel. During this period there was a downward trend in annual occurrences, reducing from 31 in 2014 to 11 in 2023. The data indicated that the engine room was the most common location for fishing vessel floods.

SECTION 2 – ANALYSIS

2.1 AIM

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

2.2 OVERVIEW

Freedom II suffered an ingress of water into its engine room during fishing operations. The crew could not identify the exact source of the flood and all efforts to deal with the incoming water were ultimately unsuccessful. *Freedom II* eventually capsized and sank. The crew were all recovered uninjured.

This section of the report will analyse the possible causes of the flood, the reasons why the flood was not controlled and the eventual capsize and foundering of *Freedom II*. This section will also consider the impact of emergency drills, distress calls, guidance to the industry, contingency planning and vessel abandonment.

2.3 SOURCE AND MANAGEMENT OF FLOODING

2.3.1 Source of flooding

Given that the crew did not close any seawater inlets or discharges, any ingress from the seawater system would remain unchecked, regardless of when they detected the vessel was flooding. The investigation considered the stern seal as the possible source of flooding. This was deemed unlikely given that propulsion was maintained throughout and flooding from this source would be unlikely to deliver the volume of water observed by the crew during the flood. The investigation also considered the potential for a trawl door strike and hull planking failure. These too were considered unlikely given the length of time between recovery of the trawl doors and the detection of the flood, and the good hull condition reported at the previous survey. Although the source of the flood was not identified at the time, it is very likely that the origins of this accident lay in the excessive vibration that *Freedom II* experienced.

Freedom II was in the process of recovering the cod ends when the crew first noted vibration coming, almost certainly, from the propeller shaft. While the cause was unclear, the vibration was sufficient for the skipper to decide to return to port at low speed to resolve the problem. Vibrations caused by fouling of the propeller, either by entrapment of the fishing gear or floating debris, were reportedly not uncommon. The skipper had experienced such vibration leading to damage on a previous vessel.

The evidence indicated that the copper alloy pipe leading from the hull fitting to the deck wash pump was neither secured nor fitted with a flexible connection as a means to allow for relative movement between the pump, which was mounted on the flexibly mounted engine, and the rigidly mounted hull fitting. This made the pipe susceptible to fatigue, a risk highlighted in MGN 190 (F). Any cyclic stresses in the pipework caused by the movement of the pump were exacerbated by the vibration experienced and likely resulted in its failure.

The lack of water from the deck wash pump when the skipper first engaged the clutch and the lack of any observed spray from a failed discharge pipe further supports the conclusion that the suction pipe had failed.

The most likely source of the flooding was a fatigue failure of the engine-driven deck wash pump suction pipe. The unsupported pipework was vulnerable to vibration-induced stress that increased the risk of failure and flooding of the vessel.

2.3.2 Bilge pumping

Freedom II was fitted with bilge pumps and emergency bilge pumps that exceeded the requirements stated in MSN 1872 (F) Amendment 1. The vessel also carried an additional salvage pump in line with recommended practice.

When the automatic bilge pumps started in response to the rising level of water in the cabin space, the discharges were visible to the crew and the pumps could be heard operating. These two pumps likely continued to operate until floodwaters inundated the battery bank when *Freedom II* foundered. The main engine-driven pump continued to operate until the main engine was shut down about 40 minutes before assistance arrived. Initially, the crew were able to apply a pumping capacity of approximately 26m³ per hour to deal with the flood.

The auxiliary generator could not be started when the rising level of water was picked up by the main engine's flywheel and sprayed onto its control panel. This rendered the self-priming bilge pump and submersible pump inoperable.

The available pumping capacity was further reduced when the propulsion engine was stopped, and the crew were unable to restart the portable salvage pump after it was repositioned.

The unavailable pumping capacity on board *Freedom II* due to the inability to start the generator, the failed salvage pump, and the inundated propulsion engine amounted to a maximum of 56m³ per hour.

The flood was not immediately catastrophic and overwhelming. It is unknown whether the combined capacity of the installed pumps and the salvage pump would have been sufficient to stem the rising water to prevent *Freedom II* foundering had they all been operational. It is likely that the use of all the installed pumps would have extended the time available for alternative actions, such as the closure of all the seawater valves and the use of the salvage pump from the ALB, to be considered and implemented.

The combined capacity of the pumps used to respond to the flood on *Freedom II* was insufficient to combat the volume of water entering the vessel and ultimately led to its foundering.

