

SAFETY DIGEST

Lessons from Marine Accident Reports

1/2024



MARINE ACCIDENT INVESTIGATION BRANCH

The Marine Accident Investigation Branch (MAIB) examines and investigates all types of marine accidents to or on board UK vessels worldwide, and other vessels in UK territorial waters.

Located in offices in Southampton, the MAIB is an independent branch within the Department for Transport (DfT). The head of the MAIB, the Chief Inspector of Marine Accidents, reports directly to the Secretary of State for Transport.

This safety digest draws the attention of the marine community to some of the lessons arising from investigations into recent accidents and incidents. It contains information that has been determined up to the time of issue.

This information is published to inform the merchant and fishing industries, the recreational craft community and the public of the general circumstances of marine accidents and to draw out the lessons to be learned. The sole purpose of the safety digest is to prevent similar accidents happening again. The content must necessarily be regarded as tentative and subject to alteration or correction if additional evidence becomes available. The articles do not assign fault or blame nor do they determine liability. The lessons often extend beyond the events of the incidents themselves to ensure the maximum value can be achieved.

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The editor, Clare Hughes, welcomes any comments or suggestions regarding this issue.

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GLOSSARY OF TERMS, ABBREVIATIONS AND ACRONYMS

°	degrees
AB	able seaman
AIS	automatic identification system
C/E	chief engineer
CCTV	closed-circuit television
COLREGs	Convention on the International Regulations for Preventing Collisions at Sea, 1972
CPA	closest point of approach
DfT	Department for Transport
ECDIS	Electronic Chart Display and Information System
EOD	Explosive Ordnance Disposal
kg	kilogram
kts	knots
LNG	liquefied natural gas
m	metre
“Mayday”	the international distress signal
“Mayday Relay”	the international distress signal transmitted on behalf of another vessel in distress
MCA	Maritime and Coastguard Agency
MGN	Marine Guidance Note
NAABSA	not always afloat but safely aground
OOW	officer of the watch
PFD	personal flotation device
PLB	personal locator beacon
RIB	rigid inflatable boat
RNLI	Royal National Lifeboat Institution
RYA	Royal Yachting Association
VHF	very high frequency
VTS	vessel traffic services

CHIEF INSPECTOR'S INTRODUCTION

Welcome to the first MAIB Safety Digest of 2024. The digest contains a wealth of experience as always, including some great success stories. When you have finished reading it, please pass it on so that others can benefit.



I would like to start by thanking the writers of the introductions to the merchant, commercial fishing and recreational sections of this edition. Captain Hywel Pugh, relief skipper Dmitrijs Skripacevs and chair of the Association of Sail Training Organisations, Mark Todd, all bring their individual insights to improving safety, and their perspectives make compelling reading.

The merchant vessel section contains many cases involving injury to crew or contractors working on board, and some themes stand out: the urge to press on and get the job finished, resulting in corners being cut; the supervisor who either could not see the activity or had become directly involved instead of overseeing; and inexperienced crew being unfamiliar with the task. Accidents can be avoided by 'precautionary thought' or, more simply, taking time to: review the task, what it involves and the risks; consider the team and whether they are properly trained and equipped; and, check that everyone understands their part in the plan. Lastly, the toolbox talk should be a two-way exchange that allows all to raise concerns before the work is started.

I am extremely grateful to Dmitrijs Skripacevs for agreeing to share his experience of a man overboard recovery as the introduction to the commercial fishing section. The MAIB often reports on fatal man overboard accidents where one or more things have gone badly wrong. Most commonly, the crew were not wearing a personal buoyancy aid when they fell in, and the vessel's man overboard recovery procedure failed to deliver. In UK waters, cold shock and cold incapacitation can quickly render a victim incapable of assisting with their own recovery, so a quick emergency response is essential. Dmitrijs' story shows that it is possible to get it right, and to save a life. If you read nothing else, please take time to read Dmitrijs' introduction.

Sail training is unsurpassed for developing young people's self-confidence and teaching them the importance of teamwork. Mark Todd's introduction to the recreational section is therefore both inspirational and humbling: inspirational because when looking after young lives safety is a priority and at the forefront of everything the sail trainers do; and humbling because Mark shows that talking through close calls with your team can be a better way of learning that benefits everyone.

Finally, in 2008 my eyes were opened to the risks of spinal injury when travelling in rigid inflatable boats (MAIB report 11/2009¹). Since then, the vulnerability of passengers seated on tubes either falling in or being injured in collisions has also come to the fore. This digest contains two cautionary tales: in article 21, about a trainee suffering a propeller strike after falling overboard; and in the reprinted MAIB Safety Bulletin 3/2023, which reports on a passenger suffering life-changing spinal injuries. If you are a rigid inflatable boat operator, please ensure all on board have good seats with dedicated handholds, and that the speed of the craft is adjusted to suit the conditions.



Andrew Moll OBE
Chief Inspector of Marine Accidents

¹ <https://www.gov.uk/maib-reports/heavy-landing-during-boat-trip-on-the-rigid-inflatable-boat-celtic-pioneer-in-the-bristol-channel-near-penarth-wales-with-1-person-injured>

MERCHANT VESSELS



For the last 24 years, many an hour has been taken up with reading through a safety digest while sitting in a ready room waiting to pilot my ship. Soaking up the words of wisdom from this publication was a must when I

was embarking on my pilotage career and today is no different; every day is a learning day and those who are more experienced can still learn from other events.

I hold a very privileged position in my day job as a pilot trainer for new pilots in my port and in assisting qualified pilots with their progression to first class status. One of the cornerstones of this peer-to-peer exchange is 'lessons learned' and the safety digest delivers this in abundance. All the scenarios we run in our simulator are based on lessons learned from actual incidents or near misses. We also bring in other lessons from further afield and our own experiences on the river.

A plan is very much a template based on good practice and is never a completed document

We have seen technology play an increasingly important part in our job over the last 10 years, with carry-on Portable Pilot Units of various complexity and accuracy taken on board to assist the pilot. This has enhanced our toolkit during the act of pilotage – I remember carrying my charts with me when I first started, now it is all on my iPad. Technology is also creeping into passage planning, with some ports now using electronic master/pilot exchange and passage planning tools; however, we must not forget to look out of the window.

To bring a ship in and out of a port safely takes a great team effort on behalf of all the stakeholders. I see my role as the pilot to bring all the parties together and execute the plan that has been agreed and understood. A plan is very much a template based on good practice and is never a completed document. It will need monitoring and updating as the passage progresses. The master/pilot exchange is essential in this process as is the tug master/pilot exchange, albeit one that needs more formality, with agreed speed of the vessel being crucial to a safe connection of the towline, along with aspects of what assistance the pilot requires for the planned manoeuvre.

We each have a duty to report the unsafe arrangements we see on a daily basis

Pilot safety and pilot boarding and disembarkation is another passion of mine and has been since before I became chair of the UKMPA. Five years ago, the UKMPA introduced the pilot transfer reporting app and this has been successful in several ways, including data collection; providing a unified method of reporting for pilots; and transmission of an unsafe transfer arrangement to the relevant bodies so that they can take the appropriate action.

The MAIB is a recipient of the data and uses it to compile reports and feedback on the current state of pilot boarding arrangements via its publications. Gathering, analysing and sharing this data enables us to educate seafarers on compliant arrangements for safe embarkation and disembarkation of the pilot. We each have a duty to report the unsafe arrangements we see on a daily basis and, in turn, educate the industry. The master has overall responsibility but is never at the point of access and therefore unaware of what has been rigged for the pilot. The checked

and analysed data presented in this safety digest has been used in a positive way to educate all involved in the future safe transfer of pilots to and from ships. Legislators and stakeholders are working on changes to the current rules, which will come into force in 2028. The updated UKMPA pilot ladder poster, which should be published later this year, will provide guidance to ships' crews and pilots.

