ACCIDENT REPORT

MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

Report on the investigation of

a fall overboard from the crab potting vessel

Amadeus (TH7)

resulting in one fatality

in the German Bight, North Sea

on 13 December 2023

VERY SERIOUS MARINE CASUALTY REPORT NO 13/2026 JUNE 2026

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 courtesy of Frits Olinga (Shipspotting.com)

All MAIB publications can be found on our website: www.gov.uk/maib

For all enquiries:

Marine Accident Investigation Branch
First Floor, Spring Place
105 Commercial Road
Southampton
SO15 1GH
United Kingdom

Email: iso@maib.gov.uk
Telephone: +44 (0)23 8039 5500

Press enquiries during office hours: +44 (0)19 3244 0015
Press enquiries out of hours: +44 (0)30 0777 7878

CONTENTS

FIGURES

TABLES

ANNEXES

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

BAC	-	blood alcohol concentration
CCTV	-	closed-circuit television
CoC	-	Certificate of Competency
COSWP	-	Code of Safe Working Practices for Merchant Seafarers
DGzRS	-	Deutsche Gesellschaft zur Rettung Schiffbrüchiger – German Maritime Search and Rescue Service
EPIRB	-	emergency position indicating radio beacon
FISH Platform	-	Fishing Industry Safety and Health Platform
FSM Code	-	Fishing Safety Management Code
ILO	-	International Labour Organization
ILO 188	-	International Labour Organization Work in Fishing Convention No.188
ILO Guidelines	-	International Labour Organization Guidelines on Flag State Inspection for the Work in Fishing Convention
IMO	-	International Maritime Organization
ISM Code	-	International Management Code for the Safe Operation of Ships and for Pollution Prevention
ITF	-	International Transport Workers' Federation
kts	-	knots
LSA	-	lifesaving appliances
MCA	-	Maritime and Coastguard Agency
MGN	-	Marine Guidance Note
MIN	-	Marine Information Note
MOB	-	Man overboard
MRCC	-	Maritime Rescue Co-ordination Centre
MSC	-	Maritime Safety Committee
MSIS	-	Marine Survey Instructions for the Guidance of Surveyors
MSN	-	Merchant Shipping Notice
NFFO	-	National Federation of Fishermen's Organisations
NIOSH	-	National Institute for Occupational Safety and Health
nm	-	nautical mile
PFD	-	personal flotation device

PLB	-	personal locator beacon
RCIT	-	Regulatory Compliance Investigations Team
REBA	-	Rapid Entire Body Assessment
SAR	-	search and rescue
SI	-	statutory instrument
SMS	-	safety management system
STCW	-	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW Convention)
t	-	tonnes
UKFVC	-	United Kingdom Fishing Vessel Certificate
UTC	-	universal time coordinated
VHF	-	very high frequency
WIFC	-	Work in Fishing Convention

TIMES: all times used in this report are UTC +1 unless otherwise stated.

Image courtesy of Frits Olinga (Shipspotting.com)

Amadeus (TH7)

SYNOPSIS

At about 0009 on 13 December 2023, a deckhand fell overboard from the UK registered crab potting vessel *Amadeus* while hauling pots in rough sea conditions in the German Bight, North Sea. The crew immediately attempted recovery, but their efforts were unsuccessful. Cold water shock caused rapid incapacitation, and without a personal flotation device the deckhand was unable to keep afloat and disappeared within minutes. A major search and rescue operation was launched but did not locate him.

The investigation found that the pot hauling method on board *Amadeus* presented a significant risk of falling overboard. Crew leaned over the vessel's side to retrieve pots, carrying increased risk in rough weather. A deck modification had reduced bulwark height and no alternative protective measures, such as safety harnesses or lifelines, were in place. The deckhand's physical capacity was likely affected by prolonged heavy lifting and fatigue associated with a 24-hour hauling regime and a work schedule that did not meet minimum statutory rest requirements.

Once the deckhand was in the water, the absence of realistic drills, unfamiliarity with recovery equipment, and the lack of a plan for recovering either a conscious or an unconscious casualty reduced the crew's ability to respond effectively to the man overboard emergency.

Beyond the immediate factors, the investigation found that *Amadeus* operated without an effective safety management system or structured oversight by the owner to ensure work was carried out safely. Deficiencies were not therefore proactively monitored or corrected, leaving the vessel reliant on regulatory intervention to maintain safety standards. The investigation also found that full-term certification was issued to *Amadeus* despite unresolved deficiencies, and expired enforcement notices were not escalated, highlighting weaknesses in regulatory oversight and follow-up processes. More generally, the voluntary nature of the Fishing Safety Management Code, as set out in Marine Guidance Note 596 (F), meant there was no mandatory requirement for a structured safety management system on fishing vessels. In the case of *Amadeus*, the company's safety management arrangements did not provide effective oversight or assurance that hazards were being proactively managed between inspections.

The Maritime and Coastguard Agency has been recommended to update manual handling guidance, strengthen working time regulations to ensure adequate rest for all fishermen, and align fatigue management guidance with the principles of the International Labour Organization Work in Fishing Convention No.188. The Maritime and Coastguard Agency has also been recommended to improve survey and inspection processes through robust tracking and enforcement of corrective actions, and mandate safety management systems for fishing vessels of 15m or above.

The operating company, The Blue Sea Fishing Company Ltd, has been recommended to implement realistic manoverboard drills, conduct a formal risk assessment of pot hauling tasks, monitor and manage crew work and rest hours, and develop an effective safety management system to embed safe working practices and oversight.

SECTION 1 – FACTUAL INFORMATION

1.1 PARTICULARS OF *AMADEUS* AND ACCIDENT

VESSEL PARTICULARS	
Vessel's name	*Amadeus*
Flag	UK
Classification society	Not applicable
Fishing number	TH7
Type	Crab potting vessel
Registered owner	The Blue Sea Fishing Company Ltd
Manager(s)	The Blue Sea Fishing Company Ltd
Construction	Steel
Year of build	1992
Length overall	24.50m
Registered length	22.93m
Gross tonnage	258.0
Minimum safe manning	Not applicable
Authorised cargo	Shellfish

VOYAGE PARTICULARS	
Port of departure	Eemshaven, the Netherlands
Port of arrival	Eemshaven, the Netherlands
Type of voyage	Pot fishing
Cargo information	Crabs
Manning	8

MARINE CASUALTY INFORMATION	
Date and time	13 December 2023 at about 0009
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	German Bight, North Sea, approximately 58 nautical miles north-west of Heligoland, Germany
Place on board	Hauling hatch, working deck
Injuries/fatalities	1 fatality
Damage/environmental impact	None
Vessel operation	Hauling pots
Voyage segment	Mid-water
External & internal environment	Wind Beaufort force 7 gusting 8; wave height 2m to 2.5m; air temperature 6°C; sea temperature 9°C
Persons on board	8

1.2 NARRATIVE

On 10 December 2023, *Amadeus* landed its catch of North Sea brown crab at Eemshaven, the Netherlands after nine consecutive days of fishing in the German Bight. At about 1900, the vessel departed for what was intended to be its final trip before Christmas. At about 0600 the following morning, *Amadeus* arrived at the fishing grounds approximately 74 nautical miles (nm) north-north-east of Eemshaven **(Figure 1)**. Hauling and shooting operations resumed an hour later. A string of 100 pots was hauled, emptied, rebaited, and shot back overboard every hour. The crew completed 18 strings on the first day and 25 strings on the second day.

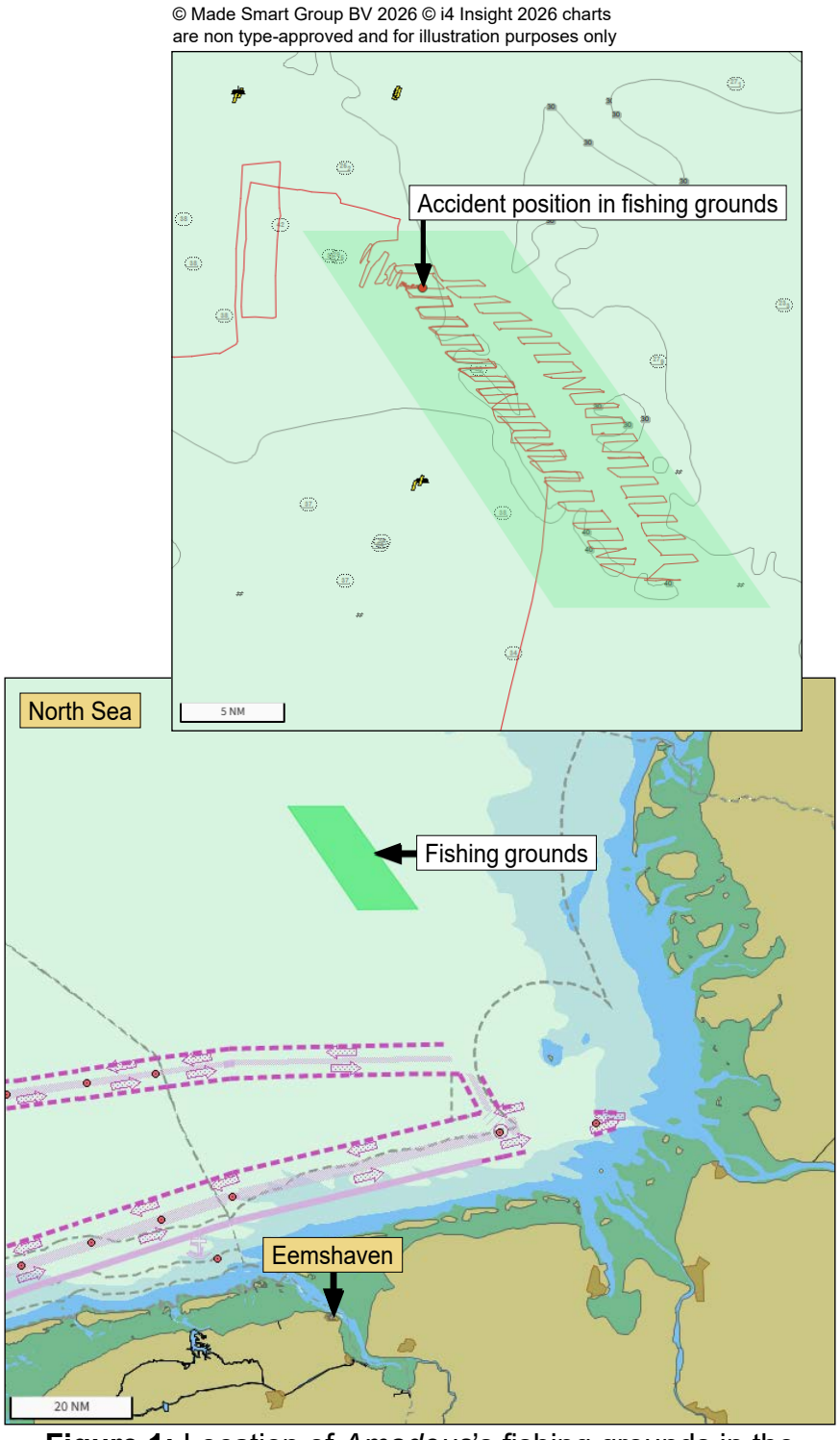


Figure 1: Location of *Amadeus*'s fishing grounds in the German Bight and accident

At about 1600 on 12 December, two deckhands, including Aleksandrs Medvedevs, completed their 16-hour shift and left the deck to rest. Aleksandrs ate dinner, phoned his family, and went to bed at about 1730. Shooting and hauling continued with the remaining four deckhands.

At about 2310, Aleksandrs woke to prepare for his next shift. He drank a cup of coffee and went on deck shortly before midnight. From the wheelhouse, the skipper, who had direct sight of Aleksandrs, began hauling the string using winch controls at the conning position. *Amadeus* maintained an easterly heading at 3 knots (kts) to 4kts as the back rope was hauled towards the hatch.

Working at the hauling hatch, Aleksandrs leaned over the low bulwark to bring pots on board, placing them first on top of the bulwark and then lifting them across to the clearing table for processing. Between 2356 and 0008, he repeated this task 47 times in quick succession as the vessel rolled heavily in worsening conditions.

At 0009, the vessel lurched while Aleksandrs was reaching for the next pot and he lost his balance and fell overboard. He attempted to arrest his fall by gripping the bulwark but was unsuccessful **(Figure 2)**.

Aleksandrs immediately attempted to swim back towards the vessel as the skipper turned to starboard and alerted the mate. A deckhand tried to throw a lifebuoy, but the lifeline became tangled on an overhead light. Further attempts were made once the lifebuoy was freed, but strong winds prevented it from reaching him. Another deckhand cut the back rope to allow the vessel to manoeuvre without obstruction.

Aleksandrs soon tired and stopped swimming. At 0011, when *Amadeus* came alongside him, he was already unconscious and face down in the water with his arms spread outwards. One of the off-duty deckhands made several unsuccessful attempts to reach him using a grappling hook from the hauling hatch. With recovery proving difficult, another crew member briefly considered climbing down the hull ladder, but this was abandoned due to the risk of creating a second casualty.

At about 0012, Aleksandrs drifted down the vessel's starboard side and was struck by a large wave that forced him under the hull and out of sight.

The skipper directed the crew to the upper deck to act as lookouts and attempted to send a distress signal via very high frequency (VHF) radio but was unsuccessful due to range limitations. At 0019, the nearby car carrier *Auto Achieve* transmitted a "Mayday Relay[1]" to Maritime Rescue Co-ordination Centre (MRCC) Bremen, operated by the German Maritime Search and Rescue Service, DGzRS[2].

A search and rescue (SAR) mission was launched under the direction of MRCC Bremen, with *Auto Achieve* acting as the on-scene coordinator. The operation involved two rescue helicopters from Germany and Denmark, and 19 vessels operating in the area. The SAR mission was called off at 2303 on 13 December, after 22 hours of coordinated searching, which exceeded the maximum survival time estimated by MRCC Bremen for the prevailing conditions, and with no sightings of Aleksandrs. *Amadeus* remained on scene until 0129 on 14 December, before returning to Eemshaven.

[1] A distress signal transmitted on behalf of a stricken vessel that cannot send its own "Mayday" message.

[2] Deutsche Gesellschaft zur Rettung Schiffbrüchiger.

Images courtesy of The Blue Sea Fishing Company Ltd

Figure 2: CCTV stills showing the moment the deckhand fell overboard

1.3 WEATHER AND ENVIRONMENT

At the time of the accident the wind was Beaufort force 7, gusting force 8, and wave heights were between 2m and 2.5m. Waves frequently washed over the working deck **(Figure 3)**, causing significant vessel movement. These conditions were typical of those encountered by *Amadeus* during fishing operations. The air temperature was approximately 6°C and the sea surface temperature was about 9°C.

Images courtesy of The Blue Sea Fishing Company Ltd

Figure 3: CCTV stills showing the weather and environmental conditions in the German Bight on 12 December 2023

1.4 COLD WATER SHOCK

Cold water shock is the body's immediate and involuntary reaction to sudden immersion in cold water, typically below 15°C. Studies on cold water immersion consistently identify this initial phase as the most hazardous, with physiological reactions peaking within the first 30 seconds and lasting up to 2 minutes. These reactions include an initial gasp reflex, uncontrollable hyperventilation, and a rapid increase in heart rate and blood pressure. Such effects can lead to drowning within seconds if the airway is compromised, and the cardiovascular strain can trigger arrhythmias or cardiac arrest. Cold water shock also impairs neuromuscular function, reducing the ability to swim or self-rescue.

1.5 CREW

Amadeus was crewed by a skipper, a mate, and six deckhands, all engaged as self-employed (share) fishermen. Each crew member had at least 2 years' experience in the fishing industry.

The skipper and mate were UK nationals and held the appropriate certificates for their respective roles. The six deckhands were foreign nationals and held valid STCW[3] Basic Safety Training[4] certificates, which met the minimum international requirements for working at sea. At the time of the accident, two of the deckhands, including the deceased, had not completed the UK-specific Safety Awareness and Risk Assessment training for experienced fishermen and did not hold the associated certificate.

[3] International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW Convention).

[4] Personal Survival Techniques (A-VI/1-1); Fire Prevention and Fire Fighting (A-VI/12); Elementary First Aid (A-VI/13); Personal Safety and Social Responsibility (A-VI/14).

The skipper had joined *Amadeus* as a deckhand in 2012 aged 16. In 2018, after obtaining a Deck Officer Certificate of Competency (Fishing Vessel) Class 2, they were promoted to skipper of *Amadeus*. In the same year, the skipper also became a director of The Blue Sea Fishing Company Ltd.

1.6 THE DECEASED

1.6.1 Personal details

Aleksandrs Medvedevs was a 39-year-old Latvian national of slender build, described as physically strong and athletic. He was 173cm tall and typically weighed about 73kg at the start of a trip, reducing to around 60kg by the end. He held a valid seafarer's medical certificate issued in May 2022, confirming fitness for duty without limitations or restrictions. No medical conditions were declared, and no prescribed medication was required during service at sea.

1.6.2 Employment and work pattern

Aleksandrs first joined *Amadeus* as a deckhand in April 2021 and had continued to work on board regularly until the time of the accident. Initially employed without a formal contract, he entered into a fisherman's work agreement with The Blue Sea Fishing Company Ltd on 31 May 2022. The agreement stipulated that his working time would comply with the provisions of Merchant Shipping Notice (MSN) 1884 (F)[5].

Aleksandrs had rejoined *Amadeus* on 5 August 2023, but left after 23 days due to a family bereavement. Following the funeral he requested to return to *Amadeus* to complete his contract, but no berth was available and the company assigned him to its other vessel, *Tydus*, which he joined on 7 September 2023. While serving on board *Tydus*, Aleksandrs worked on deck during the day and was also required to undertake several night watch duties in the wheelhouse, which disrupted his sleep. On 17 October 2023, a berth became available on *Amadeus* and Aleksandrs transferred back to his usual workplace.

He was scheduled to complete a longer contract than usual, with his anticipated leave date due around 20 December 2023. This extended period was partly due to the earlier bereavement and partly to earn sufficient income before the crabbing off-season. Aleksandrs had worked for 97 consecutive days at the time of the accident.

1.6.3 Medication

While on board, Aleksandrs routinely used ibuprofen, a nonsteroidal anti-inflammatory drug, to manage muscle pain and minor injuries sustained during fishing operations. In a message to a family member, he explained that the medication provided temporary relief, typically taking effect within about 30 minutes and lasting for several hours. Aleksandrs shared that the relief did not extend throughout the duration of a full hauling shift, which would last up to 16 hours, requiring him to take additional doses during the day to cope with the physical demands of pot hauling.

[5] MSN 1884 (F) – International Labour Organization Work in Fishing Convention (No.188): Working Time. Application of the Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 as amended. This was withdrawn and replaced by MSN 1884 (F) Amendment 1 on 14 November 2023.

1.6.4 Health and wellbeing

In early December 2023, Aleksandrs phoned a family member who noted that he sounded increasingly exhausted. Concerned for his wellbeing, the family member urged him to return home earlier than planned. On 8 December, Aleksandrs messaged another family member stating that he was nearing the end of his contract but felt physically and mentally depleted, adding that he did not know how he would cope with the remaining work. Around this time, he discussed his leave date with the skipper; the outcome of the conversation was unclear as to what had been agreed. In subsequent calls and messages with family members, Aleksandrs reportedly sounded very tired and said that there was no replacement available and that he would have to complete another trip.

1.6.5 Clothing and equipment

At the time of the accident Aleksandrs was wearing a hooded smock, bib and brace waterproof trousers, gloves, protective arm wear, and yellow slip-on polyurethane Wellington boots. Underneath, he wore sports clothing and a baseball cap. He was not wearing a personal flotation device (PFD) or a safety harness.

1.7 *AMADEUS*

1.7.1 Overview

Amadeus was a steel-hulled vivier[6] crabber, built in 1992 to the Fishing Vessels (Safety Provisions) Rules 1975. The vessel's registered length was 22.93m. *Amadeus* operated under the Maritime and Coastguard Agency (MCA) Merchant Shipping Notice (MSN) 1872 (F) Amendment 1[7], which set minimum safety standards for fishing vessels in this category. The vessel primarily engaged in pot fishing for brown crab in the German Bight.

Amadeus was originally commissioned and operated by its first owner, who occasionally worked on board and had been present during a fatal man overboard (MOB) accident in 1994. The owner had also experienced a personal fall overboard and witnessed other overboard accidents during potting operations.

1.7.2 Seasonal operation

Amadeus operated out of Eemshaven, the Netherlands, with fishing trips typically lasting 6 to 10 days before landing catch and returning to the fishing grounds. The vessel fished mainly between May and December when crab activity was highest, and sometimes into January. In the period from February to April the vessel returned to Fraserburgh, Scotland for annual maintenance and refit.

[6] A vessel equipped with seawater-filled and aerated holding compartments, known as vivier tanks, that are designed to keep live shellfish in optimal condition until landing.

[7] The Code of Safe Working Practice for the Construction and Use of Fishing Vessels of 15m Length Overall to less than 24m Registered Length.