2.3.3 Floodwater management and review

The RNLI's Towing Manual advised crews to check the casualty vessel regularly *for any warning signs of sinking* and to abandon the tow should the casualty vessel start sinking. However, with no guidance on what *warning signs* to look out for, the actions to take were left to the ALB coxswain's judgement and the RNLI coxswain decided not to transfer the ALB's portable salvage pump to *Freedom II* on arrival at the scene due to the rough conditions.

The skipper of *Freedom II* was well placed to recognise that the immediate actions taken were proving ineffective as the water level continued to rise. That the skipper began arranging repairs for when the vessel arrived back in port indicated a possible lack of perception that the situation was deteriorating. Any opportunity to stem the flow of water into the vessel reduced as floodwater rose, increasing the risk to all on board.

The increasing level of risk to the crew who remained on board *Freedom II* was not identified until the vessel reached the point of foundering. This meant the skipper and deckhand 1 had no choice but to enter the water, placing them at increased risk from the effects of cold water immersion.

2.3.4 Progressive flooding

Freedom II's crew conducted a check of the vessel's compartments shortly after being alerted to the flooding and found the fish hold to be free of water.

The skipper's report to the ALB and coastguard that the flooding had slowed significantly was likely due to the increasing cross-section of the space as the level of water rose. Water overspilling from the engine room into the fish hold when it reached the height of the bulkhead's sealed section between the two spaces would also have contributed to the appearance of a reduction in the rate of ingress. With both spaces filling, *Freedom II* became more sensitive to the larger free surface of the floodwater and its stability reduced considerably. The stability requirements for the vessel did not include consideration of a damaged condition; however, the vessel could not survive uncontrolled flooding of its internal spaces.

Despite several communications between the ALB and *Freedom II*, neither crew adjusted their course of action. This resulted in a missed opportunity to transfer the ALB's portable salvage pump to *Freedom II* when both vessels reached more sheltered waters. With the ability to discharge up to 47m³ per hour, it is possible that the use of this pump may have affected the outcome of this accident.

Although the two crew who remained on board *Freedom II* could feel the change in the motion of the vessel, they associated it with entering rougher waters. This meant that the progressive flooding entering the fish hold was not identified until shortly before *Freedom II* foundered, leaving insufficient time to formulate and implement a plan with the ALB's crew before *Freedom II* sank.

Progressive flooding into the fish hold was not identified until late into the flooding event. This did not allow enough time for a reappraisal of the situation to enable an alternative plan to be developed and implemented.

2.3.5 Communications

Freedom II's skipper attempted to contact the coastguard via the vessel's GMDSS VHF radio when the flood was first identified. Initial contact was unsuccessful, likely due to poor VHF and mobile phone signal coverage in the Firth of Lorn. The skipper did not consider activating a GMDSS DSC alert, believing that *Freedom II* was neither in grave and imminent danger nor that immediate assistance was required. During the initial phase of the emergency, the skipper's intent was to make the coastguard aware of the situation rather than request assistance, though their precautionary instruction to the crew to don their abandon ship lifejackets indicated that they were aware of the possibility that the flooding *Freedom II* was experiencing could result in it foundering.

With its increased range and alert repetition function, it is likely that a DSC alert might have proven more reliable, and in turn initiated an earlier coastguard response.

Once the skipper was able to raise the coastguard, the operator received sufficient information through the disrupted VHF radio communication to decide to initiate a distress response.

The lack of a DSC alert in the early stages of the emergency reduced the time available for the rescue authorities to initiate a response and placed *Freedom II*'s crew at increased risk.

2.3.6 Crew response

The drills completed by *Freedom II*'s crew helped them prepare for and respond to the situation they faced. In line with the flooding response actions identified in MGN 570 (F) Amendment No.1 the crew mustered; donned the appropriate lifejackets; started the available bilge pumps; contacted the coastguard (albeit without activating the DSC alert), and deployed the liferaft to abandon ship. Additionally, previous training on the operation of the portable salvage pump had identified that a replacement was needed based on its condition.

As in the case of *Piedras*, the crew of *Freedom II* were unable to identify the source of the flooding. The stern seal was assumed to be the source due to the vibration experienced and alternative sources were not considered. With the belief the water ingress was from the stern seal, the opportunity to close the seawater inlets and discharges at an early stage of the emergency as a flood control measure was not taken, although some were later shut.

Freedom II's crew had not practised their response to a significant flooding event and, like the crews of *Guiding Star* and *Piedras*, were not fully prepared to react to a serious flood.

The transfer of two deckhands to the ALB reduced the overall risk to people during the tow. However, the subsequent removal of the liferaft from the scene prevented access to lifesaving appliances and exposed the two remaining crew to an elevated risk.