One of the crew was working outboard of the rails without any safety equipment, harness or buoyancy aid

A presentation on a Bridge Resource Management course for pilots was delivered at a UKMPA conference several years ago and two phrases, "Lead the Task" and "Don't delegate your responsibility" have stayed with me as being applicable to all involved in any shipboard task. Only the other day, I was in transit to a pilot station and observed the crew rigging a pilot

ladder for my disembarkation. One of the crew was working outboard of the rails without any safety equipment, harness or buoyancy aid. I brought this to the attention of the captain, who stopped the work and instructed the supervisor for the task to make sure all the crew had the appropriate safety equipment for the associated risk. The ensuing arrangement was compliant, and everyone involved stayed safe.

For me, a successful act of pilotage has occurred when a vessel arrives or departs in a timely manner with no paperwork or incident. This is no mean feat and requires planning, monitoring, and safe execution. We have a duty as pilots to maintain our current skills and continue our professional development; reading the safety digest is a noteworthy means by which we can support the ongoing achievement of these goals.

CAPTAIN HYWEL PUGH | Haven pilot and chair of the UK Maritime Pilots' Association

Hywel started his seagoing career in 1978 as a deck cadet with a British shipping company, which sadly disappeared in the mid-1980s. He worked on a variety of ships once qualified, including coasters/cable-laying and offshore supply/anchor-handling vessels. In 1989, Hywel joined a company that owned and operated an offshore semisubmersible floatel operating in the North Sea and, latterly, the Mexican sector of the Gulf of Mexico. During his last few years with the company Hywel served jointly as the vessel's captain and offshore installation manager.

Hywel came ashore in 1999 and started training as a pilot with the Port of London Authority, qualifying in early 2000 and progressing to become an unrestricted pilot. He currently pilots ultra-large container ships and Aframax tankers. Hywel also works in the simulator training team and is a member of the ports training panel.

Hywel joined the UK Maritime Pilots' Association (UKHMPA) executive committee in 2014 and became UKHMPA chair 3 years ago. He also sits on the Confidential Human Factors Incident Reporting Programme (CHIRP) Maritime Advisory Board.

The spotlight on pilot ladders continues...

Throughout 2023, we continued our project to gather data on noncompliant, inadequate, or otherwise unsafe pilot ladders rigged on board vessels calling into UK ports.

Last year, we received a total of 314 reports of pilot ladder incidents. In 2022, we canvassed the 105 UK Competent Harbour Authorities and found that there had been over 400 pilot ladder incidents across the UK¹, of which only 205 were reported directly to the MAIB. The 53% increase in incidents reported directly to the MAIB in 2023 is an encouraging development, particularly when compared to the 302 incidents recorded for 2023 by the UK Maritime Pilots Association².

To continue to identify trends in pilot ladder issues the MAIB needs the data received to be suitably representative of pilots' experiences

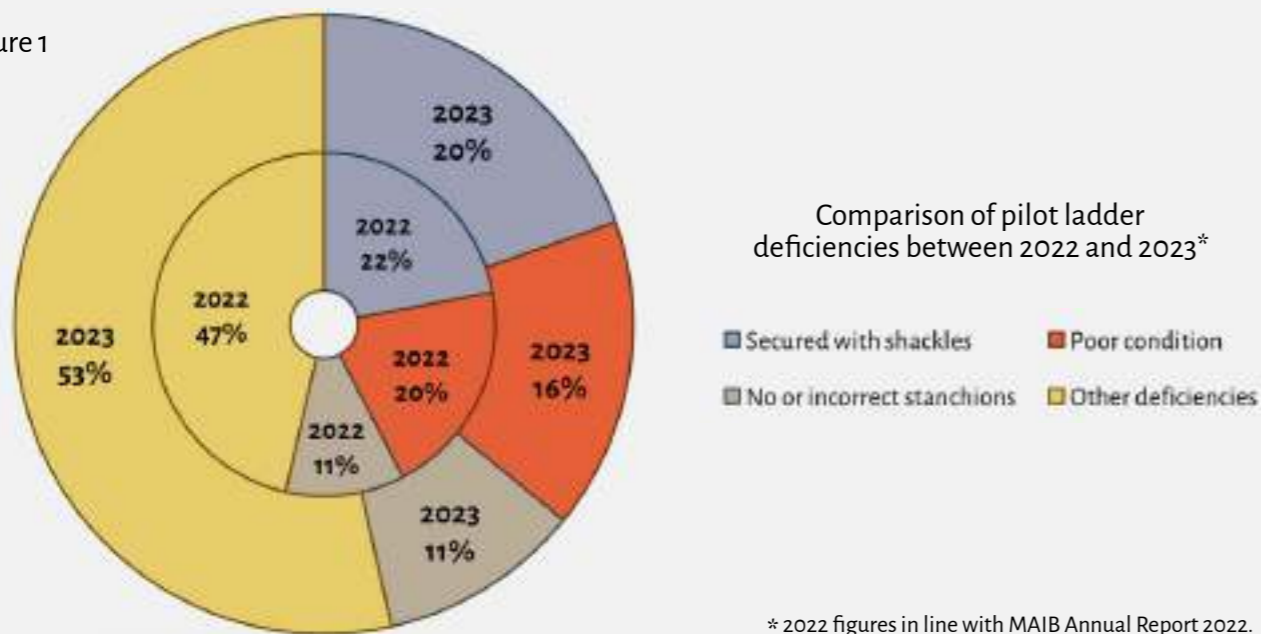
throughout the UK and relies on UK pilots and harbour authorities to report incidents regularly and accurately, with supporting photographs where possible.

Following our attendance at the Marine Accident Investigators' International Forum held in London in October 2023, the Chief Inspector of Marine Accidents wrote to the Maritime and Coastguard Agency (MCA) requesting that further guidance was issued to its approved training providers to improve seafarer training on the correct rigging of pilot ladders. The letter also suggested that the MCA highlight the noncompliant and potentially dangerous methods used at sea. The MCA accepted the chief inspector's proposal, demonstrating the power of data in making practical improvements for the safety of maritime professionals.

How did 2023 measure up?

Approximately 50% of all pilot ladder incidents reported to us in 2023 involved the same three deficiencies as those reported during 2022 (Figure 1), the leading deficiency once again being pilot ladders secured using shackles over the side ropes (Figure 2). Also known as 'choke shackles', this arrangement brings the entire weight of the ladder onto one step, which is not designed to take a weight that should be borne by the side ropes. As in 2022, the next most common deficiencies were the ladder being in poor condition or having no or incorrect stanchions (Figures 3 and 4).

Figure 1



1 The data revealed that almost 700 marine pilots conducted over 96,000 transfers underway using a pilot ladder, during which there were over 400 incidents or accidents (MAIB Annual Report 2022, page 8): <https://www.gov.uk/government/publications/maib-annual-report-2022>

2 <https://ukmpa.org/documents/defective-pilot-ladder-report-december-2023/2023-ukmpa-pilot-ladder-reports-december/>

Figure 2: A pilot ladder reported in 2023, showing the shackles against the step



Figure 3: Cracked, warped rubber steps and worn side ropes. The ladder also appears to have been painted



Figure 4: An access gate without suitable stanchions for the pilot to gain a secure grip

Incidents

There were seven accidents to pilots while embarking or disembarking vessels, of which three involved the ladder shifting. One such incident, detailed in MAIB Safety Digest 2/2023³, involved the pilot falling into the water when the inadequately secured ladder payed out as they stepped on to it. The other two incidents involved the ladder shifting as the pilot applied their weight to it, reportedly due to the ladder catching on parts of the vessel's structure. While neither of these two incidents resulted in the pilot entering the water, one of them resulted in a minor injury when the pilot's finger was trapped between the ladder and the vessel.