1.7.3 Working deck layout

The working deck was located forward of the accommodation block and enclosed on the starboard side by a hydraulically operated hauling hatch. During hauling, the hatch was opened and a telescopic boom fitted with a hauler was extended over the vessel's side. A hauling block mounted at the end of the boom was used to recover pots while maintaining safe clearance from the hull.

At construction, the bulwark height at the hauling position was 915mm from the deck. Following a fatal accident in 1994 (see section 1.15.2), a raised steel grating was installed on the deck adjacent to the hauling hatch, reducing the effective bulwark height at that position to 780mm. The top of the bulwark was fitted with steel capping and finished inboard with a curved wooden edge, which crew commonly braced against during hauling **(Figure 4)**.

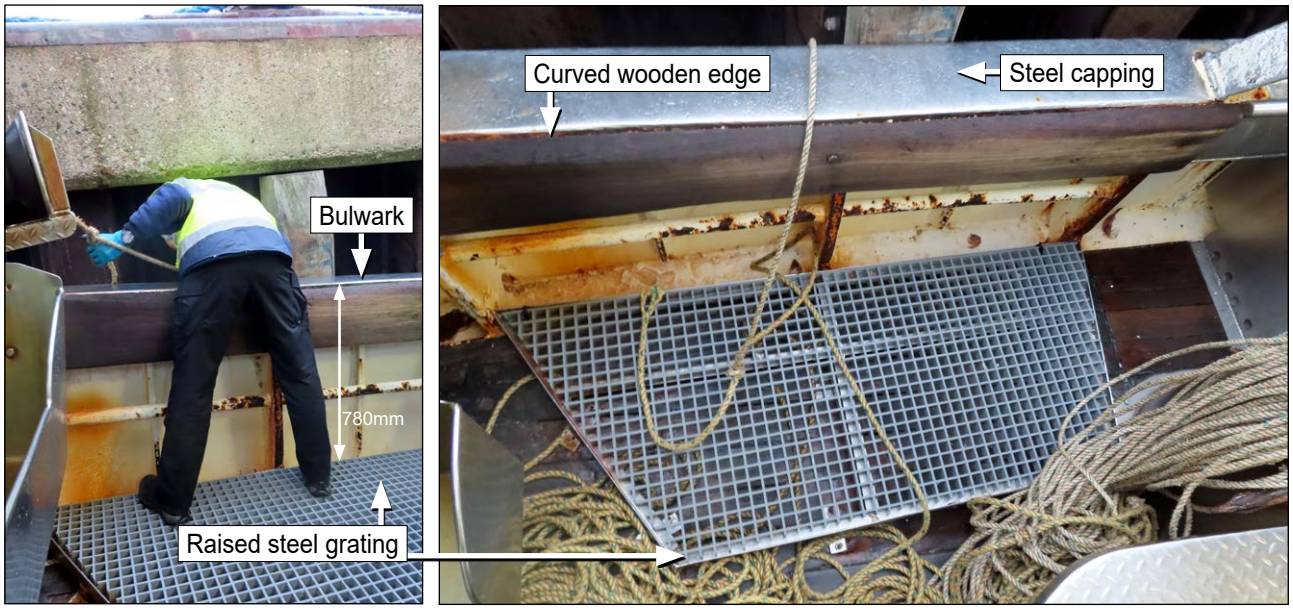


Figure 4: Bulwark and raised steel grating at the hauling position

1.7.4 Fishing gear

The vessel operated with 40 strings[8] of 100 inkwell[9] shape crab pots. A pot weighed approximately 24kg when empty and between 26.5kg and 31kg when filled with crabs.

Each pot was evenly spaced at intervals of about 31m along a back rope, to which they were permanently attached by leg ropes. A bridle comprising two short lengths of rope connected to a central metal ring was secured to the pot's frame. The leg rope connected to the bridle via a rigid toggle slipped through the metal ring on the bridle to form a quick-release attachment. This allowed the deckhand to rapidly detach each pot once it was brought on board.

Each string was anchored at both ends and marked with a dhan[10] buoy to indicate its position and assist with recovery **(Figure 5)**.

---

[8] A series of crab pots connected at intervals along a single back rope.

[9] A cylindrical frame with a funnelled entrance designed to prevent crabs escaping once inside.

[10] A dhan (sometimes dan) buoy is a marked float or pole with a flag, light, or radar reflector used by fishing vessels to indicate the position of the end of a fishing line or net at sea.

For illustrative purposes only: not to scale

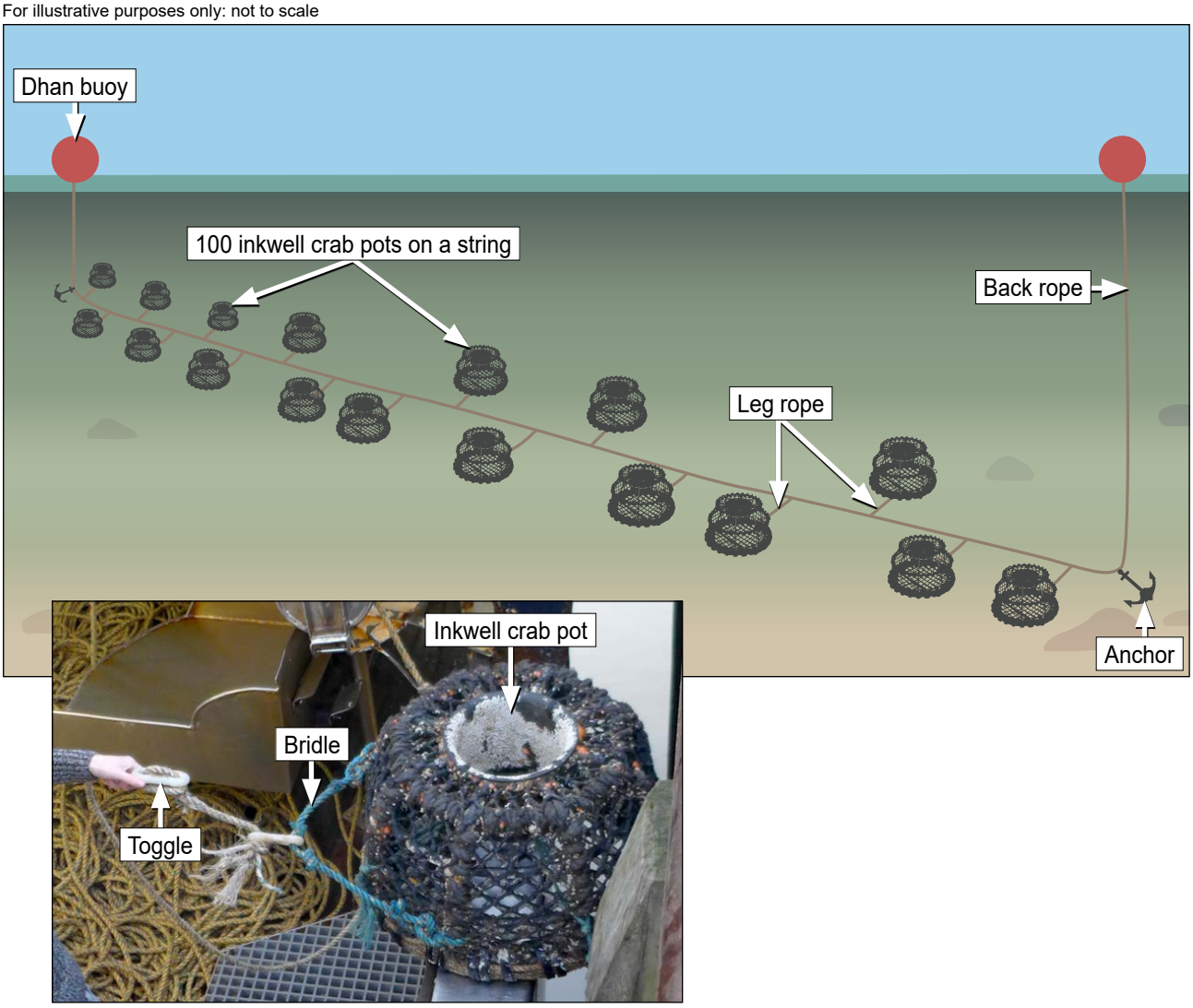


Figure 5: Layout of an inkwell crab pot string, showing the arrangement of pots when hauled on board *Amadeus* and (inset) an inkwell crab pot

1.7.5 Hauling method

Pot recovery was carried out on the sheltered working deck and overseen by the watchkeeper from the wheelhouse, who maintained the vessel's speed and heading and operated the hauler. After the dhan buoy was recovered, the hauler was used to heave the back rope on board while the watchkeeper maintained visual contact with the deckhand and the progress of the haul.

As each pot broke the surface, the deckhand, facing outboard, leaned over the bulwark to manually retrieve it. The typical technique involved the deckhand grasping the toggle[11] with their left hand, followed by the bridle with their right hand, then lifting and guiding the pot towards the bulwark. To clear the hauling block, the deckhand twisted their torso towards the hauler before manoeuvring the pot over and onto the bulwark. Once clear, the pot was lifted from the bulwark and swung onto a steel table, disconnected from the leg rope, and pushed along the table to the clearing position, where a second deckhand emptied the catch. The pot was then passed aft to the stacking position, where a third deckhand rebaited and stowed it in

[11] Toggles were used in crab pot fishing to connect each pot to the leg rope, allowing pots to be disconnected from the back rope and stowed in any order without concern for sequence. Once the hauled pot was on deck, the toggle was released and the leg rope was stored by slipping its eye over a vertical steel pole.

the aft section of the working area. Meanwhile, a fourth deckhand (the nicker) sorted the catch, snipped the crabs' claws, and processed them for storage in the vivier tank **(Figure 6)**.

Each pot recovery typically took 12 to 16 seconds, repeated about 100 times over a 20 to 25-minute hauling cycle. Lifting each pot required a combination of the deckhand's physical effort, the pot's momentum, and, where possible, assistance from the vessel's roll period. Comparable vessels operating similar potting methods reported haul durations of 40 to 45 minutes per string.

Image courtesy of The Blue Sea Fishing Company Ltd

Figure 6: CCTV still showing the deckhands' positions during pot-hauling operations shortly before the accident

1.7.6 Lifesaving appliances

A post-accident inspection of the vessel's lifesaving appliances (LSA) identified several deficiencies. These included a missing liferaft, expired pyrotechnics, non-serviced PFDs and immersion suits, and an emergency position indicating radio beacon (EPIRB[12]) that had not been maintained in line with manufacturer instructions. The line-throwing apparatus was not ready for use, and the MOB smoke float had expired and was not attached to the lifebuoy outside the wheelhouse. The vessel was also equipped with an SB Rescue Sling[13], which was unused, in poor condition, and the crew were unaware of its location before the accident.

1.8 COMPANY

Amadeus's operating company was restructured as The Blue Sea Fishing Company Ltd in 2018, with responsibilities shared between the original owner and two long-serving mates. In 2019, the company introduced a 24-hour hauling schedule on board *Amadeus* to meet increased market demand and support plans to construct new vessels. Previously, *Amadeus* had mainly operated during daylight hours. In

[12] A safety device used to alert SAR services in the event of an emergency at sea.

[13] An MOB system designed to recover a casualty without requiring the rescuer to enter the water.

2021, the company acquired a second vessel, *Tydus*. The planned newbuild project later collapsed, leaving the company in debt. The original owner passed away in March 2024.

1.9 VESSEL SAFETY MANAGEMENT

1.9.1 Overview

Amadeus's safety management arrangements were documented in its safety folder, which had been compiled using the online SafetyFolder[14] format. The safety folder contained risk assessments, crew training and certification records, and checklists for equipment servicing, certification renewals, and vessel maintenance. The system allowed the company to monitor the folder remotely for compliance.

1.9.2 Safety policy

The vessel's safety folder included a health and safety policy with commitments to:

- provide adequate control of health and safety risks arising from work activities
- consult with crew on matters affecting their health and safety
- provide information, instruction, and supervision for workers
- ensure all workers are competent to do their tasks and receive adequate training
- prevent accidents and cases of work-related ill health
- maintain safe and healthy working conditions
- review and revise the policy as necessary at regular intervals.

A separate PFD Wear policy stated that PFDs must be worn at all times when working where an MOB accident could occur. These areas included, but were not limited to, *the working deck, aloft, and whilst working in port*. Exceptions were permitted only where a vessel-specific risk assessment showed the likelihood of falling overboard had been eliminated.

The skipper signed both policies 2 days after the accident, on 15 December 2023.

1.9.3 Risk assessment

The safety folder contained *Amadeus*'s risk assessments, which had last been updated on 7 February 2018. The skipper amended the review date 2 days after the accident, on 15 December 2023, but made no changes to the content.

Two assessments covered hauling operations and leaning over the bulwark to retrieve pots, rating the risk of falling overboard as medium. Documented control measures included hazard awareness, wearing PFDs, training, and following the skipper's instructions.

[14] A free service designed to help fishing vessel owners comply with UK and European maritime laws.

Manual handling risks were also assessed. Hazards included bodily injuries, sprains, and strains, with control measures stating the need for correct lifting techniques and avoidance of heavy weights. Repeated bending and lifting when handling pots was identified as a separate hazard, assessed as medium risk for back injuries, with crew training in lifting techniques listed as the control measure. The crew had received no formal training in safe lifting, hauling or manual handling practices.

1.9.4 Man overboard procedures

The safety folder included a generic emergency checklist for a person overboard. The actions to take were:

- *Throw a life-ring in to the sea as close as possible to person overboard*
- *Raise an alarm by shouting*
- *Commence recovery procedure;*
- *Inform the coastguard via DSC*[15] *and / or ch16 Mayday*

The safety folder did not include a recovery plan for either a conscious or unconscious casualty.

A separate MOB risk assessment had been completed for *Amadeus* using the format provided in Marine Guidance Note (MGN) 571(F)[16]. This assessment included a vessel outline to plot potential risk areas, numbered boxes to describe the work activities associated with each identified risk, and a table in which to record the control measures. The hauling hatch had been identified as a risk area, with the use of PFDs during hauling operations recorded as a control measure.

1.9.5 Drills, training and safety induction

The safety folder contained records for six emergency drills conducted between January and November 2023. These records included an MOB drill. The investigation found these records had been falsified: no drills had taken place during 2023, and crew could not recall any drills since the last MCA inspection in May 2022.

Induction checklists signed by either the skipper or company director indicated that each crew member had received safety instructions on joining *Amadeus*. The investigation determined that these records were inaccurate and no formal safety inductions had been carried out. Crew were unfamiliar with the vessel's MOB procedures, muster positions, the location and use of recovery equipment and LSA, and the use of lifejackets and PFDs, and were unaware of the relevant risk assessments or safe working practices for fishing operations.

1.9.6 On board work schedule

Amadeus operated under a documented table of shipboard working arrangements that specified minimum rest periods and working hours.

---

[15] Digital selective calling.

[16] MGN 571 (F) – Fishing Vessels: Prevention of Man Overboard.

At sea, the skipper and mate worked alternating 12-hour shifts. Deckhands were organised into three pairs, each pair working a 16-hour duty period followed by 8 hours of rest. Their respective shift patterns were:

- midnight to 1600
- 0800 to midnight
- 1600 to 0800

Two pairs were active at any time, rotating through the deck positions. During shooting, two deckhands remained on deck to deploy the pots, while the other two were afforded rest breaks of 15 to 20 minutes. These breaks totalled up to about 2 hours per shift and were included in the on board calculation of the daily rest requirement of 10 hours.

Off-duty periods were typically used for sleep but also for personal hygiene, meals, recreational activities (such as reading or watching films), communication with family, and preparation for the next duty period. Additional rest was available during transits to and from the fishing grounds, and while alongside after landing the catch.

Trips for each deckhand typically lasted about 2 months, followed by 4 weeks to 5 weeks of leave. There was no formal rotation system: crew notified the skipper when they felt fatigued or wished to return home, and a relief was arranged.

1.10 POST-ACCIDENT HUMAN FACTORS INVESTIGATION

1.10.1 Assessment of postural risks associated with pot hauling

The investigation assessed the method of lifting pots on board *Amadeus* to determine whether the prolonged and physically demanding nature of the task contributed to the accident. The first step was to examine the biomechanics[17] of the task.

A person's weight, or centre of gravity, is balanced over their feet when standing upright, giving them stable footing and secure base of support **(Figure 7a)**. When a deckhand leaned forward to reach for a pot their body weight also moved forward, reducing their stability as their centre of gravity shifted outward over the vessel's side. The pot also had its own weight, and when the deckhand reached for it the combined weight of the person and the pot moved further forward. This created a forward and downward pulling force that the deckhand had to resist by pushing through their legs and feet to stay upright **(Figure 7b)**. When the deckhand lifted the pot its weight sat in front of their body, moving the combined centre of gravity even further forward.

Once the pot was almost inboard, the deckhand adopted a broader base of support and the combined centre of gravity moved back within the area supported by the feet **(Figure 7c)**. The load remained positioned in front of the body, with the combined centre of gravity still forward of the trunk. The deckhand continued to support the weight through the lower back and body while holding the pot.

[17] The study of how the human body interacts with physical forces, including how posture, movement, strength, leverage, and joint loading affect a person's ability to perform a task. Biomechanics is used to understand whether a task places excessive physical demand on the body, affects balance or stability, or increases the risk of injury or loss of control.

For illustrative purposes only: not to scale

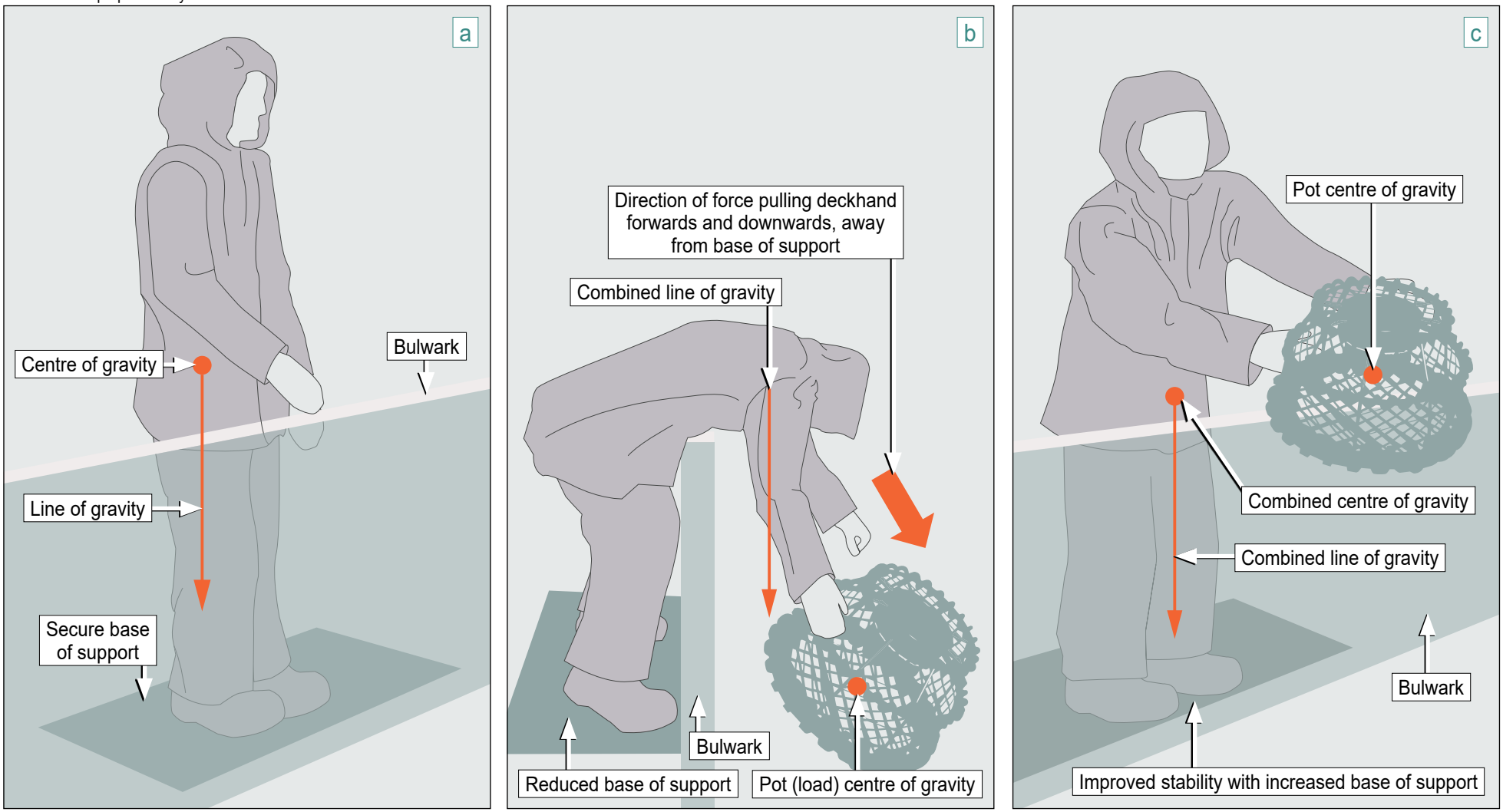


Figure 7: Biomechanics of pot hauling, illustrating how a deckhand's centre of gravity shifts when reaching, lifting, and bringing a pot inboard

The investigation then used two recognised manual handling assessment tools to evaluate the biomechanical stresses involved: the Rapid Entire Body Assessment (REBA) and the Revised National Institute for Occupational Safety and Health (NIOSH)[18] Lifting Equation. These tools were considered best practice in UK manual handling risk assessments and met the requirements of the Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998.

