ACCIDENT REPORT

Red Ensign Group

St Helena Government

Report on the investigation of

the foundering of the longline fishing vessel

Argos Georgia

approximately 190 nautical miles east of Port Stanley, Falkland Islands

with the loss of 13 lives

on 22 July 2024

VERY SERIOUS MARINE CASUALTY REPORT NO 19/2026 SEPTEMBER 2026

MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

Extract from

The United Kingdom Merchant Shipping

(Accident Reporting and Investigation)

Regulations 2026 – Regulation 5:

The sole objective of a safety investigation into an accident under these Regulations is the prevention of future accidents through the ascertainment of its causes and circumstances. It is not the purpose of such an 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 19(1) of The Merchant Shipping (Accident Reporting and Investigation) Regulations 2026, shall be inadmissible in any judicial proceedings concerning liability unless the Chief Inspector of Marine Accidents or a court of law determine otherwise.

Front cover image from Argos Froyanes Limited

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

2/E	-	second engineer
2/O	-	second officer
3/E	-	third engineer
AFL	-	Argos Froyanes Limited
AGL	-	Argos Georgia Limited
AIS	-	automatic identification system
AOL	-	Argos Operations Limited (Gibraltar)
AoR	-	Area of Responsibility
Argos FI	-	Argos Limited (based in the Falkland Islands)
BFSAI	-	British Forces South Atlantic Islands
C/E	-	chief engineer
C/O	-	chief officer
CAP	-	Central Alerting Post
CEC	-	Certificate of Equivalent Competency
CESM	-	Cold Exposure Survival Model
COG	-	course over the ground
COMSAR	-	IMO Sub-Committee on Radiocommunications and Search and Rescue
DNV	-	Det Norske Veritas
DAP	-	design approval preview
DSC	-	digital selective calling
EGC	-	Enhanced Group Call
EPIRB	-	emergency position-indicating radio beacon
ETA	-	estimated time of arrival
FEA	-	finite element analysis
FICZ	-	Falkland Islands Inner Conservation Zone
FIG	-	Falkland Islands Government
FIMA	-	Falkland Islands Maritime Authority
FishOps	-	Falkland Islands Government Fisheries Operations
FOCZ	-	Falkland Islands Outer Conservation Zone
FPV	-	fisheries patrol vessel

FSM Code	-	Fishing Safety Management Code
FV	-	fishing vessel
GMDSS	-	Global Maritime Distress and Safety System
GSGSSI	-	Government of South Georgia and the South Sandwich Islands
HMCG	-	His Majesty's Coastguard
HSE	-	Health Safety & Environmental
IAMSAR	-	International Aeronautical and Maritime Search and Rescue
IFVC	-	International Fishing Vessel Certificate
ILO 188	-	International Labour Organization work in Fishing Convention No.188
IMO	-	International Maritime Organization
JCR	-	Joint Control Room
JOC	-	Joint Operations Centre
JRCC	-	Joint Rescue Coordination Centre
LSA	-	lifesaving appliances
MAIB	-	Marine Accident Investigation Branch
MCA	-	Maritime and Coastguard Agency
MF/HF	-	medium frequency/high frequency
MGN	-	Marine Guidance Note
MRCC	-	Maritime Rescue Coordination Centre
MSN	-	Merchant Shipping Notice
nm	-	nautical mile
OSC	-	on-scene commander
RA	-	risk assessment
RAF	-	Royal Air Force
RCC	-	Rescue Coordination Centre
RO	-	Recognized Organization
SAR	-	search and rescue
SART	-	search and rescue transponder
SIB	-	stability information book
SMS	-	safety management system
SOG	-	speed over the ground

SOLAS	-	The International Convention for the Safety of Life at Sea, 1974, as amended
SRR	-	search and rescue region
UTC	-	universal time coordinated

TIMES: all times used in this report are UTC -3 unless otherwise stated.

SYNOPSIS

At about 1900 on 22 July 2024, the St Helena registered longline fishing vessel *Argos Georgia* capsized and sank while on passage from Port Stanley, Falkland Islands to fishing grounds near South Georgia. Of the 27 people on board, 13 perished and 14 were recovered.

At about 1300, while approximately 190 nautical miles east of Port Stanley, *Argos Georgia* had experienced an uncontrolled ingress of water through the line hauling hatch. Water progressively flooded into the line hauler room then through the vessel via weathertight doors that had been left open, and the vessel took on a starboard list. A crew member raised the alarm via a colleague on a fishing vessel operating in the same region. This alarm was relayed to the authorities in the Falkland Islands and a rescue operation was initiated.

As the list of the vessel steadily increased, the crew mustered and donned their immersion suits. At about 1551, *Argos Georgia* lost propulsion and the vessel drifted in the heavy seas. By about 1600, with the list further increasing, the crew started abandoning ship into two liferafts. One of the liferafts became damaged during the abandonment. *Argos Georgia* foundered at about 1900.

By about 1130 on 23 July 2024, two of the responding vessels had recovered 14 survivors and nine deceased crew members. Four crew members remain missing, presumed dead.

The investigation found that the previously closed line hauling hatch opened uncommanded and unexpectedly at the time of the accident. The hatch's manual securing bolts had likely not been applied before proceeding to sea. The crew were unable to close the hatch once it had opened, probably due to a failure of the hatch's operating mechanism. A hinged weathertight door leading from the line hauling compartment was open and hooked back. Sliding electro-hydraulic weathertight doors could not be closed, probably because of deluged control system short-circuits. The floodwater prevented crew accessing the manual emergency control.

The nine deceased crew all wore immersion suits. Eight of the deceased were found face down in the water and had drowned.

The Maritime and Coastguard Agency has been recommended to enhance requirements for shell door securing arrangements in the relevant fishing vessel code. Recommendations have been made to the vessel's management company, Argos Froyanes Limited, to implement a safety management system for its fleet. A recommendation has also been made to the Falkland Islands Government, Directorate of Emergency Services and Islands Security to enhance its search and rescue communications capability.

SECTION 1 – FACTUAL INFORMATION

1.1 PARTICULARS OF *ARGOS GEORGIA* AND ACCIDENT

SHIP PARTICULARS	
Vessel's name	*Argos Georgia*
Flag	St Helena
Classification society	Det Norske Veritas
IMO number/fishing numbers	9812690/ZHHJ
Type	Longline fishing vessel
Registered owner	Ervik Ocean AS
Manager	Argos Froyanes Limited
Construction	Steel
Year of build	2018
Length overall	53.85m
Registered length	49.48m
Gross tonnage	2,004
Minimum safe manning	10 for navigational passage, 18 for fishing operations
Authorised cargo	Frozen fish products

VOYAGE PARTICULARS	
Port of departure	Port Stanley, Falkland Islands
Port of arrival	Fishing grounds off South Georgia
Type of voyage	On passage
Cargo information	Patagonian toothfish
Manning	25 crew and 2 observers

MARINE CASUALTY INFORMATION	
Date and time	22 July 2024 at about 1900
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	Approximately 190nm east of Port Stanley, Falkland Islands
Place on board	Line hauler room/starboard side line hauling hatch
Injuries/fatalities	13 fatalities
Damage/environmental impact	Vessel loss
Ship operation	On passage
Voyage segment	Mid-water
External environment	Reported wind speeds of between 40kts and 75kts; wave heights between 7m and 10m; sea temperature 3.5°C
Persons on board	27

1.2 BACKGROUND

The investigation into the circumstances of the accident was conducted by the Marine Accident Investigation Branch (MAIB) on behalf of the St Helena Government in accordance with the Category 2 Red Ensign Group Memorandum of Understanding.

Argos Georgia **(Figure 1)** was a 53.85m longline fishing vessel with a 13m beam. The vessel had accommodation for 28 people, a longline fishing capacity of approximately 40,000 hooks and a cold storage volume of 655m³.

The fully enclosed main deck comprised a line hauler room, line magazine room, fish processing room[1], crew rest room and engineering spaces. The line hauler room contained the moon pool, which was located along the centreline. An electro-hydraulic weathertight line hauling hatch **(Figure 2)** in the vessel's starboard shell enabled the fishing buoys to be recovered on board.

The fish processing and freezing rooms were forward of the line hauler room and accessed through a hinged weathertight door. Starboard aft of the line hauler room was a conveyor belt room, which had a hydraulically operated athwartships sliding weathertight door at each end.

The line magazine room was inboard of the conveyor belt room and aft of the line hauler room and stored the fishing line and hooks. This room was accessed from the line hauler room through a hinged weathertight door. Midway along the line magazine room walkway was a hinged weathertight door to the crew rest room.

Argos Georgia fished for Patagonian toothfish, a species found in the cold waters (1°C to 4°C) of the South Atlantic Ocean at 45m and 4,000m depths.

1.3 NARRATIVE

1.3.1 Port Stanley activities

At 1410 on 19 July 2024, *Argos Georgia* arrived alongside in Port Stanley, Falkland Islands. Part of the previous catch was offloaded, with 70 tonnes remaining on board. The vessel also bunkered 300m³ of fuel[2], and 40m³ of fresh water into two tanks, and loaded other stores.

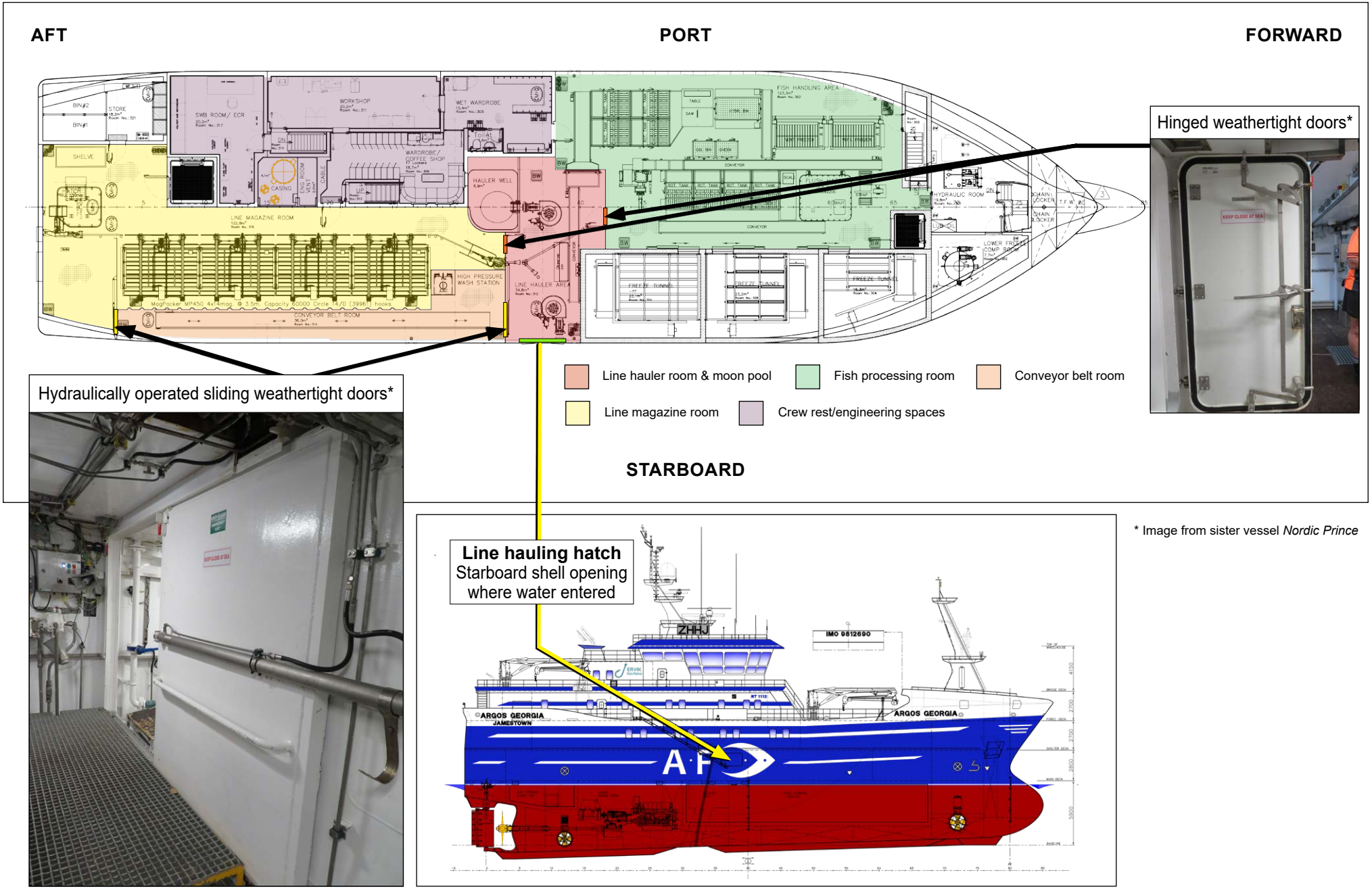
Three crew members[3] and two observers joined *Argos Georgia* to replace personnel leaving the vessel. The new joiners were given an on board safety familiarisation tour covering emergency escape routes, emergency equipment and their emergency roles and positions. The captain informed the crew that a safety drill would be held the following day.

[1] Also known as the factory.

[2] The total bunker fuel on board was 430m³.

[3] A chief engineer (C/E), second engineer (2/E) and second officer (2/O).

General arrangement from Marin Teknikk



* Image from sister vessel *Nordic Prince*

Figure 1: *Argos Georgia* main deck general arrangement

Image from Argos Froyanes Limited

External view of line hauling hatch and nearest hydraulically operated sliding weathertight door*

Internal view of line hauling hatch from inside the line hauler room

Figure 2: The line hauling hatch

* Image from sister vessel *Nordic Prince*

1.3.2 Passage to the fishing grounds

At 1918 on 21 July 2024, *Argos Georgia* departed Port Stanley to begin a 3 to 4-day passage to fishing grounds off South Georgia. The vessel's departure draughts were reported to be 7.0m to 7.2m aft and 4.0m to 4.2m forward and there was a slight starboard list.

During departure the crew opened the line hauling hatch to fit the external buoy line roller, and then closed the hatch; the four locking bolts were either not used or not securely tightened.

The weather conditions deteriorated to strong westerly winds and high seas after departure, but the crew did not consider this unusual.

At about 1235 on 22 July, *Argos Georgia* was approximately 190 nautical miles (nm) east of Port Stanley. The captain was on watch alone in the wheelhouse, sitting in the starboard side chair which provided oversight of the vessel's controls and monitoring systems including CCTV cameras. The deck bosun was on the working deck securing loose fishing equipment and moving between the line hauler, conveyor belt and line magazine rooms. Other crew members were having lunch or resting in their cabins.

At 1240, the wind direction changed to the aft quarter and caused *Argos Georgia* to roll. The captain altered course to about 092° and reduced speed slightly to 9.7kts to make the vessel's movement more comfortable.

At about 1300, the electro-hydraulic weathertight line hauling hatch lowered unexpectedly to the fully open position, and seawater entered the line hauler room. The hinged weathertight door from the line hauler room to the line magazine room was open and hooked back, the hydraulically operated sliding weathertight doors to the conveyor belt room were both open, and the hinged weathertight door to the fish processing room was closed.

The 2/O, who had been in their cabin on the forecastle deck abaft the line hauler room, heard a loud bang and noticed that the vessel had started to list to starboard.

1.3.3 Water ingress and crew actions

The captain used the vessel's public address system to call the C/E and reported that the line hauling hatch was open. The captain operated the emergency closing controls on a touch screen panel, but the hatch did not raise, the conveyor belt doors did not shut and the hydraulic bilge flaps did not close. The captain then operated the remotely controlled valve to drain the roll reduction tank holding approximately 18m³ of seawater. The deck bosun attempted to close the line hauling hatch using the control buttons next to the hatch, but it did not raise.

The C/E left the engine control room and went forward to the line hauler room and saw a large volume of water entering through the open line hauling hatch, filling the line hauler room and conveyor belt room. The water was rapidly rising above the coaming of the hinged weathertight door from the line hauler room to the line magazine room and some of the wooden deck plates in the line hauler room were floating. Aware of the depth of the bilge under the deck plates, the C/E decided not to try to reach the line hauling hatch controls on the deckhead aft of the hatch, or to try to close the manual door in the line hauler room.

From the CCTV monitor in the main deck rest room, the crew could see the water entering the line hauler room. The fishing skipper told them to go to the upper deck, stating that the vessel could not be saved.

As water flooded into the line hauler room the C/E and deck bosun made their way from the line magazine room to the wheelhouse via the crew rest room door, which they closed after they passed through it. The second bosun, hearing the public address announcement, went from their cabin to the crew rest room, where they met the C/E and deck bosun. The deck bosun told the second bosun that he had tried to close the line hauling hatch and the conveyor belt room doors using the local controls, but they did not work. As the list increased, the second bosun alerted other crew members and told them to assemble in the wheelhouse. The C/E and deck bosun then made their way to the wheelhouse. During this time the general alarm was sounded. The chief officer (C/O), who had an injured back and was resting in their cabin, heard the alarm and thought that it was the planned abandon ship drill.

The 2/O made their way up to the wheelhouse and found the captain alone and in distress. The 2/O noted from the CCTV monitor that the line hauler room was flooded to the top of the moon pool coaming.

In the wheelhouse, the C/E operated the emergency closing controls on the touch screen panel. Watching both the touch screen panel and the CCTV screens, the C/E saw that the line hauling hatch and the forward and aft sliding doors to the conveyor belt room did not close.

At about 1336, the captain altered course to port to about 060° course over the ground (COG) and reduced speed to 8.0kts speed over the ground (SOG), followed a minute later with a COG of 348° and SOG of 6.2kts. The alterations were intended to put the weather on the port side with the aim to stop water flooding through the open line hauling hatch on the starboard side.

By 1340, the COG was 300° and the vessel speed had reduced to 1.6kts. As the vessel turned to port, water continued to flood through the line hauling hatch and into the line hauler room.

At 1345, as *Argos Georgia* listed heavily to starboard, the fishing skipper contacted the fishing vessel (FV) *Puerto Toro* via WhatsApp and reported that the vessel was "*going down*", that the starboard line hauling hatch had opened and could not be shut, and requested that *Puerto Toro* proceed to assist and arrange for a "*distress signal*" to be sent. At 1357, the 2/E advised in a further WhatsApp message that *Argos Georgia* was taking on water and at risk of sinking. The message was relayed to Polar Seafish Ltd[4] in the Falkland Islands.

With the general alarm having sounded, the crew mustered at the wheelhouse muster station and donned immersion suits. After discussing the situation with the captain, the C/E subsequently removed their immersion suit and went with the factory manager down to the engine room. The C/E and factory manager started the bilge pumps and began transferring fuel from the starboard to the port side fuel tank, and the starboard freshwater tank was pumped overboard. While transiting the accommodation, they saw that water was entering the mess room on the starboard side shelter deck through the deckhead air vents, and that water was also in the crew rest room. The vessel's list was about 50°.

The C/O made their way slowly to the wheelhouse and found that all the crew were outside and dressed in their immersion suits.

At about 1510, the captain altered *Argos Georgia*'s course to 262° to head into the weather, with the wind on the port bow and an SOG of about 2.9kts. As the list increased, the crew remained dressed in their immersion suits waiting for further instructions.

The increasing list made it difficult to stay on the sloping wheelhouse deck and the crew gathered outside the port side alleyway door and on to the forecastle before moving to the aft deck. They waited for over an hour for further instructions. The captain showed increasing signs of distress and held the belief that the pumps were reliable, would cope, and that *Argos Georgia* could be recoverable. Unable to walk or crawl on the wheelhouse deck without slipping, the captain could not reach the vessel's Global Maritime Distress and Safety System (GMDSS) stations[5] at the captain's chair or the communications area in the centre of the wheelhouse.

By 1529, a representative of Argos Froyanes Limited (AFL) based in the Falkland Islands office, Argos Limited (Argos FI), was acting as the communication link between *Argos Georgia* and the authorities ashore. The representative informed the Falkland Islands Maritime Authority (FIMA) that the crew were at the muster station wearing immersion suits, the vessel had developed a heavy starboard list, the wheelhouse was inaccessible, water had entered the fish processing room and engine room, pumping efforts were continuing, and one officer had been injured. The representative advised that *Argos Georgia* was declaring a distress and preparing to abandon ship. Until this point, information passed ashore had indicated that the crew were attempting to control the flooding and that the vessel was holding its own against the water ingress. At 1538, FIMA received further information that the crew were in immersion suits preparing to abandon ship.

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[4] Polar Seafish Ltd was a Falkland Islands fishing vessel operator and owner of FV *Robin M Lee*.

[5] *Argos Georgia* GMDSS equipment included VHF/MF/HF radios, satellite communications, manual and float-free EPIRBs, search and rescue transponders (SARTs), handheld VHF and NAVTEX receivers.

At about 1551, *Argos Georgia*'s main engine stopped, the vessel lost main electrical power and the emergency generator started. Shortly afterwards, *Argos Helena* broadcast a "Mayday Relay" on behalf of *Argos Georgia*.

After discussion with the officers, who all viewed the vessel as unsurvivable, and with the diminishing daylight, the captain gave the command to abandon ship approximately 20 minutes later after being approached by the fishing skipper. The vessel's list had by then increased to between 60° and 70°.

1.3.4 Deployment of lifesaving apparatus and abandon ship

An embarkation ladder was lowered across the heavily listed aft upper deck to enable the crew to climb down from the higher port side to the lower starboard side, where the deck edge was at the water level. The starboard liferaft capsule became submerged and its hydrostatic release unit operated, releasing the liferaft and causing it to inflate.

The port side liferaft was released by crew members. The liferaft initially snagged on a ladder but was eventually lowered into the water where it was inflated. The crew used the liferaft's painter to guide it around the stern and alongside the starboard liferaft. Both liferafts were held by their painters about 20m to 25m away from the vessel due to the waves and windy conditions. In the severe conditions, the painter lines became entangled.

As *Argos Georgia*'s upper deck became submerged in the approximately 8m waves, several bulk oil storage tanks which had been stowed on the upper deck broke free and subsequently damaged the starboard handrails.

As many of the crew were reluctant to enter the water, they pulled the liferafts closer to the vessel's starboard quarter. The 2/E climbed down the embarkation ladder and attempted to swim to the liferafts but became tangled in the painter lines. The C/E jumped in and tried to save the 2/E, but the 2/E was lost at sea. The C/E swam to and boarded the port side liferaft. Following the loss of the 2/E, the cook attempted to reach the liferafts. As he entered the water, the waves threw him against the side of *Argos Georgia* and he also perished.

The crew pulled the liferafts closer to the vessel to attempt to board them dry-shod. Several of the crew jumped together into the port side liferaft but, as the port side liferaft was pulled close, the damaged handrails on the upper starboard deck punctured the liferaft's buoyancy tubes and it partially deflated.

Thirteen crew who had entered the port side liferaft climbed across onto the undamaged starboard liferaft. The port side liferaft was then blown away from *Argos Georgia*. Those remaining on board the vessel were unable to pull the laden starboard liferaft closer to allow them to board it and the liferaft drifted further away. The crew on board the starboard liferaft had taken with them an emergency position-indicating radio beacon (EPIRB) and a handheld VHF radio.