These accidents highlight the importance of supervision and testing the ladder before every use. In some instances, such as during inclement weather, the pilot might be unable to test the ladder with partial weight before climbing it. Vessel crews must endeavour to rig ladders to avoid the chance of the ladder shifting or paying out and make sure the weight on the ladder is fully supported by the side ropes. Pilot ladders secured by rolling hitches will be less prone to movement than those secured by shackles.

- Inspect** → Examine the ladder at regular intervals and before each use to identify damaged or degraded parts and replace it as necessary. Make sure there are sufficient spares of a suitable quality on board.
- Check** → Secure the ladder to strong points using manila rope tails tied in a rolling hitch around both side ropes. Do not use shackles to secure the side ropes.
- Check** → Make sure the stanchions at the top of the climb allow the pilot to gain a firm grip during the transition between deck and ladder.
- Confirm** → Test the ladder to be certain it remains secure when weight is applied. Pilots are not always able to check this themselves, particularly during inclement weather.

More information on pilot ladder safety can be found in our 2022 annual report and previous safety digests.

Thank you to the pilots, port personnel and vessel crews who continue to support us with this project.

3 Let down by the ladder (case 5, page 10): <https://www.gov.uk/government/publications/maib-safety-digests-20-24>

It was all very fast

passenger vessel | inadvertent release of anchor

A ferry was approaching harbour at 17 knots (kts) with its anchor cleared away ready for emergency use. Suddenly, there was a loud bang and the anchor cable started paying out rapidly. The crew on the forward mooring deck attempted to apply the anchor brake (Figure 1) but it would not hold. The master realised that the anchor was paying out and applied maximum power astern. The ferry came to a halt just as the anchor cable was stopped by the operation of the deck clench.

After a protracted recovery of the anchor and cable the ferry's deck crew made the anchor secure and, with the permission of the harbour authority, continued their passage into port.



Figure 1: Anchor cable brake assembly

Once the ferry was safely alongside, an examination of the anchor cable brake assembly found that the spring (Figure 2) inside it had fractured in several places and rendered the brake inoperable. The company's technical supervisor was on board at the time and a temporary solution was soon agreed with the classification society and the port authority. The ferry's crew and passengers were uninjured during the incident and there was no other material damage.



Figure 2: The broken anchor cable brake spring

The Lessons

- Equipment** → Corrosion inside the anchor cable brake assembly led to pitting on the spring, which became the initial point of fracture. The routine exposure of equipment to the elements increases its risk of failure and regular checks and maintenance are essential to prevent this.
- Action** → The prompt response of the master and crew meant that this situation was safely contained without injury and vessel damage and delays were minimised. Practice drills frequently to be well prepared for when an emergency does occur.
- Communicate** → It is fortunate that this accident did not occur minutes earlier, when the ferry's proximity to a passing ship and the sudden swing induced by the failed anchor cable brake assembly could have had disastrous consequences. The local vessel traffic services (VTS) kept nearby ships well informed of the accident, which enabled passing and overtaking vessels to stay well clear of the ferry.

It's not you, it's them!

dredger and yacht | collision

It was a glorious early summer's day with perfect wind conditions in which to set sail for a classic yacht regatta. The yacht was making good progress under sail, tacking to port on an autopilot-controlled south-westerly course. The yacht was equipped with a chart plotter magnetic compass and a radar, which was turned off. The skipper saw that all was clear and went below to prepare lunch, while the other crew member, who was also an experienced sailor, took over the watch.

At the same time, a dredger was on a north-easterly course at a speed of around 4kts and about two points on the yacht's starboard bow. On the bridge, the sole officer of the watch (OOW) was navigating using paper chart, Electronic Chart Display and Information System (ECDIS) and radar, as well as monitoring the automatic identification system (AIS). The OOW then went to help a crew member with some administrative work at the back of the bridge.

The yacht watchkeeper had been alone at the helm for about 10 minutes when they saw the dredger come into view from behind the yacht's sails, closing fine on the yacht's starboard bow and on a heading to cross to port. The watchkeeper shouted a warning to the skipper before disengaging the autopilot and putting the tiller hard over to starboard to avoid a head-on collision. The skipper immediately took command on returning to the deck but could not prevent the yacht from colliding with the dredger's bow.

The yacht scraped along the port side of the dredger, damaging its masts and sails as it did so (see figure), but fortunately remained afloat. The dredger's crew rendered assistance before the yacht made its way back to port.



Figure: The damage

The Lessons

- Lookout** → The dredger's OOW had become distracted from their primary function of keeping a proper lookout to help a colleague. The OOW was relying on the dredger's ECDIS, radar and AIS to alert them to other vessels, but the yacht did not have an AIS transmitter and might not have been detectable on radar. Besides traffic avoidance, keeping a proper all-round lookout is vital to verify the navigational position of the vessel. A lone watchkeeper's understanding of a situation can be greatly improved by additional assistance from a dedicated lookout.
- Monitor** → Navigation can be like driving a car: regardless of how much care you take, it is sometimes the actions of other users that can cause you problems. The yacht was well-equipped for a coastal passage and had many navigational aids, including a radar. However, the skipper had chosen not to use it on this clear summer's day and so reduced the watchkeeping options to a visual lookout only. The sails were carried on the starboard side of the vessel on the port tack, creating a natural blind sector that reduced the watchkeeper's view to starboard. It is essential that watchkeepers identify when a blind sector is presented or created and take early action, periodically assessing the risk and implementing measures in sufficient time to avoid a collision.
- Action** → On sighting the dredger, the yacht watchkeeper in this case acted promptly to alert the skipper below and take corrective avoiding action. Lone watchkeepers must be fully briefed and capable of taking the correct action if required to do so when left in charge. It could turn out to be lifesaving.

Can you handle the tension?

tug | accident to person

The crew of a pusher tug were disconnecting lines from a cargo barge when the master, who was at the helm in the wheelhouse, heard a distressing scream from the tug's aft deck.

The cargo barge ahead of the pusher tug was made fast with connecting lines that were attached to small manually operated coupling winches on the aft deck of the tug and passed forward to secure the barge. The tug's design limited visibility of the aft deck from the wheelhouse and the master and crew used handheld radios to communicate. Under the master's guidance, two crew members were operating the starboard coupling winch to release the lines securing the barge; however, they contravened the vessel's standard operating procedure by not removing a cranking handle connected to the winch drum (Figure 1).

When the winch brake was released the tension in the line connected to the cargo barge caused the winch drum, and still attached cranking handle, to spin uncontrollably. The spinning cranking handle violently struck one of the crew members, fracturing their wrist and inflicting significant pain (Figure 2). The crew member was evacuated from the tug by a Royal National Lifeboat Institution (RNLI) lifeboat and

transferred to hospital for treatment. The crew member was unable to return to work for several months due to the severity of their injury.