The REBA evaluated musculoskeletal disorder (MSD) risk based on whole body postures during work tasks. It generated a score from 1 to 15, with higher scores indicating greater risk:

- 1 = negligible risk
- 2 to 3 = low risk (change may be needed)
- 4 to 7 = medium risk (investigate and implement change soon)
- 8 to 10 = high risk (investigate and implement change)
- >11 = very high risk (implement change immediately)

The pot lifting task on *Amadeus* scored 14, indicating a very high risk requiring immediate intervention to reduce the likelihood of both acute and chronic injuries. Acute injuries included sudden strains and sprains, while chronic injuries referred to long-term musculoskeletal disorders such as lower back pain and joint degeneration. The main risk factors included extreme postural angles of the trunk, neck, legs, and arms; high load forces; poor grip on pots; rapid frequency; and extended task duration. Fatigue would further impair reaction time and decision-making during these operations.

The Revised NIOSH Lifting Equation evaluated manual lifting tasks to prevent lower back injuries and identify where redesign may be required. The investigation found that the most concerning aspect of the pot lifting task on *Amadeus* was the low position at which pots were initially reached. Deckhands were required to bend forward significantly, hyperextend, and then twist their trunks and hips to bring each pot inboard. The task also involved handling a heavy and awkward load without mechanical support, increasing biomechanical strain.

Video imagery of the pot recovery sequence **(Figure 8)** immediately before the accident showed how these biomechanical demands occurred in practice. To retrieve each pot, the deckhand first leaned over the bulwark to reach down and outboard toward the pot. This forward flexed posture, at an angle of around 90°, reduced stability and increased the muscular effort required to remain balanced.

Once the pot was grasped, the deckhand lifted it upward and inward using a combination of trunk rotation, body weight, and arm strength. Video footage of the pot recovery sequence showed the deckhand using a one-armed lift to allow their full body weight to help bring the pot to the bulwark rail before transferring it to the clearing table **(Figure 8)**. This lifting technique was frequently asymmetric, with the deckhand rotating the trunk, shoulders, and hips while supporting the full weight of the pot.

[18] A USA federal agency responsible for conducting research and making recommendations to prevent work-related injuries and illnesses.

The footage also showed that the pot was handled from a low, offset position, requiring repeated bending, twisting, and shifting of body mass as the deckhand worked to clear the hauling block and deck machinery. These movements closely reflected the biomechanical risks identified by the NIOSH assessment, including high load forces, non-neutral postures, and rapid task repetition.

Images courtesy of The Blue Sea Fishing Company Ltd

Figure 8: CCTV stills showing typical postures adopted during pot recovery, assessed using REBA and NIOSH criteria

1.10.2 Anthropometric assessment of the bulwark

The investigation conducted an anthropometric[19] assessment to evaluate whether the bulwark design on board *Amadeus* provided adequate protection against falling overboard during pot hauling operations. This assessment compared the estimated physical dimensions of the deceased deckhand with national anthropometric data from the British population[20].

The bulwark height of 780mm was approximately 70mm below the deceased deckhand's estimated hip height of 850mm (placing him in the lower percentiles of British men). Hip height was used rather than waist height because it represented the pivot point when bending forward, making it the more relevant metric for assessing the risk of toppling over the bulwark. Based on national anthropometric data, 99.6% of British men and 86.8% of British women would have hip heights exceeding the bulwark height.

The pot hauling task required crew members to reach outboard beyond the bulwark, necessitating forward-bending at the hips. This posture, combined with the low bulwark height, meant that crew members were required to brace their knees against the vessel's side to prevent their legs and hips from moving outboard. This configuration offered limited protection and increased the risk of falling overboard, particularly when exerting force or handling heavy gear **(Figure 9)**.

[19] The scientific study and comparison of human body measurements.

[20] A widely validated benchmark for ergonomic assessment. While individual variation exists between populations, the purpose of the comparison was to evaluate the bulwark height against established human factors design principles, not to infer specific characteristics of the deceased. Minor variance between British and Latvian population averages would not materially affect the conclusions of this assessment.

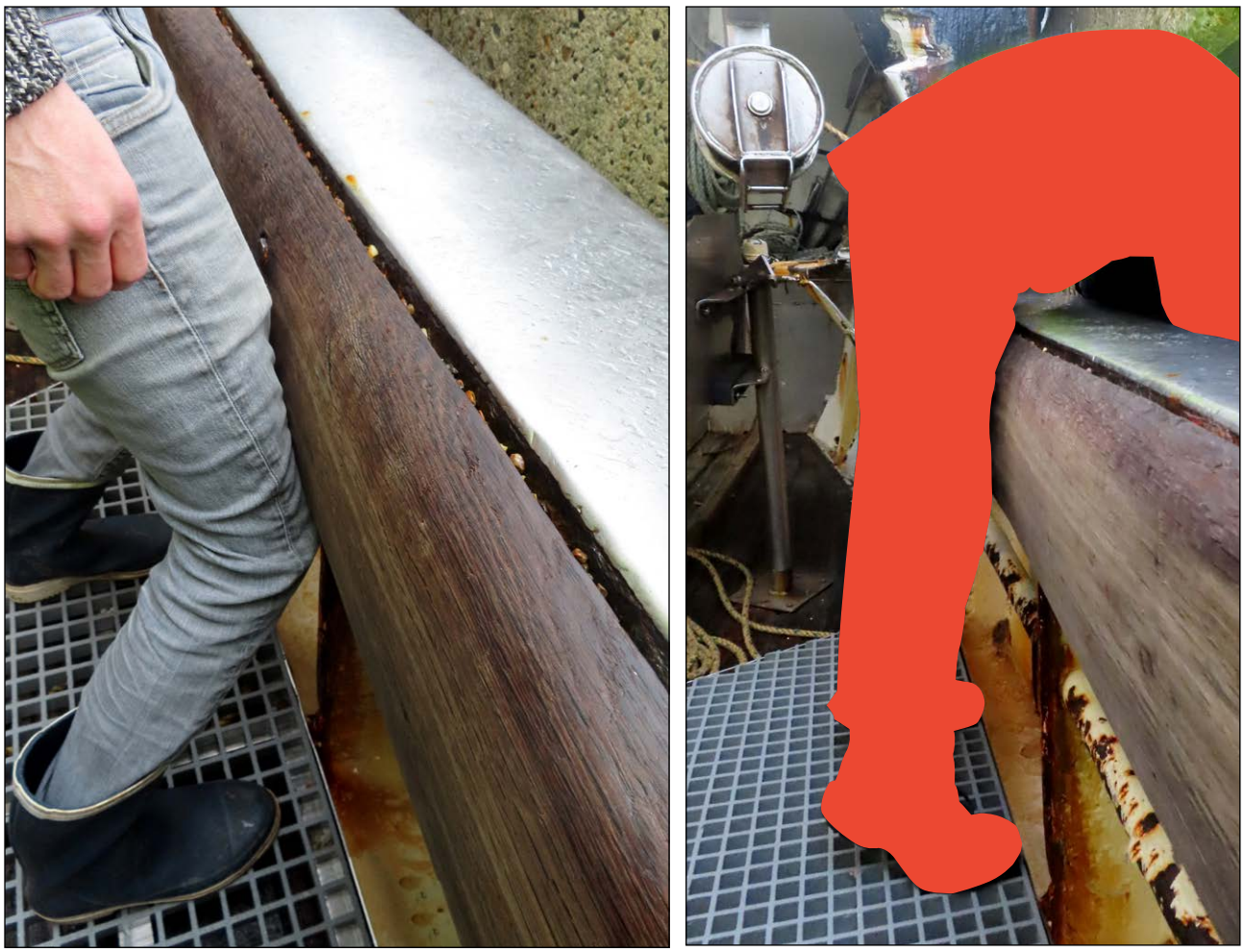


Figure 9: Reconstruction of a deckhand bracing against the bulwark during pot recovery

Human factors guidance recommended that safety-critical workstations (in this instance the pot hauling bulwark) be designed to accommodate the majority of the working population – ideally up to the 99th percentile. For tasks involving forceful manual handling, such as pot hauling, a working surface close to elbow height would be considered optimal. The 50th percentile elbow height was 1,097mm for British men, and 1,004mm for British women. A workstation at this height would reduce the need for crew to lean over the bulwark, thereby lowering the risk of toppling. If the workstation was positioned at or below this height, additional safety measures – such as tethering – would still need to be considered.

1.10.3 Assessment of deckhands' working pattern

The investigation reviewed the deckhands' 16-hour shift pattern against the applicable regulations and guidance (see section 1.13) and found that every fishing trip of 6 days or more from Eemshaven breached minimum daily and weekly rest requirements. **Table 1** shows that the severity of the breach increased with the duration of the trip. No exception reporting records were found for the periods when the deckhands did not meet the minimum weekly rest requirements.

Total fishing days	Total rest hours[21] over 7 days[22]	Rest hours deficiency	Total days breached over 7 days[23]
6	69	8	5
7	61	16	6
8	56	21	7
9	56	21	7

Table 1: Effect of the deckhands' shift pattern on rest hours

1.10.4 Fatigue assessment for the deceased

The investigation conducted a fatigue assessment for Aleksandrs Medvedevs using a fatigue data collection tool developed by human factors specialists from the UK's air, rail, and marine accident investigation branches. The assessment drew on multiple independent sources and compared Aleksandrs's work and home routines to evaluate his fatigue levels.

The assessment first examined Aleksandrs's time on board *Tydus* and *Amadeus*, considering his shift pattern and diet, the physical demands of the fishing operation, and opportunities for sleep. His daily routine was also reviewed, with phone records indicating that he typically went to bed after making calls to family members. This enabled a better estimation of his sleep times.

The assessment then examined his home lifestyle to identify his typical sleep and wake cycle and to consider any relevant medical or psychological factors. The two sets of data were compared to determine an optimum sleep and wake cycle and to calculate Aleksandrs's sleep debt and assess potential sleep deprivation or sleep-related issues.

The assessment concluded that Aleksandrs was suffering from both acute and chronic sleep disruption at the time of the accident, accumulating over 46 hours of sleep debt in the 4 weeks before the accident with further sleep debt likely in the preceding period.

1.11 SURVEY AND INSPECTION OF 15M TO 24M FISHING VESSELS OPERATING OUTSIDE UK WATERS

1.11.1 United Kingdom Fishing Vessel Certificate

Fishing vessels between 15m overall length and less than 24m registered length were required to undergo an initial survey to verify compliance with MSN 1872 (F) Amendment 1[24]. A UK Fishing Vessel Certificate (UKFVC) was then issued, valid for 5 years. A renewal inspection was required at the end of this period, with a midterm inspection between year two and year three to confirm continued compliance.

---

[21] Minimum 77 hours rest required in any 7-day period.

[22] The rest hours for the 8-day and 9-day fishing trips are identical because the analysis was based on the 7-day period that had the least number of rest hours.

[23] Minimum 10 hours daily rest required.

[24] MSN 1872 (F) Amendment 1 – The Code of Safe Working Practice for the Construction and Use of Fishing Vessels of 15m Length Overall to less than 24m Registered Length.

1.11.2 Work in Fishing Convention Certificate

In November 2018, the MCA published MSN 1885 (F)[25] outlining the requirements for verifying compliance with the International Labour Organization (ILO) Work in Fishing Convention, 2007 No. 188 (ILO 188).

Fishing vessels 24 m or longer, or those that normally operated more than 200nm from the UK coastline or beyond the UK continental shelf, were required to be surveyed and to hold a Work in Fishing Convention (WIFC) Certificate[26]. *Amadeus* fell into the latter category. This certificate, valid for 5 years, served as evidence that the vessel met national standards for fishermen's working and living conditions in line with the Convention.

An ILO 188 survey covered standards such as hours of work and rest, health and safety and accident prevention. The MCA's findings were recorded in the Report of Inspection of Fishermen's Working and Living Conditions and provided to the skipper, copied to the owner, and retained by the MCA.

MSN 1885 (F) required that surveys be conducted in line with the ILO Guidelines on Flag State Inspection of Working and Living Conditions On Board Fishing Vessels (ILO Guidelines)[27]. Chapter 3 of the ILO Guidelines provided detailed instructions for assessing living and working conditions, identifying deficiencies, reviewing documentation, and conducting interviews with crew and skippers.

1.11.3 Instructions to surveyors

The MCA provided guidance to its surveyors through a series of Marine Survey Instructions for the Guidance of Surveyors (MSIS):

- MSIS 23 – survey and certification policy – guidance on surveying and certifying various vessel types to ensure compliance with safety, construction, equipment, and operational requirements. Withdrawn from public access in November 2017 and intended for internal MCA reference only.

- MSIS 27 – survey and inspection of fishing vessels chapters 1 to 17 – detailed instructions on assessing the safety, seaworthiness, and regulatory compliance of fishing vessels. This document was publicly available.

- MSIS 38 – inspection policy – guidance on the conduct of various types of vessel inspections. This document was not publicly available.

1.11.4 Deficiencies

An MCA surveyor conducting a fishing vessel survey or inspection was required to follow the procedures set out in MSIS 23 and MSIS 27. Any identified deficiencies were to be followed up and resolved in line with MSIS 23 and MSIS 38.

[25] MSN 1885 (F) – ILO Work in Fishing Convention, 2007: Survey and Inspection.

[26] Also referred to a document of compliance with ILO 188.

[27] ILO guidelines on flag state inspection of working and living conditions

A deficiency was defined as a failure to meet the standards set out in applicable legislation, codes of practice, or guidance documents during a vessel survey or inspection. Deficiencies could relate to safety equipment, crew certification, vessel construction, operational procedures, or compliance with international conventions.

All deficiencies were formally recorded and could trigger enforcement actions depending on their nature and severity. The vessel owner was responsible for ensuring that the vessel was maintained in line with the relevant code of practice and that all deficiencies were rectified within specified timeframes.

Part B, Chapter 1 of MSIS 38 required previously identified deficiencies to remain under review and be verified as closed during each scheduled visit. Where a deficiency was considered serious, the skipper was instructed to report back once the issue had been rectified. Such deficiencies were assigned Action Code 98, indicating mandatory follow-up before the next scheduled survey or inspection.

Part B, Chapter 1 of MSIS 38 emphasised that this process was *especially important…for all fishing vessels*. The decision on whether a deficiency warranted follow-up before the next scheduled visit rested with the attending surveyor. Where a deficiency was assigned Action Code 98, it was required to be actively monitored. If the timeframe for rectification had passed, the surveyor was expected to follow up with the vessel's company to confirm that the deficiency had been addressed. Neither MSIS 23 nor MSIS 38 provided further guidance on the use of Action Code 98.

Part C, section 5.7.1 of MSIS 23 stated that, depending on the nature of the deficiencies identified, the vessel's certificates could still be issued or endorsed, or enforcement action could be taken. The decision rested with the attending surveyor. Annex 1, section 3.9 of MSIS 27[28] specified that, for fishing vessels under 15m LOA, a Small Fishing Vessel Certificate was not to be issued until all deficiencies requiring rectification before departure, or those requiring rectification within 14 days, had been satisfactorily addressed. Unless exceptional circumstances applied, the owner was expected to close all deficiencies within 90 days. If any deficiencies remained unresolved beyond this period, or any agreed extension, a prohibition notice was to be issued, and deregistration procedures initiated. This requirement did not apply to 15m to 24m fishing vessels.

1.11.5 Enforcement notices

Under the Merchant Shipping Act 1995, MCA surveyors had the authority to issue enforcement notices. These included improvement notices and prohibition notices, which were served on an individual rather than a vessel and compelled the responsible person to take corrective action, and detention notices served on the vessel itself.

An improvement notice required steps to make an activity safe and was intended to prevent accidents, injury or pollution by addressing noncompliance rather than pursuing prosecution. This notice was served on the person legally responsible for correcting the contravention, who had to comply within the specified timeframe.

[28] Under 15m Length Overall Fishing Vessel Inspection Regime.

A prohibition notice could be issued when a surveyor determined that an activity posed a risk of serious personal injury or serious pollution. This notice was served on the person in control of the activity and stopped the activity from continuing.

The MCA also had the power to detain vessels in certain circumstances. Detention could be considered for pollution offences or safety reasons, such as to carry out repairs affecting seaworthiness or to remedy deficiencies in equipment or manning. A detention notice was served on a vessel and prevented it from operating until the identified issues were resolved.

To issue any enforcement notice was considered a serious regulatory action and reflected the severity of noncompliance, which constituted an offence under the Merchant Shipping Act 1995 and could result in further enforcement action or prosecution.

1.11.6 Management of enforcement notices

Chapter 2 of MSIS 38 required improvement notices and prohibition notices to be served on the person legally responsible for remedying the contravention, typically the vessel owner or employer. If a notice was initially served on another individual, a separate notice had to immediately be issued to the owner or employer. On confirming compliance with an improvement notice, MSIS 38 stated that a surveyor *may wish to confirm that the improvement has been complied with as required*.

Annex 3 to MSIS 38 included a flow chart outlining the enforcement notice procedure. Once issued, improvement notices and prohibition notices were to be forwarded to the MCA's local marine office and inspections operations branch for central record-keeping and follow-up. Surveyors were not required to personally monitor compliance; if corrective action was not taken by the remedy date, the matter was to be referred to the Regulatory Compliance Investigations Team (RCIT) for possible prosecution.

The MCA used a digital system, PELORUS, to record deficiencies and enforcement notices, but some marine offices maintained separate logs outside PELORUS. This included Aberdeen Marine Office, the local marine office for *Amadeus*, which in the summer of 2022 had identified that improvement notices and prohibition notices were not being routinely monitored. From 8 September 2022, it began recording enforcement notices in a separate log outside PELORUS to track remedy dates and escalate noncompliance to prohibition notices.

1.11.7 Crew certification

The inspection of fishermen's certification formed part of the UKFVC inspection, and surveyors were required to verify compliance with MGN 411 (M+F)[29]. Further guidance was provided in MSIS 27, under which any lack of qualifications identified during a survey or inspection was to be addressed by issuing a prohibition notice or an improvement notice[30].

[29] MGN 411 (M+F) – Training and Certification Requirements for the Crew of Fishing Vessels and their Applicability to Small Commercial Vessels and Large Yachts.

[30] MSIS 27, Chapter 14, section 14.5

A prohibition notice was recommended if a crew member did not hold a valid basic sea survival certificate. In contrast, an improvement notice was to be issued for other missing basic safety training certifications. Crew members issued with an improvement notice were given a period of time, usually no more than 3 months, to complete the required training. MSIS 27 advised against detention in such cases as the owner or skipper could replace unqualified crew members, making detention unnecessary.

Where an improvement notice had been issued for outstanding crew certification, MSIS 27 stated that the vessel was to operate under a short-term fishing vessel certificate[31] while corrective actions were being taken. A full-term fishing vessel certificate was issued once evidence of compliance had been provided.

1.11.8 Risk evaluation

Risk evaluation formed part of the ILO 188 survey, where surveyors were required to verify compliance with the Merchant Shipping (Health and Safety at Work) Regulations 1997. Any deficiencies were to be recorded in the MCA's Report of Inspection of Fishermen's Working and Living Conditions.

Section 3.2.14.5 of the ILO Guidelines required surveyors to:

- Discuss the vessel's risk assessment documentation with the skipper and crew, including how the assessment was carried out and how identified deficiencies would be addressed.

- Confirm the existence and effectiveness of onboard occupational safety and health procedures.

- Verify crew involvement in the risk assessment process and whether recommended safety improvements had been implemented.

[31] MSIS 27, Chapter 1, section 1.34.1

1.11.9 Man overboard prevention and recovery

Chapter 1 of MSIS 27 stated that *special emphasis should be placed on the conduct of Man Overboard Drills and their recovery*. Chapter 11 required at least two drills during a survey or inspection, one of which must be an MOB drill that simulated retrieval of an unconscious person from the water and included correct deployment of the on board recovery system. Surveyors were instructed to discuss recovery equipment with the skipper and crew and confirm that:

- plans exited for recovery of a conscious and unconscious casualty
- the vessel had means to take hold of a person when alongside
- written procedures for recovery were available for crew reference.

Chapter 11 also provided specific guidance on the prevention of MOB accidents. Surveyors were to ensure work activities involving hauling or shooting were *particularly examined*, and to assess whether these operations exposed crew to the risk of falling overboard. The guidance stated:

> *If it is necessary for fishermen to climb on rails, etc. while fishing… precautions must be taken for their safety. Safety harnesses or safety lines must be worn.*

Surveyors were also directed to verify that any control measures described in the vessel's associated risk assessments were implemented.

1.11.10 Inspection of hours of work and rest

The inspection of fishermen's hours of rest formed part of the ILO 188 survey. Surveyors were required to verify compliance with the Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 as amended, and record deficiencies in the Report of Inspection of Fishermen's Working and Living Conditions. In line with ILO Guidelines, surveyors were expected to review:

- fishermen's work agreements or supporting documents
- a table of working arrangements
- up-to-date records of work and rest for each fisherman
- evidence of fatigue, such as minimal rest periods or observable symptoms
- catch records, to assess workload and continuous work periods.