Meanwhile, four crew members boarded the damaged port side liferaft and, once *Argos Georgia*'s remaining crew had pulled it closer, two more jumped into it. The crew found that one of the lower tubes had inflated but the upper tube was damaged, the floor had partially failed and part of the roof had collapsed.

At 1651, as the sun set, *Argos Georgia* was still afloat with a severe list. At least four crew members, including the fishing skipper, remained on board. The whereabouts of the others were unknown.

It was dark when the crew on board the starboard liferaft heard a helicopter arrive. The captain instructed the C/E to cut the liferaft's painter. The captain unsuccessfully attempted to call the helicopter using a handheld VHF radio and, believing it was damaged, stopped further attempts.

Those on board the damaged port side liferaft also heard the helicopter. At some point, the liferaft's painter was cut or parted and the liferaft began to drift away from the stricken vessel. The crew held onto the damaged liferaft tubes but their grip was broken every time a wave broke over the liferaft. All but one crew member and the deck bosun were washed out of the liferaft but the deck bosun died before they were recovered.

1.3.5 Emergency response

Shortly after the 1357 WhatsApp message from *Argos Georgia*'s 2/E to *Puerto Toro*, FIMA received a phone call from Polar Seafish Ltd informing it that *Argos Georgia* had reported water ingress from the line hauling hatch and was requesting assistance. The vessel's position was 52°21.56'S, 052°49.5'W, approximately 190nm east of Port Stanley **(Figure 3)**. A local weather forecast application reported westerly winds at 40kts with 8m swells.

At 1405, FIMA contacted His Majesty's Coastguard (HMCG) Joint Rescue Coordination Centre (JRCC) at Fareham, UK, and the Falkland Islands Government (FIG) head of fisheries management to advise them of the situation. FIG Fisheries Department transferred operational control of the Falkland Islands fisheries patrol vessel (FPV) *Lilibet* to FIMA. FPV *Lilibet* was subsequently tasked to assist in the search and rescue (SAR), with an estimated time of arrival (ETA) on scene of 0900 the following day after a 302nm transit from its patrol area.

At 1409, a crew member on board FV *Argos Helena* informed the vessel's captain that they had received a call from a crew member on board *Argos Georgia* stating that the vessel was taking on water and listing heavily.

At 1410, FIMA contacted the British Forces South Atlantic Islands (BFSAI) Joint Operations Centre (JOC) and, shortly afterwards, the Government of South Georgia and the South Sandwich Islands (GSGSSI) to inform them of the situation. Argos FI advised that FV *Puerto Toro*, previously sheltering to the east of the Falkland Islands, was proceeding to *Argos Georgia*'s location. The distance between the two vessels was 180nm, and *Puerto Toro* could make 8kts in the sea conditions. Polar Seafish Ltd also advised FIMA that FV *Robin M Lee* was en route from shelter to *Argos Georgia*'s position, with 194nm to travel. Representatives from Polar Seafish Ltd subsequently attended the FIMA offices and provided translation support with FV *Puerto Toro* and FV *Robin M Lee*.

At 1415, the master of FV *Argos Helena*'s master contacted FV *Nordic Prince*'s master to ask if a "Mayday" had been received. As none had, the master subsequently contacted Argos FI to ask if *Argos Georgia* was in distress.

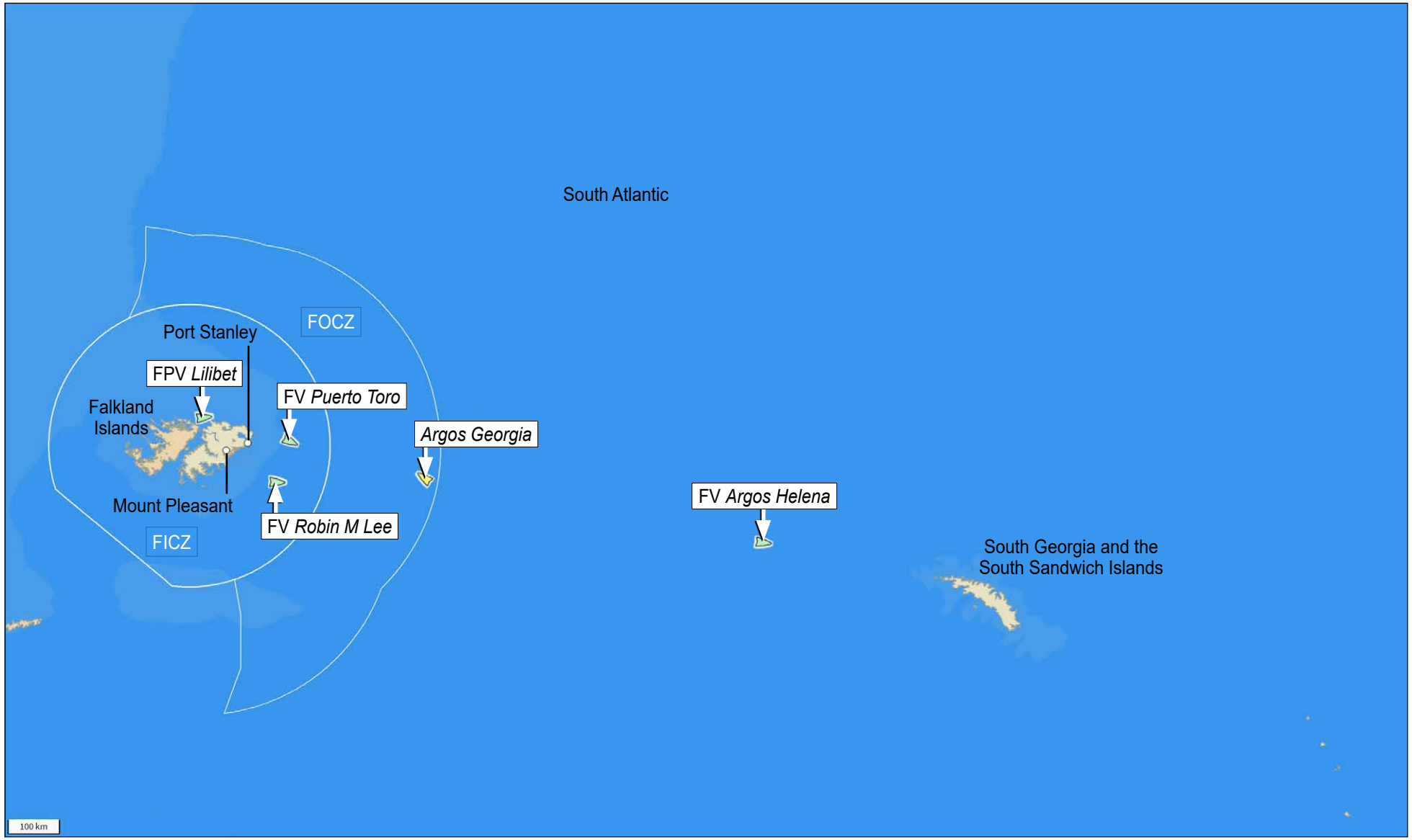


Figure 3: Location of accident and disposition of supporting vessels

At 1435, Argos FI updated FIMA advising that *Argos Georgia*'s line hauling hatch was open and the vessel's line hauler room and conveyor belt room had flooded. The company indicated that *Argos Georgia*'s crew were coping and that the vessel's propulsion system was intact. About 10 minutes later, FV *Argos Helena*'s master received a WhatsApp message, forwarded from FV *Puerto Toro*'s master, reporting that *Argos Georgia* was in distress.

At 1454, the BFSAI JOC informed FIMA that the initial planning figure for a rotary wing aircraft carrying up to seven passengers was a maximum range of 170nm. A Royal Air Force (RAF) Airbus A400M Atlas (fixed-wing) aircraft was on 2 hours' notice with a 2-hour flight time. Shortly afterwards, FIMA's traffic monitoring system provided *Argos Georgia*'s position as 52°19.37'S and 052°50.26'W at a speed of 2.3kts westward.

The on scene ETAs for the rescue vessels gave 0350 for FV *Robin M Lee*, 0450 for FV *Puerto Toro* and 0900 for FPV *Lilibet* on 23 July 2024.

At 1505, FV *Argos Helena*'s master contacted Argos FI and advised that *Argos Georgia* should transmit a distress message if the vessel was in distress.

At 1527, the BFSAI JOC advised FIMA that the rotary wing SAR aircraft's operating range had been extended by removing equipment, reducing its lift capacity from seven people to two.

At 1529, Argos FI advised FIMA that *Argos Georgia*'s crew were at the muster station in immersion suits, the wheelhouse was inaccessible due to the heavy starboard list, water was entering the fish processing room and engine room, although pumping efforts were ongoing, one officer was injured, and that they were declaring a distress and preparing to abandon ship. Shortly afterwards, FIMA contacted BFSAI JOC to request all available SAR assets to be deployed.

At 1538, Argos FI informed FV *Argos Helena*'s master that *Argos Georgia* was in distress and the crew were preparing to abandon ship.

At 1558, Argos FI advised FIMA that, at 1552, another of its vessels, FV *Argos Helena*, had issued a "Mayday Relay" on behalf of *Argos Georgia* and was approximately 340nm from *Argos Georgia*. The "Mayday Relay" was sent to every Maritime Rescue Coordination Centre (MRCC) and via Inmarsat C[6].

At 1600, the Bristow-operated Leonardo AW189 SAR helicopter *Rescue100* was airborne from RAF Mount Pleasant Airport. Approximately 20 minutes later, *Rescue100* landed at Stanley Airport to refuel and extend its operational range to reach the casualty position. *Rescue100* departed Stanley Airport at 1629.

At 1623, Argos FI advised FIMA that all *Argos Georgia*'s crew had abandoned ship to its inflatable liferafts, carrying a handheld VHF radio. Soon afterwards, the fixed-wing aircraft took off. At 1719, the aircraft arrived on scene and sighted *Argos Georgia* **(Figure 4)**.

[6] A global two-way digital satellite communication service.

Image from the Ministry of Defence

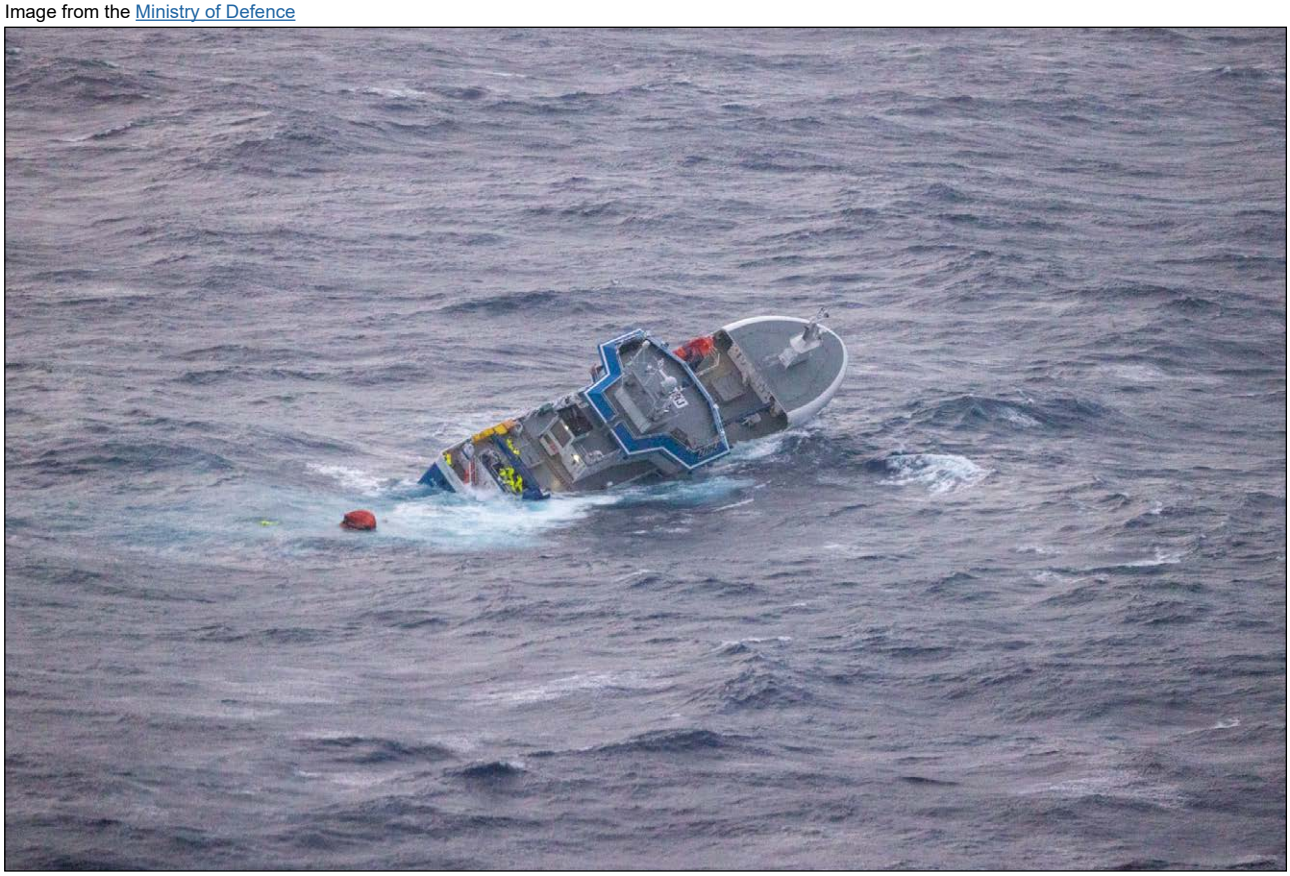


Figure 4: *Argos Georgia* as viewed from the fixed-wing aircraft on arrival at the scene

At 1743, *Rescue100* arrived on scene with an approximate 10-minute window of operation. The crew identified approximately four people on board *Argos Georgia*, liferafts and a lifejacket in the water, and estimated that the vessel's list was between 50° and 70°. Three minutes later, FIMA reported that *Argos Georgia*'s automatic identification system (AIS) transmissions had stopped.

The fixed-wing aircraft was unable to establish communication with the liferafts and could not associate any detected distress beacons with them. The only visible indicators were strobe lights. Shortly afterwards, two liferafts were identified, one of which appeared partially deflated, and *Argos Georgia*'s stern was observed to be partially submerged.

A first attempt by *Rescue100* to approach the vessel's raised port side and assess the feasibility of recovering those remaining on board was aborted due to the large vertical movements of the vessel. The crew of *Rescue100* observed a survival suit in the water with the person floating face up and attempted to recover this casualty. The first attempt resulted in minor injuries to the winchman due to the severe sea conditions. A second attempt resulted in the unresponsive casualty being lifted to the helicopter door. The casualty's survival suit was waterlogged and slippery from a coating of fuel and the helicopter crew were unable to hold and recover the casualty on board. The casualty slipped out of the partially fitted recovery sling and fell back to the sea[7]. At 1802, having passed its maximum duration on scene, *Rescue100* departed for Stanley Airport.

[7] Air Accidents Investigation Branch bulletin 1/2025

The fixed-wing aircraft provided updates on the last light observed from *Argos Georgia* at about 1835 **(Figure 5)**, liferaft positions, and tracking seven locator beacons in the water. At about 1900, *Argos Georgia* foundered. The fixed-wing aircraft remained on scene until 2100, when an RAF A330 Voyager tanker aircraft replaced it.

At 2104, *Rescue100* arrived at Stanley Airport but was unable to undertake a second mission due to the severe weather conditions. Later that evening, the BFSAI contacted FIMA to inform it that the fixed-wing aircraft would relaunch at 0700. During the night, and into the following morning, search area planning was undertaken at FIMA including making use of search area plans[8] provided by the UK JRCC.

Image from the Ministry of Defence

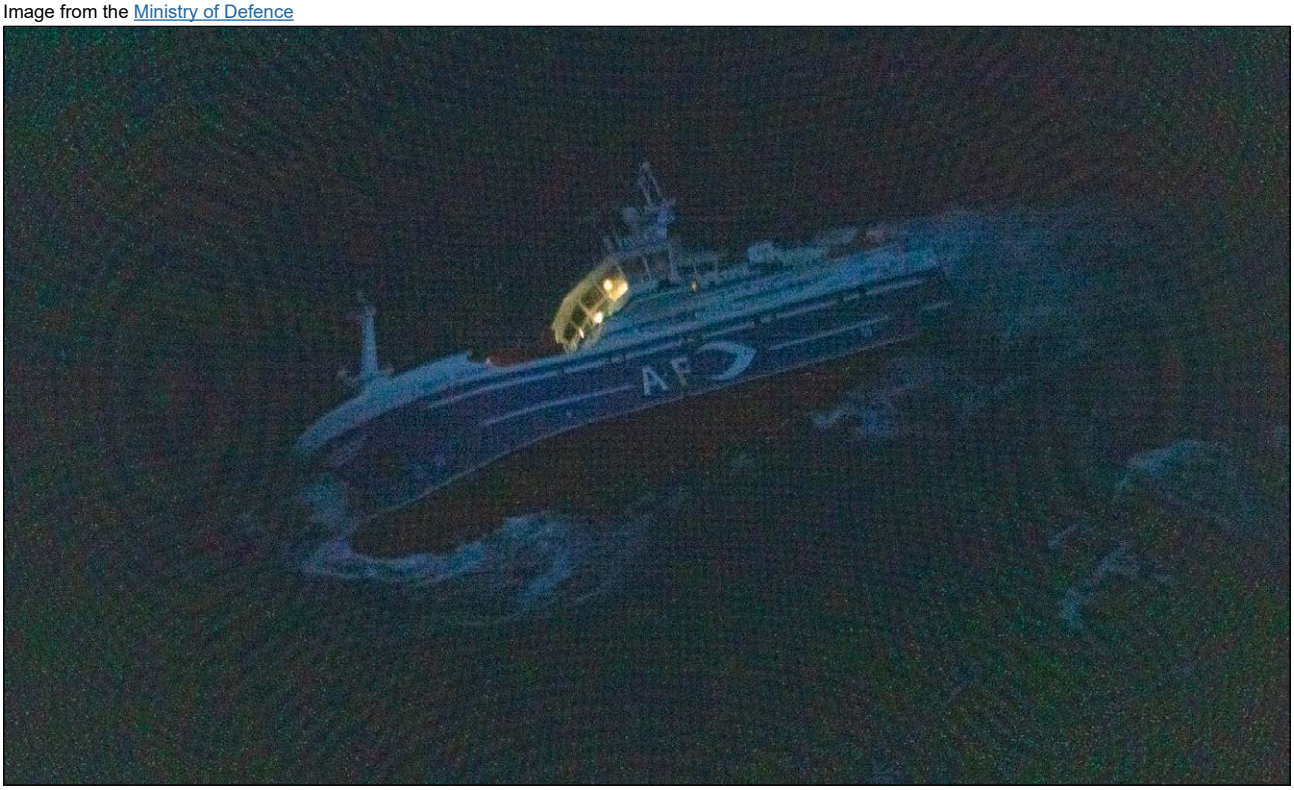


Figure 5: Last light observed from *Argos Georgia* by the fixed-wing aircraft at about 1835

1.3.6 Search and rescue

At about 0534 on 23 July, FV *Robin M Lee* arrived on scene **(Figure 6)**. The reported weather conditions included wind speeds of up to 75kts and a 7m to 8m swell, and the vessel's master had established communications with the RAF A330 Voyager tanker aircraft.

At 0828, the fixed-wing aircraft took over the aerial search. Shortly afterwards, FPV *Lilibet* reported that the aircraft had sighted a fully inflated liferaft at position 52°10.3'S, 052°19.5'W. Polar Seafish Ltd subsequently advised FIMA that FV *Robin M Lee* had approached the liferaft. VHF calls by the vessel to the liferaft went unanswered, although strobe lights could be seen. Unable to make contact, and due to the fishing vessel's high freeboard and the weather conditions, FV *Robin M Lee* requested FPV *Lilibet* to assist.

[8] The JRCC generated over 30 search plans for the air and maritime SAR assets.

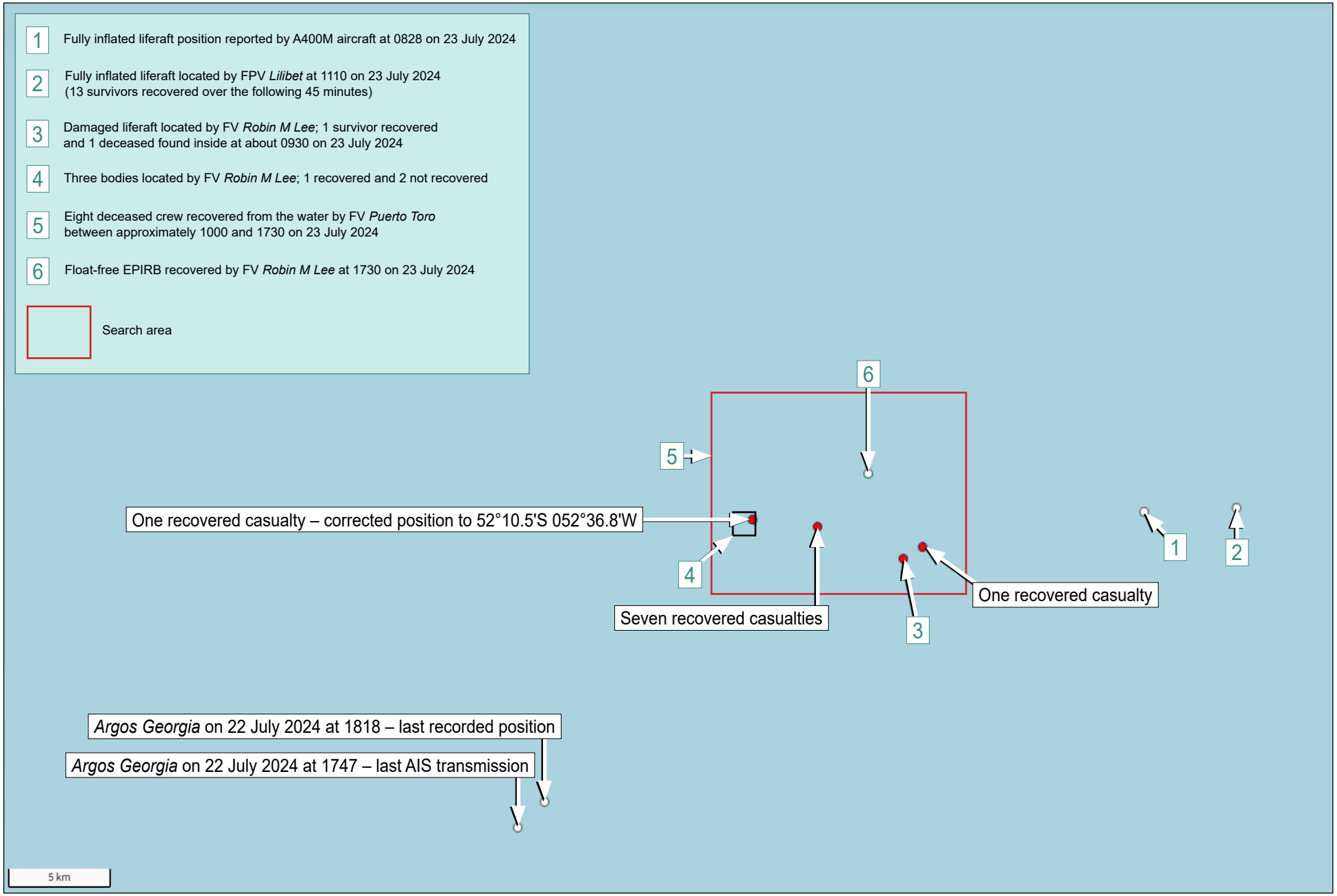


Figure 6: Search and rescue assets and recovery locations

In the following hours FV *Robin M Lee* located three bodies floating in immersion suits, but the vessel's freeboard and the weather conditions prevented the recovery of two of the bodies from the water. At about 0930, the vessel sighted a damaged liferaft **(Figure 7)** and identified that, of the two *Argos Georgia* occupants, one crew member was still alive and the other was deceased. By 1015, FV *Robin M Lee* had recovered the conscious crew member who was suffering from hypothermia. Following several attempts to recover the deceased crew member from the damaged liferaft, FV *Puerto Toro* was requested to take over while FV *Robin M Lee* continued with the search.