Figure 1: The coupling winch and removable cranking handle



Figure 2: The crew member's fractured wrist

The Lessons

1. **Risk** → The pusher tug's crew might have identified the risk posed by the hazard of the still attached cranking handle had they collectively taken a moment to undertake a dynamic risk assessment rather than rush to complete the task. Empowering crew to identify hazards, assess the risks involved and report their concerns contributes to a proactive on board safety culture and reduces the likelihood of accidents.
2. **Monitor** → The master could not safely undertake the simultaneous tasks of steering the pusher tug and trying to control the aft deck operations from a position of limited visibility. The use of the closed-circuit television (CCTV) to provide operational oversight from a remote position can help to identify any safety issues and take immediate preventative action.

3. **Procedure** → It is easy to overlook health and safety responsibilities while undertaking regular operational activities. The connection and disconnection of a cargo barge secured by lines to the coupling winches was a routine task for the crew of the pusher tug, but their failure to follow procedure on this occasion resulted in serious injury. Toolbox talks provide an opportunity to remind those involved of the correct process for the task, why it is important, and how to complete it safely.

Guard that opening!

cargo vessel | man overboard

A container vessel was slowly approaching a Mediterranean port in the early hours of a winter morning. The deck crew were preparing the ship's mooring lines for berthing when, during an attempt to pass a heaving line around a structural pillar next to a fairlead, a crew member lost balance and fell overboard through an unguarded opening (Figure 1).

The second officer in charge of the operation promptly notified the captain on the bridge, and the ship's engine was immediately stopped. The crew member in the water was unable to reach the lifebuoys that were thrown by the ship's crew. A line was thrown from the ship's deck and the crew member, who was floating aft, grabbed hold of it and secured it around their waist. The ship's crew used the line to haul the crew member back on board. Following medical assessments on the

ship and ashore the crew member was declared to be uninjured and in good health, showing no signs of hypothermia and none the worse for their ordeal.

The company's subsequent accident investigation identified the hazard of the unguarded opening and took swift remedial action to fabricate and install a railing and support to mitigate the risk (Figure 2). The company also issued a fleetwide safety bulletin to highlight the accident, and required each vessel to undertake an immediate mooring area hazard assessment to prevent similar incidents in the future.

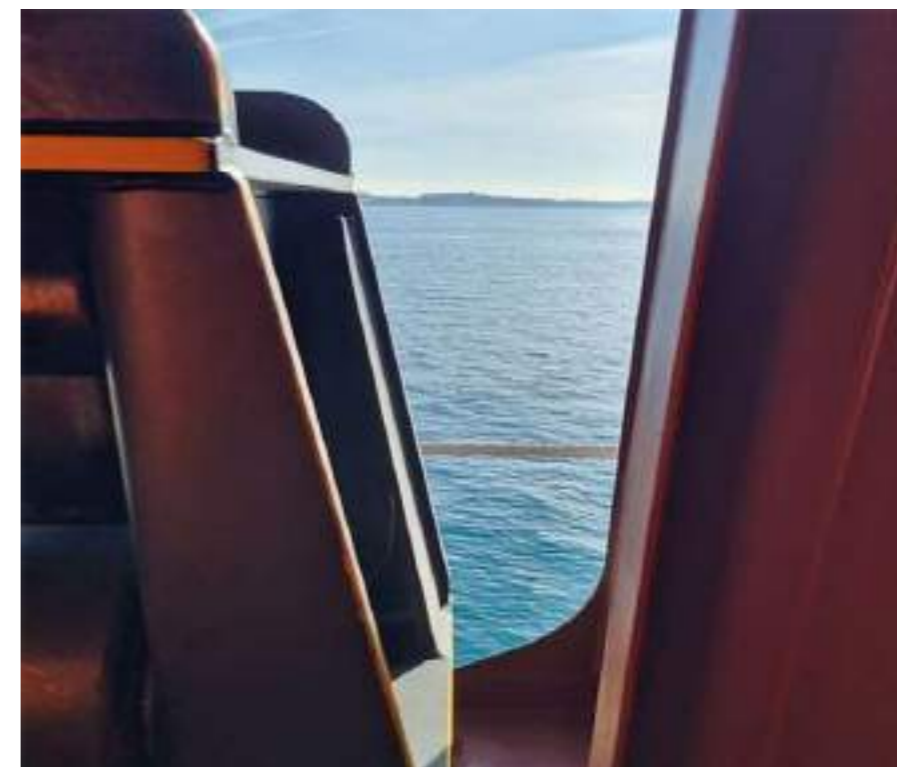


Figure 1: The unguarded opening at the time of the incident



Figure 2: The guarded opening following remedial action

The Lessons

1. **Hazard** → The unguarded opening in way of the mooring line fairlead seemed an obvious hazard after the accident and with the benefit of hindsight. However, it had remained unidentified throughout the ship's design phase, in the course of day-to-day operations, and during surveys and audits. Any work conducted near a vessel's side should include an assessment of the hazard of falling overboard before starting the task.
2. **Action** → The action of swinging a heaving line to pass it around the structural pillar had been performed many times without incident, but on this occasion the momentum of swinging the line caused the crew member to overbalance and fall. The company took immediate action to guard the opening and, importantly, to notify its entire fleet of the danger posed by unguarded openings. Promulgation of incidents can impel crew to evaluate their own operations, review and identify hazards in their own areas of responsibility and help prevent future accidents.
3. **Risk** → Dynamic risk assessments are an invaluable tool to quickly identify, analyse and control workplace hazards as they arise. These 'on-the-spot' assessments are vital to prevent a developing hazardous situation becoming more serious during real-time activities. Make sure you understand what a dynamic risk assessment is and how to conduct one. It could save your life.

I wouldn't stop there if I were you

oil tanker | machinery

A tanker was making its final approach to an oil berth with two tugs attached and a pilot on board. The tanker's crew had tested the propulsion control system before arrival, during which the main engine was run in both ahead and astern directions without incident.

As the tanker drew level with the berth the pilot requested dead slow astern on the main engine to stem the vessel's speed but, despite numerous attempts, the engine could not be started in the astern direction. Under the direction of the pilot, the tugs were able to arrest the ahead movement of the vessel and successfully berthed the tanker alongside the terminal.

The engine was designed to be started by injecting high-pressure air through an air start valve into each cylinder in turn to start it rotating. The air was shut off once the engine was up to the required speed, then fuel was injected to keep the engine running. To operate astern, the engine

was stopped and air was injected into a different sequence of cylinders to turn the engine in the opposite direction.

Tests of the engine starting system showed that the No. 2 cylinder air start valve had seized in the closed position, which prevented air being injected into that cylinder and effectively created a dead zone in the starting sequence. Consequently, the dead zone prevented the engine starting in the astern direction when the crew attempted to manoeuvre the tanker.

Disassembly of the air start valve found that cylinder combustion gases had leaked into the body of the air start system and scored the balancing piston, causing it to overheat and seize (see figure). The valve was replaced with a spare carried on board, after which the engine was tested and was once more able to run both ahead and astern.

The Lessons

- Risk** → The failure of a single component in the air start system led to a significant hazard for the ship. Such failures can have serious consequences, and it is vital to identify potential hazards and implement measures such as checks and proper maintenance to ensure reliability.
- Hazard** → Air start valve leakage presents a considerable risk. While the failure in this case prevented the engine from starting, leakage of hot combustion gases into the air start system introduced the risk of a starting air system explosion. Early detection and remedy is vital to maintain a safe engine room environment and prevent devastating consequences.
- Plan** → The well-planned berthing operation meant that tugs were available to assist the tanker. The engine air start system had worked without incident when tested, but later failed unexpectedly; the presence of the two tugs ensured that the loss of astern propulsion was problematic rather than catastrophic.