Surveyors were also expected to interview fishermen, to discuss working hours and signs of fatigue, and the skipper, to confirm how rest periods were organised and whether a fatigue management plan was in place.

The ILO Guidelines listed examples of hours of work and rest deficiencies, which included:

> *Fishers receiving less than 10 hours of rest in any 24-hour period (except in emergencies) or less than 77 hours in any seven-day period.*

Following the accident the MCA issued MSIS 46, which provided instructions to surveyors to ensure consistency in the planning, implementation and reporting of inspections against the WIFC requirements for UK fishing vessels. Chapter 11 of MSIS 46 also provided clarifying guidance on the interpretation and application of rest periods and rest breaks under ILO 188.

A *rest period* was defined in MSIS 46 as any time not considered working time, excluding rest breaks, and could include time spent steaming between fishing operations, time in port when no work was ongoing, or days off. MSIS 46 further clarified that *rest breaks* were periods of less than 30 minutes and were not counted toward total rest hours. Where only one break was taken during a 6-hour working period, it should be at least 20 minutes in duration.

Published in 2024, MSIS 46 was unavailable to surveyors at the time of the ILO 188 inspection. It is included in this report to support the interpretation of rest periods and rest breaks when considering the findings of the vessel's work schedule against the regulatory framework. MSIS 46 did not distinguish between employed and share fishermen in its explanation of rest breaks.

1.12 VESSEL SURVEY AND INSPECTION HISTORY

Amadeus was issued a UKFVC in 2019, valid until 2024, with a midterm inspection scheduled for 2022. The requirements for WIFC certification were phased in by the MCA, and *Amadeus*'s initial ILO 188 survey was due at the same time as the vessel's UKFVC midterm inspection.

1.12.1 *Amadeus*'s midterm inspection – March 2022

On 29 March 2022, an MCA surveyor attended *Amadeus* in Fraserburgh, Scotland to conduct a combined UKFVC intermediate inspection and initial WIFC survey, as well as checks associated with a change of ownership. *Amadeus* was not ready for inspection: the vessel was undergoing significant repairs, and the crew were not on board to conduct mandatory drills. The inspection report cited *significant* issues, and the inspection was suspended, with the master advised to contact the local marine office once the vessel was ready for reinspection.

Following the visit, the surveyor emailed the company advising that *Amadeus* should be presented for inspection before the vessel's departure from Fraserburgh. The email included aide-memoires to help prepare for the next MCA visit and attached a copy of the survey report. The report identified three deficiencies: issues with crew contracts, unsighted medical certificates, and missing Seafish[32] Safety Awareness and Risk Assessment certificates for Aleksandrs Medvedevs and two other deckhands. This deficiency was recorded under Action Code 99[33], with an instruction to the master to rectify the deficiency within 3 months.

[32] Seafish is a non-departmental public body that supports the seafood industry in the UK.

[33] Defined in the MCA's MSIS as a deficiency that required rectification but did not prevent the issue of a certificate. The deficiency should be addressed within the specified timeframe and monitored for compliance. MSIS guidance advised that Action Code 99 should not be used in isolation; it was normally paired with another code (such as Code 16 or Code 17) to enforce a clear timeframe for rectification.

1.12.2 *Amadeus*'s rescheduled midterm inspection – May 2022

On 31 May 2022, a second MCA surveyor attended *Amadeus* to complete the previously suspended inspection. During the visit, the surveyor reviewed risk assessments in the vessel's safety folder and discussed the MOB risk assessment with the skipper. A simulated engine room fire drill and an abandon ship drill were observed, both deemed satisfactory, and a debrief was conducted with the crew.

The surveyor recorded 16 deficiencies, including the previously noted absence of Seafish Safety Awareness and Risk Assessment certificates for three deckhands. This deficiency was again recorded under Action Code 99, with an instruction to the master to rectify the deficiency within 3 months. Additionally, improvement notices were issued to Aleksandrs Medvedevs and one of the other two deckhands, instructing them to obtain the required certification by 31 August 2022. Both deckhands remained uncertified at the time of the accident.

The surveyor compiled a Report of Inspection of Fishermen's Working and Living Conditions as part of the ILO 188 survey. The inspection scope included crew hours of rest, and a deficiency was recorded that stated:

> *Vessel has applied for a Safe Manning Document. Hours of work and rest record not maintained.*

The accompanying aide-memoire confirmed that the surveyor had not sighted a Safe Manning Document, records of hours of work and rest, or a table of shipboard working arrangements. However, in the checklist section of the aide-memoire, the surveyor recorded that the vessel met the requirements of MSN 1884 (F) by having either a table of shipboard working arrangements, a Safe Manning Document, or records of work and rest for each fisherman on board. In the absence of documentation, the company director reportedly discussed the vessel's 24-hour hauling pattern and crew shift arrangements and provided documentation to satisfy the surveyor.

The vessel's survey and inspection file did not record what evidence was provided to meet the regulatory requirement so the investigation could not confirm whether this evidence consisted of daily rest records or a table of shipboard working arrangements. The investigation did obtain an updated table of shipboard working arrangements created during the vessel's refit in March 2023, suggesting that a version of this existed during the May 2022 refit.

The aide-memoire recorded that crew rest hours complied with MSN 1884 (F) and working hours were compliant with regulations for employed fishermen, specifically noting that no crew member worked more than 48 hours in any 7-day period when averaged over a year and that the interval between consecutive rest periods did not exceed 14 hours. All crew were recorded as share fishermen; there were no employed fishermen on board.

On 13 June 2022, *Amadeus* was issued a WIFC document of compliance, and its UKFVC was validated until the next renewal survey. The improvement notices remained open.

1.12.3 Post-accident inspection of *Amadeus* – December 2023

On 14 December 2023, an MCA surveyor conducted a targeted post-accident inspection of *Amadeus*. The vessel was found to be noncompliant with the requirements of MSN 1872 (F) Amendment 1, and a notice of detention was issued on 15 December. The accompanying survey report identified multiple significant deficiencies, and the inspection was suspended due to the number and severity of detainable findings.

The deficiencies included expired medical certificates, missing Seafish training certificates, incomplete crew induction records, noncompliant employment agreements, absence of records for hours of work and rest, and crew shift patterns that breached hours of rest requirements.

On the same day, the MCA issued an improvement notice[34] to the company for contravening the Fishing Vessels (Safety Training) (Amendment) Regulations 2004. The improvement notice stated:

> *During an Intermediate inspection on 31 May 2022 no evidence was seen that* [deckhand] *and Aleksandrs Medvedevs had completed the required Basic Health & Safety Training course. During a general inspection of the vessel on 14 December 2023, no further evidence was seen to ensure these training courses had been completed after the May 2022 improvement notice for* [deckhand] *and Aleksandrs Medvedevs.* [sic]

The referenced training was the Seafish Basic Health and Safety course and the Seafish Safety Awareness and Risk Assessment course.

On 18 December, the MCA issued a prohibition notice[35] to the company for noncompliance with the Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 as amended. The schedule to the notice stated:

> *The crew must follow the table of shipboard working arrangements as posted onboard the vessel. An exception must be reported where the skipper or any other fisherman breaches the weekly hours of rest of 77 hours. When they have received their compensatory rest (at least an equal period of rest to the breached period of rest) this should be signed off by the skipper and the fishermen. The exception granted in MSN 1884 is on the understanding that it is uncommon for hauling to continue through the hours of darkness – that is not the case with Amadeus.*

Following the vessel's detention, the company contacted a representative from the National Federation of Fishermen's Organisations (NFFO) to assist in resolving the deficiencies and preparing *Amadeus* for reinspection. The NFFO representative subsequently engaged with the MCA about the crew's hours of work and rest, seeking clarification on how compliance with MSN 1884 (F) could be achieved. The correspondence noted that the vessel's table of shipboard working arrangements had been accepted as a method of demonstrating compliance with MSN 1884 (F) during the previous MCA survey in May 2022.

---

[34] The MCA used improvement notices when there was a breach of maritime safety regulations, but the breach did not pose an immediate risk.

[35] The MCA used prohibition notices when an activity or condition on board a vessel presented a serious and immediate risk to health or safety.

The NFFO representative further stated that the vessel operated under an authorised exception, with crew receiving compensatory rest during steaming to and from fishing grounds and while in port. A work schedule for a 6-day trip was provided that included departure from port, arrival at the fishing grounds the following day, 6 days of fishing, and a return to port. The schedule stated that deckhands worked 96 hours and rested for 72 hours over a 7-day period, averaging 10 hours of rest per day. It was also stated that the vessel did not go to sea for more than six consecutive days. The investigation found no evidence that demonstrated the vessel operated under an authorised exception.

In a follow-up email, the company requested MCA acceptance of its proposed work schedule to address the deficiency. On 19 December 2023, the MCA responded, stating that to lift the prohibition notice, the vessel must implement a compliant work and rest schedule. Any exceptions and compensatory rest must be properly recorded. The MCA surveyor also provided a reworked version of the proposed schedule that demonstrated the crew would receive only 64 hours of rest per week, which was below the required threshold.

The MCA returned to inspect the vessel on 16 January 2024, but the detention order remained in place due to unresolved deficiencies. A follow-up inspection on 18 January 2024 cleared the remaining issues, except for two deficiencies that were closed remotely a few days later. *Amadeus* was released from detention on 26 January 2024. The crew were not drilled on the recovery of an unconscious casualty from the water during the follow-up MCA visits.

1.12.4 Post-accident inspection of *Tydus* – January 2024

Following the serious deficiencies identified during the post-accident inspection of *Amadeus*, the MCA carried out a targeted inspection of *Tydus* on 18 January 2024. The vessel was found to be noncompliant with the requirements of MSN 1872 (F) Amendment 1, and its Fishing Vessel Certificate was withdrawn the same day. The accompanying survey report identified multiple significant deficiencies, including missing or defective safety equipment and the absence of records demonstrating compliance with the minimum hours of rest required under MSN 1884 (F). The company sold *Tydus* in 2025.

1.13 FATIGUE REGULATIONS AND GUIDANCE

1.13.1 Definition and impact of fatigue

The International Maritime Organization (IMO) Maritime Safety Committee (MSC) circular MSC.1/Circ.1598 Guidelines on Fatigue defined fatigue as:

> *A state of physical and/or mental impairment resulting from factors such as inadequate sleep, extended wakefulness, work/rest requirements out of sync with circadian rhythms*[36]*, and physical, mental or emotional exertion that can impair alertness and the ability to safely operate a ship or perform safety-related duties.*

[36] Circadian rhythm is a 24-hour cycle responsible for regulating periods of wakefulness throughout each day. The rhythm naturally dips and rises to align an individual's alertness to environmental cues, with a low in the early hours of the morning and a lesser dip in the early afternoon.

The MSC.1/Circ.1598 classed fatigue as a hazard because it could affect a seafarer's ability to perform their duties effectively and safely. The circular addressed causes, management factors, environmental factors, and operational factors, and highlighted important concepts in understanding fatigue.

The effects of fatigue were noted to have a significant impact on human performance, impairing decision-making response time, judgement, hand-eye coordination, and other critical skills. Cognitive, physical, and behavioural symptoms were also identified.

Research cited within MSC.1/Circ.1598 showed that moderate sleep loss can produce impairment comparable to alcohol intoxication. One study[37] found that 17 hours of wakefulness produced impairment equivalent to a blood alcohol concentration (BAC) of 0.05%, and 24 hours of wakefulness produced impairment equivalent to approximately 0.10%.

Additional research supports these findings. A paper published in 2000[38] also found that moderate sleep deprivation caused performance deficits equivalent to those associated with alcohol impairment, with 17 to 19 hours of sustained wakefulness producing impairment comparable to a BAC of approximately 0.05%. This level is used as the legal limit for driving impairment within many jurisdictions.

1.13.2 International Labour Organization Work in Fishing Convention No.188

The ILO 188 entered into force internationally on 16 November 2017. The purpose of ILO 188 was to ensure decent working conditions on board fishing vessels, including occupational safety and health protection, and to align the fishing sector more closely with other international maritime labour standards.

The convention applied to all fishermen working on fishing vessels of any size, with more detailed requirements for vessels 24m in length and over, or those operating on trips of 3 days or more.

Articles 13 and 14 addressed manning levels and hours of rest, with the objective of preventing fatigue-related incidents and ensuring that fishermen were fit for duty. Article 13 required Member States to adopt laws obliging fishing vessel owners to ensure that fishermen were given regular periods of rest sufficient in length to protect safety and health.

Article 14(1)(b) required the minimum rest periods for fishermen to be not less than:

- 10 hours in any 24-hour period, and
- 77 hours in any 7-day period

The convention allowed temporary exceptions for limited and specified circumstances only, such as those necessary for the immediate safety of the vessel, people on board, or the catch, or to assist another vessel or people in distress at sea. Any breach of these limits had to be offset by compensatory rest as soon as practicable. These provisions formed the core framework for managing fatigue and ensuring safe manning practices in the fishing industry.

[37] Fatigue, alcohol and performance impairment full text

[38] Relative effects on performance of sleep deprivation and alcohol

1.13.3 National regulations

The UK implemented ILO 188 through domestic legislation in November 2018 via a series of statutory instruments, and formally ratified ILO 188 in January 2019.

The relevant working time provisions were incorporated into UK law via amendments to the Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004. Regulation 7(1) (2) entitled all fishermen, regardless of employment status, to adequate rest, defined as regular rest periods which were sufficiently long and continuous to prevent injury or harm to health due to fatigue or irregular working patterns. The minimum rest periods required under Regulation 7(3) mirrored those set out in ILO 188 Article 14(1)(b).

A rest period was defined as any time not considered working time, excluding rest breaks or leave. Additional protections introduced to the amended Regulations included:

- Regulation 7(4) – that the interval between consecutive rest periods must not exceed 14 hours.

- Regulation 9 – reasonable rest breaks during monotonous or physically demanding tasks to reduce fatigue risk. There was no formal definition for 'rest break' within the regulations.

These protections originated from the Working Time Directive[39] and were implemented in UK law for employed fishermen only. The protections did not extend to share fishermen as, before ILO 188 was implemented, working time regulations had applied exclusively to employed fishermen. ILO 188 introduced hours of work and rest requirements for all fishermen, regardless of employment status. Certain provisions, such as Regulation 7(4) and Regulation 9, reflected Working Time Directive requirements rather than ILO 188 so had not been applied to share fishermen to avoid exceeding ILO 188 obligations.

Regulation 13 allowed the Secretary of State to grant exceptions to minimum rest requirements for objective or technical reasons or for reasons concerning the organisation of work. These exceptions were subject to conditions intended to protect health and safety and to consider compensatory leave periods. The regulation did not specify that such exceptions must be temporary.

1.13.4 National guidance

To support compliance with the amended Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004, the MCA published MSN 1884 (F). The notice reaffirmed the minimum rest requirements for all fishermen, regardless of employment status, and provided guidance on rest periods, exceptions, and record-keeping. MSN 1884 (F) stated that the interval between consecutive rest periods must not exceed 14 hours and applied this requirement to all fishermen, including share fishermen. This differed to the Regulations, which applied this requirement to employed fishermen only.

[39] EU Directive 2003/88/EC.

The Fishing Industry Code of Practice – Annex 1 of MSN 1884 (F) – outlined authorised exceptions for operational or technical reasons or for reasons concerning the organisation of work. These temporary exceptions were permitted provided that:

- fishermen's health and safety was not compromised
- standards were met as far as practicable
- equal compensatory rest was taken within 7 days of any daily rest breach
- equal compensatory rest was taken within 3 days of any weekly rest breach.

The Code included a specific authorised exception for large crabbers operating over multiple days. It noted that such vessels typically worked from first light, with limited activity during hours of darkness, and that work was concentrated around hauling and reshooting gear. Compensatory rest was generally available during transit to and from fishing grounds and often facilitated through crew rotation. Due to adverse weather, these vessels could lose up to 120 working days annually.

Where a vessel's working pattern fell outside the Code, fishing vessel owners could apply to the MCA for an individual exception. Such applications were to include the expected pattern of work, including time ashore between trips, and would only be authorised where it could be demonstrated that the health and safety of the fishermen was not put at risk. Applications for individual exceptions were to be made in writing. The Blue Sea Fishing Company Ltd had not submitted such an application for *Amadeus*.

The MSN also required any breach of the weekly rest requirement to be recorded and that, once compensatory rest was provided, both the skipper and affected crew member signed the record. The MCA accepted such breaches as compliant if they were supported by a:

- safe manning document;
- documented work schedule; or
- safety management system (SMS) demonstrating compliance with minimum rest requirements or authorised exceptions.

In the absence of these, daily rest records had to be kept for each crew member and retained for 2 years.

On rest breaks, MSN 1884 (F) clarified that breaks of less than 30 minutes were generally considered to be *a "rest break" rather than a rest period*. If only one break was provided during a 6-hour work period, it should be at least 20 minutes' duration. Rest breaks did not count towards the calculation of minimum rest hours.

1.13.5 International Transport Workers' Federation observations

During the investigation, the International Transport Workers' Federation (ITF) raised concerns about how hours of work and rest requirements were being implemented on fishing vessels. The ITF reported that, because the MCA had not required vessels to maintain records of fishermen's rest hours, most operators did not keep

actual hours of work and rest records. Instead, compliance was often demonstrated using safe manning documents or planned work schedules rather than verified daily records. The ITF also noted that owners rarely reported breaches and that limited enforcement of ILO 188 requirements had allowed noncompliance to become routine across parts of the sector.

1.14 OTHER REGULATIONS AND GUIDANCE

1.14.1 Health and safety

The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 applied to anyone working on fishing vessels, including share fishermen. Under ILO 188, vessel owners were responsible for providing a safe working environment and ensuring compliance with health and safety requirements.

Guidance on the application of these regulations was provided in MGN 587 (F) Amendment 1[40], which required documented risk assessments to be completed and appropriate safety measures to be in place. All fishermen were expected to receive sufficient training to work safely on board, including familiarisation with equipment and procedures.

The MGN stated that the fishing vessel owner had overall responsibility for ensuring that the skipper was provided with the necessary resources and facilities to comply with the regulations. Owners were expected to set the vessel's health and safety policy so that the skipper was clear about what was required.

In fulfilling this duty, risks were to be avoided wherever possible; unavoidable risks were to be evaluated and action taken to reduce them; and work patterns and procedures were to be adopted that considered the capacity of the individual, in particular concerning workplace design and choice of equipment, alleviated monotonous work, and reduced any adverse effects on workers' health and safety.

1.14.2 Risk assessment

Section 6.1.2 of MSN 1872 (F) Amendment 1 required fishing vessel owners to conduct a risk assessment, defined as a systematic examination of the vessel's operations to identify hazards that could cause harm. Its purpose was to determine if adequate control measures were in place to reduce those risks to an acceptable level or whether further action was required. Health and safety risk assessments were required to be reviewed at least annually to ensure they remained appropriate to the vessel's fishing method and operation.

All crew were required to be informed of protective measures. The risk assessment was to be displayed and signed by all crew to confirm understanding.

For fishing vessels of 24m length or over, or those that normally remained at sea for more than 3 days, MGN 587 (F) Amendment 1 specified that the vessel owner should have established onboard procedures for the prevention of occupational accidents that considered the findings of the risk assessment.

[40] MGN 587 (F) Amendment 1 – The International Labour Organization Work in Fishing Convention (No.188) – Health and Safety: Responsibilities of Fishing Vessel Owners, Managers, Skippers and Fishermen.

1.14.3 Manual handling

The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998 required employers to:

- avoid hazardous manual handling where practicable
- assess unavoidable tasks and reduce risks to the lowest level reasonably practicable
- provide information such as posture, load weight, and centre of gravity
- ensure workers were trained in safe handling techniques.

MGN 90 (M+F) Amendment 3[41] offered guidance on implementing these regulations and noted that musculoskeletal injuries accounted for a significant proportion of injuries at sea. It referred shipowners to the schedule[42] in The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998, which listed factors to consider when preparing a manual handling risk assessment. Section 6 of the MGN stated that guidance on the correct handling of loads was provided in fishing vessel safety codes[43].

Fishing vessel safety codes did not specifically include detailed guidance on correct load handling for fishermen. The Fishermen's Safety Guide provided general advice on protecting the back, neck, arms, legs, and knees during manual handling tasks. The guide did not include structured risk assessment requirements or detailed measures for reducing manual handling risks.

The COSWP[44], for use by merchant seafarers not fishermen, provided comprehensive instructions on safe lifting that included planning lifts, using mechanical aids, maintaining stable posture, and avoiding twisting. The Code also contained diagrams and an annex reflecting the schedule in The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998, covering task, load, environment, and individual capability. The COSWP also advised reducing safe lifting weights if the lift involved twisting or was repeated frequently – for example, more than 30 times per hour.

1.14.4 Bulwarks

The Fishing Vessels (Safety Provisions) Rules 1975 required efficient bulwarks with a height of at least 915mm above deck level. The rules permitted a reduction in bulwark height at specific points if maintaining the minimum height would cause unreasonable interference with the vessel's operation. In such cases, adequate protection was required at the affected location.

---

[41] MGN 90 (M+F) Amendment 3 – The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998.