The lack of an effective flood action plan and the misidentification of the likely source of the flood distracted the crew from assessing alternative strategies to reduce the water ingress.

2.3.7 Risk assessment

Although no risk assessments were recovered from *Freedom II*, the skipper had previously taken measures to mitigate the flooding risk by modifying seawater valve operating positions, reducing the number of through-hull connections, and fitting bilge pumps and emergency bilge pumps that exceeded the requirement of MSN 1872 (F) Amendment 1.

The report on the investigation of the collision between *Guiding Light* and *Guiding Star* highlighted the benefit of storing essential survival equipment in an accessible location. The storage of the abandon ship lifejackets below decks on

Freedom II placed the crew at increased risk when retrieving them. However, this risk was reduced by the skipper's decision to have the crew don the abandon ship lifejackets in the early stages of the emergency.

The assessment of the risk of stowing lifesaving equipment below decks did not consider the issues associated with the area becoming inaccessible in the event of a significant flood.

2.4 GUIDANCE

The MAIB's accident data on fishing vessel losses due to flooding showed that it remained a significant issue. The reports on the investigations into the losses of *Guiding Star*, *Piedras* and *Ocean Way* indicated that the risks from significant floods had not been fully recognised, considered or prepared for. On *Freedom II*, even with the crew's good knowledge of their vessel, the severity of the situation was not identified until late into the accident. Without effective guidance on the management of floods, fishing vessels remain at significant risk of foundering should uncontrolled flooding occur.

The various documents published by the MCA to support fishing vessel owners, skippers and crew to plan for and manage a flood were not wholly aligned. The guidance available did not consistently reflect the benefits of isolating seawater valves, the application of the maximum appropriate bilge pumping capacity to deal with a flood, or the reassessment of a flood on an ongoing basis whenever the exact source of flooding was in doubt. This led to the risk that important elements might not be considered unless each document was individually referenced. The MCA's instructions to surveyors referred to a subset of supporting guidance to the fishing industry, leading to possible inconsistencies in the conduct of vessel surveys.

Guidance on how to deal with flooding incidents was inconsistent across the range of published documents. This meant that important information might not have been readily accessible to the fishing industry to support emergency response planning, or to surveyors witnessing emergency drills during surveys.

The MCA's MGN 190 (F) and MSIS 27 highlighted the risks of the failure of copper alloy pipework in seawater systems when subjected to vibration. SAN 29 augmented this guidance to MCA surveyors on the inspection of seawater piping systems and highlighted the same risk of pipe failure due to vibration and the need for copper alloy pipework to be suitably supported. However, as identified in the report of the investigation into the foundering of *Opportune*, SAN 29 was an internal MCA document and not publicly available. Fishing vessel owners and skippers would therefore have been unaware of its content and unable to benefit from its detailed advice.

Without clear and readily available guidance to surveyors and the fishing industry alike, it is likely that the lack of support to the deck wash pump suction pipe might not have been identified as a hazard.

SECTION 3 – CONCLUSIONS

3.1 SAFETY ISSUES DIRECTLY CONTRIBUTING TO THE ACCIDENT THAT HAVE BEEN ADDRESSED OR RESULTED IN RECOMMENDATIONS

1. The most likely source of the flood was a fatigue failure of the engine-driven deck wash pump suction pipe. The unsupported pipework was vulnerable to vibration-induced stress that increased the risk of failure and flooding of the vessel. [2.3.1]

2. The capacity of the pumps used to respond to the flood on *Freedom II* was insufficient to combat the volume of water entering the vessel and ultimately led to its foundering. [2.3.2]

3. The lack of an effective plan for response to a significant flooding event and the misidentification of the likely source of the flood distracted the crew from a comprehensive assessment of alternative strategies to reduce the water ingress. [2.3.6]

4. The increasing level of risk to the crew who remained on board *Freedom II* was not identified until the vessel reached the point of foundering. This meant that the skipper and deckhand 1 had no choice but to enter the water, placing them at increased risk from the effects of cold water immersion. [2.3.3, 2.3.4]

5. Without clear and readily available guidance to surveyors and the fishing industry alike, it is likely that the lack of support to the deck wash pump suction pipe might not have been identified as a hazard during inspections or surveys. [2.4]

3.2 SAFETY ISSUES NOT DIRECTLY CONTRIBUTING TO THE ACCIDENT THAT HAVE BEEN ADDRESSED OR RESULTED IN RECOMMENDATIONS

1. The removal of the liferaft from the scene once its occupants had been recovered to the ALB prevented access to lifesaving appliances and exposed the skipper and deckhand 1 to an elevated risk. [2.3.6]