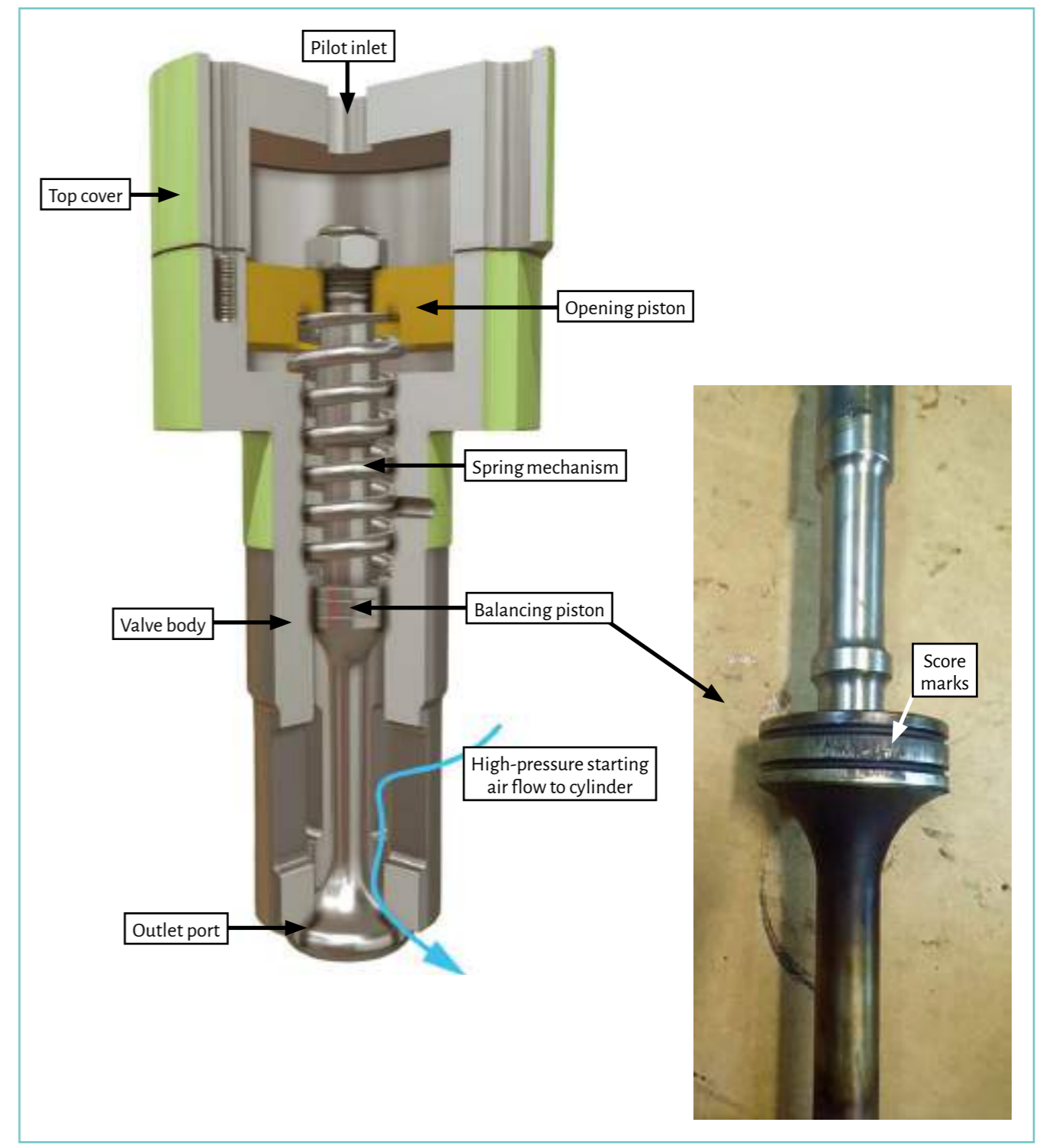


Figure: Cross-section of an air start valve and (inset) the seized balancing piston

Not once, not twice, but three times lucky

cargo vessel | grounding

A vessel was discharging cargo alongside at a not always afloat but safely aground (NAABSA) tidal river berth just before low water. The vessel's mooring lines came under increasing tension as the tide ebbed and the vessel settled aground at the berth. Suddenly, the head rope started juddering and veered in dramatic jolts. As the ship started to slide away from the quayside the fore spring, stern spring and stern rope all snapped in quick succession. This left only the head rope keeping the vessel connected to the shore and the ship slipped 20m out into the river, coming to rest on an off-lying shoal (Figure 1).

The crew were able to run spare lines ashore and, as the tide started to flood, pull the ship back alongside. Similar accidents had occurred twice

before at the same berth, the most recent just 12.5 hours earlier on the last ebb tide, which also involved the same vessel sliding 20m into the river (Figure 2).

Following some rapid hydrographic survey work it became clear that the slope of the riverbed at the NAABSA berth had changed. The mud was now on an incline and was serving to draw ships away from the quayside. The resulting strain on the mooring lines was too much when the vessel settled aground. On parting, the mooring lines snapped back some 40m at their greatest extent. Dredging quickly resolved the primary cause of this accident by levelling off the riverbed adjacent to the quay.