Images from the Ministry of Defence

The damaged liferaft found with 1 survivor

The fully inflated liferaft found with 13 survivors

Figure 7: *Argos Georgia* liferafts as located by search vessels, viewed from the fixed-wing aircraft

At 1014, FPV *Lilibet* arrived and took over as on-scene commander (OSC). By 1110, the vessel had located the fully inflated liferaft in position 52°10.2'S, 052°15.4'W **(Figure 6)**. The 13 survivors were recovered from the liferaft over the following 45 minutes. The weather conditions were reported as winds of 25kts to 30kts and 10m waves. Subsequently, FIMA directed FPV *Lilibet* to handover OSC duties to FV *Robin M Lee* and return to Port Stanley with the survivors.

By about 1730, FV *Puerto Toro*, having arrived on scene at 1000, had recovered eight deceased crew members, all wearing immersion suits, and the damaged liferaft from the water. At this time there were 14 survivors, nine deceased and four missing[9]. FV *Puerto Toro* then started heading north to seek shelter from the worsening weather conditions.

At 1730, FV *Robin M Lee* reported that it had located and recovered a free-floating EPIRB. The reported sea temperature was 3.5°C.

At 1905, BFSAI advised FIMA that the fixed-wing aircraft would be able to provide further air support from 0700 on 24 July, and the SAR helicopter would be at 60 minutes' notice. At 1948, MRCC Madrid received an EPIRB distress alert by email.

During the early morning of the 24 July 2024, FV *Robin M Lee* also started to head north to seek shelter and SAR operations were suspended. At 0700, a multiagency SAR operational update meeting was held at FIMA's office. It was decided to terminate the SAR operation and initiate the recovery phase. Updated ETAs into

[9] FPV *Lilibet* recovered 13 survivors; FV *Robin M Lee* recovered one survivor and one deceased crew member; FV *Puerto Toro* recovered eight deceased crew members.

Port Stanley for the vessels carrying survivors and the deceased gave FV *Robin M Lee* at 1400 and FV *Puerto Toro* at 1600. FPV *Lilibet* reported an amended ETA of 1600 due to winds of 50kts to 60kts and the oncoming 6m to 8m waves.

On 25 July 2024, a further operational update meeting requested tasking FPV *Pharos SG* and FV *Argos Helena* to undertake a visual search between 27 July and 28 July while heading westward to Port Stanley.

At 1600 on 31 July 2024, during another operational update meeting, the decision was made to terminate the search effort. Four crew remained missing presumed dead.

1.4 ENVIRONMENTAL CONDITIONS

On 22 July 2024, sunrise at Port Stanley occurred at 0842 and sunset occurred at 1714. At *Argos Georgia*'s position, approximately 190nm east of Port Stanley, sunset occurred at 1651.

Argos Georgia was operating, at the time of the accident, in wind speeds between 40kts and 75kts and wave heights of between 7m and 10m. The sea temperature was about 3.5°C.

The Falkland Islands Meteorological Office produced a bespoke weather forecast for the operational area of 52°20.26'S, 052°52.00'W for the RAF aircrew. The forecast included:

- wind speeds of 40kts gusting to 55kts from 250°, with isolated gusts up to 60kts
- visibility reducing to between 500m and 1,000m at times
- a combined sea and wind wave height of 7m to 8m.

1.5 *ARGOS GEORGIA*

1.5.1 Vessel management

Argos Georgia was managed by Argos Froyanes Limited (AFL), a British-Norwegian fishing company jointly owned by Argos Georgia Limited (AGL), Gibraltar, and Ervik Ocean AS, Norway. Ervik Ocean AS was the registered owner of *Argos Georgia* and was majority owned by Ervik Havfiske Holding AS.

AGL was the Gibraltar-registered holding company of the Argos group, which operated fishing and processing businesses in the Falkland Islands, New Zealand, Uruguay, Norway and Gibraltar. AGL provided oversight of company strategy, policies, officer appointments, fishing operations and vessel development. AGL owned two support organisations:

- Argos Operations Limited (AOL), based in Gibraltar, which provided compliance support and reviewed company policies and Safety and Compliance Manual updates.
- Argos Limited (Argos FI), based in the Falkland Islands, which acted as the primary operational contact with vessels and coordinated activities based in the Falkland Islands, including port calls, crew changes, bunkering, catch landings, equipment supply and local maintenance support.

Technical and operational support was also provided by Ilsley Holdings Limited, based in the UK, and companies within the Ervik Havfiske Holding AS group. Ilsley Holdings Limited acted as liaison with the Maritime and Coastguard Agency (MCA) and Det Norske Veritas (DNV), coordinated surveys, managed crew documentation and pay, and reviewed Safety and Compliance Manual updates. Ervik Havfiske provided technical support, contributed to vessel development activities and oversaw vessel maintenance and repair work.

Ervik Havfiske personnel attended vessel maintenance periods, often undertaken in New Zealand with the assistance of local contractors. The vessel's technical superintendent had previously served at sea and regularly attended the vessel during port calls, maintenance periods and certification inspections. AFL operated three longline fishing vessels in the South Atlantic and Southern Ocean:

- *Argos Georgia*
- *Nordic Prince* (sister vessel to *Argos Georgia*)
- *Argos Helena*

1.5.2 Design and construction

Argos Georgia was designed by Marin Teknikk in Norway, which delivered basic design and main class drawings with calculations. The vessel was built at the Tersan Tersanecilik Sanayi ve Ticaret A.S. shipyard (Tersan), Turkey, and delivered in February 2018. *Argos Georgia* was built under the St Helena flag to the UK MCA Merchant Shipping Notice (MSN) 1873 Amendment 1[10] and Statutory Instrument 2017 No. 943 – The Fishing Vessels (Codes of Practice) Regulations 2017.

St Helena issued delegated authority letters in the form of Instruments of Appointment to partially enable DNV GL[11] to undertake survey and certification functions on board its vessels. The instruments covered areas including survey and stability oversight during build and undertaking survey and certification functions on behalf of the St Helena Government in line with the Code for Recognized Organizations (see 1.11.1).

In the Newbuilding Classification Agreement between DNV GL and Tersan for the construction of *Nordic Prince* and *Argos Georgia*, DNV GL's Rules for Classification of Ships (July 2015 edition) were to apply.

As St Helena did not have the technical expertise to provide flag state oversight of DNV GL's work, the MCA was requested to provide the necessary skills.

Marin Teknikk had designed 23 fishing vessels for various operators, including 18 longline fishing vessels. Of these, 12 were constructed for Ervik Havfiske Holding AS, all of which incorporated a line hauling hatch. *Argos Georgia* and *Nordic Prince* were fitted with upward-closing hatches, while the remainder employed a horizontal closing arrangement. No vessels in the fleet were fitted with downward-closing hatches due to the perceived risk of uncontrolled descent during float recovery operations endangering crew working in the hatch opening.

[10] MSN 1873 (F) Amendment 1: The Codes of Practice for the Construction and Safe Operation of Fishing Vessels of 24m Registered Length and Over.

[11] On 12 September 2013, Norway's DNV merged with Germany's Germanischer Lloyd to form DNV GL. On 1 March 2021, it was renamed to DNV.

Approximately 90% of longline fishing vessels worldwide had enclosed hauling areas. Vessels without moon pools typically had open deck line hauling areas, exposing crew to sea and weather conditions. In contrast, moon pool-equipped vessels opened the line hauling hatch only to recover floats, closing it afterwards to protect the crew and prevent wave ingress.

1.5.3 Certification and survey

St Helena registered newbuild fishing vessels through its own ship registry, which operated under the Merchant Shipping Ordinance, 2021 as a Category 2 member of the British Red Ensign Group.

St Helena issued the Appointment of Surveyor authorisation to DNV GL, and the vessel's stability documentation was approved in line with the requirements of the DNV GL Rules for Classification of Ships. A class notation of 1A Fishing vessel E0 Ice(1C), a DNV basic ice class notation for operation in light first-year ice conditions[12], was applied.

On 14 November 2018, the MCA provided a Declaration of Survey stating that *Argos Georgia* complied with, among others, The Fishing Vessels (Codes of Practice) Regulations 2017. The MCA issued an International Fishing Vessel Certificate (IFVC) with the survey certificate on behalf of the St Helena Government. Both short-term certificates were valid until 24 June 2019, with no exemptions. Defects identified during the DNV GL survey included:

> *(3) A recent addition and fitment of a hold back hook was found on an internal fire door on the shelter deck.*
>
> *(5) At the request of the owner a series of emergency drills were witnessed by a class surveyor in May 2018. The drill report was sighted and it was confirmed by the ships officers that no MOB drills were completed as part of this request.*

On 9 April 2019, the MCA issued a long term IFVC valid until 1 February 2022.

On 11 November 2020, DNV GL completed an intermediate IFVC survey of *Argos Georgia* in Lyttelton, New Zealand. The survey was conducted on behalf of the MCA and St Helena, and the vessel was found to comply with the applicable international fishing vessel regulations and additional UK requirements.

In April 2022, DNV conducted an IFVC renewal survey on behalf of the MCA in Montevideo, Uruguay, which included verification of the vessel's lightship condition. During the same attendance, DNV carried out a renewal inspection against International Labour Organization (ILO) Work in Fishing Convention, 2007 No.188 (ILO 188) requirements. The MCA subsequently issued a full-term IFVC, valid until 1 February 2026, and an ILO 188 Letter of Compliance.

On 14 March 2024, DNV produced an annual Class Status Report for *Argos Georgia*. No conditions related to the vessel's class or statutory certificates were imposed.

[12] DNV's basic ice class notations were based on first-year ice conditions.

Between 25 March and 8 April 2024, DNV conducted the last class and IFVC surveys and inspection against ILO 188 requirements under the authority of the UK in Walvis Bay, Namibia. The DNV surveyor completed the associated MCA document, Fishing Vessel Aide Memoire – 24m and Over Survey, noting that:

> *Vessel found in very good condition. Accommodation clean and well maintained. Safety equipment in good condition and records up to date. Safety drills documentation reviewed according to their monthly safety drill requirements as required by owners. Photos taken of drills also reviewed. Last drill performed on vessel 29 Feb 2024 and vessel alongside up to survey.*

The DNV surveyor's completed MCA aide-memoire, dated 8 April 2024, identified that risk assessments (RAs) had been carried out for a range of hazards on board, including operating and using work equipment, tools, appliances, machinery and plant. RAs had also been completed for safe access and movement on board. The survey report stated that, although kept on board, the RAs were not reviewed annually.

1.5.4 *Argos Georgia* crew and marine observers

Argos Georgia's 25 crew and two passengers (marine observers) were Indonesia, Peru, Russia, Spain and Uruguay nationals.

The officers and crew had moved from the previous *Argos Georgia* fishing vessel, which had operated in the South Georgia fishery from 2006 until 2018, when the new *Argos Georgia* came into service.

Twenty-three crew had joined the vessel on 28 April 2024, all of whom had completed their on board safety familiarisation conducted by the captain.

The minimum safe manning document for a St Helena registered fishing vessel required ILO 188[13] compliance and set a minimum of 10 crew for navigational passage in unlimited areas and a minimum of 18 crew during fishing operations. Both conditions required two Class 1 skippers, one Class 2 skipper, one Class 1 engineer officer and one Class 2 engineer officer.

English was the working language on board, although Spanish officers spoke to one another in Spanish and used English on the working decks. Spanish was commonly used among Peruvian and Indonesian crew members while processing fish.

The captain held a master's unlimited certificate for fishing vessels, issued by Spain and endorsed with a Certificate of Equivalent Competency (CEC) by the UK as flag state, valid until February 2027. The captain qualified in 1999 and, since joining AFL in 2001, had served as captain on all three of the company's longline fishing vessels. The captain had completed the Seafish 1-day Safety Awareness course in June 2022.

The fishing skipper held a master's unlimited certificate for fishing vessels, issued by Spain and endorsed with a CEC by the UK as flag state, valid until April 2024. During his career he had worked in a variety of fisheries around the world, including 19 seasons in the South Georgia fishery.

[13] ILO 188 established minimum standards for working and living conditions on fishing vessels. These included requirements for manning, occupational safety and health, and hours of rest. Additional requirements applied for fishing vessels of 24m in length and over or operating on voyages of more than three days.

The C/E had 14 years' experience in rank and was qualified to serve on fishing vessels of less than 6,000kW propulsion power. The C/E had worked on board *Argos Georgia* since build.

Argos Georgia carried two Spanish marine observers. They were appointed by the South Georgia Government and were tasked with scientific sampling and compliance with fishing regulations.

1.5.5 The deceased

Argos Georgia's deceased are listed in **Table 1**. The recovered crew members were brought ashore to the Falkland Islands before being flown to the UK, where their postmortems were conducted at the John Radcliffe Hospital, Oxford, England. They were subsequently repatriated.

Vital status	Coordinates	Name	Age	Nationality	Rank	Cause of death
Recovered	52°10.69'S 052°33.95'W	Cesar Acevedo Duran	55	Spanish	Fishing skipper	Drowned
Recovered	52°10.69'S 052°33.95'W	Antonio Barreiro Torea	52	Spanish	2/E	Drowned while attempting to board liferaft
Missing	Not known	Juan Antonio Garcia Rey	42	Spanish	3/E[14]	Not known
Recovered	52°10.69'S 052°33.95'W	Santiago Leyenda Amoedo	39	Spanish	Cook	Drowned while attempting to board liferaft
Recovered	52°10.69'S 052°33.95'W	Valery Cherkasov	53	Russian	Deck bosun	Drowned
Missing	Not known	Igor Korzhak	35	Russian	Deckhand	Not known
Missing	Not known	Viacheslav Ugarov	58	Russian	Deckhand	Not known
Recovered	52°10.69'S 052°33.95'W	Ivan Sukhinskii	47	Russian	Deckhand	Multiple injuries

[14] Third engineer.

Vital status	Coordinates	Name	Age	Nationality	Rank	Cause of death
Recovered	50°10.5S 052° 36.8'W	Geraldo Rodriguez Aspajo	48	Peruvian	Second factory manager	Drowned
Recovered	52°10.69'S 052°33.95'W	Cesar Augusto Paredes Aspajo	51	Uruguayan	Deckhand	Drowned
Recovered	52°10.69'S 052°33.95'W	Luis Junior Aviles Calle	33	Peruvian	Deckhand	Drowned
Missing	Not known	Nurchilos	46	Indonesian	Deckhand	Not known
Recovered	52°11.2'S 052°29.3'W	Kapidin	43	Indonesian	Deckhand	Drowned

Table 1: List of the deceased and missing crew members

1.5.6 Lifesaving appliances

On 27 April 2022, the MCA issued *Argos Georgia* with an IFVC valid until 1 February 2026. The IFVC set out the required lifesaving apparatus (LSA) to be carried on board and stated that the vessel was certified for 26 people. The listed LSA included:

- one rescue boat, capable of being launched with a vessel list of up to 15° in either direction
- two 35-person liferafts, one each side of the vessel
- 31 lifejackets
- 28 immersion suits
- four thermal protective aids.

1.5.7 Bilge pumping arrangements

The vessel's bilge pumping system comprised two engine room bilge pumps, each with 35m³/h capacity, and a single pump in the freezer compressor room, with 15m³/h capacity. On the main deck, 11 submersible 31.25m³/h bilge pumps were located in the bilge wells in the machinery and fish processing rooms and there were five 32m³/h bilge ejectors to serve the main deck work area. The submersible bilge pumps discharged overboard via storm valves.

1.5.8 Emergency and communication facilities

Argos Georgia was equipped to operate in GMDSS sea areas A1, A2, A3 and A4. Its GMDSS equipment included two VHF radios with digital selective calling (DSC)[15], three medium frequency/high frequency (MF/HF) radios with DSC, an Inmarsat ship earth station, a NAVTEX maritime safety information receiver, two EPIRBs, two radar SARTs, and three handheld GMDSS VHF radios for use with LSA.

The vessel was also fitted with non-GMDSS communication systems, including satellite telephone and internet-based communication systems that provided email, voice and messaging capability.

The captain and fishing skipper held GMDSS General Operator's Certificates, which qualified them to operate the vessel's GMDSS radio installation and associated distress and safety equipment.

1.5.9 Maritime and Coastguard Agency review of longline fishing vessels

After the accident, the St Helena Maritime Authority requested MCA technical assistance to examine the sufficiency and condition of the hull and machinery, safe manning and safe operation of longline fishing vessels under its flag. The MCA reviewed *Argos Georgia*'s approved drawings and the vessel's operation on the day of the accident and also conducted general inspections of AFL's other vessels. The findings included:

- *Argos Georgia* was carrying one more person than stated in the IFVC.
- The stated forward and aft draughts on departure from Port Stanley indicated *Argos Georgia* had a stern trim of at least 3m, with a mean draught potentially exceeding the maximum moulded draught allowed for in the stability information booklet (SIB), so was therefore noncompliant.[16]
- The approved vessel drawings showed a U-bolt securing arrangement for the line hauling hatch, which differed from the four manually operated securing bolts fitted in service.
- The fish lift bin opening in the line hauler room to the fish processing room was not specified as being weathertight or watertight.
- The line and hook guide pipe in the line hauler room to the line magazine room, located below the deck plates, penetrated a weathertight bulkhead without any closing device, rendering the bulkhead non-weathertight.
- The bait store at the aft end of the line magazine room was specified in the design drawings as being weathertight, but was a single latch refrigerated door not of the approved type.

[15] 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.

[16] The referenced stated departure draughts are believed to relate to draught as assessed via the vessel's draught marks rather than using its moulded draught as a basis for stability calculations. The comparison with the moulded draught in the stability information book and the consequent reference to noncompliance is therefore assumed to be an error.

- The engine room emergency escape hatch led into the conveyor belt room. If the conveyor belt room's hydraulically operated sliding doors were closed, a person escaping from the engine room could not subsequently open those doors from within the compartment because the operating controls were located externally.

- Emergency safety drills conducted during the inspections identified areas for improvement in emergency response procedures.

1.6 LINE HAULER ROOM, SIDE HAULING HATCH AND INTERNAL DOORS

1.6.1 Line hauler room

The fishing line recovery method required opening the line hauling hatch, fitting an external roller fitting to the hatch coaming, grappling the line marker buoy and hauling it on board via the roller.

Once the buoy was disconnected and fishing line connected to a chain external to the hull the line hauling hatch was closed. The fishing line on the chain was taken underneath the vessel to the moon pool, and the catch brought on board through the moon pool. Fish were taken from the hooks and passed through a hatch into the fish processing room. The upper sill of the moon pool was 1,320mm above the line hauler room bilge level.

The line hauler room decking was a combination of composite and wood sections. Neither was secured to the bilge frames due to the need to access bilges for cleaning and removal of fish offal. The wood decking sections could float but the composite decking near the line hauling hatch did not.

1.6.2 The line hauling hatch

The weathertight[17] line hauling hatch **(Figure 8)** was set into the starboard side of the hull. The hatch opening was 2m wide and 1.17m high when fully open, equating to a free area of 2.34m^2. The lower edge of the opening was 1.35m above the main deck.

The line hauling hatch was constructed from 10mm marine-grade aluminium alloy with strengthening plates and weighed 69kg. It was raised and lowered by mechanical/hydraulic mechanism driving duplex stainless steel chains running over sprockets mounted on a two-part, stainless steel drive shaft located above the hatch. The shaft rotated within two bearings and was joined at mid length by a coupling secured with parallel keys and grub screws. Additional sprockets at main deck level connected the drive chains to a lower shaft **(Figure 9)**.

A stainless steel and elastomer jaw (dog) coupling connected the drive shaft to a hydraulic motor via parallel key and twin grub screws set at 90°.

Weathertight integrity was provided by a rubber seal around the hatch perimeter. Upper and lower metal wedges on the hatch frame engaged with tapered faces on the cover to compress the seal. Four manually operated locking bolts further secured the hatch against the seal.

[17] Capable of preventing the passage of seawater through the structure in ordinary sea conditions.