[42] Schedule to The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998.

[43] No detailed guidance on manual handling or reference to MGN 90 (M+F) Amendment 3 or The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998 was included in MSN 1872 (F) Amendment 1 or MSN 1885 (F).

[44] Code of Safe Working Practices for Merchant Seafarers 2015 edition – Amendment 7, October 2022.

Similarly, MSN 1872 (F) Amendment 1 encouraged owners to raise the bulwark height where possible. To protect persons against falls, including falling overboard, the perimeters of exposed decks and the tops of deckhouses were required to have bulwarks of at least 1,000mm above deck. For vessels constructed before 23 November 1995, the minimum bulwark height was 915mm, with owners encouraged to raise this to 1,000mm where possible. The Code stated, *When application of such measures would impede the proper working of the vessel, equivalent safety measures may be considered*.

1.14.5 Man overboard prevention

Chapter 6 of MSN 1872 (F) Amendment 1 required that, unless measures eliminated the risk of falling overboard, fishermen must be provided with and wear PFDs or safety harnesses. Any measures eliminating the risk of an MOB were required to be documented in a written risk assessment.

The guidance provided in MGN 571 (F) highlighted that falling overboard was a leading cause of fatalities in the fishing industry and identified contributing factors such as vessel pitching and rolling, working in exposed areas, frequent hauling over the side, slippery decks, and fatigue from extended working hours. To mitigate these risks, MGN 571 (F) advised fishing vessel crew to:

- use a safety harness and safety line in exposed areas or adverse weather
- wear a PFD if harnesses could not be used
- avoid leaning over the side except in emergencies
- consider mechanical alternatives to reduce exposure to falling overboard.

Additionally, MGN 588 (F) Amendment 2[45] required owners to consider measures that prevent an MOB event from occurring when developing an MOB risk assessment. Besides the compulsory provision and wearing of PFDs, these measures could include physical barriers, automated equipment, and the use of safety harnesses.

1.14.6 Emergency preparedness

Chapter 8 of MSN 1872 (F) Amendment 1 required monthly emergency drills to be conducted and recorded, and crew to be trained in the use of LSA. The notice referred operators to MGN 570 (F)[46], which provided guidance on various emergency scenarios.

On MOB preparedness, MGN 570 (F) advised that drills should be conducted to familiarise crew with the procedures required for effective response. The guidance noted that if a person overboard was not rescued within 5 minutes, they were highly likely to become unable to assist in their own recovery or lose consciousness. Operators were advised to:

- have a plan for recovering both conscious and unconscious casualties

[45] MGN 588 (F) Amendment 2 – Compulsory Provision and Wearing of Personal Flotation Devices on Fishing Vessels.

[46] MGN 570 (F) Amendment No.1 – Fishing Vessels: Emergency Drills. This was withdrawn and replaced by MGN 570 (F) Amendment No.1 on 10 June 2022.

- ensure practical equipment was available and suitable for the vessel
- train crew to use the equipment and practice its use
- maintain written plans and procedures for recovery
- ensure crew wore PFDs whenever there was a risk of going overboard.

1.14.7 Training and certification

Before working on UK registered fishing vessels, MGN 411 (M+F) required foreign nationals to complete Safety Awareness and Risk Assessment training regardless of whether they had completed the STCW Basic Safety Training.

Seafish coordinated the training, which was delivered by approved providers in the UK and covered accident causation and prevention. The training also provided guidance on minimising harm in the event of an incident and included instruction on conducting risk assessments.

1.14.8 Safety management

The Fishing Safety Management (FSM) Code, published in MGN 596 (F)[47], was developed by the Fishing Industry Safety Group (FISG) to support compliance with ILO 188 and related fishing codes of practice[48]. Based on the principles of the IMO's International Safety Management (ISM) Code[49], the FSM Code aimed to promote the safe operation of fishing vessels and prevent pollution.

The guidance in MGN 596 (F) outlined the benefits of implementing an SMS, including maintaining documentation, scheduling equipment checks and servicing, and ensuring safe working practices on board. The MGN also stated that an SMS would assist owners and skippers to comply with statutory safety obligations. The FSM Code recommended that a vessel-specific SMS should include:

- a safety and environmental protection policy
- instructions and procedures to ensure safe operation and compliance with legislation
- defined levels of authority and communication between crew and shore personnel
- accident and nonconformity reporting procedures
- emergency preparedness and response procedures
- internal review and self-assessment procedures.

---

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

[48] MSN 1871(F) – The Code of Practice for the Safety of Small Fishing Vessels of less than 15m Length Overall; MSN 1872 (F); and MSN 1873 (F) – The Code of Practice for the Construction and Safe Operation of Fishing Vessels of 24m Registered Length and Over.

[49] International Management Code for the Safe Operation of Ships and for Pollution Prevention.

The FSM Code advised companies to carry out internal audits at intervals not exceeding 12 months to verify compliance with safety and pollution prevention requirements. Although the FSM Code was not mandatory, MGN 587 (F) Amendment 1 strongly recommended implementing an SMS on vessels of 24m or over or those remaining at sea for more than 72 hours.

Internationally, in 2023 the Fishing Industry Safety and Health Platform (FISH Platform) proposed a Fishing Safety Management Code applicable to all fishing vessels[50]. The preamble to this proposal noted that existing IMO instruments for fishing did not require safety management, despite fishing being a more hazardous occupation than many others. It further stated that the international fishing industry would materially and economically benefit from a harmonised safety management code based on the principles of MGN 596 (F)[51].

1.14.9 Potting vessel design

The traditional method of hauling pots on board crab potting vessels, including *Amadeus*, involved the use of a block and hauler system. This design remained common across modern potting vessels.

In 2001, the Seafish Technical Information Service published a bulletin that introduced an alternative design, featuring a wide roller mounted on the rail, intended to improve crew safety and reduce manual handling. The bulletin stated that the roller eliminated the manual effort of lifting pots inboard, allowing pots to pass directly onto the table and only be lifted once for stacking **(Annex A)**.

In January 2011, the Seafish FS45 Potting Safety Industry Advisory Note[52] was published, prompted by the sector's higher-than-average MOB fatality rate. Among its hazard reduction measures, the Seafish advisory note reiterated the potential benefit of a potting roller and noted a significant increase in the number of pots being worked – often double the volume compared to 10 to 15 years earlier – potentially increasing fatigue across the sector.

1.15 PREVIOUS ACCIDENTS

1.15.1 Fishing vessel man overboard data

A review of the MAIB accident database identified 127 MOB accidents from fishing vessels between 1 January 2013 and 31 December 2023. Of these, 56 resulted in a fatality, accounting for 72% of the 78 total deaths recorded on fishing vessels during the period.

Of the 127 MOB accidents, 47 occurred on potting vessels, resulting in 26 fatalities that accounted for all but one of the 27 fatalities recorded for potting vessels during the same period.

---

[50] Defined in ILO 188 as *any ship or boat, of any nature whatsoever, irrespective of the form of ownership, used or intended to be used for the purpose of commercial fishing*.

[51] MGN 587(F) contained a technical error, referring to MGN 594(F) rather than MGN 596 (F).

[52] Seafish FS45 Potting Safety Advisory Note

1.15.2 *Amadeus* – fatal man overboard

On 31 December 1994, a crew member was lost overboard from *Amadeus* during hauling operations. The deckhand was positioned at the hauling hatch, lifting pots on board when, shortly after he placed a pot on the nearby table, the vessel struck a large wave. The pot was pulled back overboard before the deckhand could release the toggle, striking him and knocking him into the sea. Despite the crew's efforts, the deckhand could not be recovered. The investigation found that:

- *Amadeus* was rolling heavily and shipping water on deck. The deckhand's working position was slippery and unstable.
- There was no effective method for recovering the deckhand due to the vessel's high freeboard.
- The deckhand was not wearing a safety harness with a lifeline or a buoyancy aid.

Following the accident, a raised grating was installed at the railing position to reduce the risk of crew slipping while lifting pots near the hauling hatch. The investigation found no evidence that the area was modified to accommodate the use of a safety harness with lifeline, nor any indication of consistent use of PFDs by the crew.

1.15.3 *Aquarius* – fatal man overboard

On 17 August 2015, a deckhand on the UK registered trawler *Aquarius* was struck by a steel trawl warp and thrown overboard. Recovery attempts were unsuccessful and the casualty, who was not wearing a PFD, was unable to stay afloat and sank from view within about 10 minutes. Despite an extensive search, his body was not recovered.

The investigation (MAIB report 18/2016[53]) found that *Aquarius* and its crew were unprepared for an MOB emergency. The vessel lacked effective recovery arrangements, its safety equipment was poorly maintained, emergency procedures were inadequate, and the crew had not practised MOB drills. These shortcomings significantly reduced the chances of survival once the casualty entered the water.

The investigation also found that the skipper and owners had adopted a reactive approach to safety management, addressing issues only when prompted by MCA surveyors. Deficiencies were repeatedly identified during inspections, but the process for tracking and closing them relied on manual checks and owner declarations. This approach allowed longstanding safety shortfalls to persist.

The MCA was recommended to develop the capability within its survey and inspection database to automate the management of deficiency records, enabling consistently substandard vessels to be quickly identified and targeted, and ensuring marine offices were alerted when deficiencies remained unrectified within the required timeframe.

[53] MAIB report 18/2016: Aquarius

1.15.4 *Copious* – fatal man overboard

On 18 February 2021, a deckhand fell overboard from the twin-rig stern trawler *Copious* about 30nm south-east of the Shetland Islands. The deckhand was conscious, wearing a lifejacket, and was quickly brought alongside the vessel. However, the crew were unable to recover the deckhand back on board. The casualty was later recovered unresponsive from the water by a coastguard helicopter and was pronounced dead on arrival at hospital.

The investigation (MAIB report 3/2023[54]) found that the deckhand fell overboard while performing a task that had not been effectively risk assessed and lost his life because recovery was not achieved before cold water incapacitation[55] set in. When unconscious, the incorrectly worn lifejacket did not keep his airway clear of the water, resulting in drowning. Recovery equipment on board *Copious* was not supported by the training and additional gear needed to recover an unconscious person from the water. At the time, there was no requirement for vessels to demonstrate an effective recovery method during surveys or inspections.

The MCA was subsequently recommended to amend fishing vessel regulations to require an efficient means of recovering an unconscious person from the water that could be demonstrated during surveys and inspections. This change has been accepted and is scheduled for inclusion in the revised Codes of Practice for fishing vessels, due for consultation in 2026.

1.15.5 *Pioneer* – fatal man overboard

On 29 July 2021, the skipper of the UK registered potting vessel *Pioneer* fell overboard while the vessel was returning to its beach standing in Hastings, England. The sole deckhand on board was unable to recover the skipper, who was later airlifted to hospital but could not be revived. The investigation (MAIB report 19/2024[56]) identified that:

- The vessel's low bulwark offered little protection against falling overboard.
- The skipper was not wearing a tethered safety harness.
- There was no effective means of recovering an unconscious casualty from the water.
- The skipper had not completed the Seafish Safety Awareness and Risk Assessment training course, and so may not have had a full appreciation of the risks associated with his vessel's operation.
- The MCA's survey and inspection regime did not identify regulatory noncompliance before the accident, and there were inconsistencies in how previously identified deficiencies had been closed out.

---

[54] MAIB report 3/2023: Copious

[55] Cold incapacitation usually occurs within 2 to 15 minutes of entering cold water. The blood vessels are constricted as the body tries to preserve heat and protect the vital organs. This results in restricted blood flow to the extremities, causing cooling and consequent deterioration in the functioning of muscles and nerve ends. Useful movement is lost in hands and feet, progressively leading to the incapacitation of arms and legs. Unless a lifejacket is correctly worn, death by drowning occurs because of impaired swimming.

[56] MAIB report 19/2024: Pioneer

The MCA was recommended to revise its instructions for surveyors to clarify how fishing vessel surveys and inspections should be conducted and recorded, and to review its guidance on closing out deficiencies. The recommendation was accepted, and the MCA is reviewing its processes for recording and resolving deficiencies identified during surveys and inspections.

1.15.6 Fishing vessel safety management systems

MAIB investigations have consistently identified the lack of robust safety management on board fishing vessels as a contributory factor in accidents. This recurring issue has led to multiple recommendations aimed at improving safety oversight and operational discipline within the sector. Multiple recommendations have been made to fishing vessel owners to adopt or enhance an SMS in line with the FSM Code, including:

- The double MOB from the potter *Weston Bay*, resulting in one fatality approximately 12nm south-east of Spurn Head, England, on 22 May 2024[57].
- The fatal accident to a deckhand on board the beam trawler *Cornishman* 44nm south-south-west of the Isles of Scilly, England on 6 February 2021[58].
- The fatal fall overboard from the fishing vessel *Eder Sands* approximately 150nm west of Ireland on 7 October 2022[59].
- The fatal accident to a crew member on board the scallop dredger *Olivia Jean* north-east of Aberdeen, Scotland on 28 June 2019[60].
- The enclosed space accident on board the fishing vessel *Sunbeam* resulting in one fatality in Fraserburgh, Scotland on 14 August 2018[61].

1.15.7 Fishing vessel safety study

The MAIB's Analysis of UK Fishing Vessel Safety 1992 to 2006[62] analysed accident data over a 14-year period to identify persistent safety issues. The study found that many fishermen had failed to complete the mandatory safety training.

The MCA was recommended (2008/173) to ensure that existing mandatory training requirements for fishermen were strictly enforced. This recommendation remained open in the MAIB Annual Report 2020. The MCA wrote to the Chief Inspector of Marine Accidents in October 2021, confirming that an improvement notice must be issued to a crew member who was found not to have completed the required training. Additionally, that an improvement notice must be raised against the vessel owner for employing or engaging crew who were not appropriately qualified. The letter further stated that the MCA would initiate detention procedures against a vessel that did not produce missing certification within 3 months.

---

[57] MAIB report 9/2026: Weston Bay

[58] MAIB report 8/2025: Cornishman

[59] MAIB report 1/2024: Eder Sands

[60] MAIB report 5/2021: Olivia Jean

[61] MAIB report 19/2020: Sunbeam

[62] UK Fishing Vessel Safety Study

This enforcement process was reflected in MSIS 27 Chapter 1, Annex 1, which outlined the inspection regime for fishing vessels under 15m length overall. The process was not mirrored in MSIS 27 Chapter 14, which covered crew qualifications and training.

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

Aleksandrs Medvedevs fell overboard from *Amadeus* while manually hauling pots in rough sea conditions. The crew initiated recovery efforts immediately, but the casualty became unresponsive within minutes and was lost from sight. Despite an extensive SAR operation, he was not found.

This section reviews the circumstances of the accident and examines the factors that shaped its outcome, including the pot hauling method and fall prevention measures; crew preparedness for MOB emergencies; and the operational environment and impact of fatigue on physical and cognitive performance. It also considers the vessel's safety management arrangements, the adequacy of risk assessments, and the effectiveness of regulatory oversight to identify and address deficiencies.

2.3 THE ACCIDENT

The pot hauling method on board *Amadeus* required deckhands to lean over a low bulwark to retrieve crab pots. To reach outboard, the deckhands bent from the waist and hips and extended their arms downward to grasp the toggle and bridle of each pot as it emerged from the water. This movement shifted the body's centre of gravity outboard of the bulwark, reducing stability, increasing the risk of toppling, and making it harder to counter any sudden movement of the vessel.

The pivoting forces were inherent in this forward-leaning posture: the body tended to rotate outboard because the centre of gravity had moved ahead of the torso. Maintaining balance therefore demanded continuous muscular effort through the legs to keep the feet planted inboard and resist the pivot. Deckhands braced their thighs or knees against the bulwark to counter the tendency for their legs and hips to rotate outboard. This helped, but the posture remained inherently unstable, particularly when the tipping forces were increased by the vessel's motion. Additionally, deckhands were often on the balls of their feet in this position, which further reduced foot grip and the ability to push back inboard, leaving less time to recover if the vessel moved suddenly.

Amadeus struck a wave and lurched as Aleksandrs reached for the 48th pot, increasing the tipping force and making counterbalancing more difficult. His forward-leaning posture had already moved his centre of gravity outward over the bulwark, leaving little capacity to recover. The resultant tipping force was too strong for him to overcome and resulted in the fall overboard. Aleksandrs was very likely working at reduced physical capacity due to cumulative physical strain from repeated heavy lifting during his long contract, limiting his ability to generate the muscular force needed to resist the toppling motion on this occasion. He had likely lost a significant amount of body weight, reflecting sustained physical effort over the previous 14 weeks. Some pots could have weighed more than half his probable body weight of about 60kg.

With no guardrail, secure handhold, or fall prevention device, there was no mechanism to prevent a fall once the toppling force exceeded the deckhand's strength and his weight passed beyond the bulwark. Although he tried to arrest his fall by gripping the inside of the bulwark, the curved wet wooden surface provided no grip and left nothing to stop his movement over the side.

The pot hauling method required the deckhand to lean over the vessel's side in an unstable forward-leaning posture, exposing him to a significant risk of falling overboard. When the vessel lurched he was unable to counter the tipping force and went overboard, and no effective fall prevention arrangements were in place to keep him on board.

2.4 MAN OVERBOARD

2.4.1 Survivability in cold water

The guidance in MGN 570 (F) stated that unless a person was recovered within 5 minutes of entering cold water they were likely to become incapacitated or unconscious, with a high probability of death due to cold water shock.

The deckhand entered winter North Sea water with a surface temperature of about 9°C, which was well below the 15°C threshold for cold water shock. He was observed swimming shortly after entry, but began to tire within 90 seconds and had lost consciousness and become submerged by 2 minutes and 30 seconds. The rapid onset of cold water shock, combined with the effort required to stay afloat while wearing oilskins and boots, likely led to cardiac arrest or drowning due to water inhalation. Incapacitation meant the deckhand could not keep his airway clear or assist in his own recovery, leaving the crew solely responsible for retrieval.

The deckhand was not wearing a PFD, despite these being available on board and identified as control measures in the vessel's safety folder and MOB risk assessments. PFDs keep the wearer afloat and help protect the airway, reducing the effort needed to remain on the surface and increasing the time available for recovery. Without a PFD, the deckhand's airway could not be protected once he became unconscious and he was at high risk of submersion, shortening the rescue window. Similar consequences had been identified in previous investigations such as *Aquarius*, where the absence of a PFD significantly reduced survivability and the casualty was lost from sight within minutes.

Cold water shock caused the deckhand to become rapidly incapacitated, leading to loss of consciousness and submersion within minutes. In these conditions, a PFD was the only practical safeguard to keep a casualty afloat and protect their airway once unconscious. Without a PFD, the deckhand's survivability was significantly reduced and the crew's recovery window was shortened.

2.4.2 Recovery

Although the skipper initiated a prompt round turn, the vessel could not return to the casualty's location before the effects of cold water shock took hold. When *Amadeus* came alongside the deckhand was incapacitated and unable to assist his own recovery, leaving the crew solely responsible for retrieval in challenging conditions.

Several unsuccessful ad hoc recovery attempts were made using a lifebuoy and a boat hook typically used for retrieving fishing gear. The vessel's high freeboard, adverse weather, and darkness increased the difficulty of recovering an unconscious casualty. Although the casualty was only a few metres from the vessel and remained in sight, a rescue could not be effected. A crew member briefly considered climbing down the hull ladder to enter the water, an option that was fortunately abandoned as it would almost certainly have resulted in a second casualty.

No MOB drills had been conducted on board *Amadeus* in 2023, and it is probable that no drills had taken place since the last MCA inspection in May 2022. The crew had therefore not practised recovering a casualty, whether conscious or unconscious. Drill records were fabricated, indicating that entries reflected compliance rather than drills undertaken to support safety on board. Preparedness was further compromised by the absence of an MOB recovery plan, the lack of emergency duty inductions for new crew members, and unclear muster roles among the crew. This was contrary to the requirements of MGN 570 (F), which emphasised that the limited time available to recover a person from the water makes a high level of preparedness essential in MOB emergencies.

As there had been no drills and no duty inductions, the crew had not practised with the vessel's MOB recovery equipment, which the investigation found was in an inaccessible location and unfamiliar to the crew. The investigation found the dedicated lifebuoy with MOB smoke float located outside the wheelhouse was unused and not properly rigged, further indicating limited consideration had been given to emergency preparedness.

Previous accidents involving *Aquarius* and *Copious* showed similar instances where recovery was unsuccessful despite the vessel's nearness to the casualty. Accident data for the decade leading to this accident evidenced that 72% of fishing vessel deaths were attributed to MOB events, and that almost half of reported MOB accidents on fishing vessels resulted in a fatality. Potting vessels appeared to be at higher risk of an MOB, with significantly reduced likelihood of successful rescue.

Amadeus was inadequately prepared for an MOB emergency. The absence of regular drills, clear procedures, trained crew, and immediately accessible recovery equipment significantly reduced the likelihood of rescuing a casualty within the limited time available.

2.5 FALL PREVENTION

The original 915mm bulwark height complied with the regulations at the time *Amadeus* was constructed. However, following a fatal MOB accident in 1994, the bulwark height was reduced to 780mm when a deck grating was installed to reduce the risk of slipping when hauling.