Figure 1: The cargo vessel resting on the shoal

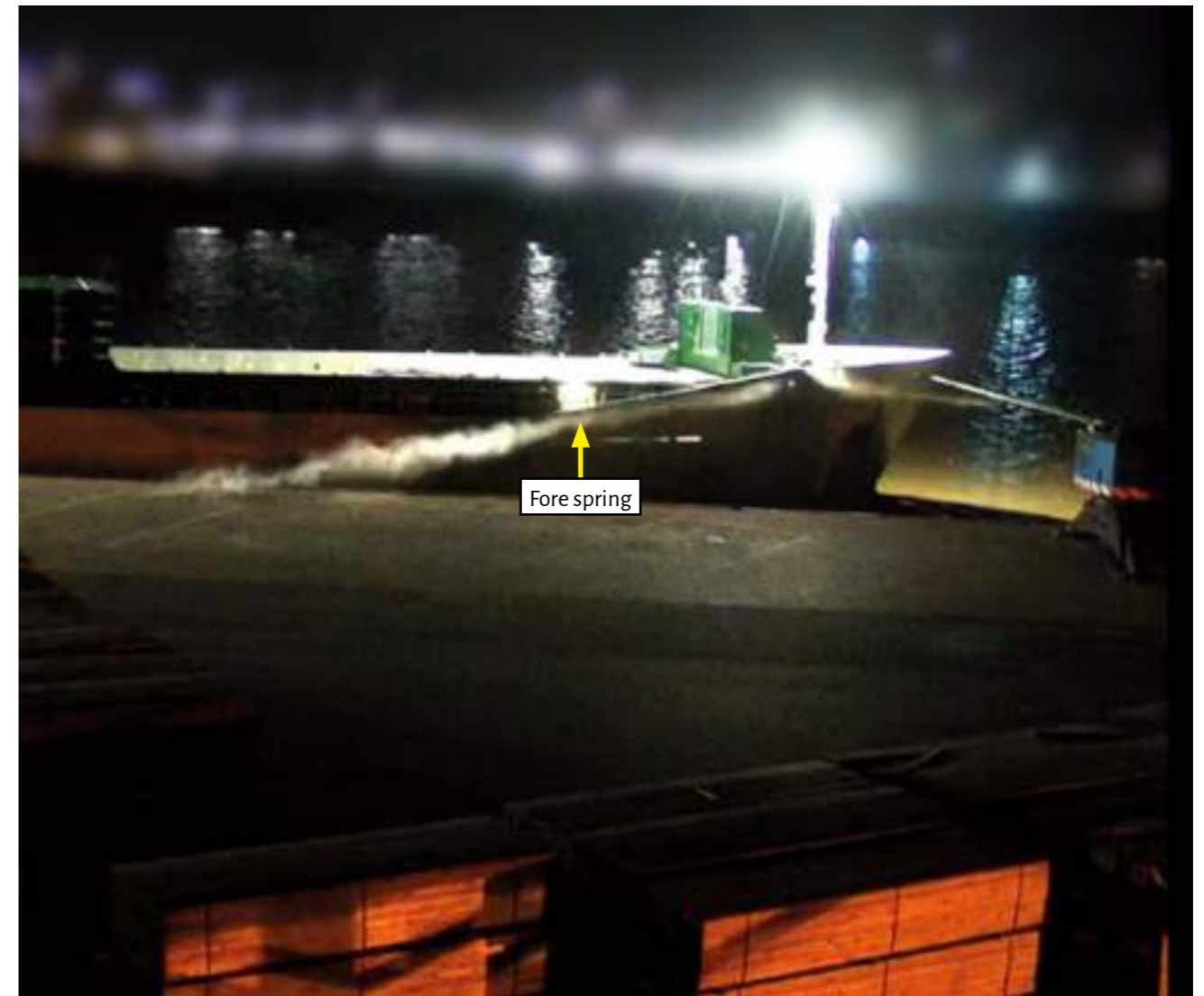


Figure 2: Video still, showing the moment the fore spring snapped

The Lessons

1. **Monitor** → For a NAABSA berth to be safe to use it needs to be flat and without any significant incline. A riverbed can easily change its profile following heavy rain, extended dry periods or due to significant building works either up or downstream. Regular surveys of the berth area are necessary to determine the profile and depths and whether any debris is present that might cause a hazard. The last survey in this case had been carried out 6 months before the incident but there had been heavy rainfall in the intervening period.

2. **Risk** → Snapback of mooring lines can be dramatic and result in fatalities. It was fortunate that no one was standing near the lines when they parted. Such risks need to be managed and operations ceased immediately should the risk of snapback become apparent.
3. **Teamwork** → This event was the third in a sequence of similar accidents at this berth. Berth owners and operators need to be sufficiently resourced to ensure the prompt and effective investigation of accidents and that appropriate action is taken to avoid a recurrence.

Tight squeeze

cruise ship | accident to person

A cruise ship was being prepared for departure from a Caribbean port and an able seaman (AB) was working on the mooring deck, using a messenger line around the mooring rope to guide it onto a winch drum (Figure 1). A deckhand was operating the winch remotely, and with limited visibility of the AB's position near the drum, when the messenger line suddenly snagged under the mooring rope and became wound onto the winch drum itself.



Figure 1: The winch drum

Realising what had happened the AB let go of the messenger line, but was unaware that it had formed a bight around their right leg. As the bight tightened, the AB was pulled towards the winch drum and then dragged over it. The AB's screams alerted the winch operator, who promptly stopped the winch.

The AB was disentangled from the messenger line and immediately taken ashore for medical treatment for a broken shin bone and other leg injuries (Figure 2).



Figure 2: The AB's leg injury

The Lessons

1. **Margin of safety** → Exercise caution around moving machinery. Avoid getting too close to rotating equipment and ensure that loose clothing or any objects that can become caught in it are kept clear. The long messenger line used to guide the mooring rope was able to reach the deck and wrap itself around the AB's leg, leading to the accident. Maintaining a safe distance from the winch drum is essential to prevent such incidents.
2. **Observe** → When operating equipment remotely, it is crucial to have clear visibility of the people and surroundings involved. Remote control allows operators to move around the deck while operating machinery from a safe distance, such as outside snapback zones and clear of suspended loads; however, it is important to maintain a line of sight to monitor the working area effectively and to be able to communicate with colleagues to prevent accidents and respond promptly to any potential issues.

Hammer time

cargo vessel | accident to person

On a clear day with calm seas the crew of a cargo vessel were preparing to open the cargo hold hatch covers, which were sealed by several wedges. A crew member was releasing the wedges with a sledgehammer in the course of their normal operations.

The crew member quickly approached the wedge and, without taking time to prepare, swung the sledgehammer (Figures 1 and 2).

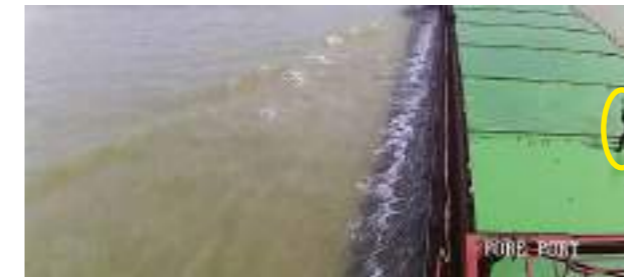


Figure 1: Crew member swinging the hammer



Figure 2: Bottom of the hammer swing before impact

When the hammer impacted the wedge it remained lodged in place and shattered, sending debris flying towards the crew member. A small fragment of the securing wedge penetrated the crew member's right leg, just below the knee (Figure 3). The crew member received first aid and was signed off work for 3 days to recover from their injury.



Figure 3: The injured crew member

The Lessons

1. **Check** → Perform a thorough check of equipment and the work area before operations begin; deterioration of parts can cause failure even when the correct procedure and planning routines are followed.
2. **Plan** → Take time to consider how to safely perform an action. Assessment of the area and level of force required, combined with careful alignment of the swing, might have resulted in an effective strike and prevented the catastrophic failure of the wedge.
3. **Aware** → Before using heavy tools, be aware of what could happen if things go wrong. In this case, swinging the hammer away from the body might have reduced the risk of being struck either by flying debris or the hammer itself if the wedge was missed.

Compressor compressions really hurt

cruise ship | accident to person

A large cruise ship was alongside in port and a team of specialist contractors were in the engine room, working on a large compressor. Part of this work involved replacing the compressor's mounts, which required the use of chain blocks and other lifting equipment to lift the 1,865kg compressor. This was further complicated by the compressor having an offset centre of mass.

The contractors were working alone without support from the vessel's technical crew. The compressor was raised using two pieces of steel bar passed through the forklift guide arrangements at its base and then supported with three chain blocks. With the compressor suspended, one of the contractors lay on the deck to reach and disconnect the mounts beneath it (Figure 1).

Meanwhile, the cruise ship began its scheduled departure in rippled sea conditions with the wind gusting to 30kts. Shortly after leaving its berth the vessel rolled slightly and the compressor tilted from its suspended position, crushing the contractor.

The other contractors quickly used the chain blocks to raise the compressor sufficiently for the contractor trapped beneath it to roll free with help. The alarm was raised by a crew member who had been designated as fire watch for earlier hot work, and medical assistance soon arrived. The injured contractor was extracted from the engine room, stabilised in the ship's medical centre and subsequently airlifted to hospital. The contractor's injuries included multiple rib fractures to both sides of their chest, a puncture to the chest wall into the pleural space and a fractured collarbone.



Figure 1: Contractor lying on deck to reach and disconnect mounts

Post-incident examination of the lifting arrangements found that only one of two 980kg working load limit deckhead fixed rings had been used, along with lifting attachment points to a cable tray (Figure 2) and a pipe bracket. Additionally, the chain blocks used for lifting the

aft end of the compressor were hooked on to the chains of other chain blocks (Figure 3). The steel bars did not have any spreader arrangements and the wide forklift truck 'lifting slots' allowed movement of the bars.