Image from Argos Froyanes Limited

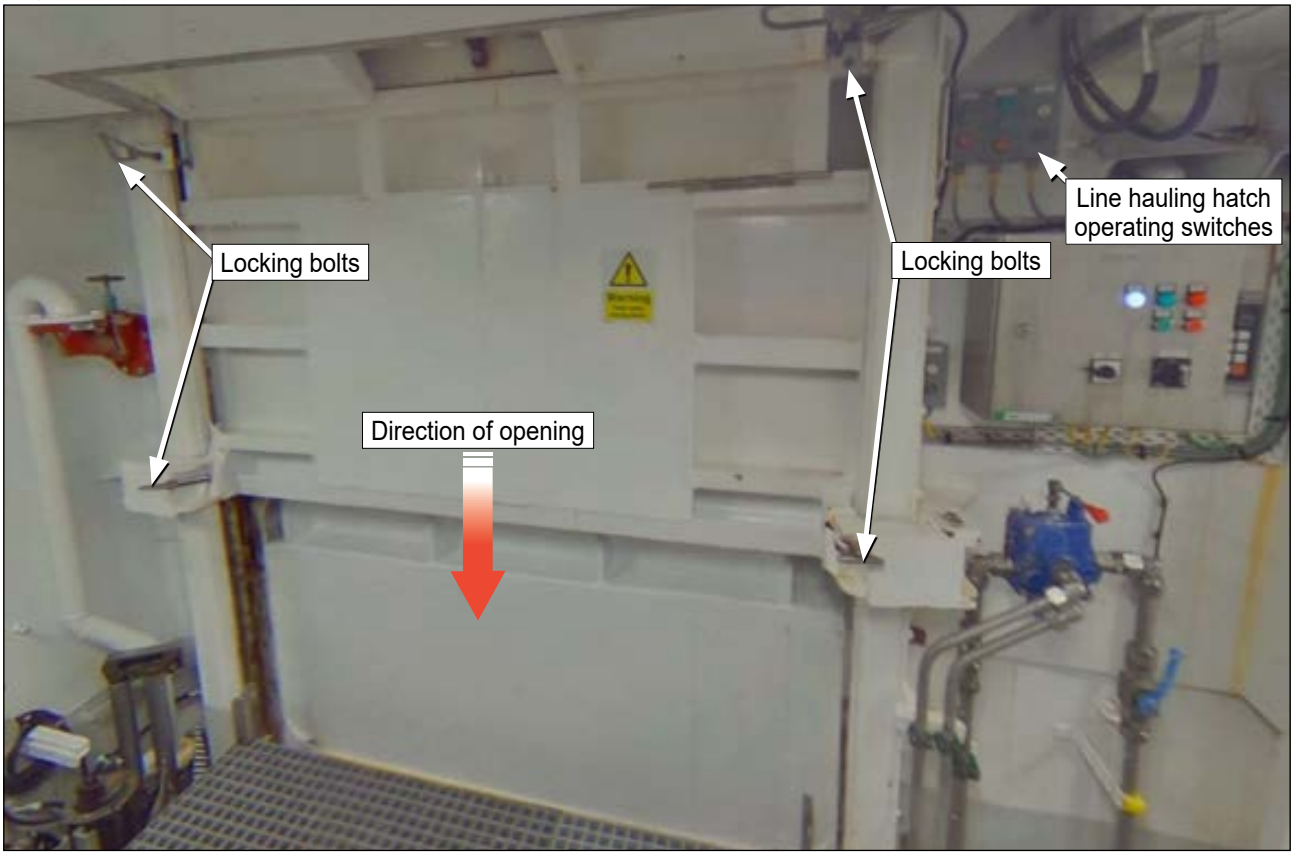


Figure 8: *Argos Georgia* side hauling hatch assembly and controls

1.6.3 Line hauler room and conveyor belt room internal doors

The line hauler room was enclosed by bulkheads, with three weathertight doors, forming the boundary between the non-buoyant line hauler room and adjacent buoyant compartments. The hydraulically operated sliding door to the conveyor belt room was aluminium, with a 330mm sill and wheelhouse indication via a proximity sensor. The door sealed against a rubber seal when closed. There was a similar door at the aft end of the conveyor belt room.

Glass-reinforced plastic hinged weathertight doors to the line magazine room and fish processing room opened into the line hauler room and each had single handle five-point locks. The 'internal door indication panel' in the wheelhouse showed the status of these doors as either open or closed. Both weathertight doors had manual hook-backs that had been fitted after *Argos Georgia* entered service.

All doors were type approved by DNV GL and had been leak-tested in line with its rules.

1.6.4 Electrical and hydraulic control systems

The conveyor belt room's hydraulically operated doors, the line hauling hatch and the main deck hydraulic bilge valves were operated by a 24V direct current control system. The hydraulic system comprised a manually started power pack and two accumulators; this system also supplied hydraulic power to open and close the line setting hatches in *Argos Georgia*'s transom.

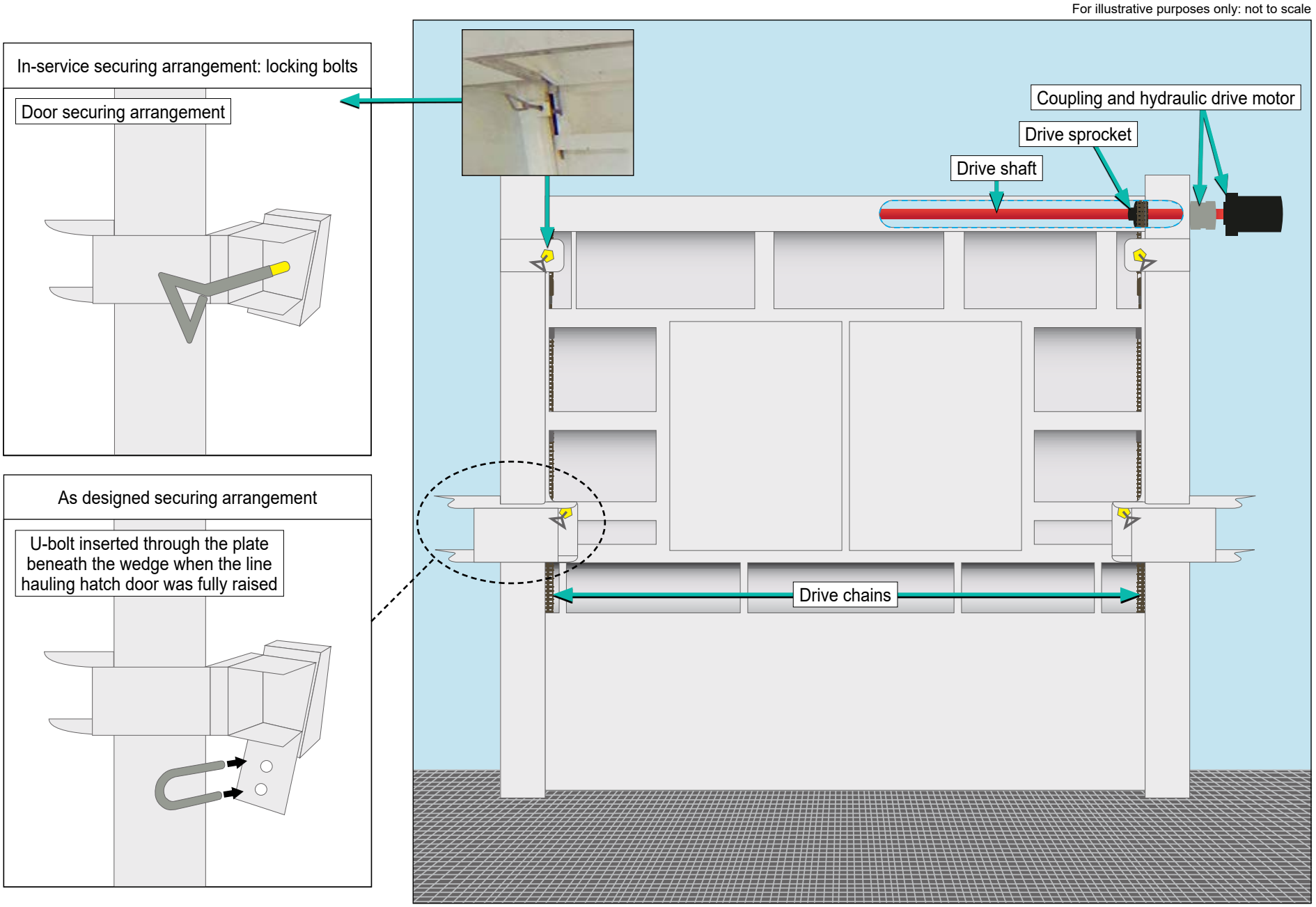


Figure 9: *Argos Georgia* side hauling hatch operating mechanism and locking arrangement

The power pack was located on the main deck, forward of the fish processing room. The accumulators were located at the forward end of the conveyor belt room and maintained 68 bar pre-charge pressure, with system operating pressures between 75 bar and 140 bar and a low-pressure alarm set at 80 bar.

With the electrical system functioning, all hydraulically operated doors, hatches and main deck bilge valves could be closed from the wheelhouse using the touchscreen mimic monitor. Door status changed from red to green when closed, and the system prioritised closure in order of forward conveyor belt room door, aft conveyor belt room door, then line hauling hatch. The hydraulic door electrical control box was IP65[18] rated and mounted to the forward inboard bulkhead of the conveyor belt room **(Figure 10)**.

The hydraulically operated doors and the line hauling hatch and stern hatches could also be closed using manually operated control valves housed in a stainless steel cabinet within the line hauler room. A separate emergency arrangement used the stored hydraulic pressure in the accumulators to close the conveyor belt room doors and the line hauling hatch directly, by manually operating an emergency valve located near the forward conveyor belt room door **(Figure 10)**.

1.6.5 Line hauling hatch modifications and repairs

The line hauling hatch design had been approved by DNV GL (see section 1.11.3), whose rules required the hatch to have equal strength to the surrounding structure. The design included two 12mm diameter U-bolts **(Figure 9)**, which were intended to be manually positioned to prevent the hatch opening. At the time of the accident the U-bolt arrangement was not present and it is unknown whether it had ever been installed.

Argos Georgia's line hauling hatch failed a weathertightness hose test during testing in 2018. To achieve an acceptable seal, the four manually operated locking bolts and brackets were retrofitted to the hatch frame. A tool for manually locking the bolts was provided. The modification was not incorporated into updated design drawings. Consequently, the revised securing arrangement was not subject to a formal regulatory or design assessment.

Shortly after the vessel entered service, the line hauling hatch was observed to lower slowly when the hydraulic pump was stopped. Internal leakage within the original hydraulic motor allowed the hatch to fully open, uncommanded, under its own weight when hydraulic pressure reduced. The hydraulic motor manufacturer's guidance stated that the motor type was unsuitable for holding a suspended load and a hydraulic brake was required for such applications.

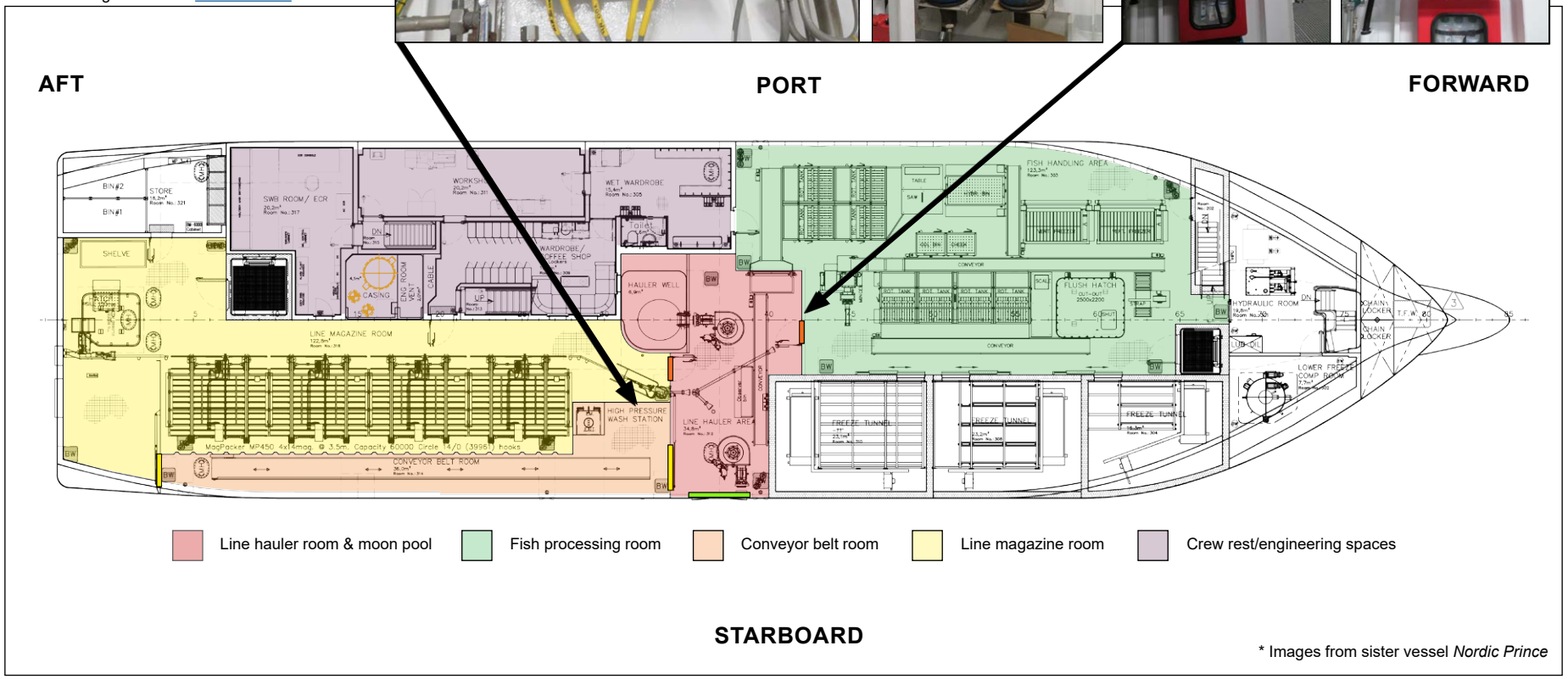
In late 2018, while *Argos Georgia* was under maintenance, the hydraulic motor was replaced with an alternative that incorporated an internal hydraulic (pressure to release) brake and was axially longer. The dog coupling was machined to fit the limited space between the motor bracket and the shaft bearing support, reducing the coupling's axial length by approximately 50%. New 8mm stainless steel keyways were broached into both coupling halves and the shaft ends. Similar changes were subsequently made to *Nordic Prince*.

[18] An ingress protection (IP) rating of 65 indicated a product was fully 'dust-tight' (level 6) and protected against low-pressure water jets (level 5). Such a rating suggested the product was water-resistant rather than waterproof.

Hydraulic doors electrical control box, accumulators and emergency valve*

Manual control valves for hydraulic doors*

General arrangement from Marin Teknikk



* Images from sister vessel *Nordic Prince*

Figure 10: Disposition of the doors and operating controls

In 2019, the line hauling hatch sealing rubber was renewed and the two-part drive shaft was removed for modification. Longer keyways were cut into the shafts and fitted with new stainless steel keys, and a new coupling with a broached keyway was installed. Crew later reported that grub screws intended to maintain pressure between the key and keyway were sometimes found loose during maintenance.

These modifications, although intended to address emerging operational issues, were not reported to the vessel's classification society or flag state.

1.6.6 Hatch and internal doors operating and closing requirements

All the hydraulically operated and manually operated doors in the line hauler room displayed 'Keep Closed at Sea' signage. Operationally, the closure of internal doors was dependent on the weather conditions, although closure was not undertaken against any specific parameters other than normally being closed when the line hauling hatch was opened. There were no instructions for the use of the line hauling hatch locking bolts, the reason for them was not widely recognised, and they were used intermittently. The emergency remote closing of hydraulic doors, hatches and bilge flaps via the wheelhouse touchscreen mimic monitor was tested every two months and had last been tested on 27 May 2024.

1.6.7 Drive mechanism material testing

Post-accident, *Argos Georgia*'s sister vessel *Nordic Prince* was undertaking maintenance work that included replacement of the line hauling hatch upper stainless steel drive shaft and associated rotating components.

Items recovered during the investigation for testing were obtained from the vessel's maintenance company. These included the two-part drive shaft, parallel keys, one duplex chain, dog coupling with plastic spider, and an unused dog coupling and spider.

Ultrasonic and magnetic particle inspection testing showed that no material defects were present in the recovered components.

1.6.8 Drive mechanism finite element analysis

Post-accident, the MAIB commissioned a finite element analysis (FEA) of the line hauling hatch drive mechanism. The FEA's scope included identifying peak stresses and stress concentrations, assessing key and keyway loading, and calculating shaft bending moments and bearing reactions. The shortened coupling that was known to be fitted at the time of the accident was modelled.

The FEA identified the highest stresses at the interfaces between the stainless steel coupling, keys and shafts at both the drive shaft and hydraulic motor. At the motor's peak torque of 600Nm, maximum stress reached 936 MPa. This exceeded the minimum yield strength of the shaft and key material (approximately 205 MPa) and was attributed to the combined effects of motor torque and the significantly reduced key contact area resulting from machining the coupling shoulders to shorten its axial length, which effectively doubled the load transferred through the keys.

At the motor's continuous torque of 300Nm, peak stresses of up to 517 MPa were calculated, indicating that yielding of the shafts, keys and keyways would still occur under normal operating conditions **(Figure 11)**.

Under normal operating conditions no significant yielding was observed.

The FEA also identified additional design factors that increased the likelihood of hatch failure, including the absence of a fail-safe locking mechanism in the closed position, either manual or interlocked with the motor controls, and exposure to cyclic inertial loading from vessel motion/wave strike without an independent locking arrangement, increasing the risk of fatigue damage.

Images from Longitude

Finite element analysis of coupling with red indicating higher stress area

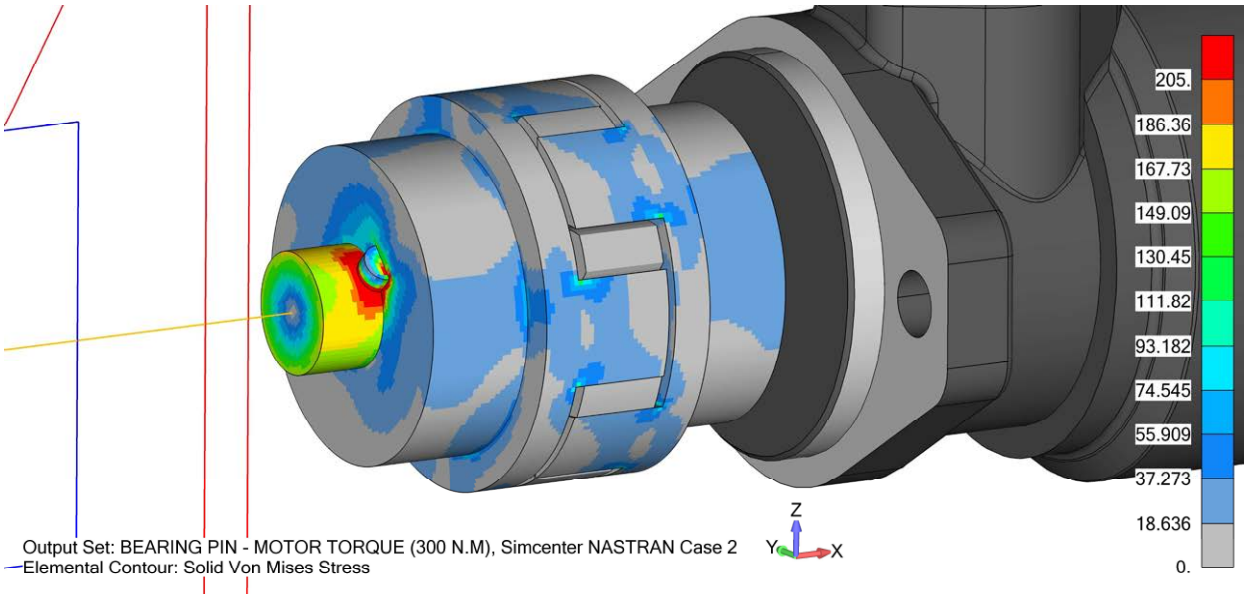


Figure 13: LC2 – Overall view showing the contour plot of the von Mises stress (MPa) in the coupling assembly.

Motor and door operating mechanism shaft without coupling

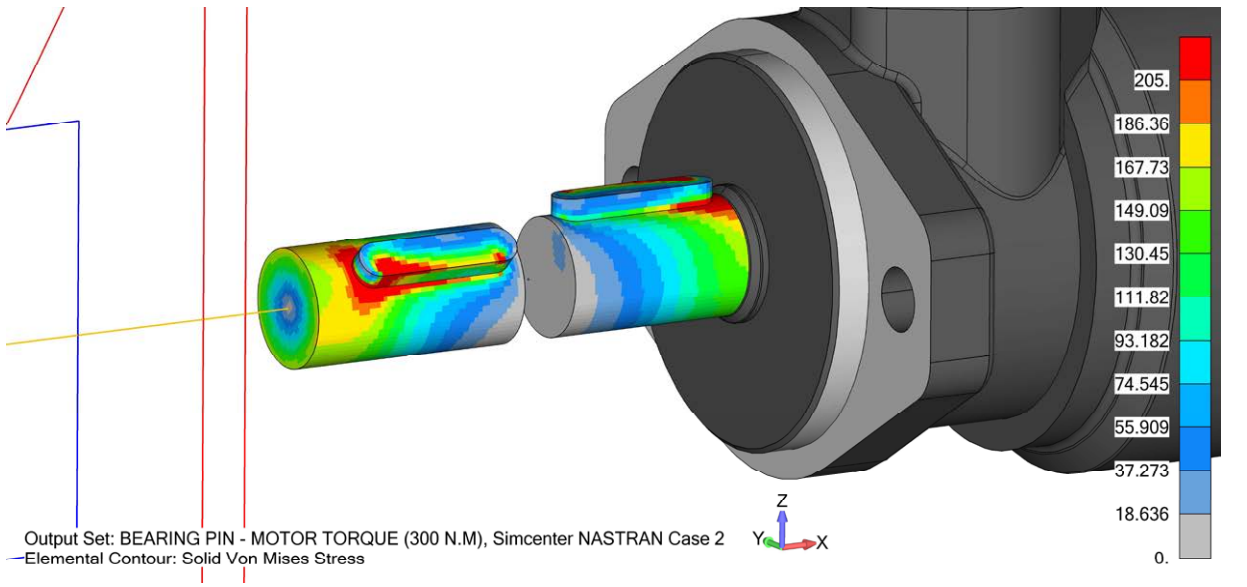


Figure 14: LC2 – von Mises stress (MPa) contour plot in both shafts and keys only.

Figure 11: Extract from finite element analysis report

1.7 STABILITY

1.7.1 Stability information book

Argos Georgia's SIB identified that in the departure port condition – 100% consumables, no load and with the roll reduction tank in use – the lower edge opening of the line hauling hatch was about 1.85m above the sea surface and the flooding angle for the lower edge of the hatch opening was 16°. The SIB indicated compliance with intact stability criteria in all operational loading conditions, including departure port.

The SIB provided explicit instructions for doors/openings **(Figure 12)**. In the vessel's intact stability model, the line hauler room was treated as a non-buoyant (free flood) space due to the presence of the moon pool. This meant that, in the event of flooding, the compartment was assumed to fill with water and did not contribute to the vessel's reserve buoyancy. The SIB included a calculation for the effect on stability of entrapped water on deck entering through the line hauling hatch in the operational loading conditions. The calculation assumed that the water was contained within the line hauler room. For all assessed loading conditions, including the departure port condition, the vessel's stability was calculated as acceptable in the water on deck through the side hauling hatch condition.

Image from Marin Teknikk

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MARIN TEKNIKK
DESIGN & ENGINEERING

M/V ARGOS GEORGIA
MT 1112

INSTRUCTION FOR DOORS / OPENINGS

When the hauling hatch in the line hauling room is open, doors and openings to the factory area, line magazine room and conveyor belt room to be kept closed. In addition, the line setting hatch to be closed to eliminate risk of water ingress.

When the line setting hatch is open, doors and openings to the stores room, lift, accommodation, conveyor belt room and line hauling room to be kept closed. In addition, the line hauling hatch to be closed to eliminate risk of water ingress.

In general, all doors/openings on shelter deck and main deck and covers to holds below shall be kept closed. Doors/openings **must always be closed** when the crew are passing through/leaving the rooms.

Figure 12: Extract from *Argos Georgia* stability information book

1.7.2 Post-accident stability modelling

Marin Teknikk produced five stability stages to understand the possible developing loss scenario. These are summarised in **Table 2**.