MSN 1872 (F) Amendment 1 allowed the bulwark height to be reduced if the original height impeded proper working provided that equivalent safety measures were implemented. The Code did not explicitly define these safety measures, but the MCA provided guidance on what might be considered appropriate. MGN 571 (F) advised that leaning over the vessel's side should be avoided and stated that a safety harness and safety line should be used where any risk of falling overboard existed, or when working in exposed areas or adverse weather. Further, MGN 588 (F) Amendment 2 emphasised that MOB risk assessments should focus on

measures such as physical barriers, mechanical equipment, and harnesses. The investigation into the 1994 accident found that any crew member lifting pots should wear a safety harness attached to a lifeline.

The MAIB's anthropometric assessment similarly concluded that additional safety measures were needed. The 780mm reduced bulwark height was lower than most people's typical waist height, and deckhands had to bend at the hip to reach pots over the rail, which carried a significant risk of someone falling over the side. The assessment determined that a working rail at just below elbow height (about 1m), would be optimal for safety-critical work involving forward reach and significant muscular effort under dynamic and resistance forces. This height was found to provide materially better resistance to toppling while still permitting pot recovery. Even with a higher bulwark, additional measures such as a personal restraint or arrest system were still required to fully eliminate the risk of falling overboard. Where the bulwark could not be raised, the alternative was to redesign the task or workstation to remove the need to work at the side.

On board *Amadeus*, the reduction in protective height was not offset by equivalent controls. For example, the provision of a restraint system or an alternative roller-assisted pot retrieval method that removed the need to lean over the side, such as the design publicised by Seafish. The vessel's risk assessments required only that deckhands wear a PFD, which was not enforced. Even if implemented, the use of a PFD only helped once a crew member is in the water and could not therefore be considered an equivalent safety measure.

It is likely that the hazard was not addressed because the reduced bulwark height enabled crew to increase throughput by leaning further over the vessel's side to grip pots earlier and use the pot's momentum during recovery. This operational advantage appears to have been prioritised over implementing fall prevention controls. As a result, the deckhand was not tethered to the vessel, and there was nothing to prevent a fall overboard once his body weight moved beyond the rail.

The risk of an MOB event when leaning over the vessel's side during pot hauling operations was not mitigated. The reduced bulwark height limited the protection normally provided by a rail and increased the need for additional fall prevention measures, which were not implemented.

2.6 THE POT HAULING OPERATION

2.6.1 Postural risks

The vessel's risk assessments identified bodily injuries, sprains, and strains from manual handling of gear and catch as hazards, with repeated bending and lifting assessed as a medium risk for back injuries. Control measures included crew training in correct lifting techniques and avoiding heavy lifting. However, no formal manual handling training nor documented safe working practices had been provided. This indicated that the control measures identified in the risk assessments were not implemented, despite pots weighing up to 31kg being lifted in rapid succession during hauling cycles.

The pot hauling method observed on *Amadeus* was repetitive and physically demanding. Deckhands frequently bent their backs at 90° or more, reaching down to retrieve pots from a low position and then lifting them over the bulwark. The

REBA tool rated the task as very high risk, requiring immediate intervention, and highlighted risk factors such as extreme trunk, neck, and leg angles, high load forces, difficulty gripping pots, and rapid task frequency – all strongly associated with MSDs. Similarly, the NIOSH lifting equation identified hyperextension, twisting, and excessive biomechanical stress caused by handling heavy, awkward loads at speed. These findings indicated that the pot hauling method placed excessive strain on the body and was therefore unsuitable.

The negative impact of manual pot handling was well recognised within the potting sector. Seafish highlighted the benefits of using potting rollers as early as 2001 **(Annex A)** and again in 2011, noting their potential to reduce manual lifting and improve crew safety and highlighting the hazard of fatigue due to the significant increase in the number of pots being worked. While retrofitting potting rollers might not have been feasible for all vessels, the absence of any protective measures on *Amadeus* left crew exposed to harm.

The investigation noted that those familiar with the pot hauling task found it physically exhausting, comparable to continuous heavy exercise, and often relied on pain relief to cope with joint pain. Aleksandrs persistently used ibuprofen to manage muscle pain. These observations reinforced that the task was beyond sustainable limits and caused cumulative strain on the musculoskeletal system.

The pot hauling method exposed deckhands to significant postural risk and physical demands, yet no effective control measures were in place to manage the risk of musculoskeletal injury. This left crew vulnerable to harm, and the postural risks associated with the task remained unmitigated.

2.6.2 Manual handling guidance

The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998 required employers to assess manual handling risks using the factors set out in the schedule to the regulations. These included posture, twisting, grip, load weight, task frequency, environmental conditions, and individual capability, all of which applied to the pot hauling task on *Amadeus*.

Although intended to support compliance with these regulations, MGN 90 (M+F) Amendment 3 neither explained the schedule nor provided practical guidance on how vessel owners should apply the regulatory requirements. The MGN stated that merchant seafarers should refer to COSWP and fishermen should refer to the fishing vessel safety codes; however, other than in lists of statutory instruments, neither MGN 90 (M+F) Amendment 3 nor the schedule were referenced in MSN 1872 (F) Amendment 1 or MSN 1885 (F), which meant their provisions were not embedded in fishing industry guidance. There was also limited manual handling guidance in MSIS 27, so the factors required by the schedule were not systematically incorporated into survey and inspection activity.

Conversely, the COSWP had provided detailed manual handling guidance for merchant seafarers and incorporated the schedule into distinct instructions. This illustrated how a comprehensive approach could be applied in practice. The Fishermen’s Safety Guide, as the nearest available equivalent, offered only general advice and did not translate the schedule into a framework for assessing manual handling tasks or evaluating safe working arrangements. This left fishermen without a structured framework to assess manual handling risks in line with statutory requirements, including the means to evaluate a crew member’s capability and identify technical or operational measures to reduce injury.

2.7 WORK SCHEDULE AND RISK OF FATIGUE

2.7.1 The deckhand's fatigue

During hauling and shooting Aleksandrs worked under a schedule of 16-hour shifts separated by 8 hours of rest: 2 hours less than the statutory minimum rest requirement. Additionally, his sleep periods while working on board *Tydus* had been disrupted by watchkeeping. Sleep analysis indicated that he was acutely and chronically sleep disrupted and carrying a cumulative sleep debt of approximately 48 hours at the time of the accident, with further sleep debt from the preceding period likely. His deployment lasted 97 days, far exceeding the 2-month typical contract.

Aleksandrs's communications with his family reflected severe exhaustion; he said there was *"nothing left of him"* and expressed a strong desire to return home. His family described his mood as extremely low and reported that he was worried about his health due to the duration and intensity of the work. In the days before the accident, Aleksandrs indicated that he wanted to leave the vessel early but understood that he would have to complete another trip. This indicated that, despite his deteriorating condition, his workload had not reduced and there had been no additional opportunity for recovery before a relief could join the vessel. Given the informal and ad hoc way crew relief was arranged, there was no structured mechanism to modify his workload or support him as his fatigue worsened.

Extreme sleep debt would have had a significant acute effect on day-to-day performance, particularly decision-making, reaction times, and mood. Evidence indicated that Aleksandrs was approaching levels of physical fatigue close to exhaustion or collapse. This is likely to have impaired his ability to perform safety-critical tasks and could have been associated with chronic health effects, although these could not be fully investigated due to his loss overboard. His movements on his last shift indicated that he was increasingly relying on whole-body effort to bring pots inboard, a behaviour typically seen when individuals compensate for reduced physical capacity due to fatigue. Further, the accident occurred approaching a period of circadian low, when alertness and cognitive performance are naturally reduced, compounding the underlying fatigue.

Research showed that being awake for 17 to 19 hours could result in impairment equivalent to a BAC of 0.05%, enough to significantly degrade cognitive and motor skills. Even moderate sleep loss could increase the hazards involved in physical tasks such as pot hauling.

The cumulative sleep debt, prolonged manual work, emotional strain, and lack of adequate recovery meant that Aleksandrs was almost certainly significantly fatigued at the time of the accident. This level of physical and cognitive exhaustion would have impaired alertness, slowed reaction times, and reduced his ability to respond effectively to the physical demands of the fishing operation, each of which likely contributed to his fall overboard.

2.7.2 Rest requirements

Aleksandrs's fatigued condition illustrated the cumulative impact of inadequate recovery time from physically demanding operations; however, the effects of fatigue were not isolated to him. All deckhands worked under the same regime, which involved 16-hour daily shifts during shooting and hauling. The vessel's table of

shipboard working arrangements stated that the deckhands' schedule provided 10 hours of rest per day, including 8 hours between shifts and 2 hours in short breaks during the shift. On the surface this appeared compliant with MSN 1884 (F), which required a minimum of 10 hours rest in any 24-hour period; however, the regulation excluded rest breaks from this calculation.

The statutory definition of a rest period applied to all fishermen and did not count short breaks towards daily rest. The Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 did not define the duration of a rest break, but guidance for employed fishers in MSN 1884 (F) indicated that the MCA generally considered any rest of less than 30 minutes to be a *"rest break" rather than a rest period*. This ambiguity was partially clarified in MSIS 46[63], published after the accident, which confirmed that any rest of less than 30 minutes was a break and did not count towards daily rest. MSIS 46 also reiterated that time taken as breaks was excluded from the calculation of statutory rest hours. MSIS 46 did not distinguish between employed and share fishermen in its duration of rest breaks and its interpretation therefore reasonably applied to all.

Only the 8 hours between shifts qualified as valid rest, which was 2 hours below the legal minimum, when applying these definitions. These daily breaches of minimum rest hours meant there was never sufficient time to recover from a 16-hour shift. In practice, this time also had to cover eating, washing, and personal needs, leaving just 5 to 6 hours for sleep. This would have increased the likelihood of acute fatigue and reduced the alertness and reaction time of any deckhand during a shift, whether recognised or not.

Amadeus's working arrangements also did not meet the weekly rest requirements. MSN 1884 (F) mandated 77 hours of rest per week, but analysis of trip patterns revealed significant shortfalls:

- 69 hours of rest over six consecutive fishing days (8 hours short)
- 61 hours of rest over seven consecutive fishing days (16 hours short)
- 56 hours of rest over eight consecutive fishing days (21 hours short)

This work schedule inherently embedded fatigue into the vessel's operations. The schedule was not risk assessed when it was introduced in 2019, and the associated fatigue risk was not identified or addressed in the following years. This is likely because extended working hours were perceived to support higher catch volumes, which were prioritised over crew welfare, particularly given that the fishermen were self-employed.

Additionally, it is likely that when the hours of work and rest regulations came into force for share fishermen, the requirements for minimum rest were not fully reflected in the vessel's planned working arrangements. In post-accident correspondence with the MCA, the company, supported by a national federation, presented *Amadeus*'s work schedule claiming 72 hours of rest over 7 days, stating that the crew were averaging 10 hours of rest per day and that the vessel was compliant with the regulations. This approach treated the 10-hour daily rest requirement as an average rather than a minimum, and did not reflect the requirement for the weekly

[63] International Labour Organization Work in Fishing Convention (ILO 188).

rest minimum to be met independently. The MCA's corrected version showed that the crew would receive 64 hours of rest per week, which was 13 hours below the legal minimum.

These exchanges indicate that the application of the regulations did not fully reflect the underlying requirements, and that the focus was on presenting a schedule that could be regarded as compliant for the purposes of detention release, rather than demonstrating how fatigue risk would be effectively managed in practice. The proposed schedule was also based on an assumed voyage pattern that was not representative of *Amadeus*'s actual operating profile, meaning it did not provide a realistic reflection of the vessel's working practices. This provides context on how the regulatory framework was being interpreted and applied, and illustrates how planned working arrangements can incorporate extended working hours without achieving the minimum rest required by the regulations.

The repeated weekly shortfalls in rest hours would have compounded over time, increasing the likelihood of chronic fatigue and leaving limited opportunity for full recovery. Chronic fatigue is more harmful than acute fatigue because its effects accumulate, degrading physical strength, cognitive performance and decision-making. This provides a clear link to the chronic fatigue Aleksandrs was experiencing towards the end of the 97-day deployment.

The vessel's work schedule did not meet the daily and weekly rest requirements under MSN 1884 (F), creating conditions in which adequate recovery was unlikely. This sustained lack of rest increased fatigue risk, impaired performance, and was very likely a contributory factor in the deckhand's physical and cognitive exhaustion at the time of the accident.

2.7.3 Compensatory rest and exceptions

Under ILO 188, exceptions to minimum rest requirements were intended to be temporary and limited to specific circumstances such as emergencies or distress situations. These safeguards aimed to reduce fatigue-related risk by ensuring that compensatory rest was provided promptly when fishermen were required to work outside normal hours.

The statutory instrument that implemented these provisions in UK law was reflected in MSN 1884 (F) and introduced a degree of flexibility that, in practice, diverged from the Convention's intent. Regulation 13 permitted exceptions for operational or technical reasons without requiring them to be temporary, creating scope for planned deviations from minimum rest standards. This allowed exceptions to be applied more routinely, reducing the effectiveness of the fatigue protections envisaged by ILO 188.

The Fishing Industry Code of Practice (Annex 1 of MSN 1884 (F)) described a number of pre-authorised exemptions for certain vessel types. For large crabbers, the authorised exception was based on an operating pattern where work was concentrated around daylight hours, hauling did not normally continue through the hours of darkness, and compensatory rest was available during periods of reduced activity. That operating pattern did not reflect *Amadeus'*s continuous 24-hour hauling regime, and the authorised crabber exception did not apply.

In post-accident correspondence with the MCA, the company and a national federation set out that compensatory rest could be incorporated into planned working arrangements by factoring periods such as steaming and port stays into the work schedule. This indicated an interpretation in which departures from minimum rest requirements could be accommodated within the routine operation of the vessel, rather than arising only in limited or exceptional circumstances.

In this case, the effect was to treat exceptions as part of the vessel's normal working pattern rather than as a response to unforeseen or unavoidable circumstances. This illustrates how flexibility within the regulatory framework, if applied outside its intended scope, could diverge from the principles of the Convention and undermine the fatigue protections envisaged by ILO 188.

The MCA's post-accident prohibition notice further highlighted this issue: the deficiency was recorded as a failure to maintain exception records, rather than as a breach of rest requirements. This indicated that the regulatory focus was placed on the administration of exceptions rather than on the underlying fatigue risk.

Some international instruments adopt a more restrictive approach. For example, although not applicable to fishing vessels, the Maritime Labour Convention permits deviations from minimum rest requirements only in emergencies or exceptional circumstances. This comparison demonstrates that routine or planned exceptions are not a consistent feature across maritime fatigue management frameworks.

Overall, the regulatory framework, combined with its interpretation in practice, enabled departures from minimum rest requirements to be incorporated into routine work schedules. This allowed exceptions to extend beyond the temporary and limited circumstances envisaged by ILO 188 and contributed to the normalisation of fatigue risk within routine operations.

2.7.4 Regulatory gap between employed and share fishermen

Regulation 7 of The Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 entitled all fishermen, regardless of employment status, to regular rest periods that were sufficiently long and continuous to prevent injury or harm to health due to fatigue. However, additional protections under Regulations 7(4) and 9, which set limits on the interval between rest periods and required rest breaks during monotonous or physically demanding tasks, applied only to employed fishermen. These provisions originated from EU Directive 2003/88/EC and were not part of ILO 188, which did not differentiate between employed and share fishermen.

This distinction created a more robust framework for employed fishermen and a less stringent one for share fishermen. Deckhands on board *Amadeus* routinely worked 16-hour shifts with rest intervals exceeding 14 hours, conditions that would have breached Regulation 7(4) had the crew been employed. That these protections were introduced to mitigate fatigue risk, yet did not extend to self-employed crew left share fishermen without regulatory safeguards against excessive hours, despite fatigue posing equal risks.

Regulation 9 required reasonable rest breaks during monotonous or physically demanding tasks to reduce fatigue risk. While short breaks were provided on *Amadeus*, they were counted toward minimum rest periods rather than being additional breaks to interrupt repetitive work. The absence of these protections for

share fishermen undermined the intent of Regulation 7(1), which was to ensure that all fishermen received adequate rest to prevent injury and long-term harm. Fatigue is a physiological condition, not a contractual one, and its risks apply equally to employed and self-employed crew.

The Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 provided different rest-related protections for employed and share fishermen and therefore created a two-tier safety standard. This disparity meant that share fishermen were not afforded safeguards such as shift length limits or rest breaks requirements, despite fatigue posing equal risks to all crew. As a result, the principle that all fishermen should receive adequate rest to prevent fatigue-related harm was not upheld.

2.7.5 Verification of work and rest hours

Amadeus's noncompliant work schedule had been in place since 2019, yet was not identified during the MCA's rescheduled ILO 188 survey in May 2022 and the vessel was issued with a WIFC document of compliance. Following the accident *Amadeus* and *Tydus* were both detained for breaches of hours of work and rest requirements. The associated prohibition notices confirmed that the crew's shift pattern did not comply with MSN 1884 (F) and that records of hours of work and rest were not maintained.

The ILO Guidelines referenced in MSN 1885 (F) required surveyors to verify compliance using multiple sources such as catch records, processing methods, and crew interviews to assess workload and continuous work periods. These checks were intended to ensure that documented arrangements reflected actual working practices and that fatigue risks were properly managed. However, these verification steps were not evident during the 2022 inspection.

Hours of work and rest were marked as compliant without proof that they reflected reality, and there was no evidence that these had been checked against catch volumes or by interviewing crew. Additionally, the inspection aide-memoire recorded compliance for employed fishermen, despite the crew being share fishermen, and did not reflect *Amadeus*'s 16-hour shift pattern and 24-hour hauling regime. This indicated that verification was superficial and did not meet MSN 1885 (F) requirements or the ILO Guidelines.

Further, MSN 1884 (F) required breaches, exceptions and compensatory rest to be recorded and retained for 2 years. *Amadeus* had been issued full-term certification despite the absence of these records.

The ITF's observations reinforced this systemic weakness, noting that hours of rest were rarely recorded and that planned schedules rather than actual records were often accepted, and highlighting that the MCA had not made recording rest mandatory. This approach reduced inspections to a documentation exercise rather than a meaningful assessment of fatigue risk.

The absence of verification against actual working practices meant that prolonged noncompliant work patterns were not identified. Without thorough cross-checking using multiple sources, as required by the ILO Guidelines, noncompliance with minimum rest requirements persisted and increased fatigue-related risk for crew.

2.8 SAFETY MANAGEMENT

2.8.1 Safety management in the fishing industry

The FSM Code, published in MGN 596 (F), was developed to support compliance with ILO 188 and the associated fishing vessel codes of practice. Drawing on the principles of the ISM Code, the FSM Code encouraged vessel owners to adopt structured safety management systems that included documented procedures, defined responsibilities, emergency preparedness, and periodic self-audit reports.

Although the MCA strongly encouraged owners of vessels of 24m and above, and those operating at sea for more than 72 hours, to adopt an SMS aligned with the FSM Code, the Code itself was not mandatory. As a result, there was variable uptake across the fishing fleet. Many small and medium-sized vessels, including potting and trawling vessels similar to *Amadeus*, continued to use basic generic safety folders and rely on certification renewals and statutory inspections rather than implement a structured safety management framework.

Findings from previous fishing vessel accidents showed recurrent weaknesses in safety management arrangements: the investigations into *Weston Bay*, *Cornishman*, *Eder Sands*, *Olivia Jean*, and *Sunbeam* identified issues such as incomplete or ineffective risk assessments, inadequately maintained LSA, an absence of written procedures for deck operations, and a lack of internal review or oversight. The *Aquarius* investigation similarly found that on board safety management was reactive, with deficiencies addressed only when prompted by MCA inspections. These investigations recommended that vessel owners adopt or enhance safety management systems in line with the FSM Code to support more consistent control of safety risks and prevent persistent safety issues between visits.

While the FSM Code provided a means for fishing vessel operators to adopt a structured and proactive approach to managing safety, its voluntary status meant that operators were not required to comply with it, and surveyors could not verify practices against its standards. As a result, safety management often remained reactive and focused on meeting certification requirements rather than ensuring that routine operations were carried out safely between inspections.

The IMO's Fishing Safety Management Code, 2023 reinforced the benefits of harmonised safety management frameworks for fishing vessels internationally. The Code further emphasised the need for structured, auditable systems to raise safety standards across the sector, highlighting the direction of travel towards mandatory safety management requirements for fishing vessels worldwide.

The voluntary nature of the FSM Code meant there was no mandatory requirement for a structured SMS on board a fishing vessel. The absence of robust systems to meet the Code's criteria meant safety management remained reactive, focused on compliance and certification, rather than proactively identifying and controlling hazards between inspections.

2.8.2 Company approach to safety management

The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 required employers to assess risks to fishermen's health and safety and implement suitable controls to reduce those risks. Guidance

in MGN 587 (F) Amendment 1 reinforced these duties, requiring owners and skippers to supervise safe working practices, manage crew welfare, and review risk assessments regularly to ensure they remained appropriate to the vessel's operations. These requirements provided a clear framework for managing safety on board *Amadeus*.