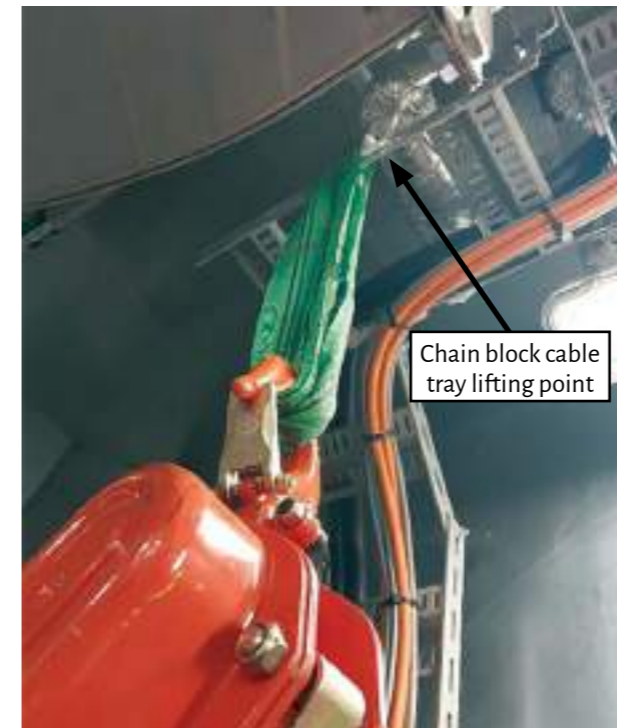


Figure 2: The cable tray lifting point



Figure 3: The lifting arrangements

The Lessons

1. **Risk** → Once the ship had departed the berth and was subject to the elements and manoeuvring forces the inherent instability of the lifting arrangements became obvious, resulting in the load shifting and falling onto the contractor. Working beneath suspended loads should be a last resort and additional precautions should be taken to prevent the load falling. In this case, the risk of vessel/compressor movement and the potential consequences were not considered.
2. **Procedure** → A lifting operation is defined as the lifting or lowering of a load and *The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations* applied. The regulations require an appropriate risk assessment to be conducted; lifting equipment to be of adequate strength and stability; and lifting operations to be properly planned by a competent person under appropriate supervision and carried

out in a safe manner. In this case, these requirements were not applied in various ways and nearly resulted in a fatality. Make sure you are familiar with the regulatory requirements and any relevant codes of practice or guidance before undertaking any lifting operations that pose a risk to health and safety.

3. **Plan** → Besides using only one of the two certificated deckhead fixed rings, cable trays, pipe brackets and connecting to other chain block chains are wholly unsuitable strong points from which to lift a load. Given the complicated lifting arrangement, and the weight of the compressor, this lift should have been subject to the development of a thorough lifting plan that included input from the vessel's senior officers and shore-based technical staff. This would likely have identified the correct lifting method and equipment, as well as appropriate timing for the lift in respect to the vessel's departure from port and the environmental conditions. Working in isolation, including as part of a team, can incur serious consequences.

A brief dip in the mud

car carrier | grounding

A few hours before the break of a midwinter dawn, an experienced pilot climbed the slab side of a large car carrier (Figure 1) and made their way to the bridge to meet the master and prepare for the ship's first call into the port. The car carrier was relatively new, 300m in length, and was approaching harbour 2 hours before high water at 15kts on the flood tide.

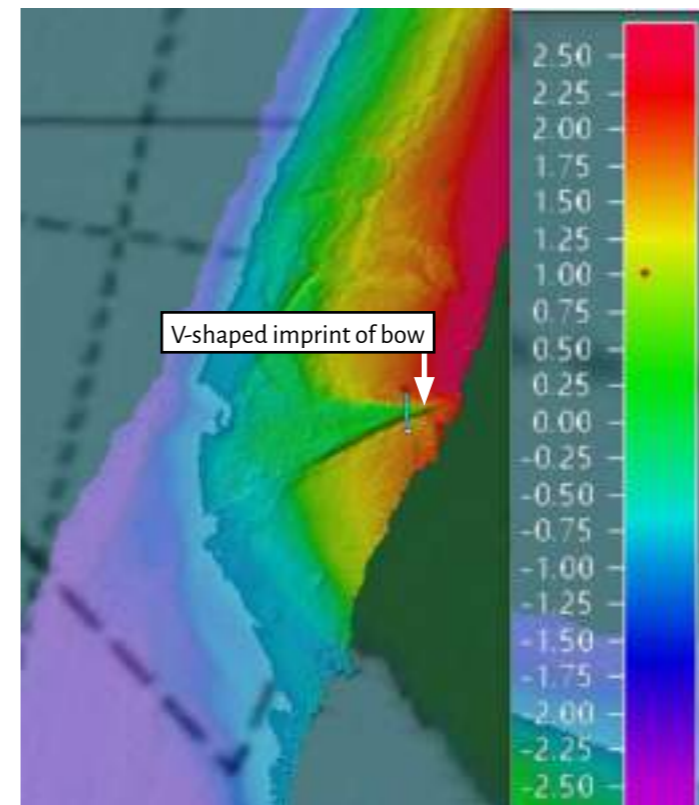
The wind was gusting up to 35kts from the stern and three tugs had been assigned to the move: one at centre lead forward, one at

starboard quarter and one centre lead aft. The crew of the tug at the ship's stern had recently started working at the harbour on a temporary contract to cover while the normal tug was in maintenance. The tugs turned up slightly later than the pilot had anticipated and it took over 15 minutes to secure the ship due to a delay with the lines being passed by the replacement tug.

Once connected the aft tug did not appear to have the power to deliver the desired slowing effect, and this combined with the effects of the



Figure 1: The car carrier



tidal stream meant the ship took longer to slow down than planned. The pilot had to apply a hefty amount of astern power, which was unusual and caused the ship to veer off track towards a mud bank close to the harbour. The ship took a long time to stop, but the pilot managed to line the car carrier up with the dock entrance and the berthing operation was subsequently uneventful. Neither the pilot nor the master noted anything too worrying with this excursion from the plan but subsequent analysis identified that the ship had grounded, leaving a decent imprint in the mud (Figure 2). There was no damage to the car carrier or to the tugs.

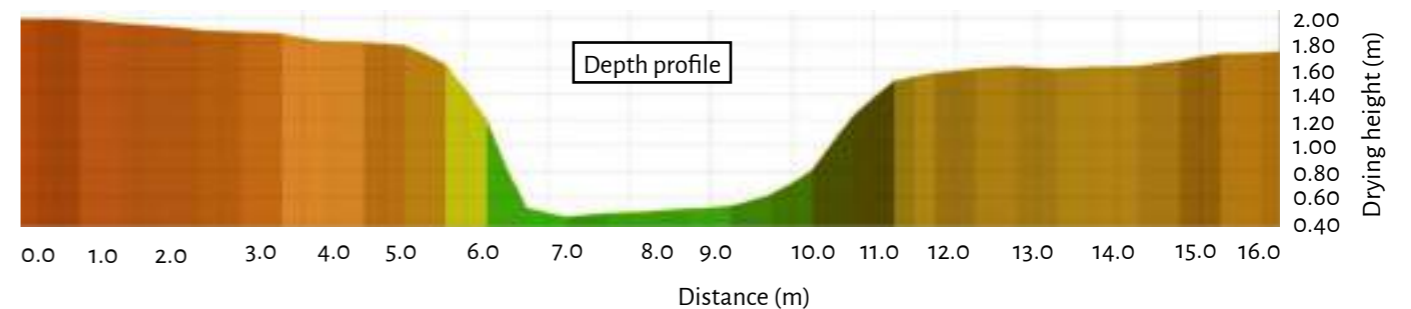


Figure 2: Hydrographic survey data, showing the bow imprint in the mud

The Lessons

1. **Risk** → While no single element of the car carrier's arrival plan was inappropriate, a combination of factors proved unhelpful in its execution: the pilot did not fully appreciate the reduced pull of the replacement tug compared to the normal tugs and the replacement tug's skipper was unsure what was required; arriving with 2 hours of the flood tide remaining and with a strong wind from the stern meant that slowing down was always going to be difficult. When connecting up the aft tug took longer than normal, the plan started to fall apart. Take time to identify each risk factor, examine the hazards involved, consider their combined effect on the plan, and implement appropriate mitigations to reduce the likelihood of an incident.