Stage	Condition[19]	Compartments open/closed	Draught[20] (m)	Trim by the stern (m)	Starboard list (°)	Stability assessment
1	Base. Departure port 430m^3 FO; 100% FW; 100% bait; 25m^3 in RR-tk; 70t remaining load in hold (assumed centre located).	All closed	5.190	0.851	0.025	Acceptable
2	Line hauling hatch opens. Entrapped water on deck in line hauling room. Assumed all doors from line hauling room closed. TCG shift in RR-tk.	Line hauling hatch open. All other openings closed.	5.209	0.844	1.912	Acceptable
3	Door to conveyor belt room open. Buoyancy loss of conveyor belt room. Entrapped water in line hauling room. Entrapped water in conveyor belt room (assumed 0.60m level). Increased TCG shift in RR-tk.	Line hauling hatch open. Door to conveyor belt room open.	5.094	1.027	16.026	Acceptable
4	Door to line magazine room open. Buoyancy loss of line magazine room. Door to conveyor belt room open. Buoyancy loss of conveyor belt room. Entrapped water in line magazine room (assumed 0.4m). Entrapped water in conveyor belt room (assumed increased to 0.8m). Increased TCG shift in RR-tk.	Line hauling hatch open. Door to conveyor belt room open. Door to line magazine room open.	4.640	2.740	35.370	Not acceptable

[19] Key: fuel oil (FO); fresh water (FW); main deck (mdk); roll reduction tank (RR-tk); tonnes (t); transversal centre of gravity (TCG); shelter deck (shdk);

[20] The draught value in the table refers to the mean moulded draught.

Stage	Condition[19]	Compartments open/closed	Draught[20] (m)	Trim by the stern (m)	Starboard list (°)	Stability assessment
5	Door to line magazine room open. Buoyancy loss of line magazine room. Door to conveyor belt room open. Buoyancy loss of conveyor belt room. Entrapped water in line magazine room (assumed increase to 0.6m). Entrapped water in conveyor belt room (assumed increased to 1.0m). Increased TCG shift in RR-tk. Assumed the 70t load in cargo hold shifted to starboard. Assumed water ingress to factory area mdk through ventilation. Assumed water ingress into cargo compartment from mdk and ventilation. Assumed water ingress into main engine compartment through ventilation and emergency exit. Assumed some water ingress into accommodation shdk through ventilation. Assumed loss of buoyancy of remaining mdk area.	Line hauling hatch open. Door to conveyor belt room open. Door to line magazine room open.	4.255	1.290	49.900	Not acceptable

Table 2: Developing loss scenarios

1.8 SAFETY MANAGEMENT

1.8.1 Health and safety system

Argos Georgia had a vessel-specific safety compliance and operations manual that contained the company's values, mission, fishing operation, policies, manuals and operating procedures. This document referenced that remote ocean operations magnified the risks associated with safety due to a lack of outside assistance.

The AFL health and safety policy – Policy 5 within the safety compliance and operations manual – was first approved in June 2014 and reapproved following amendments in 2017, 2021 and 2022. It outlined AFL's Health, Safety and Environmental (HSE) Management System, which included:

- compliance with legislation
- assignment of responsibilities
- risk management
- operational planning
- continuous improvement.

The policy outlined a management system process structured around five steps feeding back to safety policy to ensure continual improvement in performance. The steps were:

- Organise – provide leadership, ensure competency and communicate
- Plan – comply with legislation, conduct risk management, establish safety plans, plan for emergency response
- Implement – manage risks, contractors, change, documents and records
- Monitor – report and investigate incidents, audit and review operations, take corrective and preventative action
- Review – annual senior management review.

The policy committed AFL to:

- ensure legislative compliance
- promote safety as an equal core business priority
- provide resources and training
- encourage incident reporting and investigation
- maintain contingency plans for emergencies
- conduct regular audits.

1.8.2 Emergency response plan

A common emergency response plan was operated by AFL for its vessels in the South Atlantic region. The plan was last updated in January 2024 and contained emergency contact details, flow diagrams, task lists, emergency message formats and appendices. The plan distinguished between offshore incidents based in the Falkland Islands and those outside the Falkland Islands. Copies of the plan were provided to relevant AFL offices and stakeholders, including the GSGSSI and Falkland Islands Government.

The emergency response plan for a Falkland Islands-based offshore incident included a flowchart that directed the vessel's captain to:

- *Send emergency request to Fishops or agent.*
- *Inform agent*
- *Issue statutory distress signal if necessary.*

The plan also included a captain's task list containing two tasks:

- *Inform Fishops with details of incident.*
- *Inform agent with details of incident, and type of assistance required if applicable.*

The plan identified Argos FI as the company's Falkland Islands office within the Falkland Islands-based response. Where the first emergency information came from the agent, Argos FI was to contact Falkland Islands Government Fisheries Operations (FishOps)[21] and confirm that it had received a report. Where the first information came from FishOps, Argos FI was to obtain preliminary information, radio operating frequencies and updates.

The Argos FI task list set out the company's shoreside actions. These included printing and distributing the persons on board list, assembling the Argos FI emergency response team, setting radios to the given frequencies, checking emergency equipment, obtaining assistance from other vessels where possible, providing assisting vessel details to the distressed vessel, updating company offices, informing AFL directors, responding to media enquiries, and maintaining a record of events.

Appendix Two of the plan listed emergency response teams by office. For Argos FI, the appendix identified a core group comprising a controller, who was to be the manager or delegate, and a historian, as delegated by the controller. Other staff were to be included as required. The appendix did not name individual emergency response team members or provide further role-specific responsibilities for the Argos FI core group.

The plan provided a contact routing and task allocation framework for a Falkland Islands-based offshore incident. It identified who should be informed, how information should be passed between FishOps, the agent and Argos FI, and

[21] The Fisheries Department previously had responsibility for maritime SAR in and around the Falkland Islands. By the time of the accident maritime SAR was coordinated by FIMA, which was established in 2018.

the administrative tasks to be completed ashore. The flowchart and associated checklists for an offshore incident in the Falkland Islands did not identify Argentina search and rescue region (SRR) emergency contacts, FIMA or HMCG as response recipients. The plan did not include additional vessel-specific guidance for managing a flooding emergency, or decision-support material to assist the shoreside team in assessing the vessel's condition and advising the captain.

1.8.3 Emergency and safety equipment supply

The 2017 AFL policy on emergency and safety equipment stated that only equipment meeting SOLAS[22] standards and carrying Wheelmark[23] certification would be accepted. The policy included that equipment must meet or exceed MCA guidance and that senior management were responsible for compliance.

1.8.4 Risk assessments

Vessel operations RAs were developed on board using a Seafish template. The vessels' captains usually prepared the RAs with input from the C/O and 2/O. The assessments covered a range of on board activities undertaken at sea and alongside. *Argos Georgia*'s RA was last updated on 30 April 2022. Examples of the *Argos Georgia*'s vessel safety RAs are provided in **Table 3**. There was no company audit or other assessment of the specific risks identified or the suitability and effectiveness of the control measures applied.

Risk ID	Hazard	Risk	Controls in place	Risk outcomes	Risk level
7.1	Vessel operations	Vessel being operated in conditions and situations that are beyond its capabilities leading to vessel loss, death or serious injury. Vessel being modified without professional advice leading to vessel loss, death or serious injury.	Control of good crew instructions.	Potential serious injuries or loss of vessel.	Low

[22] The International Convention for the Safety of Life at Sea, 1974, as amended.

[23] A mandatory conformity mark for equipment installed on commercial vessels.

Risk ID	Hazard	Risk	Controls in place	Risk outcomes	Risk level
7.2	Condition of hull and fittings	Failure of hull leading to vessel loss, death or serious injury. Failure of watertight integrity leading to vessel loss, death or serious injury.	Periodical revision, and after suspecting possible hull damage.	Potential loss of vessel.	Moderate
7.9	Stability	Poor vessel design leading to capsize, death or serious injury. Poor vessel loading leading to capsize, death or serious injury. Water ingress and free surface effect leading to capsize, death or serious injury. Water on deck free surface effect leading to capsize, death or serious injury.	Control of all matters that could lead to a loss of stability.	Potential serious injuries or loss of life or vessel.	Moderate

Table 3: Vessel safety risk assessment examples

1.8.5 Training and drills

Argos Georgia's crew were compliant with STCW Convention[24] Section A-VI/1 Mandatory Minimum Requirements for Safety Familiarization, Basic Training and Instruction for all Seafarers. The certification was valid for 5 years and the crew had completed their training at various times between 2020 and 2024.

The training comprised responding to emergencies including person overboard, fire and abandon ship. The required knowledge included muster, embarkation and emergency escape routes, donning a lifejacket, use of fire extinguishers, responding to medical emergencies, and closing of fire, weathertight and watertight doors. The personal survival techniques training covered donning an immersion suit, and boarding and operating a survival craft, including operating location devices and radio equipment.

[24] International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended.

All crew held valid STCW certification, including the mandatory 5-yearly refresher updates. Six crew members, including the C/E, 2/E, 3/E, 2/O, the cook and a deckhand did not hold the Seafish Safety Awareness qualification.

Argos Georgia maintained a monthly emergency drill schedule covering person overboard, damage control, abandon ship, muster, fire and medical emergencies. On 12 June 2024, only a muster drill was completed; other planned drills were recorded as having been postponed due to adverse weather conditions. The muster involved assembling at the wheelhouse, donning immersion suits, and proceeding to the liferaft embarkation positions.

1.9 SEA SURVIVAL

1.9.1 Cold water survival

Sudden immersion in water temperatures below 15°C results in a physiological reaction to the cold water and other environmental factors such as wind and wave action. Death can occur within 2 to 3 minutes as cold shock induces a gasp reflex, uncontrollable hyperventilation, and a rapid increase in heart rate and blood pressure that can lead to drowning.

Cold incapacitation usually occurs within 2 to 15 minutes of entering cold water, restricting blood flow to the extremities leading to loss of useful movement in hands and feet, and eventually the incapacitation of arms and legs. Death by drowning occurs because of impaired swimming as the person struggles to maintain their airway, or by hypothermia due to a lowering of the body's core body temperature.

1.9.2 Sea survival predictions

The MAIB contracted modelling of sea survival predictions using the Cold Exposure Survival Model (CESM) developed by Defence Research and Development Canada and underpinned in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual. CESM predicted survival time based on deep body cooling to lethal hypothermia (28°C), considering the effect of normal physiological cooling responses such as shivering, physical make up (for example amount of body fat based on height and body mass index), the thermal and protective outer layers worn, and the degree of water leakage into the immersion suit worn affecting the thermal properties of thermal layers. CESM did not consider early death caused by accidents or drowning due to cold shock. The predicted sea survival times for *Argos Georgia*'s crew must be viewed as rough estimates given the little evidence for the direct circumstances of their deaths.

The clothing worn by *Argos Georgia*'s crew was split into two groups based on whether its weight was 'light' or 'medium' and then modelled for varying degrees of water leakage into an immersion suit. The immersion suits were all found to be full on recovery, so the 'soaked' estimate was taken as the most probable estimate of survival time. This indicated that, for both clothing groups, the maximum predicted sea survival time for the wearer would be 3 hours.

1.9.3 Immersion suit pool trial

The MAIB conducted a pool trial to assess the properties of the Viking YouSafe Gale immersion suit worn by *Argos Georgia*'s crew. Combined with test documentation, it was determined that:

- The Viking YouSafe Gale immersion suit was approved[25] for use without a lifejacket and incorporated integrated buoyancy.

- The fit of the immersion suit face seal, front zip and wrist seals strongly affected its effectiveness in preventing water ingress.

1.10 SOUTH ATLANTIC SEARCH AND RESCUE COORDINATION AND DISTRESS ALERTING

1.10.1 International search and rescue framework

The international coordination of SAR services for maritime incidents was undertaken through the International Convention on Maritime Search and Rescue (SAR Convention) and the IAMSAR Manual. The SAR Convention provided for the world's oceans to be divided into SRRs, within which states accepted responsibility for coordinating SAR services.

A Rescue Coordination Centre (RCC) was responsible for promoting the efficient organisation of SAR services and coordinating SAR operations within an SRR. An MRCC performed this function for maritime SAR. A Maritime Rescue Sub-Centre could be established to support an RCC within part of an SRR.

The Falkland Islands lie within the Argentine Ushuaia SRR. Argentina was therefore the state responsible for SAR coordination in that SRR under the International Maritime Organization (IMO) Global SAR Plan, with MRCC Ushuaia as the relevant MRCC. The Falkland Islands did not operate an RCC or MRCC so the FIMA Operations Room in Port Stanley, which served as FIG's emergency services operations room, instead acted as a Central Alerting Post (CAP). Under IMO COMSAR[26] Circular 23[27], a CAP provided the point of contact between national authorities and SAR facilities in the country where it was located and the foreign MRCC responsible for the SRR.

1.10.2 Falkland Islands search and rescue area of responsibility

The Falkland Islands lay within the Argentine Ushuaia SRR. Separately, the Falkland Islands had declared a maritime search and rescue area of responsibility (AoR)[28] covering the Falkland Islands conservation zones, within which the Falkland Islands provided SAR coordination. This was not the same as declaring a formal SRR under the SAR Convention.

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[25] The Viking YouSafe Gale immersion suit carried Wheelmark certification, indicating that it met the applicable SOLAS standards stipulated by the Marine Equipment Directive.

[26] IMO Sub-Committee on Radiocommunications and Search and Rescue. In 2014, COMSAR was superseded by the IMO Sub-Committee on Navigation, Communications and Search and Rescue (NCSR).

[27] Guidance for Central Alerting Posts, issued 20 June 2000.

[28] An area within which an authority had accepted responsibility for the provision or coordination of specified services. Unlike an SRR, an AoR was not established under the SAR Convention or recognised through the IMO Global SAR Plan.

The Falkland Islands SAR area of responsibility comprised the Falkland Islands territorial seas, the Interim Fishery Conservation and Management Zone, also known as the Falkland Islands Inner Conservation Zone (FICZ), and the Falkland Islands Outer Conservation Zone (FOCZ). The FICZ extended 150nm from the centre of the Falkland Islands and the FOCZ extended to 200nm from the nearest point of land.

Direct routine SAR cooperation between Falkland Islands authorities and Argentine SAR coordination centres was constrained by the political relationship between the UK and Argentina. When required, communication with Argentine SAR authorities could be routed through HMCG or BFSAI.

1.10.3 Falkland Islands search and rescue arrangements

The Falkland Islands Maritime Authority was established in 2018 within the Falkland Islands Government Department of Emergency Services and Island Security. FIMA was responsible for maritime SAR coordination within the Falkland Islands area of responsibility.

The Falkland Islands SAR strategy framework described SAR as a cooperative arrangement involving Falkland Islands Government departments, supported by the UK Government, Ministry of Defence, MCA, private sector and volunteers. Some elements of the SAR system were provided on a statutory basis and others on a best endeavours basis.

The Falkland Islands SAR Operational Plan complemented the strategy by providing the SAR response operational framework, including communications, distress alerting, search planning, SAR assets, suspension of operations and post-SAR activities.

Initial requests for SAR assistance could be received by the Emergency Services JCR, the FIMA operations room or the BFSAI JOC at the RAF Mount Pleasant Complex. The tasking of resources for civil maritime SAR incidents, and coordination of the response, was the responsibility of FIMA. Civil SAR assets available to FIMA included Falkland Islands Government resources such as FPV *Lilibet*, operated by the Fisheries Department, and Falkland Islands Government Aviation Service aircraft.

1.10.4 His Majesty’s Coastguard support agreement

A cooperation agreement was in place between FIMA and HMCG for SAR operations. The agreement established a framework for HMCG to provide SAR-related advice and support to FIMA on request because of the Falkland Islands’ remote location, limited local resources and the cooperative difficulties associated with Argentine SAR authorities.

The agreement identified the UK JRCC and the Falkland Islands JCR (the CAP) as the primary operational points of contact. The agreement did not make HMCG responsible for coordinating SAR within the Argentine Ushuaia SRR; support was provided on a best endeavours basis.

HMCG support could include maritime search plans, transmission of SAR information by satellite communications systems such as Enhanced Group Call, advice on Falkland Islands rescue capability and SAR training. The agreement also provided for the sharing of information intended to improve SAR coordination and effectiveness.

The HMCG support agreement therefore provided a route for search planning, SAR advice, training and international communication support. It did not alter the formal SRR arrangements or establish an RCC in the Falkland Islands.

1.10.5 British Forces South Atlantic Islands support

Based at Mount Pleasant Complex, BFSAI provided military support to civil SAR operations in the Falkland Islands. This was provided on a best endeavours basis and remained subject to operational requirements.

Assets included *HMS Forth*, two harbour tugs, an RAF Airbus A400M Atlas aircraft, an A330 Voyager aircraft, two Leonardo AW189 helicopters and two Sikorsky S-92A helicopters. During the *Argos Georgia* response, the deployed SAR helicopter was a Bristow-operated Leonardo AW189 using the callsign *Rescue100*. Requests for support were made through the BFSAI JOC.

During SAR incidents involving BFSAI assets direct communications were established between FIMA and the JOC. BFSAI retained operational control of its assets. The Falkland Islands SAR system therefore relied on a distributed arrangement: FIMA coordinated maritime SAR within the Falkland Islands area of responsibility, HMCG provided SAR advice, search planning and communications support when requested, BFSAI provided military asset support, and nearby vessels and local resources could be tasked or requested to assist.

1.10.6 Global Maritime Distress and Safety System sea areas and distress alerting

The GMDSS is an international system using terrestrial and satellite communications to provide distress alerting, SAR communications, on-scene communications and maritime safety information. GMDSS sea areas define the communications coverage available and the equipment vessels are required to carry. They do not define SAR coordination responsibility.

For GMDSS purposes, the world's oceans are divided into four sea areas:

1. **A1** – within VHF coast station coverage, providing continuous DSC alerting

2. **A2** – beyond A1, within MF coast station coverage, providing continuous DSC alerting

3. **A3** – beyond A1 and A2, within Inmarsat geostationary satellite coverage

4. **A4** – areas outside A1, A2 and A3, principally the polar regions.

Argos Georgia foundered approximately 190nm east of the Falkland Islands, at about 52°18.27'S, 052°47.13'W. The casualty position was within the Argentine Ushuaia SRR and within the Falkland Islands FOCZ. It was outside local VHF coastal coverage from Port Stanley. The relevant communications context was therefore long-range distress alerting and SAR communications using satellite and MF/HF systems, rather than local VHF coverage.

1.10.7 Falkland Islands Maritime Authority communications equipment

The FIMA shoreside communications capability included marine VHF radio that was radiotelephony only and did not have DSC installed. Antenna coverage was limited to Stanley Harbour, Port William and most of Berkeley Sound.

Maritime SAR within the Falkland Islands area of responsibility was coordinated by FIMA, but it did not have fully operational shore-based GMDSS A1 or A2 communications capability. For a casualty near the outer part of the FOCZ, direct and reliable communication with a vessel in distress depended on capability beyond local VHF coverage.

1.11 REGULATION AND GUIDANCE

1.11.1 Code for Recognized Organizations

Under the provisions of SOLAS Part 1, Chapter I, Regulation 6, the inspection and survey of ships shall be carried out by *officers of the Administration*. The flag administration may, however, entrust the inspections and surveys to an RO. DNV-GL was one of six classification societies authorised as a UK flag RO.

1.11.2 Construction and operating standards

Merchant Shipping Notice 1873 (F) Amendment 1[29] came into force on 31 December 2018 and required vessel owners to:

- *present new vessels for survey during and on completion of construction;*
- *present the vessel for survey prior to completing significant repairs or modifications.*

For new vessels, the Code required that:

2.1.3.1 Hull construction and arrangement drawings shall be reviewed and approved by the Classification Society and MCA, as appropriate.

2.1.3.2 The hull shall be surveyed during construction by the Classification Society to verify compliance with the approved drawings.

2.2.4.1 All access openings in bulkheads of enclosed superstructures and other outer structures through which water could enter and endanger the vessel, shall be fitted with doors permanently attached to the bulkhead, framed and stiffened so that the whole structure is of equivalent strength to the unpierced structure, and weathertight when closed. The means for securing these doors weathertight shall consist of gaskets and clamping devices or other equivalent means and shall be permanently attached to the bulkhead or to the doors themselves…

[29] MSN 1873 (F) Amendment 1

On internal doors, the Code stated that:

> *6.1.11.3 Doors, and in particular, sliding doors, where such have to be used, must function as safely as possible for the crew, especially in adverse weather and sea conditions.*

On survival craft, the Code stated that:

> *7.2.1.3 Vessels of less than 75 metres in length (L) but of 45 metres in length (L) and over shall comply with the following:*
>
> *(i) Survival craft of sufficient aggregate capacity to accommodate on each side of the vessel at least the total number of persons on board.*
>
> *(ii) A rescue boat*
>
> *7.2.1.5 In lieu of meeting the requirements of sections 7.2.1.2(i), 7.2.1.3(i) or 7.2.1.4(i), vessels may carry one or more lifeboats capable of being free-fall launched over the stern of the vessel of sufficient capacity to accommodate the total number of persons on board and with liferafts of sufficient capacity to accommodate the total number of persons on board.*

Section 8.2.2.2 of the Code covered on board training and instructions for abandon ship and required that:

> *(ii) Instructions in the use of the vessel's life saving appliances and in survival at sea shall be given at the same intervals as the drills. Individual instruction may cover different parts of the vessel's life-saving system, but all the vessel's life-saving equipment and appliances shall be covered within any period of two months. Each member of the crew shall be given instructions which shall include but not necessarily be limited to:*
>
> *(a) Operation and use of the vessel's inflatable liferafts, including precautions concerning sharp objects;*
>
> *(b) Problems of hypothermia, cold water shock, first-aid treatment for hypothermia and other appropriate first-aid procedures;*
>
> *(c) Special instructions necessary for use of the vessel's life-saving appliances in severe weather and severe sea conditions.*

1.11.3 Classification society fishing vessel rules

The DNV GL Rules for Classification, Ships – Part 5: Ship types, Chapter 12: Fishing Vessels contained procedural and technical requirements necessary to obtain and retain a class certificate. The rules contained more technical detail than MSN 1873 (F) Amendment 1 for hull strength systems and equipment, safety and

availability, stability, load line and the relevant procedural requirements applicable to fishing vessels. Where necessary, other applicable parts of the Ships rules were also referred to.

The rules referenced the need to provide additional information such as precautions against unintentional flooding and the need for drawings of buoyant volumes to include instructions on operation of closing appliances – i.e. 'to be kept closed at sea'.

Under section 2.1 Arrangements of side opening leading to tween deck (working deck) it stated:

> *2.1.2 Doors in vessel's side and stern shall be limited in size and number to the minimum possible. The sill height is normally not to be less than 1000 mm. The doors with securing devices shall be designed with a strength equivalent to the structure in which they are fitted, and shall be so arranged that weathertight quick closing (approximately 15 seconds for side doors), can be easily executed by one member of the crew without the use of tools. This shall be possible also during black-out.*

For new building projects DNV GL carried out a high-level evaluation of the project to decide where a design approval preview (DAP) should be carried out. A DAP could be used for projects that might present a technical risk, and was intended to address features of a vessel that might require special attention during the plan approval stage. Typical triggers for a DAP would be high-level risks like novel or complex designs and/or a project type that was new to the builder or designer. A DAP was not a mandatory requirement and was not deemed necessary for the design of *Argos Georgia*.