2. Guidance on how to deal with flooding incidents was inconsistent across the range of published documents, leading to a risk that important information might not be readily accessible to fishing vessel owners, skippers and crew or surveyors witnessing emergency drills during surveys. [2.4]

3. The lack of activation of a DSC alert in the early stages of the emergency reduced the time available to effect a rescue and placed *Freedom II*'s crew at increased risk. [2.3.5]

4. The assessment of the risk of stowing lifesaving equipment below decks did not identify that it could become inaccessible in the event of a significant flood, placing the crew at risk. [2.3.7]

SECTION 4 – ACTION TAKEN

4.1 MAIB ACTIONS

The **MAIB** has:

- Issued a safety flyer to the fishing industry **(Annex A)**.
- Made recommendations to the MCA in its report on the investigation of the flooding and foundering of the trawler *Opportune* (LK 209) to:
    - Amend MSIS 27 – Survey and Inspection of Fishing Vessels to incorporate surveyor advice note 29;
    - Revise its *Report of Hull Condition of a Fishing Vessel* to include a report on the condition of the vessel's seawater pipework; and
    - At the next revision of the Fishermen's Safety Guide, align the document with the flood mitigation guidance contained in MGN 165 (F) – Fishing Vessels: Risk of Flooding.

4.2 ACTIONS TAKEN BY OTHER ORGANISATIONS

The **Maritime and Coastguard Agency** has:

- Accepted MAIB recommendation 2024/134 made in the report on the collision between *Guiding Light* and *Guiding Star*. The recommended action included a review of MGN 165 (F) to incorporate the consequences of flooding on fishing vessels, and an update of the guidance to surveyors to ensure that crew preparedness for a flooding emergency is assessed.
- Updated the aide-memoires used to its surveyors for the assessment of crew preparedness for flooding incidents.

The **Royal National Lifeboat Institution** has:

- Conducted an internal safety learning review following the *Freedom II* accident.
- Acted to review and amend its internal guidance and risk assessments on towing activities.
- Reviewed the scenario-based training delivered to lifeboat crews to reflect lessons learned from accidents.

SECTION 5 – RECOMMENDATIONS

In view of the actions already taken, no recommendations have been made.

MAIB safety flyer to the fishing industry

MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

SAFETY FLYER TO THE FISHING INDUSTRY

Foundering of the fishing vessel *Freedom II* (CN 111)

11 nautical miles south-west of Oban, Scotland

on 21 February 2024

Image courtesy of the RNLI

Video still of *Freedom II* as the vessel capsized to port

Narrative

At 1535 on 21 February 2024, the 15.94m prawn trawler *Freedom II* foundered and sank to the east of the Garvellach Islands in the Firth of Lorn off the west coast of Scotland. *Freedom II* had suffered an uncontrolled flood into the engine room. The crew were initially alerted to the flood by the activation of the bilge alarms but did not isolate any sea cocks as they believed that the flood was due to a failed stern seal. The flood, likely caused by the failure of a seawater pipe, overwhelmed the available bilge pumps and passed into the fish hold.

The skipper and a deckhand tried to deal with the flood while *Freedom II* was taken under tow by an RNLI lifeboat. The tow was abandoned when it became apparent that the vessel was sinking, and the skipper and the deckhand swam clear of the vessel as it foundered; they were recovered from the water by the lifeboat's crew.

The MAIB received 230 reports of flooding of fishing vessels between 2013 and 2022, of which 78 (34%) resulted in the loss of the vessel. The data indicates flooding remains a significant safety issue.

Safety lessons

1. Flooding is preventable, but if it occurs can be controlled in most cases. If discovered early, leaking pipes can be isolated and the flooding controlled by pumping out the affected space. Flooding can be rapid, and late discovery leaves no time to treat the cause. An efficient bilge alarm can be critical in providing early warning of flooding.

2. If in doubt as to the source of a flood, closing down the seawater system might contain the floodwater and help to identify the source.

3. On board *Freedom II* the crew initially checked all the compartments around the vessel; however, it was only later in the emergency that the fish hold was found to be almost fully flooded. Regular checks for progressive flooding can help inform effective decision-making throughout each stage of the emergency.

4. Regular checks and function tests of bilge alarms and pumps, together with regular examinations of vessel hulls and pipework will assist in preventing potential leaks or failures occurring.

5. Being prepared for an emergency, and knowing what to do when it occurs, is vital for the safety of all on board: know your vessel systems; test your emergency pumps and drill for emergencies.

This flyer and the MAIB's investigation report are posted on our website: www.gov.uk/maib

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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 safety flyer 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.

Marine Accident Report