The vessel owner's health and safety policy stated a commitment to providing training and maintaining safe conditions, but there was limited evidence that this was actively implemented on board, underlined by the policy only being signed after the accident. The vessel's safety folder contained risk assessments; however, these were last reviewed in February 2018 and appeared to serve primarily as compliance for certification rather than an active tool for managing safety. There was little evidence that the risk assessments were referred to, and no mechanism existed to verify their implementation, despite the regulatory requirements to review them annually. This created several latent conditions such as outdated documentation, ineffective oversight, and normalised rule-breaking that eroded the vessel's safety margins over time.

Because the company's SMS had not been developed in line with the principles of the FSM Code the system lacked key elements such as structured audits, documented training, and mechanisms to verify compliance or challenge unsafe norms. Without these, there was limited assurance that documented controls were implemented or monitored, and no structured process existed to support or guide the skipper in managing safety on board.

The skipper had worked exclusively on *Amadeus*, previously as a deckhand, and was likely to have continued with working practices that had become normalised over time, some of which were unsafe. In the absence of formal oversight, structured training, or regular review, these practices were reinforced and passed on to others, allowing them to become embedded and remain largely unchallenged. This reflected a wider gap between the procedures documented in the vessel's safety folder and the way work was carried out on deck, with the SMS unable to detect or address this drift.

Operational priorities appeared to focus on maximising efficiency. The hauling routine on *Amadeus* was conducted at a fast pace; a typical string of around 100 pots was recovered in 20 to 25 minutes, compared with 40 to 45 minutes on comparable vessels operating similar potting methods. Verbal instructions encouraged practices that increased exposure to hazards, for example leaning further over the vessel's side to speed up pot recovery, rather than promoting safer techniques. Documented controls such as wearing PFDs and providing task-specific training for pot recovery were not implemented and were routinely disregarded. Post-accident surveys identified significant deficiencies, and similar issues were later found on the company's second vessel, including expired safety equipment, missing emergency gear, and no recorded rest hours, indicating systemic weaknesses in oversight across both vessels.

The SMS also lacked mechanisms for feedback, incident reporting or structured learning, meaning the company had limited capacity to identify emerging hazards, monitor safety performance, or promote continuous improvement.

Without an SMS aligned to the FSM Code the company lacked mechanisms to verify compliance, review risk assessments, or challenge unsafe norms. This gap meant there was no assurance that documented controls were implemented or monitored, allowing hazardous practices to persist and exposing crew to unmanaged risks.

2.9 SURVEY AND INSPECTION

2.9.1 Verification of emergency preparedness

The guidance provided in MGN 570 (F) emphasised the need for documented emergency procedures and drills because of the limited time available to recover a casualty in cold water. MGN 571 (F) reinforced that MOB prevention was paramount and that recovery systems should be effective and ready for use. MSIS 27 translated these principles into inspection practice by setting the expectation that surveyors verify MOB preparedness during inspections by observing at least two drills, including an MOB drill that realistically simulated recovery of an unconscious casualty. The purpose of such a drill was to demonstrate that the crew could use recovery equipment, coordinate roles, and execute recovery in a realistic scenario. Surveyors were also expected to confirm that the control measures identified in the vessel's risk assessments were implemented and that MOB procedures were documented and understood by the crew.

During the May 2022 inspection, drills for an engine room fire and abandon ship were conducted and deemed satisfactory; however, no MOB drill was performed. The vessel's MOB risk assessment was sighted and discussed with the skipper, but no observed demonstration took place to show that the crew could recover an unconscious casualty, that they were familiar with the recovery equipment, or that the equipment was accessible and ready for use. Without a practical drill simulating recovery of an unconscious casualty, the inspection neither identified shortfalls in emergency planning, crew competence, and equipment readiness nor tested whether recovery systems were configured for immediate use or if the crew were familiar with their emergency duties.

During follow-up MCA inspections in January 2024, no drills were conducted to demonstrate recovery of an unconscious casualty despite the vessel having been detained for serious safety deficiencies associated with an MOB-related fatality. As a result, the opportunity was missed to confirm that the vessel's recovery equipment, procedures and crew competence had been raised to a demonstrable standard.

Similar inspection shortfalls were identified in the accident on board *Copious*, where the Codes of Practice then in force did not require vessels to demonstrate an efficient means of recovering an unconscious person during surveys and therefore created a gap between inspection expectations and enforceable requirements. The MCA was recommended (2023/102) to amend fishing vessel regulations to require a demonstrable means of recovering an unconscious person during surveys and inspections. These changes were yet to be implemented at the time of the accident on board *Amadeus*; surveyors were operating to MSIS 27, but the Codes of Practice did not mandate demonstration and crews were not required to prove recovery capability during drills. The regulatory change has been scheduled for inclusion in the revised Codes of Practice in 2026.

The last MCA inspection of *Amadeus* did not verify MOB preparedness through a practical drill simulating recovery of an unconscious casualty. Without an observed demonstration shortfalls in equipment, procedures and crew competence went unidentified during the vessel's risk assessment review.

2.9.2 Verification of fall prevention measures

During the MCA inspection in May 2022, the vessel's risk assessments for hauling, shooting, and MOB prevention were reviewed, and no deficiencies were recorded. Fall prevention safeguards at open hatches were marked as compliant in the ILO 188 survey documentation.

MSIS 27 required surveyors to examine work activities such as hauling and shooting to determine whether they exposed crew to the risk of falling overboard. Where these operations involved working near the vessel's side, precautions such as safety harnesses, lifelines, or equivalent measures were expected. Surveyors were also required to confirm that bulwarks met the 1m minimum height requirement, or that equivalent protection was provided where this was not practicable, and to verify that the control measures described in the vessel's risk assessments were being implemented.

The MCA inspection was conducted while the vessel was in port, meaning the pot hauling operation could not be observed. Without witnessing how pots were retrieved at the hauling hatch or reviewing working deck closed-circuit television (CCTV), the surveyor could not have identified that wearing a PFD was not an appropriate fall prevention measure for this task. CCTV evidence later showed that the documented control measure of wearing a PFD was not only unsuitable for preventing a fall overboard during pot retrieval, but was also not implemented by the crew. In the absence of observing work activities, it is likely the inspection relied on the risk assessment document rather than verifying how associated controls were applied in practice.

The inspection record did not include a measurement of the bulwark height at the hauling position, nor did it confirm whether equivalent physical safeguards were in place. These checks were important because MSIS 27 and MSN 1872 (F) Amendment 1 required either adequate bulwark protection or an efficient means of securing harnesses and lifelines on exposed decks. Without verification against actual working practices, the reduced bulwark height and absence of equivalent fall prevention measures were not identified.

The ILO Guidelines required surveyors to confirm that the control measures recorded in a risk assessment were being applied in practice, including discussing them with the crew. These checks were not evident during the inspection and left critical hazards, such as leaning over the side during pot retrieval without tethering, unexamined.

The fatal MOB from *Pioneer* showed a similar combination of low bulwark height, absence of tethering arrangements and limited recovery capability, and also found that noncompliance had not been identified during previous inspections. Together, these cases underline the need to confirm that fall prevention measures set out in risk assessments are implemented in practice.

The survey and inspection process did not verify whether the fall prevention measures described in the vessel's pot hauling risk assessments were implemented or effective. As a result, the reduced bulwark height and absence of equivalent safety measures were not identified and allowed a hazardous working arrangement to persist.

2.9.3 Deficiencies and certification

The mandatory Basic Health and Safety and Safety Awareness and Risk Assessment training certificates for three crew members were unavailable when *Amadeus* was inspected in March 2022. These included Aleksandrs Medvedevs and one other crew member who was on board at the time of the accident in December 2023. MGN 411 (M+F) required these certificates because the training was integral to managing safety on board. The intermediate inspection in March 2022 was suspended due to the number and severity of deficiencies, and the surveyor indicated that full-term certification would only be issued once the outstanding issues, including missing crew safety certificates, were rectified.

The same deficiencies were recorded when the vessel was reinspected on 31 May 2022, and improvement notices were issued requiring compliance within 3 months. Despite the outstanding improvement notices, *Amadeus* was subsequently granted a full-term UKFVC and WIFC document of compliance. MSIS 27 instructed that vessels with outstanding improvement notices relating to crew certification should receive short-term certificates until deficiencies were rectified. This safeguard was not applied.

The decision to issue full-term certification while serious crew certification deficiencies remained unresolved removed a key compliance control intended to prevent vessels from operating with unqualified or uncertified crew. It is unknown why MSIS 27 guidance was not followed at this stage.

Overlapping and sometimes contradictory instructions in MSIS 23, MSIS 27 and MSIS 38 complicated the use of short-term certification and deficiency monitoring. MSIS 23 permitted full-term certificates to be issued at the attending surveyor's discretion even when deficiencies remained, while MSIS 27 required a short-term certificate where improvement notices remained open. MSIS 38 added further complexity by introducing guidance on deficiency coding and monitoring. It stated that serious deficiencies should be identified with Action Code 98 to enable marine offices to track and verify rectification and noted this was *especially important for fishing vessels*. However, the guidance did not clearly define when Action Code 98 should be applied and therefore relied on professional judgement. This ambiguity meant that safety-critical deficiencies relating to crew certification were not consistently coded, monitored, or escalated.

Amadeus was issued full-term certification despite unresolved mandatory safety training deficiencies. Overlapping and ambiguous surveyor instructions weakened compliance controls and contributed to this outcome, allowing the vessel to continue operating with crew members who were not fully certificated and reducing safety awareness assurance.

2.9.4 Monitoring of enforcement notices

The improvement notices issued to two *Amadeus* crew members in May 2022 related to missing mandatory Seafish safety training certificates were not followed up or monitored, and both crew members still lacked the required when the accident occurred 19 months later. MSIS 38 did not mandate follow up and stated that surveyors *may wish* to confirm whether compliance had been achieved, framing post-issue controls as discretionary. This contrasted with MSIS 27, which required follow-up on deficiencies and prescribed the use of short-term certification where improvement notices remained open, creating inconsistent expectations for surveyors.

An annexed enforcement flow chart in MSIS 38 set out a prescriptive process for routing notices to the MCA's inspections operations branch for oversight and, if compliance was not achieved, escalating the matter to RCIT. This conflicted with the discretionary language in the main content of MSIS 38. In the case of *Amadeus*, there was no record of monitoring or escalation, and the improvement notices remained open beyond their remedy date. As a result, they were not escalated to prohibition notices and the case was not referred for corrective action or penalty. Additionally, the inspections operations branch was not routinely monitoring compliance centrally to verify that marine offices were acting in line with documented procedures.

The survey and inspection system, PELORUS, recorded deficiencies and notices but did not provide automated alerts when remedy dates passed or offer a centralised dashboard for monitoring open items. The Aberdeen Marine Office identified this limitation in 2022 and introduced a local log to track improvement and prohibition notices. While this supported oversight locally, it relied on a manual workaround rather than an integrated system, creating the potential for variation in monitoring practices between marine offices and weakening the central oversight intended by MSIS 38.

Sector context also indicated wider challenges with enforcement consistency. The MAIB's Analysis of UK Fishing Vessel Safety 1992 to 2006 identified persistent non-completion of mandatory safety training and resulted in recommendation 2008/173 for stricter enforcement. In October 2021, the MCA wrote to the MAIB confirming that, where crew lacked mandatory training, improvement notices should be issued to both the individual and the vessel owner, with detention procedures initiated if certification was not obtained within 3 months. This escalation pathway was reflected in updated guidance for under 15m fishing vessels but was not mirrored for vessels of 15m to 24m, leaving enforcement reliant on surveyor judgement and workload.

Comparable issues were identified in the *Pioneer* investigation, where inconsistencies in closing out deficiencies indicated gaps in oversight and escalation. The parallels with *Amadeus* underline the importance of consistent monitoring and timely resolution of deficiencies to prevent persistent noncompliance between inspections.

Monitoring of enforcement notices was fragmented and left to individual marine offices. Follow-up and enforcement for fishing vessels are important because the sector does not operate under a mandated safety management code that would otherwise require internal audits, corrective actions, and structured oversight

between surveys. The number and severity of deficiencies identified on board *Amadeus* and *Tydus* following the accident, many of which were detainable in isolation but collectively demonstrated a lack of safety management, suggested that numerous pre-existing deficiencies that may have persisted between survey and inspection cycles.

Enforcement notices were not monitored or escalated as required by surveyor instructions because responsibility relied on surveyor judgement and local marine office workarounds rather than central support and a closed-loop tracking system. This gap removed the opportunity for effective regulatory oversight and allowed noncompliance to persist without corrective action or consequences, undermining enforcement as a deterrent.

SECTION 3 – CONCLUSIONS

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

1. The pot hauling method required the deckhand to lean over the vessel's side in an unstable forward-leaning posture, exposing him to a significant risk of falling overboard. When the vessel lurched he was unable to counter the tipping force and went overboard, and no effective fall prevention arrangements were in place to keep him on board. [2.3]

2. The deckhand became rapidly incapacitated due to cold water shock and lost consciousness within minutes. Without a PFD, the deckhand's survivability was significantly reduced and the crew's recovery window was shortened. [2.4.1]

3. *Amadeus* was not adequately prepared for an MOB emergency. The absence of regular drills, clear procedures, trained personnel, and immediately accessible recovery equipment significantly reduced the likelihood of rescuing a casualty within the limited time available. [2.4.2]

4. The risk of an MOB event during pot hauling operations was not mitigated. The reduced bulwark height removed the protection normally provided by a rail and increased the need for additional fall prevention measures, which were not implemented. [2.5]

5. The pot hauling method was physically demanding and exposed deckhands to significant postural risk, but no effective control measures were in place to mitigate musculoskeletal injury. [2.6.1]

6. The deckhand was almost certainly significantly fatigued at the time of the accident. The physical and cognitive exhaustion he had built up over weeks of demanding work without adequate recovery would have impaired his alertness, reaction time, and ability to respond to physical demands, each of which likely contributed to his fall overboard. [2.7.1]

7. The vessel's work schedule did not meet the daily and weekly rest requirements under MSN 1884 (F), creating conditions in which adequate recovery was unlikely. This sustained lack of rest increased fatigue risk, impaired performance, and was very likely a contributory factor in the deckhand's physical and cognitive exhaustion at the time of the accident. [2.7.2]

8. The company's safety management arrangements did not meet the criteria of the FSM Code and lacked mechanisms to verify compliance, review risk assessments, or challenge unsafe norms. This gap allowed hazardous practices to persist and exposed crew to unmanaged risks. [2.8.2]

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

1. The Fishermen's Safety Guide lacked sufficient manual handling guidance to reflect statutory requirements, leaving fishermen without a structured framework to assess manual handling risks in line with the regulations. This included the means to evaluate a crew member's capability and identify technical or operational measures to reduce injury. [2.6.2]

2. The regulatory framework enabled departures from minimum rest requirements to be incorporated into routine work schedules by allowing compensatory rest to be planned and exceptions to extend beyond temporary and limited circumstances. This was inconsistent with the intent of ILO 188 and contributed to the normalisation of fatigue risk within routine fishing operations. [2.7.3]

3. The exclusion of share fishermen from key statutory protections created a two-tier of safety standards system despite fatigue posing equal risks to employed and self-employed crew. This disparity in shift lengths and mandatory rest breaks undermined the principle that all fishermen are entitled to adequate rest to prevent fatigue-related harm. [2.7.4]

4. The inspection of work and rest hours was not conducted in line with the ILO Guidelines and did not verify actual working practices. This meant that breaches of minimum rest requirements were not identified, allowing noncompliant work patterns to persist and increasing fatigue-related risk. [2.7.5]

5. The voluntary nature of the FSM Code meant there was no mandatory requirement for a structured SMS on board fishing vessels. The absence of robust systems to meet the Code's criteria resulted in a reactive approach to identifying and controlling hazards between inspections. [2.8.1]

6. The reduced bulwark height and absence of equivalent safety measures were not identified during survey and inspection, allowing a hazardous working arrangement to persist. This occurred because the control measures described in the vessel's pot hauling risk assessments were not verified against actual working practices. [2.9.2]

7. *Amadeus* was issued full-term certification despite unresolved mandatory safety training deficiencies. Overlapping and ambiguous surveyor instructions weakened compliance controls and contributed to this outcome, allowing the vessel to continue operating with crew members who were not fully certificated and reducing assurance of safety awareness on board. [2.9.3]

8. Enforcement notices were not monitored or escalated as required by surveyor instructions because responsibility relied on surveyor judgement and local marine office workarounds rather than central support and a closed-loop tracking system. This gap removed the opportunity for effective regulatory oversight and allowed noncompliance to persist without corrective action or consequences, undermining enforcement as a deterrent. [2.9.4]

3.3 OTHER SAFETY ISSUES NOT DIRECTLY CONTRIBUTING TO THE ACCIDENT[64]

1. The last regulatory inspection did not verify MOB preparedness through a practical drill simulating recovery of an unconscious casualty. Without an observed demonstration shortfalls in equipment, procedures and crew competence were not identified. [2.9.1]

[64] These safety issues identify lessons to be learned. They do not merit a safety recommendation based on this investigation alone. However, they may be used for analysing trends in marine accidents or in support of a future safety recommendation.

SECTION 4 – ACTIONS TAKEN

4.1 MAIB ACTIONS

The **MAIB** has issued a safety flyer to the fishing industry **(Annex B)**.

4.2 ACTIONS TAKEN BY OTHER ORGANISATIONS

The **Maritime and Coastguard Agency** has:

- Initiated a review into how deficiencies are managed across the survey and inspection regime.

- In 2024, issued MSIS 46 – International Labour Organization Work in Fishing Convention (ILO 188) to ensure consistent quality in planning, implementation, and reporting of surveys and inspections under ILO 188 for UK fishing vessels.

The Blue Sea Fishing Company Ltd has:

- Sold *Tydus* and is finalising the sale of *Amadeus* to an overseas buyer, while retaining limited operational responsibilities through the newly incorporated TH7 Amadeus Limited.

- Revised working hours on board *Amadeus* so that shooting and hauling is no longer a 24-hour operation; instead, reportedly focusing its activities between 0600 and 2000.

- Installed a dedicated shackle point near the hauling hatch to enable the use of safety harnesses and tethers as a fall prevention measure during pot hauling.

- Started regular shore-based checks to ensure emergency drills are being conducted and documented on board.

- Updated risk assessments with more descriptive control measures, including specific instructions for MOB prevention, safe pot hauling practices, and correct use of PFDs and safety harnesses.

- Replaced the safety folder with a new vessel management software platform to consolidate safety documentation, induction records, and operational checklists into a structured SMS.

SECTION 5 – RECOMMENDATIONS

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

2026/140 Revise the Fishermen's Safety Guide to include clear, practical steps for fishing vessel owners to formally assess manual handling risks using the influencing factors specified in the schedule to The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998.

2026/141 Revise Merchant Shipping Notice 1884 (F) – International Labour Organization Work in Fishing Convention (No.188): Working Time. Application of the Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 as amended, to align with the principles of the International Labour Organization Work in Fishing Convention (No.188) by ensuring that:

- Compensatory rest does not form part of a vessel's planned work schedule to justify regular breaches of minimum rest hours;
- Exceptions to minimum rest hours are temporary and only allowed for limited and specified reasons.

2026/142 Revise The Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 as amended to ensure that all fishermen, regardless of employment status, are afforded adequate protection from fatigue-related risk, including through appropriate limits on intervals between rest periods and the provision of rest breaks during physically demanding or monotonous work.

2026/143 Mandate safety management systems for fishing vessels of 15m length overall or more, with requirements proportionate to vessel size and operation. The arrangements for mandating a safety management system should include:

- A verification process to confirm compliance with the Fishing Safety Management Code.
- Access to appropriate training for vessel owners and skippers to develop and maintain safety management systems.

2026/144 Strengthen the survey and inspection regime by:

- Defining and implementing a clear process for managing and closing enforcement notices, including timelines and accountability for follow up.
- Providing marine offices with the tools, resources and training needed to consistently and proactively identify, track and resolve deficiencies.
- Reviewing and updating the certification process to ensure regulatory noncompliance on surveyable items is addressed before full-term certificates are issued or endorsed.

The Blue Sea Fishing Company Ltd trading as **TH7 Amadeus Limited** is recommended to:

2026/145 Implement a programme of realistic manoverboard drills and develop documented procedures for recovering both conscious and unconscious persons from the water. The programme must include, but not be limited to:

- Man overboard recovery equipment being readily available and suitable for immediate use;
- Crew regularly practising with the equipment provided.
- Shoreside management periodically evaluating the conduct and realism of drills to confirm crew preparedness for emergencies.

2026/146 Conduct a risk assessment of the pot hauling manual handling task in line with Marine Guidance Note 90 (M+F) – The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998.The assessment should determine whether the task can be safely performed manually or if an alternative lifting method or mechanical means is required to reduce the risk of injury. The assessment must also consider the suitability of the individual performing the task.

2026/147 Establish and maintain a process to monitor and manage crew work and rest hours to prevent fatigue. The process must comply with Merchant Shipping Notice 1884 (F) – International Labour Organization Work in Fishing Convention (No.188): Working Time. Application of the Fishing Vessels (Working Time: Sea-fishermen) Regulations 2004 as amended, be verifiable during inspections, and ensure that planned work schedules and operational demands do not compromise crew health, safety, or vessel operations.