1.11.4 Flooding

The MCA's Marine Guidance Note (MGN) 165 (F) Fishing Vessels: The Risk of Flooding was published on 1 July 2001. The MGN detailed the steps fishermen could take to deal with a flooding emergency. It stated that *Flooding is preventable, but if not prevented, in most cases can be controlled. If discovered early, leaking pipes can be isolated and the flooding controlled by pumping out the affected space.* MGN 165 (F) was updated in June 2025 and contained new information that was not available at the time of the accident.

The MCA's Fishermen's Safety Guide contained a section on flooding that provided several recommendations, including:

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

1.11.5 Emergency drills

The MCA's MGN 570 (F) Amendment 1 – Fishing vessels: Emergency Drills, was published on 10 June 2022. The guidance detailed the emergency drills and their recommended frequency for fishing vessels. The drill schedule included scenarios for hull damage, taking water and sinking, and covered distress alerting and the use of LSA.

1.11.6 Voyage planning and operational preparedness

Chapter V, Regulation 34[30] of SOLAS required a voyage plan to be prepared before proceeding to sea. The voyage plan was to identify a route that ensured sufficient sea room for the safe passage of the vessel throughout the voyage and anticipated known navigational hazards and adverse weather conditions. The regulation also stated that the owner, charterer, company or any other person should not prevent or restrict the master from taking any decision that, in the master's professional judgement, was necessary for safe navigation

The IMO's Resolution A.893(21) – Guidelines for Voyage Planning described voyage planning as a continuous process requiring consideration of the intended route, anticipated environmental conditions, operational limitations, hazards and contingency arrangements. The guidance recognised that voyage planning was intended to support both safe navigation and operational preparedness throughout a voyage.

The guidance in MGN 266 (F)[31] gave a summary of SOLAS Chapter V regulations and their applicability to fishing vessels. In regard to Regulation 34 the guidance confirmed the application to fishing vessels operating at sea and stated that skippers should *make a careful assessment of any proposed voyage*, taking account of navigational hazards, weather forecasts and other factors relevant to the safe operation of the vessel. The MGN also recommended that voyage information be available ashore to assist SAR operations in the event of an emergency.

1.11.7 Fishing vessel safety management

The Fishing Safety Management (FSM) Code outlined in MGN 596 (F)[32] was developed by the Fishing Industry Safety Group to support compliance with ILO No.188 and other fishing codes. The MGN provided the structure and elements of a safety management systems (SMS) for fishing vessels to maintain safety-related documentation, manage internal and external checks and support safe working practices on board. The FSM Code recommended that a vessel-specific SMS included:

- a safety management manual
- a safety and environmental protection policy
- all crew certification and training records

[30] Safe Navigation and Avoidance of Dangerous Situations.

[31] MGN 266 (F): Guidance on the Interpretation of SOLAS Chapter Five for Fishing Vessels

[32] MGN 596 (F) Fishing Safety Management Code: Helping to Improve the Management of Safety on Fishing Vessels, published 21 November 2018.

- vessel operating procedures and risk assessments
- LSA and firefighting equipment testing and certification
- accident and incident reports
- evidence of SMS reviews, self-audit reports and close outs
- environmental management and pollution prevention
- records of drills and safety training.

Compliance with MGN 596 (F) was not mandatory.

On ILO 188 health and safety responsibilities, MGN 587 (F) Amendment 2[33] strongly recommended an SMS on vessels of 24m or over, or those remaining at sea for over 72 hours. Annex 1 of MGN 587 (F) Amendment 2 contained the FSM Code clauses, including:

> ***EMERGENCY PREPAREDNESS***
>
> *8.1 The Owner should identify potential emergency situations, and establish procedures to respond to them.*
>
> ***REPORTS AND ANALYSIS OF NON-CONFORMITIES, ACCIDENTS AND HAZARDOUS OCCURRENCES***
>
> *9.1 The safety management system should include procedures ensuring that non conformities, accidents and hazardous situations are recorded and reported to the Owner/skipper or recorded by owner operator, investigated and analysed with the objective of improving safety and pollution prevention.*
>
> *9.2 The Owner/Skipper should establish procedures for the implementation of corrective action, including measures intended to prevent recurrence.*

1.12 SIMILAR ACCIDENTS

1.12.1 *Østbanken* – foundering

On 9 January 2015, the Norwegian longline fishing vessel *Østbanken* foundered about 60nm north of Båtsfjord, Norway. The vessel was fishing when it quickly took on water and sank. The five crew managed to board a liferaft and were rescued two hours later by rescue helicopter.

The Accident Investigation Board Norway (AIBN) investigation (report 2016/05[34]) identified that the vessel listed to starboard for a relatively long period with the hauling hatch open, resulting in a lot of water accumulating on deck, and that the vessel's cargo hatch was open so that the water on deck was allowed to enter the hold. The resultant learning points included:

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[33] MGN 587 (F) Amendment 2 – International Labour Organization Work in Fishing Convention (No.188): Health and Safety – Responsibilities of Fishing Vessel Owners, Managers, Skippers and Fishermen.

[34] AIBN report 2016/05: Østbanken

The AIBN would like to stress the importance of those responsible on board similar vessels ensuring that the hauling hatch can be closed quickly under all conditions, and that the vessel's weathertight integrity is maintained in the best possible way at all times. In the AIBN's opinion, there is also room for improvements on the part of the authorities whose role it is to ensure that vessels with open shelter decks are rigged so that the hauling hatch can be closed quickly enough under all conditions.

1.12.2 *Fay* – foundering

On 28 December 2019, the Norwegian longline fishing vessel *Fay* foundered while fishing north of Honningsvåg, Norway after a power failure. The vessel foundered due to flooding of the line equipment compartment through the open line setting hatch and gradual ingress of water to the rest of the vessel. The crew's attempts to manually close the hatch were unsuccessful. The Norwegian Safety Investigation Authority (NSIA) investigation[35] established that it was not possible to close the line setting hatch locally in a dead ship situation. Emergency closing was not activated from the wheelhouse.

The investigation also found that the approved stability calculations for *Fay* did not meet requirements. Neither the line setting hatch in the line equipment compartment nor the hatches in the hauling compartment were points of flooding, and the related volumes were therefore not deducted from the buoyancy volume.

The NSIA found that, given the way *Fay* was put into operation, it would not have been possible to operate the vessel in compliance with the *Regulations on Fishing Vessels of 15m LOA and over*.

1.12.3 *Villa de Pitanxo* – sinking, with loss of 21 lives

On 15 February 2022, the Spanish fishing vessel *Villa de Pitanxo* sank 450km off the coast of Newfoundland, Canada with the loss of 21 of the 24 crew after snagging its net while fishing.

The Spanish Standing Commission for the Investigation of Maritime Accidents and Incidents report[36] indicated that the vessel foundered after flooding via the fish processing space waste chute after snagging the net in heavy weather. The vessel lost all power in the final phase of the accident due to the list incurred. During the subsequent abandon ship the liferaft was damaged and the survivors were exposed to harsh environmental conditions. Of the three crew recovered alive from the liferaft, two were wearing immersion suits. The other crew members died of hypothermia.

1.12.4 *Kambur* – foundering

On 6 February 2024, the 45.6m Faroe Islands longline fishing vessel *Kambur* experienced a sudden, adverse list 17nm south of Suðuroy, Faroe Islands. The crew immediately issued a "Mayday" and mustered to don immersion suits and launch the liferafts. The launch of the liferafts was unsuccessful due to the list, and the crew took refuge on the vessel's side. When the rescue helicopter arrived, the ship was

[35] NSIA report 2021/01: Fay

[36] CIAIM report 03/2024: Villa de Pitanxo

listing 90°, and evacuation of the crew members was immediately initiated. Fourteen crew members were recovered onto the rescue helicopter. Two crew members were missing. *Kambur* foundered later the same day.

The crew had opened the side hatch to recover the fishing line buoy in deteriorating weather of 6m to 7m wave heights and gale to storm force winds. Due to possible jamming of the sliding mechanism, the crew were unable to close the hatch and water flooded the line hauling space. Internal doors gave way under the water pressure and the vessel list increased as the flooding developed.

The Danish Maritime Accident Investigation Board (DMAIB) investigation[37] concluded that the vessel's structural layout left it vulnerable to flooding that occurred during routine gear retrieval. The vessel was not designed to maintain stability with a flooded line hauling space, the space was not watertight, and the vessel's stability manual had no provisions for sailing under such conditions. The investigation found that, although *Kambur* was classed and technically compliant, there were no safety standards requiring the vessel to maintain stability when such hatches were open or flooded. Recommendations included industry-wide stability reassessments, particularly for vessels engaged in side-hauling operations.

[37] DMAIB ongoing investigation: Kambur

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

Argos Georgia's line hauling hatch unexpectedly opened in heavy seas while the vessel was on passage to its fishing grounds, resulting in uncontrolled water ingress. Attempts to close the hatch were unsuccessful and flooding progressed through the working deck via open internal doors, which also could not be closed. The accumulated water on the working deck and further flooding to other decks caused the vessel to list excessively to starboard. *Argos Georgia* eventually foundered and 13 crew perished during the abandonment and subsequent SAR operation.

This analysis examines the vessel's flooding and loss scenario, operation of the vessel including safety management, emergency response to the incident, sea survival, vessel design and the SAR operation.

2.3 THE ACCIDENT

2.3.1 Flooding and loss of stability

Argos Georgia departed Port Stanley with a reported departure draught consistent with the amount of stores loaded on board. Although the MCA review suggested the departure draught indicated noncompliance with the SIB conditions, it is believed that the review erroneously compared moulded draught with reference draught and the draught was within limits. The vessel condition on departure therefore indicated that *Argos Georgia*'s stability was in line with the SIB assumptions and compliant with the stability criteria.

The line hauler room initially flooded when the line hauling hatch opened uncommanded. The line hauler room was deemed non-buoyant for stability purposes due to the presence of the moon pool and, as stated in the SIB, the vessel stability was acceptable with entrapped water on deck entering through the line hauling hatch. This finding aligned with stage 2 of the modelled developing loss scenario **(Table 2)**, which determined that *Argos Georgia* would adopt an approximate list of 2° with entrapped water on deck in the line hauler room. In such a scenario water would enter the line hauler room up to the height of the moon pool coaming, while simultaneously being pumped out by the submersible bilge pump. Both the SIB water on deck calculation and stage 2 of the modelled developing loss scenario assumed that the doors from the line hauler room were closed and that the water was contained within the area.

Similar to the *Fay* and *Østbanken* accidents, the requirement to secure open hatches quickly was important in the ability to manage floodwater. The heavy seas continued to flow into *Argos Georgia*'s line hauling hatch, with a free area of 2.34m^2, and flooded the conveyor belt room via the open hydraulically operated sliding door, then probably nearly simultaneously into the magazine room via the hinged weathertight door that was hooked open. Both compartments had submersible bilge

pumps designed to cope with water ingress from normal fishing operations rather than a catastrophic flood, and their rated capacity of 31.25m³/h each was therefore less than the inflow of water. It is likely that these compartments quickly flooded and the vessel assumed stage 4 of the modelled developing loss scenario **(Table 2)** with a starboard list of around 35° and an unacceptable stability condition. The entrapped water on the main deck at this stage would cause bodily sinkage of the vessel and this combined with the list probably resulted in the line hauling hatch becoming at least partially submerged. With the stability modelled as unacceptable in this condition it is unlikely that the situation was recoverable at this point **(Figure 13)**.

With the vessel rolling in the heavy seas, equipment shifting, and various deck vents left open, flooding to other compartments occurred. These included the main deck mess room, the shelter deck crew rest area and into the bait store's permeable volume (compartment volume minus the bait). *Argos Georgia* then probably progressed to stage 5 of the modelled developing flood scenario **(Table 2)** with a list of around 50° to starboard and the line hauling hatch fully submerged. The vessel's stability was unacceptable and, by this point, *Argos Georgia*'s condition was unrecoverable.

Argos Georgia flooded through the line hauling hatch, which unexpectedly opened in heavy seas. The vessel progressively flooded via open weathertight doors and vents resulting in a severe list, an unrecoverable loss of stability, and capsize. The vessel subsequently foundered and 13 crew lost their lives. Fourteen crew survived and were rescued.

2.3.2 Uncommanded opening of the line hauling hatch

Before the accident the line hauling hatch had been opened and closed when *Argos Georgia* departed Port Stanley, indicating that its hydraulic/mechanical operating system was working. The securing bolts were likely not used at this time therefore the hatch was not compressed against the rubber seal and was reliant on the operating mechanism to hold the hatch in the raised position.

While *Argos Georgia* was on passage, it is likely the external surface of the line hauling hatch was subjected to significant pounding from wave action. The line hauling hatch's design was approved in line with DNV GL rules that required its construction to be equal in strength to the surrounding hull. The hatch itself did not materially fail but descended, under its own weight, in an even manner.

The post-accident FEA of the hatch drive shaft arrangement revealed that the modified (shortened) dog coupling and associated keys/keyways were susceptible to plastic deformation, cracking and loosening of grub screws. Two out of three of the modelled conditions resulted in potential yielding of these components. In the worst-case scenario, the peak torque of the hydraulic motor exceeded the yield stress of the stainless steel components by a factor of four, and the motor's continuous torque was more than double the yield threshold. The reduced contact area caused by the shortened coupling length further increased stress concentrations, with the possibility of sudden failure. The recovered similar parts from *Nordic Prince* when tested during the investigation did not show evidence of stress-related failure but it was unknown how long they had been in service or why they had been replaced. The modifications that had been carried out to the *Argos Georgia* coupling suggest that there had been previous partial failures in this area.

General arrangement from Marin Teknikk

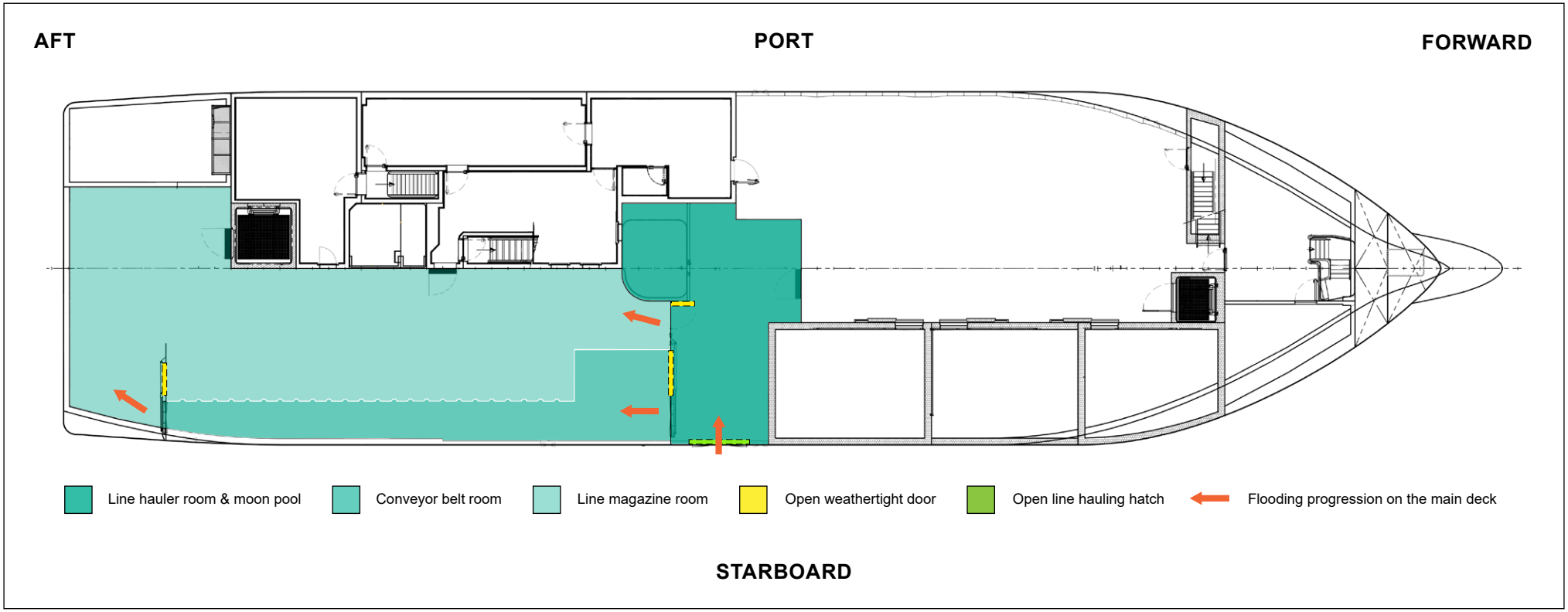

Figure 13: Likely progressive flooding of *Argos Georgia* main deck

It cannot be definitively known what caused *Argos Georgia*'s line hauling hatch to open but, since it descended smoothly and evenly without tilting or jamming, it is unlikely that the drive chains failed. Since the motor's brake required hydraulic pressure for it to release, it is also unlikely that the braking mechanism failed. The fact that the hatch could not be closed nearly immediately after it descended suggested that the drive mechanism was no longer operational. The hydraulic motor potentially applied excessive torque to the drive mechanism during normal operation, causing stress to the coupling and keys and shaft keyway. It is possible that the effect of this stress was exacerbated due to fretting transmitted to the drive mechanism from the wave action against the line hauling hatch. Consequently, it is possible that a component in the drive mechanisms such as the coupling, the drive keys or drive shaft failed and the hatch's weight caused it to descend.

Argos Georgia's line hauling hatch manual securing bolts had likely not been applied and the hatch unexpectedly opened, possibly due to a failure of the operating drive mechanism that also prevented it being closed again.

2.3.3 Inability to close internal weathertight doors

It is likely that the hydraulic door and hatch closing system electrical control box located at the forward end of the conveyor belt room became deluged by the floodwater. The IP65 rating was only sufficient to protect against dust and water spray, not immersion. It is therefore possible that the two attempts to remotely close the hydraulic doors and line hauling hatch from the wheelhouse were unsuccessful due to electrical short-circuits that rendered the control system inoperable.

Since the hinged weathertight door from the line hauler room was hooked back the inflow of water made the hook-back inaccessible to attempts to release it. The large influx of water and the disruption to the flooring in the line hauler room also made it impossible for the crew to reach the hand-operated control valves to close the electro-hydraulic weathertight line hauling hatch and conveyor belt room hydraulically operated sliding weathertight doors. Further, since it is possible that the line hauling hatch operating mechanism had already failed, operating its control valve would likely not have raised the hatch.

Similarly, the influx of water into the conveyor belt room prevented access to the emergency hydraulic control valve that could close the conveyor belt room doors. Had the crew been able to access and operate the manual emergency control at the forward end of the conveyor belt room it is likely that the stored pressure in the hydraulic accumulators (if at the full working pressure) would have been sufficient to close the sliding hydraulic doors at either end of the compartment. However, it is notable that this would have trapped the crew member in the conveyor belt room with the only means of escape from the flooded compartment being down into the engine room via the escape hatch. Had the sliding doors been closed it is likely that the conveyor belt room would have been pumped out by the submersible bilge pump over a period of hours, restoring some buoyancy to the vessel on the starboard side of the main deck.

Floodwater prevented the manual closure of the hinged weathertight door and access to the manual and emergency closing valves for the hydraulic sliding doors. It is likely that deluged electrical circuitry rendered remote emergency closing of the hydraulic weathertight doors inoperable, allowing progressive flooding of adjacent compartments.

2.3.4 Door management

The line hauling hatch was normally kept closed at sea and only opened for the fitting of the line hauling roller and for recovering the deployed fishing gear for transfer to the moon pool. However, it is apparent that the four locking bolts intended to compress the sliding hatch against steel to minimise water leakage into the line hauler room were inconsistently used, probably for convenience. The locking bolts also acted as a securing mechanism that held the line hauling hatch in the fully raised position, but were likely not tightened after the hatch closure during *Argos Georgia*'s departure from Port Stanley. Consequently, a safety barrier that guarded against accidental opening of the hatch was likely not used.

Internal weathertight doors, including the hinged door from the line magazine room into the line hauler room and the hydraulically operated sliding weathertight doors to the conveyor belt room were open at the time of the accident, despite locally posted notices and the instructions in the SIB that doors were to be kept closed at sea. Hook backs had been fitted to the hinged doors after *Argos Georgia* entered service. The open or closed status of the internal weathertight doors could be seen at the 'internal door indication panel' and, for the working deck compartments could be viewed in the wheelhouse and elsewhere via the CCTV monitors. The status of weathertight doors could therefore be monitored remotely.

There were no engineering controls, such as automatic locking pins for the line hauling hatch, or interlocks, such as automatic closing of the conveyor belt room hydraulically operated sliding weathertight doors, when the line hauling hatch was not fully closed. Flood prevention and control in this accident relied on the stated 'Keep Closed at Sea' procedural controls for the hinged weathertight doors; however, this was not stated for the line hauling hatch and there were no instructions for the use of the locking bolts.

Argos Georgia operated in large seas. It was normal for crew to prepare for fishing while on passage, and likely easier to work with the internal doors open while moving between the main deck areas. It might have felt safer in rough weather to keep hinged doors open rather than constantly open and close them again. At the time of the accident the line hauling hatch opened uncommanded, which would have been entirely unexpected by the crew. As the practice of working on the main deck with some internal weathertight doors open had probably become normalised, the crew were caught off guard and the large influx of water quickly overwhelmed their ability to bring the emergency under control.

Argos Georgia was operated at sea with a likely unsecured line hauling hatch and open working deck internal weathertight doors. It is likely that operational convenience had overridden safe working practice, leaving the vessel vulnerable when the unexpected flooding occurred.

2.4 EMERGENCY RESPONSE

2.4.1 On board emergency response

The captain was on watch and saw the line hauling hatch open via the monitor in the wheelhouse. As there were no drills or guidance for this rapidly developing situation, the captain's immediate response was probably instinctive and they acted on professional judgement to call the C/E, attempt to remotely close the line

hauling hatch using the wheelhouse control system, drain the roll reduction tank and alter course to reduce water ingress. The crew attempted to close the line hauling hatch and activated the vessel's bilge pumping arrangements. These actions demonstrated a prompt initial response to an unexpected emergency.

Despite these actions, the flooding could not be contained. The C/E subsequently operated the emergency closing controls from the wheelhouse and observed that the line hauling hatch and the forward and aft hydraulically operated sliding weathertight doors to the conveyor belt room did not close. Water continued to spread beyond the line hauler room through open weathertight boundaries and into adjacent compartments. As the emergency evolved, the captain remained focused on saving *Argos Georgia* and believed that the flooding could be controlled by the vessel's pumping arrangements. Actions were taken to counter the increasing list, including transferring fuel and discharging fresh water. However, opportunities to limit further downflooding, including closure of ventilation openings, were not taken and the flooding continued to spread to additional spaces within the vessel.

The crew had not previously experienced or prepared for a flooding emergency of this scale and there were no vessel-specific procedures, decision-support tools or drills that addressed a rapidly developing flooding casualty. Consequently, the response lacked a structured framework for assessing and managing the emergency as it developed and instead relied heavily on professional judgement and experience to guide decision-making.

The absence of such a framework meant that the burden of assessing the casualty and deciding what actions to take remained concentrated on the captain and C/E during a rapidly developing and inherently stressful emergency. While considerable effort was directed towards saving *Argos Georgia*, the response remained largely ad hoc as the flooding progressed and the vessel's condition deteriorated, rather than being supported by a rehearsed flooding emergency response framework to support casualty assessment and decision-making as the emergency developed.

The crew's response focused on controlling the flooding and preserving the vessel, but without a structured emergency response framework it was largely ad hoc and did not prevent the progressive spread of floodwater or the continued deterioration of the vessel's stability.

2.4.2 Raising a distress

Argos Georgia was fitted with GMDSS equipment appropriate to its operating area, including DSC-capable communications equipment, and had qualified operators on board. However, no formal distress alert was transmitted directly from the vessel during the early stages of the emergency. Instead, the emergency messages were sent by phone and WhatsApp messages to vessels with which the crew had existing contact and to company contacts ashore.

Information about the casualty was passed ashore through informal means, rather than via a direct distress alert to the coordinating authority and vessels in the area. Consequently, the emerging situation was not immediately visible to coordinating parties, limiting early situational awareness and delaying the activation of an effective response. The emergency was initially treated as one that might still be controlled or stabilised, and the crew used familiar and immediately available routes to communicate. This was despite the fishing skipper recognising that flooding had

extended beyond the line hauler room and contacting the FV *Puerto Toro* shortly after the line hauling hatch opened to report that *Argos Georgia* was at risk of sinking and request that a distress alert was raised.

Reliance on informal messaging platforms further limited the effectiveness of the response because these did not connect directly to emergency services, alert vessels in the area, or provide a single point through which the developing situation could be assessed and coordinated. As the situation escalated, the need to declare a distress was prompted externally, rather than initiated directly from *Argos Georgia*. A “Mayday Relay” was subsequently transmitted by *Argos Helena* on *Argos Georgia*’s behalf at 1552, by which time the emergency response was fully underway.

The situation was unequivocally treated as a distress at 1529, approximately 1 hour 45 minutes after initial indications that *Argos Georgia* was taking on water and at risk of sinking, by which time the vessel had already developed a severe list, the crew were in immersion suits and abandonment was being prepared. As the list increased, the captain could no longer safely reach the vessel’s GMDSS station. This highlights the importance of transmitting a formal distress alert at the earliest opportunity in a rapidly developing emergency, particularly where access to communications equipment could soon be lost.

The delay in raising a formal distress alert reduced the likelihood of rescue assets arriving in daylight and narrowed the practical window for effective intervention as the seriousness of the casualty had to be pieced together from relayed and evolving information.

2.4.3 Escalation of the casualty

The absence of a prompt distress alert meant that information on the casualty was passed ashore through a developing chain of relayed communications. Argos FI became the principal intermediary between *Argos Georgia* and FIMA, and the response therefore relied on information being accurately interpreted and relayed as the casualty developed.

The emergency response plan established communication routes, contact lists and administrative actions for offshore incidents. For Falkland Islands-based incidents, the plan directed the captain to send an emergency request to FishOps, inform the agent and issue a statutory distress signal if necessary. The plan also included a range of shoreside tasks relating to notifications, communications and coordination. However, it did not provide a mechanism for the technical assessment of a developing flooding casualty or establish clear escalation criteria linked to vessel survivability.

Information relayed by Argos FI shaped FIMA’s early decisions. The updates described a serious flooding casualty but also indicated that the crew were attempting to control the flooding, pumps were being brought into use and propulsion remained available. However, flooding had already progressed beyond the line hauler room into adjacent compartments, marking a significant deterioration in the vessel’s condition and reducing its recovery prospects. FIMA’s decision not to request RAF Airbus A400M Atlas aircraft support while awaiting a further update from Argos FI demonstrated that the shoreside understanding of the casualty did not reflect the developing loss of survivability.

The seriousness of the casualty was recognised elsewhere. At about 1505, the master of *Argos Helena* advised that a distress message should be transmitted if *Argos Georgia* was in distress. Earlier, *Argos Georgia*'s fishing skipper had reported that the vessel was "*going down*" and asked for a "*distress signal*" to be sent ashore. However, the communication chain and emergency response arrangements did not ensure that the flooding implications were systematically assessed by personnel with sufficient technical and operational knowledge to support on board decision-making or reinforce the need for immediate distress escalation

The vessel's condition deteriorated as time passed, and there was little evidence of challenge to the assessment that the flooding might still be controlled. Ultimately, the fishing skipper approached the captain and raised the need to abandon ship. By this stage *Argos Georgia* had developed a severe list, propulsion had been lost and daylight was fading.

The seriousness of the vessel's deteriorating condition was not fully recognised ashore as the company's arrangements focused on relaying information and mobilising assistance and did not provide a structured framework for assessing and escalating a rapidly developing flooding casualty.

2.4.4 Abandonment

Argos Georgia was equipped with LSA that complied with the regulatory requirements and had sufficient survival craft capacity for those on board. However, the effectiveness of those arrangements depended on the crew being able to access and board the liferafts in the prevailing conditions.

The abandonment of *Argos Georgia* happened in severe weather and sea conditions with water temperatures of about 3.5°C and the vessel listed between 60° and 70°. By the time the order to abandon ship was given, movement around the vessel had become extremely difficult and the crew had little opportunity to conduct a controlled evacuation. The heavily listed vessel required an embarkation ladder to be rigged across the aft upper deck so that crew could descend from the elevated port side to the starboard side, where the deck edge was already at the waterline.

Both liferafts were successfully deployed. The starboard liferaft automatically released and inflated after becoming submerged, while the port side liferaft was manually launched and inflated. However, access to a liferaft generally required crew to enter the water first before climbing into it. Although this arrangement complied with the vessel's lifesaving arrangements, it meant that abandonment in the weather and sea conditions routinely encountered in the South Atlantic was likely to be challenging.

The late stage at which abandonment started, combined with the vessel's severe list and the prevailing conditions and approaching darkness, made it difficult for the officers to maintain oversight of the abandonment or effectively coordinate the actions of individual crew members. The hazards associated with reaching the liferafts were demonstrated when the 2/E entered the water and became entangled in the liferaft painter lines before being lost, and when the cook entered the water and was thrown against the vessel by the waves. These events highlighted the difficulty of entering the water and reaching a survival craft in the prevailing conditions and are likely to have influenced the actions of those who remained on board. As the situation deteriorated, crew entered the water and attempted to reach

the liferafts in different ways, while others remained on board after the starboard liferaft had drifted away. Consequently, decisions increasingly became dependent on individual judgement rather than a structured and supervised abandonment process.

In an effort to allow crew to board dry-shod, the liferafts were brought closer alongside the vessel. While this improved access, the port liferaft came into contact with damaged vessel structure and was punctured, significantly reducing its effectiveness as a survival craft. Although the starboard liferaft remained fully functional, it drifted away from the vessel once occupied and could not subsequently be brought back alongside to recover those remaining on board

The abandonment therefore became increasingly dependent on a single functioning liferaft and on individuals successfully entering the water and reaching it. In the remote operating environment, survival relied on successful abandonment into a functioning survival craft because recovery by SAR assets could not be expected before individuals in the water were likely to lose functional capability.

The abandonment was hampered by the extreme conditions, the delayed decision to abandon ship, the difficulty of controlling and supervising the evacuation, and damage to one of the liferafts. These factors reduced the opportunity for all crew to board a fully functioning survival craft and increased the likelihood of prolonged immersion in cold water.

2.4.5 Sea survival

The survival outcomes following the abandonment demonstrated the importance of reaching and remaining within a functioning survival craft. All those who successfully boarded and remained within the undamaged starboard liferaft survived until rescue. In contrast, those who entered the water and were unable to access a functioning survival craft had little realistic prospect of survival in the prevailing conditions.

The immersion suits worn by the crew provided valuable protection during abandonment and transfer to a survival craft, but were not intended to support prolonged survival in cold water. Surviving crew reported that immersion suits were not routinely checked by other crew members before entering the water and that some crew experienced difficulty fully securing the zip closure. The effectiveness of the immersion suits relied on them being correctly fitted and secured to minimise water ingress. The MAIB pool trial demonstrated that relatively small gaps in the face seal, zip closure or wrist seals could allow significant water ingress when immersed.

The CESM modelling indicated that survival in the prevailing conditions would not be expected to exceed 3 hours if immersion suits became saturated. The sea temperature of 3.5°C, combined with strong winds and heavy seas, created an environment in which survival became increasingly dependent on remaining out of the water rather than simply wearing protective clothing. As well as the effects of cold water immersion and hypothermia, those in the water were exposed to repeated wave action that made it increasingly difficult to maintain a clear airway as physical capability deteriorated.

Of the six crew who entered the damaged liferaft, only one survived. Four were probably washed out of the liferaft during the night in the severe sea conditions and one was found deceased within the raft. The outcome demonstrated that survival was approaching the limits of what was possible in the prevailing conditions

The sole survivor benefited from remaining associated with a buoyant structure rather than being immersed directly in the sea. The crew member's immersion suit was found to be heavily flooded and they were unable to move without assistance, indicating profound hypothermia. Their survival was likely aided by remaining partially sheltered within the damaged liferaft and securing themself within it, reducing the likelihood of being washed out by the waves. The crew member was the only one who survived without entering the undamaged starboard liferaft.

As seen in the *Villa de Pitanxo* accident, survival following abandonment in a remote and hostile environment depended on successfully entering and remaining within a functioning survival craft. The experience of *Argos Georgia* demonstrated that LSAs need to function as a complete system. Survival depended not only on the availability of survival craft, but also on the ability of crew to reach and board them. In remote operating areas where rescue cannot be expected before the effects of cold water immersion become critical, both the effectiveness of survival craft and the redundancy available if one becomes unusable can have a significant influence on survivability.

In the severe weather and remote operating environment encountered by *Argos Georgia*, survival depended on successful self-rescue into a functioning survival craft. Those unable to do so had little realistic prospect of survival before rescue assets could arrive.

2.5 SAFETY MANAGEMENT

2.5.1 Management assurance

Argos Georgia's safety management arrangements were documented in AFL's safety compliance and operations manual, health and safety policy, emergency response plan and vessel risk assessments. The documented arrangements included risk management, incident investigation, corrective and preventative action, document control and management audit.

It was apparent that no internal audits, structured assurance activities or formal reviews of operational practices were carried out. Consequently, on board practices were not reviewed, challenged or verified beyond regulatory inspections and certification surveys.

Although the RAs identified several high-consequence hazards, including vessel operation beyond its capabilities, failure of weathertight integrity, water ingress and loss of stability, the associated control measures were generally broad statements rather than practical controls capable of managing the identified risks. Significant hazards had been identified but the RAs were not used to develop practical procedures, training, supervision arrangements or emergency controls capable of preventing accidents or supporting the crew's response should those hazards materialise. The RAs therefore appeared to function primarily as compliance documentation rather than active tools for managing operational risk.

Responsibilities for safety management were not clearly assigned to an individual or dedicated function within the organisation. Instead, safety matters were managed collectively by the shore-based management team and relied heavily on the experience of vessel officers and regulatory surveys to identify concerns. This reduced independent oversight of safety performance and limited assurance that the company's stated safety arrangements were being consistently implemented and monitored. The safety management arrangements did not effectively follow guidance such as the FSM Code, outlined in MGN 596 (F), which, although not mandatory, identified vessel operating procedures, emergency preparedness, risk assessment, safety training and drills as key elements of a functional vessel SMS.

The company's safety management approach identified operational hazards but did not provide effective assurance that meaningful risk controls were adequately developed, implemented and monitored for safety-critical activities.

2.5.2 Emergency preparedness

Argos Georgia routinely operated in remote waters where assistance could be many hours away and survival following abandonment relied on the effectiveness of on board emergency actions and successful self-rescue into survival craft. SOLAS voyage planning requirements and associated IMO guidance recognised the need to consider hazards, environmental conditions, operational limitations and contingency arrangements before departure. Although there was no evidence that the prevailing weather conditions made the voyage unsafe, operating routinely in severe weather and a remote environment increased the importance of effective operational preparedness.

The company's safety management approach did not include specific controls for operational risks associated with severe weather, flooding emergencies and remote operation. Arrangements for maintaining weathertight integrity, modifying working practices during severe weather, managing flooding and escalating emergency response actions largely relied on custom, practice and professional judgement. Consequently, when the line hauling hatch opened unexpectedly, the crew faced a rapidly developing flooding emergency for which there was little procedural guidance, decision support or practical training beyond general emergency drills.

The vessel maintained a programme of emergency drills; however, only a muster drill was recorded in June 2024 and other planned drills had been postponed due to adverse weather. Damage control was included within the vessel's drill programme, but there was no evidence that flooding control measures, including the maintenance of weathertight boundaries and containment of floodwater, had been recently exercised as advocated in MGN 165 (F) and the MCA Fishermen's Safety Guide.

The company's emergency response arrangements also did not provide decision-support tools for managing a rapidly developing flooding casualty. The available emergency response plan focused primarily on shoreside communications and stakeholder management rather than shipboard actions such as controlling flood progression, escalating distress communications and assessing abandonment decisions. Structured emergency checklists were not available to support officers to assess priorities, review available options and escalate the response as the emergency developed. The response therefore relied on the experience and judgement of the officers on board.

The company's safety management approach to emergency preparedness, planning and response did not adequately address flooding, distress escalation and abandonment emergencies associated with operating in severe weather and a remote operating environment.

2.6 OVERSIGHT AND APPROVAL

2.6.1 In build survey and inspection

The oversight of design approval and in build inspection of *Argos Georgia* was predominantly delegated to DNV GL from the St Helena flag administration and MCA in line with the Code for Recognized Organizations, MSN 1873 (F) Amendment 1and DNV GL's fishing vessel construction rules.

The MAIB investigation into the *Argos Georgia* accident and the MCA's post-accident review on behalf of the St. Helena flag state (see section 1.5.9) highlighted some contravened rules around build standards, including:

- an unsealed pipe transit spanning the weathertight bulkhead between the line hauler room and the line magazine room
- an engine room emergency escape leading to the conveyer belt room that could not be exited if its forward and aft doors were closed
- a non-weathertight door to the bait room
- a non-weathertight hatch between the line hauler room and the fish processing room.

In this accident the issues around noncompliance at weathertight boundaries were non-contributory because progressive flooding was through internal doors that had been left open and there was no initial flooding into the fish processing room. The bait store was probably full for the intended fishing trip so the compartment would not have been highly permeable to any floodwater leaking through the door. The noncompliant engine room emergency escape was also non-contributory to the accident given that it was not used and the conveyor belt room doors were not closed.

Although non-contributory to the accident, examples of noncompliance with relevant MCA and DNV GL requirements indicated omissions in the oversight of *Argos Georgia*'s design approval and in build survey.

2.6.2 Approval and function of line hauling hatch securing method

MSN 1873 (F) Amendment 1 provided generic requirements for hatches such as *Argos Geogia*'s line hauling hatch that included strength requirements and *permanently attached* clamping devices. DNV GL's fishing vessel construction rules also included references to hatch securing device, time of closure, single person operation and emergency closure. The line hauling hatch design and drawing had been approved by DNV GL and included two 12mm diameter U-bolts, which probably had sufficient strength to hold the 69kg hatch in the closed position. The four locking bolts had been added latterly, in response to a hose test where the

hatch seal leaked. As this modification probably served as both a hatch sealing and a locking arrangement it is possible that the U-bolts were deemed no longer required and removed when the four locking bolts were added.

It is unknown but possible that this modification was 'locally' approved by an attending DNV GL surveyor just before *Argos Georgia* entered service. If the locking bolts were not used while the vessel was in service, the hatch was effectively supported by an operating drive mechanism hydraulic brake, which did not feature in the approval process. There was no regulatory requirement for *Argos Georgia*'s line hauling hatch locking arrangements to automatically engage when the hatch was closed but this would have been beneficial to remove reliance on procedural controls to improve safe operation.

It is probable that *Argos Georgia*'s line hauling hatch complied with the regulatory requirements but was at risk from an uncommanded opening if the manual locking system was not used.

2.6.3 Line hauling hatch modification process

Before the accident *Argos Georgia* had experienced problems with the line hauling hatch that included seal leakage and an uncommanded opening. This led to the hatch and its operating mechanism being incrementally modified during maintenance periods, which included replacing the hatch drive mechanism's hydraulic motor with a longer alternative. The shortening of the dog coupling required to create space for the replacement motor unintentionally reduced the drive coupling's strength, increasing its risk of failure.

Although the fitting of the four locking bolts was possibly locally approved by DNV GL, it is apparent that other modifications were not reported. MSN 1873 (F) Amendment 1 required *Argos Geogia*'s owners to *present the vessel for survey prior to completing significant repairs or modifications*; however, this did not happen for the changes made following the uncommanded opening of the line hauling hatch. Consequently, the modifications were not scrutinised.

The potential inherent weakness to the line hauling hatch's drive mechanism was not identified because modifications made to address in-service issues were not subject to design approval.

2.6.4 *Argos Georgia* design

Argos Georgia's arrangement included a moon pool, a popular design feature for longline fishing vessels that improved crew safety by removing the need to haul from the open decks. The vessel largely met MCA requirements for fishing vessels greater than 24m in length and DNV GL requirements that applied regardless of area of operation and distance from safe haven or rescue facilities. A class notation enabled *Argos Georgia* to operate in light sea ice.

The vessel's side and stern hatches, although an approved design, introduced vulnerabilities that featured in this and other long line fishing vessel accidents such as *Østbanken*, *Fay* and *Kambur*. Considering the intended remote and harsh area of operation, a holistic review of *Argos Georgia*'s design, by a process such

as a DNV GL DAP, might have been considered to inform the need for enhanced features beyond mandatory requirements to mitigate the operational risks. Potential considerations included:

- Instead of hinged weathertight doors, installing sliding watertight doors on the working deck that could be operated remotely under power and manually from a separate compartment.

- Automatic closing of internal sliding watertight doors when shell openings such as line hauling hatches open.

- Fail-safe arrangements for shell doors and automatic locking arrangements.

- Fitting a free-fall lifeboat in addition to liferafts (which was permissible for vessels >45m in MSN 1873), to improve the chances of abandoning a vessel dry-shod and therefore the chance of survival for crews habitually operating in extreme sea conditions and remote areas distant from SAR capabilities.

The need for such design enhancements may arise from safety assessment activities and the identification of physical risk controls linked to potentially compromising operational practices, such as leaving weathertight doors open and an unsecured line hauling hatch. The investigation could find little evidence that these aspects were considered in the vessel's design phase.

Although *Argos Georgia* complied with the fishing vessel regulations, the risks associated with habitually operating in remote locations and severe weather conditions did not prompt a holistic review of the vessel's design and installed equipment. This resulted in missed opportunities to enhance safety standards.

2.7 SEARCH AND RESCUE

2.7.1 Search and rescue response

The SAR response to *Argos Georgia* was conducted in a remote area in severe weather and sea conditions, and with limited locally controlled SAR capability. FIMA was not a fully constituted RCC and did not own or operate dedicated SAR assets. The response therefore depended on FIG assets, BFSAI support, assistance from nearby vessels and HMCG search planning support.

Despite these constraints FIMA acted promptly on the information available. After the initial report was received, FIMA notified JRCC Fareham and FIG fisheries staff, alerted FPV *Lilibet* and informed the BFSAI JOC. At that stage, no "Mayday" had been received and the casualty had not yet been presented to FIMA as an abandon ship distress.

Once it was clear that *Argos Georgia* was in distress and abandonment was being prepared, FIMA requested the deployment of all available SAR assets. BFSAI air assets were deployed and responding vessels continued towards the casualty position. The aircraft operated at long range, in poor weather and with limited time available on scene. The helicopter made rescue attempts in darkness and rough seas, while fixed-wing aircraft provided overwatch and position information to support the wider response.

The eventual recovery of 14 survivors reflected a sustained and determined effort by FIMA, BFSAI, HMCG, the responding vessels and other organisations involved. The response demonstrated that the Falkland Islands SAR arrangements could mobilise a coordinated multiagency operation in a remote and hostile environment. However, it also showed that the effectiveness of that response relied on timely and reliable distress information, the availability of external assets and the ability to maintain communications between the casualty, coordinating authority and responding units.

The SAR response was prompt and collaborative once the severity of the casualty was understood. The accident demonstrated that, in severe weather and sea conditions, distance, darkness and the limited endurance of available SAR assets meant that timely distress alerting and successful self-rescue into functioning survival craft were critical to survivability.

2.7.2 Search and rescue coordination model in the South Atlantic

The SAR arrangements applicable to this casualty did not operate through a single, fully integrated RCC structure with direct casualty-to-coordinator communications. The FIMA Operations Room functioned as a CAP, while the wider SRR was one for which Argentina had formal responsibility. The agreement between FIMA and HMCG provided for SAR-related advice and support, while BFSAI provided military assets under its own operational control.

This arrangement reflected the practical and geopolitical context of SAR in the region. The Falkland Islands had an operational maritime SAR area of responsibility within the FICZ and FOCZ, while the wider international SAR region was associated with MRCC Ushuaia. Under the ordinary SAR Convention and IAMSAR model, the RCC responsible for the SRR would be expected to lead or coordinate the SAR response in close collaboration with the CAP. However, routine direct SAR cooperation between the Falkland Islands and Argentina was constrained, and the practical response model therefore relied on FIMA coordinating locally, with support from HMCG, BFSAI, FIG assets, private sector vessels and vessels of opportunity.

During the response to *Argos Georgia*, this model allowed the coordination of a large-scale multiagency operation. FIMA coordinated multiple organisations, FPV *Lilibet* was transferred to FIMA's operational control, BFSAI provided air support and HMCG provided advice and search planning support. Communication with MRCC Ushuaia was established, but MRCC Ushuaia did not take over the coordination role that would ordinarily be expected of the RCC responsible for the SRR. The response therefore remained more complex than a conventional single-state RCC model and relied on cooperation between a CAP, external supporting authorities, and civilian and military assets operating under different command arrangements.

This arrangement was not a direct cause of the loss of life. The casualty was not made more difficult by uncertainty over who was coordinating the response, and there was no indication that an Argentine SAR asset was better placed than the resources already involved. However, the absence of a single RCC-led structure meant that the response was managed through a local CAP-based arrangement supported by HMCG and BFSAI, rather than through a coordinating centre with direct casualty-to-coordinator communications.

The absence of an RCC structure with direct and reliable casualty communications, combined with a severe and remote offshore casualty at the limits of SAR asset endurance, placed greater reliance on timely and accurate information transfer between the casualty, shore authorities and responding units.

2.7.3 Search and rescue communications capability in the Falkland Islands Area of Responsibility

The Falkland Islands SAR arrangements provided for alerts to be received through the JCR, FIMA or the BFSAI JOC. The JOC functioned as a CAP, while FIMA was responsible for initiating and coordinating civil maritime SAR within the Falkland Islands maritime AoR.