2026/148 Develop and implement a documented safety management system for its fishing operations to ensure that:

- Crew hold appropriate certification and receive safety induction training.
- Written procedures for shooting and hauling pots are established and followed.
- Deficiencies are recorded, and corrective actions are tracked to completion.
- On board self-audits are conducted, and periodic evaluations review the effectiveness of the system.
- Shoreside management verifies that the skipper is fully conversant with the safety management system and the company’s health and safety policy.

Annex A

Seafish Technical Information Service bulletin (2001), showing an alternative pot hauling roller arrangement

SEAFISH TECHNOLOGY

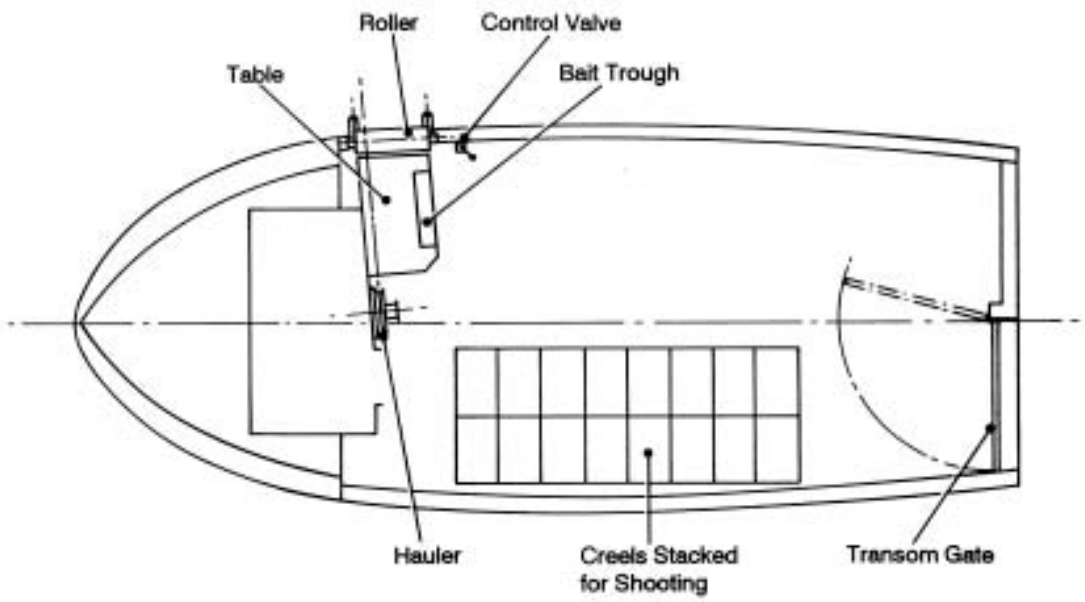
POTTING ROLLER

Technical Information Sheet No: 2001/02/MS

Traditionally, a davit mounted hanging block has been used to haul pots or creels over the vessel's rail, but a new idea, a wide roller mounted on the rail is now being used with good results by several vessels. The idea was pioneered by Jersey fisherman Peter Gay on board his vessel 'LOUP DE MER' and in recent months has become popular on several under 10m vessels in Scotland. Seafish has worked with Joe Masson to improve the roller installation on his under 10m vessel 'GOODWAY' operating from Fraserburgh.

Layout

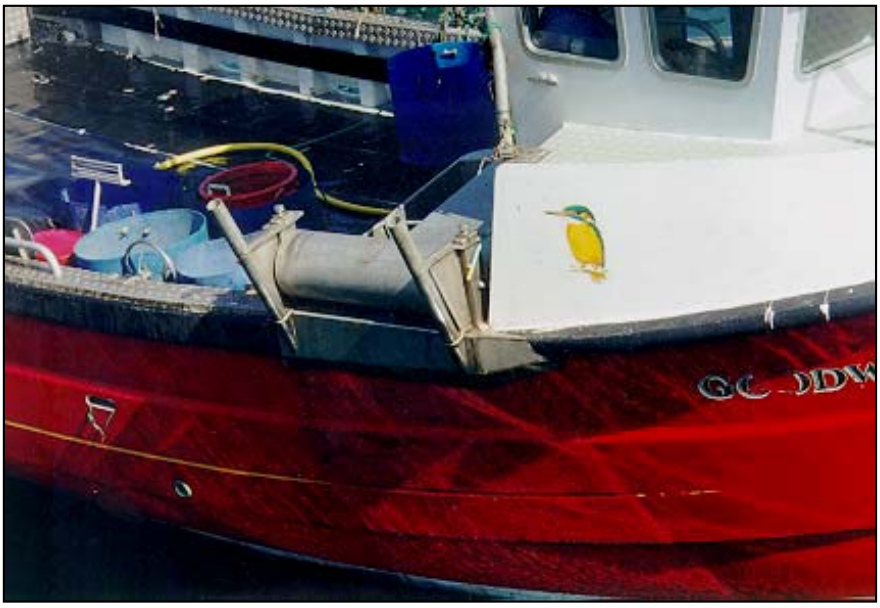
The general layout on the vessel is shown below. Ideally, to enable the vessel to be easily controlled the roller needs to be mounted well forward on the vessel's rail and in a reasonably horizontal position. Hence, the mounting will need to take account of the 'sheer' of the vessel. Directly behind the roller is the baiting table that needs to be set at a comfortable height for emptying and baiting the pots/creels. The hauler position must align with the forward side roller of the roller assembly and have the maximum distance reasonably possible between it and the roller. The distance between the roller and hauler is important because of the angle formed between the hauler and rope when the rope leads aft and is held against the aft side roller. If the angle is too great the rope will climb out of the hauler. The greater the distance the less the angle. For most of the time the rope will be leading forward and hence the hauler should align with this position. However, to avoid a bad angle when the rope does lead aft, a slight forward angle of the rope in the forward position will be beneficial.



LAYOUT ON MFV GOODWAY

Roller Details

The roller has a large diameter, necessary to smooth the passage of the pots over it and a length to accommodate the pots being used. On the 'GOODWAY' the creels worked are 710mm x 460mm x 460mm (28 x 18 x 18inches) and the roller installed to haul these over is 273mm diameter by 850mm long. The width between the side rollers is 800 mm, which gives a large clearance on the 460mm, (18inch) width of the creels. Most pots/creels can be hauled over this size of roller, including 'inkwell' type pots, the critical factor being that there is clearance between the side rollers for the maximum dimension of the pot.

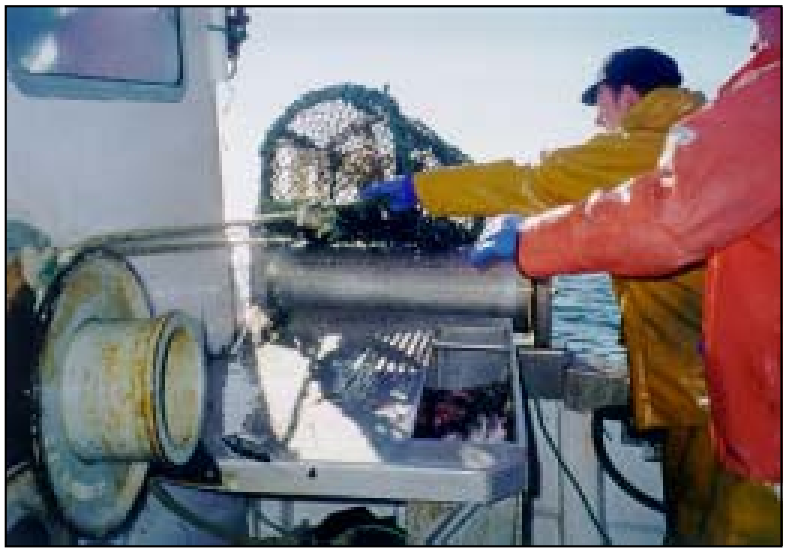


The photograph shows the Seafish roller design with removable side rollers to avoid damage when mooring the vessel. The original roller installed on the 'GOODWAY' had fixed sidebars that eventually suffer wear. Shown in the illustration on the back page is a section through the gunwale rail with a rubbing strip, typical of many vessels. The roller's outboard face is in line with a fairing plate fitted to smooth the passage of the pots over the rubbing strip. Two uprights, using rectangular hollow section, are welded on the rail mounting to carry the main roller and the side roller brackets simply fit over the uprights at the top, with a pin entered into a hole in the rail mounting to locate them at the bottom. A clamp bracket with a hand screw prevents each side roller from lifting up. The side rollers are 63mm (2.5inch) diameter and are angled downwards at 20°. A long bolt through the spindle clamps the roller between the top and bottom flanges of the bracket. The bottom flange has a nut welded in place to receive the bolt and a 'U' section fairing plate, formed with the 20° angle to create a cone, is fabricated to the flange to ensure that the pots cannot catch on the underside of the roller. At the top of each side roller is an extension tube to retain the rope should it be 'picked up' by a pot or heavy rolling of the vessel lifts it out of the roller assembly. The extension tube is open at the top with a bottom plate drilled to take the roller spindle bolt. Drainage holes at the bottom of each tube will prevent it filling with water.

The Seafish roller assembly has sealed ball bearings with additional lip seals to ensure free running and to give a long life. Both the main roller and side roller are made using stainless steel tubes for the roller with an internal stainless steel tube to carry the bearings. On the large main roller, nylon end flanges, 38mm thick, are pressed into the outer tube and are machined to take the bearings and seals. On the side rollers the bearings can be mounted directly on the inner and outer tubes. The use of ball bearings does require accurate machining and hence a cheaper roller assembly may be possible if simple plain bearings are used.

Hauler Control

The pots/creels can be hauled over the roller at a modest speed but it is essential that the hauler is slowed from high speed as each pot arrives at the roller. To achieve rapid smooth control a quarter turn rotary control valve is recommended. This should be mounted adjacent to the roller, readily accessible to the person standing at the roller but with the handle protected such that it cannot be accidentally caught by a rope or clothing.



Hauling

The 'GOODWAY' operates with either a two or three man crew and when hauling, one man is at the roller where he has control of the hauler and control of the vessel via remote controls. The other one or two men stand at the table to empty and rebait the creels and to stack them ready for shooting. The practice is to use the hauler to pull the vessel along the string of creels. Thus, the rope is generally leading forward and will be against the forward side roller.

The rope between the roller and the hauler will be above the forward edge of the table leaving the table clear to receive the creels. As the leg rope for each creel reaches the roller, the hauler is slowed to allow the creel to ride up over the roller and on to the table. A crewman pulls on the leg rope to centre the creel on the table and the leg rope falls clear of the hauler. The creel is now static on the table and the hauler is speeded up again. The creel is emptied of the catch, rebaited and stacked for shooting. Occasionally, the man at the roller will have to pause hauling if a creel needs to be turned the right way up or is trapped under the rope. In general, hauling is continuous, simply slowing for each creel. Sometimes it is not always possible to keep the rope leading forward and it rests against the aft side roller. The vessel is steered to correct this but hauling continues, the creels being lifted clear of the rope that is now leading diagonally across the table.

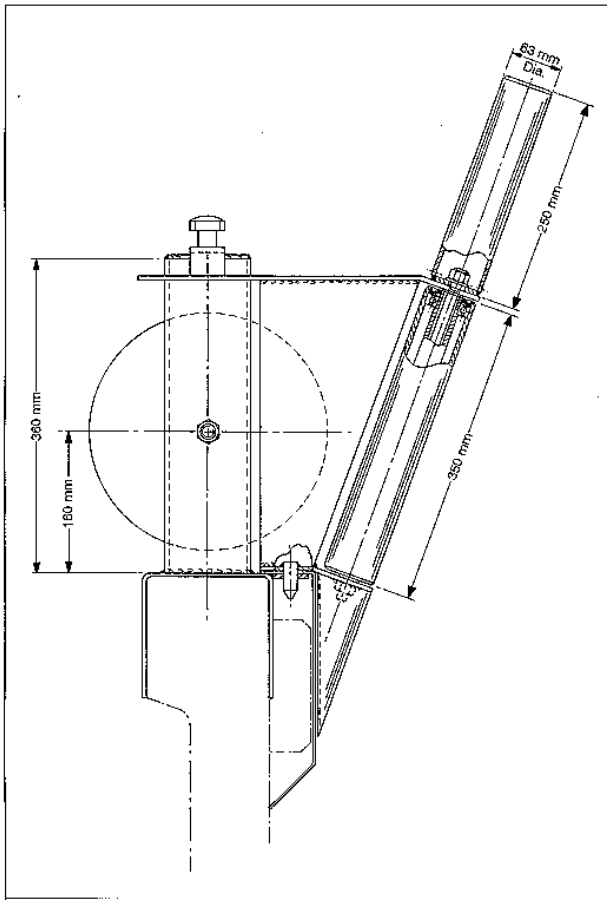
Hauling rates in potting vary according to the gear worked, the speed of the hauler and what the crew are comfortable with. On the 'GOODWAY', they are working strings of 45 creels at 11 fathom spacings. Hauling each string, including the dahn tow, typically takes around 17-20 minutes. The fastest they have hauled is in 15 minutes, three creels per minute, but they like to work comfortably and keep a reasonable pace for emptying and baiting.

Safety

The roller has the advantage over the davit block in that the manual effort of lifting the pots/creels inboard has been eliminated. The pots/creels pass over the roller directly onto the table and only have to be lifted once for stacking ready for shooting. However, one aspect of concern with the roller is the danger of a pot/creel flying up over the roller if the hauler control is left unattended with the hauler running at high speed. Do not leave the hauler control unattended.

Image taken from Seafish - Potting Roller - Technical Information Sheet No. 2001.02.MS

Safety on the 'GOODWAY' is very much assured by the shooting arrangements on the vessel. As can be seen in the photograph, the vessel has a gate in the transom bulwark that is opened to allow the creels to be shot directly off the deck. A lanyard operated quick release clip is used to let go the end anchor with all the crew clear of the deck throughout the shooting operation.



Main Roller

Outer tube:	s/s 273mm OD x 6.35mm wall
Inner tube:	s/s 63mm OD x 6.35mm wall
Bearings:	60mm ID x 110mm OD x 22mm wide, light series with two seals
Seals:	Lip seal 80mm ID x 110mm OD x 10mm wide

Main Roller Uprights

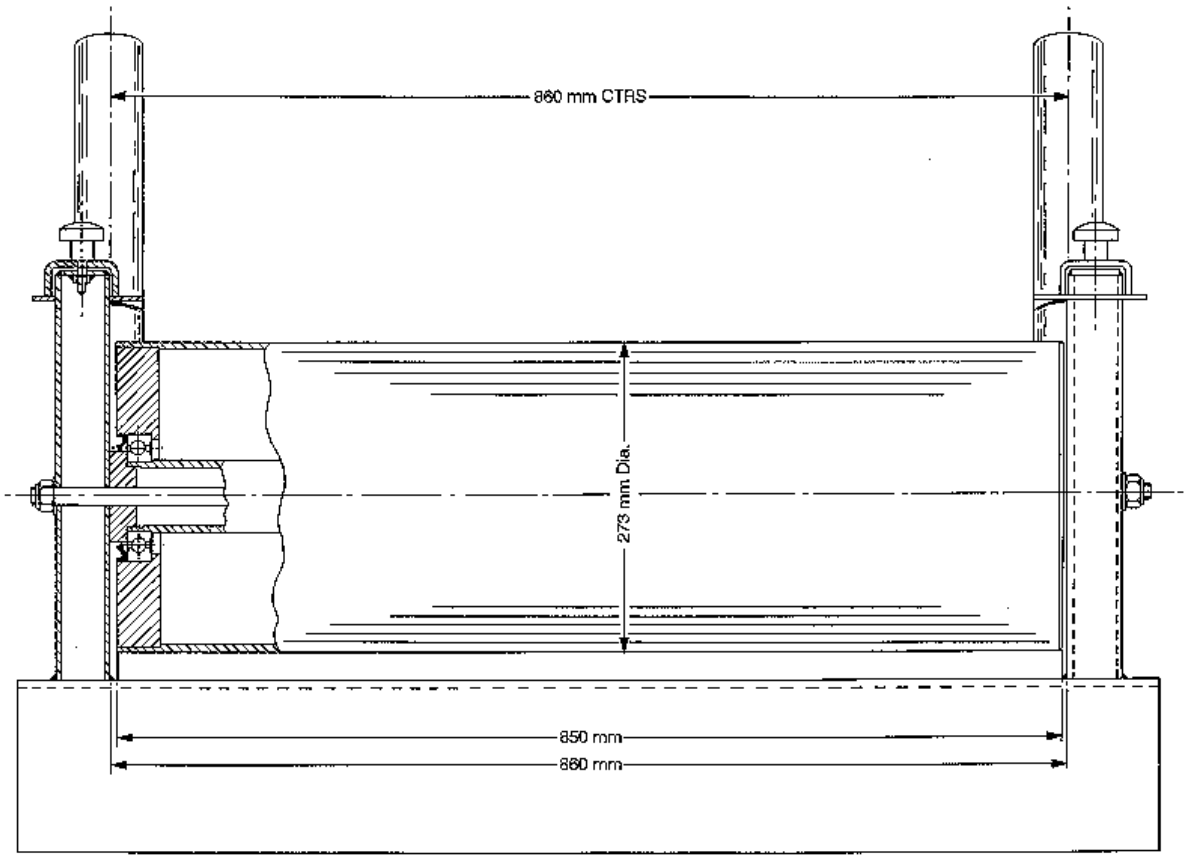
Rectangular Hollow Section 100mm x 50mm x 5mm

Side Roller

Outer tube:	s/s 63mm OD x 6.35 mm wall
Inner tube:	s/s 26.67mm OD x 3.91mm wall (pipe ¾ inch x SCH 80)
Bearings:	25mm ID x 52mm OD x 15mm wide, light series with two seals
Seals:	Lip seal 25mm ID x 52mm OD x 7mm wide

Extension Tubes

s/s tube 63mm OD x 6.35mm wall



MAIB safety flyer to the fishing industry

MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

SAFETY FLYER TO THE FISHING INDUSTRY

Fatal fall overboard from the crab potting vessel *Amadeus* (TH7) in the German Bight, North Sea on 13 December 2023

Narrative

At about 0009 on 13 December 2023, a deckhand on the UK registered crab potting vessel *Amadeus* fell overboard while manually recovering crab pots in rough seas. He was leaning over the starboard side to lift the 48th pot in a string of 100 pots when the vessel lurched, causing him to lose balance and fall into the water **(**see **figure)**.

The crew cut the back rope, and the vessel was manoeuvred to recover the deckhand. Although initially seen swimming, the deckhand was unable to stay afloat and became unresponsive within minutes in the 9°C water. Several attempts were made to reach him with a boat hook, but he was struck by a wave and disappeared. A major search and rescue operation ensued, but the deckhand was not found.

Image courtesy of Frits Olinga (Shipspotting.com)

Amadeus

Images courtesy of The Blue Sea Fishing Company Ltd

Figure: CCTV stills of the moment the deckhand fell overboard

Safety lessons

1. Leaning outboard to recover pots presents a significant risk of going overboard. Appropriate fall prevention controls must be in place if a task requires reaching over the vessel's side. These may include safety harnesses, safety lines, or restraint systems designed to stop a person from falling into the water. Remember: a personal flotation device (PFD) does not prevent a fall, it

only assists once someone is already in the water. Marine Guidance Note (MGN) 571 (F)[1] offers guidance on how to prevent man overboard situations from occurring.

2. Immersion in water below 15°C triggers an immediate and severe physiological response. Cold water shock can quickly overwhelm breathing control and muscle function, even in strong swimmers. This makes it hard to keep the airway clear and greatly increases the risk of drowning within minutes. Wearing a properly fitted PFD is the most effective protection as it keeps a casualty afloat and maintains their airway when consciousness or muscle control is lost. However, the deckhand in this instance was not wearing one. This significantly reduced their survivability and removed a critical layer of protection that could have increased the time available for rescue.

3. Recovering a person from the water requires crews to be prepared and ready to put their training into practice quickly. High freeboard, darkness, poor sea conditions and recovering an unconscious person all contribute to challenging recovery methods. Regular, practical manoverboard drills in line with MGN 570 (F) Amendment No.1[2], clearly defined roles, and accessible, properly rigged recovery equipment are essential to ensure crews can respond quickly when every second counts.

4. The deckhand was almost certainly fatigued after weeks of demanding work with insufficient rest. Alertness, coordination, decision-making and reaction time decline as sleep debt builds, increasing the likelihood of mistakes or accidents during safety critical tasks. To prevent cumulative fatigue, work routines must provide adequate rest. Merchant Shipping Notice (MSN) 1884 (F) Amendment 1[3] requires a minimum of 10 hours rest in every 24-hour period and 77 hours rest in every 7-day period, and these limits must be met in practice to maintain safe performance at sea.

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

For all enquiries:
Marine Accident Investigation Branch
First Floor, Spring Place
105 Commercial Road
Southampton
SO15 1GH

Email: maib@dft.gov.uk
Tel: +44 (0)23 8039 5500

Publication date: June 2026

1 MGN 571 (F) - Fishing Vessels: Prevention of Man Overboard
2 MGN 570 (F) Amendment No.1 - Fishing Vessels: Emergency Drills
3 MSN 1884 (F) Amendment 1: ILO Work in Fishing Convention, Working Time

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