The response to *Argos Georgia* showed that those arrangements enabled a coordinated multiagency response, but it also exposed a limitation in the ability of the coordinating centre in Port Stanley to communicate directly with a casualty vessel across the area of responsibility. During the early stages of the emergency *Argos Georgia* did not establish direct communications with FIMA or another SAR coordinating authority. This meant that FIMA could not directly obtain real-time information directly from the casualty or provide direct guidance as the emergency developed.

The absence of direct casualty communications was important because the vessel's condition was deteriorating rapidly and decisions about SAR asset deployment depended on the information available ashore. FIMA had to build its operational picture from relayed information and, later, from reports provided by aircraft and responding vessels. Although this allowed the response to continue, it was less resilient than a direct communications link with the casualty.

The coordinating limitation continued after abandonment. Communications with the liferafts and survivors were not reliably established, and the operational picture had to be developed from aircraft observations, reports from responding units and information passed through shoreside coordination channels. This did not prevent FIMA from coordinating the response, but it reduced the ability of the coordinating authority and responding units to maintain a clear and immediate understanding of the number, location and condition of survivors during the critical stages of the rescue.

The technical communications capability available to the coordinating centre was also limited. The Falkland Islands arrangements did not provide a fully operational shore-based GMDSS capability that enabled direct and reliable long-range communications with vessels in distress across the maritime area of responsibility. For a casualty about 190nm east of the Falkland Islands, the limitation was not simply local VHF coverage, but the absence of a resilient communications pathway between the coordinating authority and a vessel in distress operating at longe range but still within the AoR.

Acting quickly, FIMA used the arrangements available to it and coordinated a sustained multiagency operation in severe conditions. However, the communications system supporting that response did not provide direct and reliable contact with *Argos Georgia* or the survivors. The response therefore depended on relayed third-party information, airborne observation and external support to build and maintain the operational picture.

The FIMA SAR communications capability did not provide direct and reliable contact with *Argos Georgia* or its survivors. Consequently, casualty communications relied on relayed third-party information, reducing effectiveness during the emergency.

SECTION 3 – CONCLUSIONS

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

1. *Argos Georgia* flooded through the line hauling hatch, which unexpectedly opened in heavy seas. The vessel progressively flooded via open weathertight doors and vents, resulting in a severe list, an unrecoverable loss of stability, and capsize. The vessel subsequently foundered and 13 crew lost their lives. Fourteen crew survived and were rescued. [2.3.1]

2. *Argos Georgia*'s line hauling hatch manual securing bolts had likely not been applied, and the hatch unexpectedly opened, possibly due to a failure of the operating drive mechanism that also prevented it from being closed again. [2.3.2]

3. It is probable that *Argos Georgia*'s line hauling hatch complied with the regulatory requirements but was at risk from an uncommanded opening if the manual locking system was not used. [2.6.2]

4. The potential inherent weakness to the line hauling hatch's drive mechanism was not identified because the modifications made to address in-service issues were not subject to design approval. [2.6.3]

5. Floodwater prevented the manual closure of the hinged weathertight door and access to the manual and emergency closing valves for the hydraulic sliding doors. It is likely that deluged electrical circuitry rendered remote emergency closing of the hydraulic weathertight doors inoperable, allowing progressive flooding of adjacent compartments. [2.3.3]

6. *Argos Georgia* was operated at sea with a likely unsecured line hauling hatch and open working deck internal weathertight doors. It is likely that operational convenience had overridden safe working practice, leaving the vessel vulnerable when the unexpected flooding occurred. [2.3.4]

7. The crew's response focused on controlling the flooding and preserving the vessel, but without a structured emergency response framework it was largely ad hoc and did not prevent the progressive spread of floodwater or the continued deterioration of the vessel's stability. [2.4.1]

8. The delay in raising a formal distress alert reduced the likelihood of rescue assets arriving in daylight and narrowed the practical window for effective intervention as the seriousness of the casualty had to be pieced together from relayed and evolving information. [2.4.2]

9. The seriousness of the vessel's deteriorating condition was not fully recognised ashore as the company's arrangements focused on relaying information and mobilising assistance and did not provide a structured framework for assessing and escalating a rapidly developing flooding casualty. [2.4.3]

10. The abandonment was hampered by the extreme conditions, the delayed decision to abandon ship, the difficulty of controlling and supervising the evacuation, and damage to one of the liferafts. These factors reduced the opportunity for all crew

to board a fully functioning survival craft and increased the likelihood of prolonged immersion in cold water. [2.4.4]

11. In the severe weather and remote operating environment encountered by *Argos Georgia*, survival depended principally on successful self-rescue into a functioning survival craft. Those unable to do so had little realistic prospect of survival before rescue assets could arrive. [2.4.5]

12. The company's safety management approach identified operational hazards but did not provide effective assurance that meaningful risk controls were adequately developed, implemented and monitored for safety-critical activities. [2.5.1]

13. The company's safety management approach to emergency preparedness, planning and response did not adequately address flooding, distress escalation and abandonment emergencies associated with operating in severe weather and a remote operating environment. [2.5.2]

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

1. Although *Argos Georgia* complied with the fishing vessel regulations, the risks associated with habitually operating in remote locations and severe weather conditions did not prompt a holistic review of the vessel's design and installed equipment. This resulted in missed opportunities to enhance safety standards. [2.6.4]

2. The absence of an RCC structure with direct and reliable casualty communications, combined with a severe and remote offshore casualty at the limits of SAR asset endurance, placed greater reliance on timely and accurate information transfer between the casualty, shore authorities and responding units. [2.7.2]

3. The FIMA SAR communications capability did not provide direct and reliable contact with *Argos Georgia* or its survivors. Consequently, casualty communications relied on relayed third-party information, reducing effectiveness during the emergency. [2.7.3]

3.3 OTHER SAFETY ISSUES NOT DIRECTLY CONTRIBUTING TO THE ACCIDENT

1. Although non-contributory to the accident, examples of noncompliance with relevant MCA and DNV GL requirements indicated omissions in the oversight of *Argos Georgia*'s design approval and in-build survey. [2.6.1]

2. The SAR response was prompt and collaborative once the severity of the casualty was understood. The accident demonstrated that, in severe weather and sea conditions, distance, darkness and the limited endurance of available SAR assets meant that timely distress alerting and successful self-rescue into functioning survival craft were critical to survivability. [2.7.1]

SECTION 4 – ACTIONS TAKEN

4.1 MAIB ACTIONS

The **MAIB** has:

- Issued MAIB Safety Bulletin 4/2024 **(Annex A)**, highlighting the importance of suitable and sufficient risk assessment of watertight integrity in fishing vessels fitted with side shell doors.

- Issued a letter to Argos Froyanes Limited, including the results of the FEA and recommendations.

- Issued a safety flyer to the longline fishing industry **(Annex B)**.

4.2 ACTIONS TAKEN BY OTHER ORGANISATIONS

Marin Teknikk has emphasised to vessel owners the importance of adhering to instructions provided in drawings, documentation, signage and manuals.

Det Norske Veritas has implemented a review of its fishing vessel rules.

Argos Froyanes Limited has, on its other vessels:

- Installed interlocks between the side hauling hatch and conveyor belt room door to prevent internal doors being open when the side hauling hatch is open.

- Fitted an escape hatch into the conveyor room sliding door.

- Reconfigured the hydraulic system, including increasing the capacity of the emergency closing accumulators.

- Increased the electrical control cabinet's protection from water ingress and relocated the cabinet, and the emergency closing controls.

- Upgraded the bait hold shaft and the fish hold doors.

- Raised the door sills in the hauling room.

- Informed the classification society of all modifications.

- Completed an SMS gap analysis against MGN 596 (F).

- Reviewed and amended its vessel risk assessments, including risks associated with flooding, stability, doors, hatches and other operational hazards.

- Reviewed and amended its safety compliance and operations manual, associated policies and procedures.

- Amended the pre-departure checklist to require verification that all watertight doors and hatches are closed and secured before departure.

- Introduced signed crew familiarisation and risk assessment training records before departure.

- Reviewed LSA procedures and immersion suit provision, including assessment of suit suitability and sizing for crew members.

- Added flooding management drills to its regular vessel drill cycle.

- Revised crew operations for control of doors at sea.

- Introduced a new computerised safety and compliance management system across its vessels, including modules for document management, certificates, risk assessments, drills, work tasks, maintenance, rest hours and crew management, with ship-to-shore access.

The **Falkland Islands Maritime Authority** has:

- Undertaken SMC training delivered by HMCG. Training was also delivered to GSGSSI staff, who will co-locate with FIMA during major maritime incidents.

- Undertaken a visit to JRCC Fareham for post-*Argos Georgia* incident discussions.

- Attended the Overseas Territories SAR Workshop in Miami, Florida.

- Improved incident response training through training delivered by the London Fire Brigade.

- Provided visiting fishing vessels with improved communication briefs, in a variety of languages, on the conduct of helicopter transfers at sea with Falkland Islands assets.

The **St Helena Maritime Authority** has:

- Introduced the Merchant Shipping (Safety of Large St Helena Registered Fishing Vessels and Foreign Registered Fishing Vessels) Regulations 2026 and the accompanying Policy for the Safety of Large St Helena Registered Fishing Vessels and Foreign Registered Fishing Vessels 2026, establishing a framework for the survey, certification and safety oversight of large fishing vessels, including requirements for Statements of Compliance, periodic surveys, reporting of accidents, defects and vessel modifications, and powers for inspection, detention and enforcement.

- Commissioned inspections of the remaining St Helena registered longline fishing vessels and overseen corrective actions to address identified deficiencies relating to side hatch arrangements, weathertight integrity, emergency closing systems, emergency escape arrangements and emergency preparedness.

The **Maritime and Coastguard Agency** has:

- Conducted inspections of the St Helena registered fishing vessels *Nordic Prince* and *Argos Helena* on behalf of the St Helena Maritime Authority, identifying deficiencies and requiring corrective action relating to vessel arrangements, weathertight integrity, emergency escape arrangements, crew certification, emergency preparedness and safety management.

SECTION 5 – RECOMMENDATIONS

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

2026/156 Amend Merchant Shipping Notice 1873 (F) – The Code of Practice for the Construction and Safe Operation of Fishing Vessels of 24m Registered Length and Over – to include design requirements for shell door arrangements that, as a minimum, require automatic locking arrangements capable of securing shell doors in the closed position.

Argos Froyanes Limited is recommended to:

2026/157 Implement a documented safety management system across its fishing vessels that, as a minimum, includes:

- Vessel operating procedures and effective risk control measures to manage identified hazards, including the maintenance of weathertight integrity and safe operation of working deck areas.
- Emergency preparedness arrangements, including flooding response, loss of stability, maintenance of weathertight integrity, distress escalation and abandonment procedures.
- Practical drills, exercises and training that prepare crews to respond to flooding emergencies and survive until rescue in remote operating areas.
- Defined shore-to-ship support arrangements, including casualty assessment, emergency escalation and technical support during vessel emergencies.
- Incident, deficiency and hazardous occurrence reporting arrangements, including implementation of corrective actions.
- Auditing and management review procedures to verify the effectiveness of risk control measures and emergency preparedness arrangements.

The **Falkland Islands Government, Directorate of Emergency Services and Islands Security** is recommended to:

2026/158 Enhance the Falkland Islands maritime search and rescue communications capability so that direct and reliable contact can be established with vessels in distress within the Falkland Islands maritime search and rescue area of responsibility. This should include:

- Appropriate shore-based Global Maritime Distress and Safety System and digital selective calling communications capability, supported by arrangements to ensure it remains available and operable.
- Suitably trained personnel to operate and support the communications capability.
- A documented programme for implementation, maintenance and exercising.

MAIB Safety Bulletin SB4/2024, issued 10 October 2024

MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

SAFETY BULLETIN

SB4/2024 OCTOBER 2024

Extracts from The United Kingdom Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 Regulation 5:
"The sole objective of a safety investigation into an accident under these Regulations shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of such an investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame."

Regulation 16(1):
"The Chief Inspector may at any time make recommendations as to how future accidents may be prevented."

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NOTE
This bulletin 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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Foundering of the fishing vessel *Argos Georgia* approximately 190 nautical miles east of Port Stanley, Falkland Islands with the loss of 13 lives on 22 July 2024

Image courtesy of Royal Air Force

Argos Georgia foundering

Safety bulletin produced in association with St Helena Government.

MAIB SAFETY BULLETIN 4/2024

This document, containing safety lessons, has been produced for marine safety purposes only, on the basis of information available to date.

The Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 provide for the Chief Inspector of Marine Accidents to make recommendations at any time during the course of an investigation if, in his opinion, it is necessary or desirable to do so.

The Marine Accident Investigation Branch is carrying out an investigation on behalf of St Helena Government into the foundering of the fishing vessel *Argos Georgia* on 22 July 2024, with the loss of 13 lives.

The MAIB will publish a full report on completion of the investigation.

Captain Andrew Moll OBE
Chief Inspector of Marine Accidents

NOTE

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

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BACKGROUND

On 22 July 2024, the St Helena registered longline fishing vessel *Argos Georgia* capsized and sank while on passage from Port Stanley, Falkland Islands to fishing grounds near the island of South Georgia. Of the 27 people on board, 13 perished and 14 were recovered during the search and rescue (SAR) operation. At the time, wave heights were reported to reach up to 7m accompanied by winds of up to 50 knots.

At about 1230[1], in a position approximately 190 nautical miles east of Port Stanley, *Argos Georgia* suffered an uncontrolled ingress of water through the shell door into the hauling compartment on its starboard side. Water then entered other areas aft of the hauling compartment **(**see **Figure)** and the vessel took on a starboard list. *Argos Georgia* was turned into the weather and the master raised the alarm via a colleague on a fishing vessel operating in the same region. This alarm was relayed to the authorities in the Falkland Islands and a SAR operation initiated using air and sea assets, supported by other fishing vessels.

General arrangement courtesy of Marin Teknikk and insets courtesy of Argos Froyanes and Commission for the Conservation of Antarctic Marine Living Resources

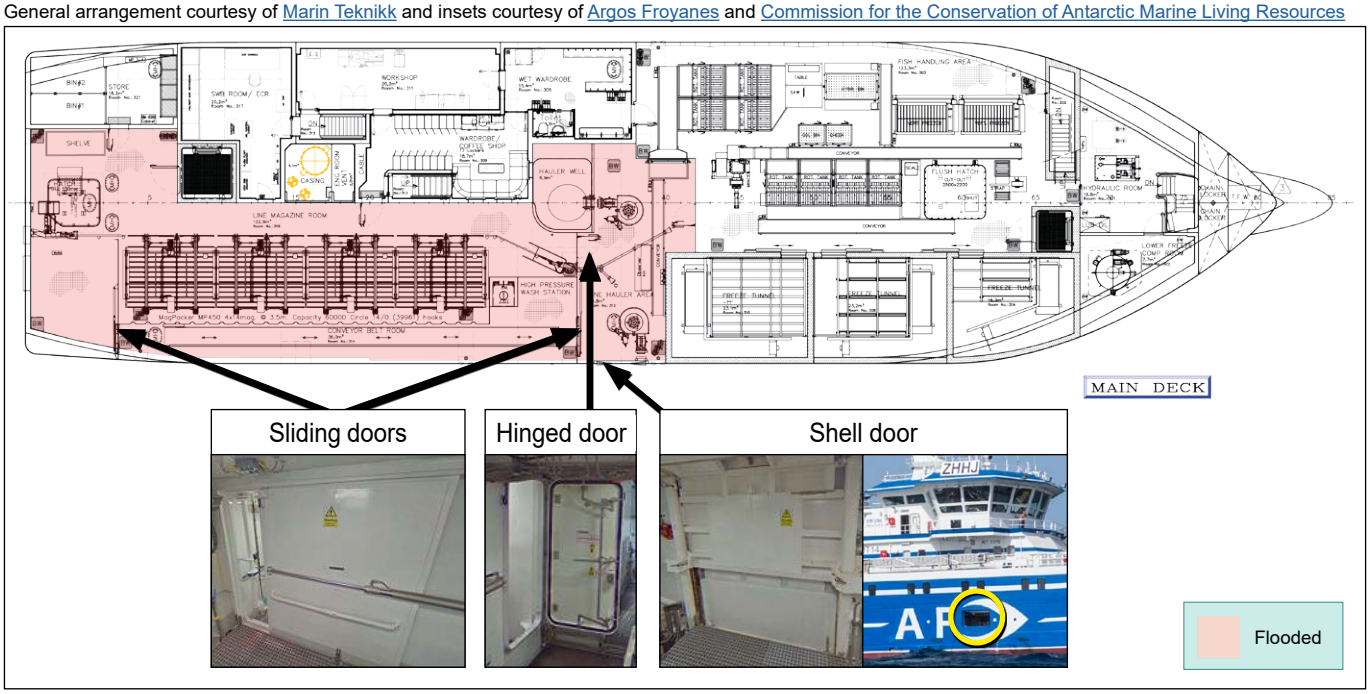

Figure: Plan of *Argos Georgia* main deck, showing the extent of the initial flooding

As the list of the vessel steadily increased, the crew mustered and donned their immersion suits. At about 1445, *Argos Georgia* lost propulsion and the vessel drifted in the heavy seas. At about 1600, with the list continuing to increase and the aft deck becoming immersed, and with darkness approaching, the crew started abandoning ship into two liferafts. By approximately 1130 on 23 July 2024, two of the responding vessels had recovered 14 survivors and 9 deceased crew members. Four crew members remain missing, presumed dead.

INITIAL FINDINGS

The ongoing investigation has found that, before the accident, the shell door in the starboard side of *Argos Georgia* was raised in the closed position. At the time of the accident the door was observed on closed-circuit television to descend slowly into the fully open position. This allowed significant quantities of water to enter the vessel. The crew were unable to close the shell door once it had opened.

1 The times in this safety bulletin are local time: universal time coordinated (UTC) -4 hours.

Internal doors leading from the hauling compartment were open. This allowed water to flow unhindered into other areas of the vessel, causing a significant list that progressively increased as more water entered. The crew were unable to control the passage of water into other spaces in the vessel, which increased the list still further until the vessel foundered.

SAFETY ISSUES

The initial stages of the investigation have identified that:

- the means of maintaining the shell door in the closed position did not ensure it remained shut at the time of the accident.
- the crew were unable to close the shell door once it had opened.
- some doors in the boundary of the hauling compartment were in the open position, allowing consequential flooding of adjacent spaces.
- the crew were unable to close the boundary doors to the hauling compartment.

RECOMMENDATIONS

All **owners, operators and skippers of fishing vessels** that are fitted with side shell doors are recommended to:

S2024/137M Urgently ensure that a suitable and sufficient assessment of the risk of water entering the vessel through a side shell door has been undertaken and documented, noting the safety issues identified in this safety bulletin, and that:

- mitigations identified are immediately implemented to reduce the risks associated with a failure of a shell door;
- where a risk of consequential flooding between compartments exists, appropriate measures including maintaining internal doors in the closed position are taken; and
- the crew are informed of the findings of the risk assessment and the measures taken for their protection.

Issued October 2024

MAIB safety flyer to the fishing industry

MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

SAFETY FLYER TO THE LONGLINE FISHING INDUSTRY

Foundering of the longline fishing vessel *Argos Georgia*, approximately 190 nautical miles east of Port Stanley, Falkland Islands with the loss of 13 lives on 22 July 2024

Image from Argos Froyanes Limited

Argos Georgia

Summary

On the evening of 22 July 2024, the St Helena registered longline fishing vessel *Argos Georgia* capsized and sank about 190nm east-south-east of Port Stanley, Falkland Islands. Of the 27 people on board, 13 perished and 14 survived and were recovered during the search and rescue (SAR) operation.

Narrative

Argos Georgia was on passage to fishing grounds in rough seas near the island of South Georgia. At about 1300 on 22 July, the line hauling hatch **(**see **figure)** set in the main deck starboard side of the hull opened uncommanded. Water poured into the line hauling room and flooding progressed through the main deck compartments via weathertight doors that had been left open. The floodwater probably damaged door remote closing systems and impeded the crew's attempts to manually shut weathertight doors. *Argos Georgia* soon took up an extreme list to starboard.

Crew members contacted friends on other longline fishing vessels via the WhatsApp messaging service to ask for help. Soon after, the general alarm was sounded and crew mustered on the bridge to don their immersion suits.

* Images from sister vessel *Nordic Prince*

Figure: Line hauling hatch similar to that of *Argos Georgia**

In the Falkland Islands, the maritime SAR authority had been made aware of the WhatsApp messages and the developing situation on board *Argos Georgia* but had not received a "Mayday". By 1530, the vessel's operator informed the SAR authority that it was declaring distress, and that the crew were preparing to abandon ship.

By 1600, *Argos Georgia*'s severe list of about 60° to 70° had caused the vessel to lose power, and a sister vessel issued a "Mayday Relay" on its behalf. Soon after, the captain gave the order to abandon ship. The starboard liferaft automatically released due to the list, while the port side liferaft

was deployed by crew members. Two crew members were lost at sea while attempting to swim and board a liferaft. Thirteen crew eventually boarded a liferaft but several of its buoyancy tubes were punctured when the liferaft was brought closer to the vessel. They managed to transfer to the second liferaft, which then drifted away. Six other crew members boarded the badly damaged liferaft, which also drifted away. Four crew remained on board the sinking vessel.

Search and rescue aircraft arrived on scene after it became dark. The two liferafts were identified and tracked, while an attempt was made by the SAR helicopter to recover a crew member who was floating face down. The severe environmental conditions and having only 10 minutes' duration on scene meant the rescue attempt was unsuccessful. At 1900, *Argos Georgia* capsized and sank.

At about 0530 on the following morning, the first of the SAR vessels arrived on scene and reported winds of 75kts and a 7m to 8m swell. More vessels arrived in the following hours. One crew member was recovered alive from the damaged liferaft, all 13 crew members were recovered alive from the intact liferaft and nine deceased crew were recovered from the water. Four remain missing, presumed dead.

Safety lessons

1. The line hauling hatch opened unexpectedly due to the probable failure of the hatch drive mechanism. It was not held in the closed position as the manually operated locking bolts had likely not been applied after the last closure. Internal weathertight doors were open at the time of the accident, and this had become common practice despite the requirement to keep them closed at sea stated in *Argos Georgia*'s stability information booklet. Review and risk assess how your vessel is operated to make sure operational practices protect your vessel from risk.

2. The line hauling hatch had unexpectedly opened before and its drive mechanism had been modified. Ensure your design equipment is safe and fit for purpose: seek design approval when carrying out changes that could significantly impact your vessel's safety.

3. Carry out drills to prepare for unexpected events such as flooding. Practising closing watertight flaps and ventilation dampers can buy time in the event of an emergency.

4. The sending of informal distress messages delayed the SAR response by about 2 hours. Never hesitate to issue a "Mayday" in an emergency.

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 2026 – Regulation 5:

The sole objective of a safety investigation into an accident under these Regulations is the prevention of future accidents through the ascertainment of its causes and circumstances. It is not the purpose of such an 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 19(1) of The Merchant Shipping (Accident Reporting and Investigation) Regulations 2026, shall be inadmissible in any judicial proceedings concerning liability unless the Chief Inspector of Marine Accidents or a court of law determine otherwise.

Marine Accident Report