2. **Check** → When the video of the car carrier's arrival into port was reviewed it was clear that the bow of the ship had probably made contact with the mud bank. The subsequent investigation identified several points of learning that resulted in revised procedures, improved integration for new tugs, refreshed communication procedures and a reminder to VTS operators to provide useful, and objective, information during a move. The regular review of day-to-day activities is an essential, continuous process that reaps many safety benefits.

3. **Communicate** → Pilots are required to coordinate the activities of bridge teams, tug crew and harbour authorities while being mindful of tides and other shipping. This case highlights how quickly things can change in a dynamic situation. Good communication during pilotage helps everyone understand their roles and deal with emerging situations effectively.

Lest we forget

cargo vessel | collision

A general cargo ship was departing a busy anchorage when a mishap nearly resulted in a serious accident. The ship had a single main engine, which supplied propulsion and provided power to a bow thruster via an alternator.

The main engine stopped shortly after the ship was underway, causing loss of both propulsion and the bow thruster. The ship slowed and swung to starboard (Figure 1) where it brushed against an anchored and fully laden liquefied natural gas (LNG) carrier. The cargo ship's crew were able to quickly restart the engine, manoeuvre away from the LNG carrier and proceed back to the anchorage to conduct investigations.

There was undoubtedly a red face in the engine room when the chief engineer (C/E) realised that the engine

had stopped because the fuel supply pump had not been started up as the ship was prepared for departure. The engine had run just long enough on the fuel in the system for the ship to lift the anchor before it stopped.

The cargo ship sustained damage to its foredeck bulwarks (Figure 2) and the LNG carrier incurred minor scrapes to the ship's side. Fortunately, only the C/E's pride was hurt.

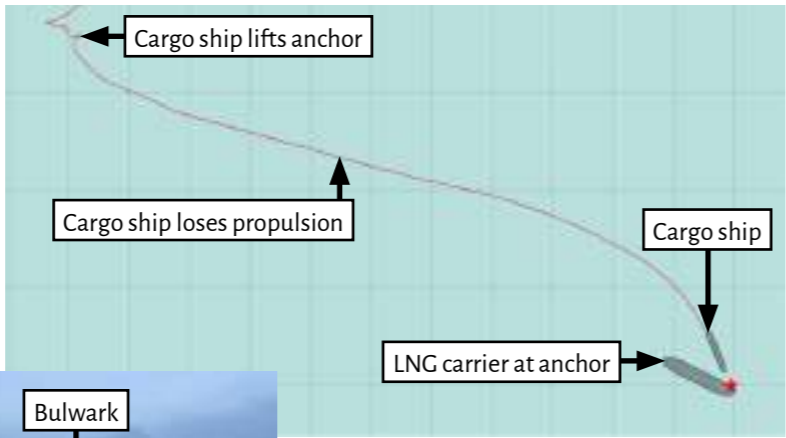


Figure 1: Track of the cargo ship

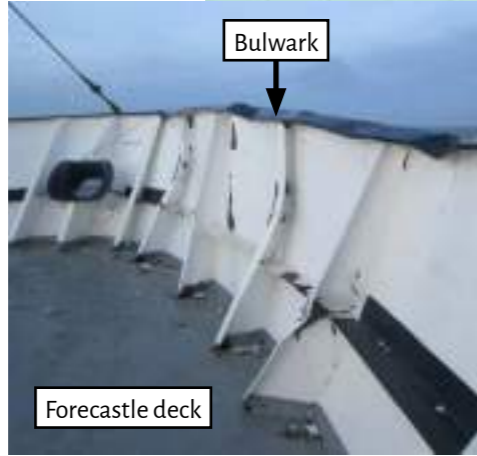


Figure 2: Damage to the bulwark

The Lessons

- Procedure** → The general cargo ship's pre-departure procedure incorporated a checklist of the tasks that needed to be completed for the ship to be ready. When followed, a checklist can help to make sure these critical steps are performed. Checklists should be reviewed regularly and updated to suit the operation of a ship.
- Observe** → There are various alarms and displays that support a watchkeeping engineer. In this case, the alarm indicating a low fuel pressure had not cleared since it first sounded when the system was shut down on arrival at the anchorage, and the fuel pressure reading for the engine was zero. The information to indicate that something was amiss went unseen because the parameters were not actively scrutinised.

Cough, sputter, gunk

heritage vessel | loss of control

A heritage vessel started a short coastal passage to a specialist yard for refit and repair after a lengthy period in port. The voyage initially passed without incident, but intermittent main engine stoppages and generator problems started to increase in number during the afternoon. As evening approached, the main engine suddenly cut out and the vessel lost all power. The single in-line filter on the fuel system was changed out and cleaned; however, neither the main engine nor the generator could be restarted.

Realising that the vessel was being set towards danger, the skipper called for assistance. The heritage vessel was later towed to a nearby harbour where the main engine and generator were stripped down and examined. Many of the fuel system's flexible hoses were found to have degraded, resulting in flaps of rubber detaching from the internal walls and acting like non-return valves. Fuel sludge had also clogged the pipework throughout the engine and generator systems (see figure).



Fuel sludge and hose debris cleaned from a non-return valve



Lump of degraded fuel hose recovered from the fuel system



Fuel sludge and hose debris littering the fuel pipework

Figure: The clogged pipework

The Lessons

- Check** → Thorough tank cleaning and a fuel system check can be invaluable tasks following a lengthy layup. The use of fuels from mixed sources often results in the accumulation of sludge in a fuel tank, leading to blockages and blackouts when this build-up is disturbed by the vessel's motion.
- Maintain** → Flexible hoses are prone to degradation. It is important to make sure there is compatibility between hose types and fuels and frequently check, and where necessary replace, hoses.
- Equipment** → The vessel's single in-line filter arrangement did not allow a continuous supply of clean fuel to the main engine and generator. Switchable fuel filters enable easy filter replacement, an uninterrupted supply of filtered fuel and keeps sludge and debris clear of engines, generators, valves and pumps.
- Action** → The skipper's early call for assistance ensured the tow was arranged in good time and prevented this drama escalating to a crisis.

Bent arm hand-off

bulk carrier and fishing vessel | collision

A medium-sized bulk carrier was on passage to its next harbour in the middle of the night, with good visibility and slight seas. The crew noticed a small concentration of fishing vessels approximately 10 miles away on the starboard bow, near the planned navigational track, two of which appeared to present a risk of collision.

The relatively new OOW decided to call the two fishing vessels individually on very high frequency (VHF) radio to agree the collision avoidance plan. The OOW communicated the intention for the bulk carrier to pass ahead of the fishing vessels to avoid disrupting the ship's estimated time of arrival at the next port, which was constrained by the tide. The fishing vessel skippers consented to the OOW's plan, requesting that the minimum closest point of approach (CPA) was 0.5 miles.

The OOW maintained the ship's original course and speed and began chatting to two fellow crew members on the bridge, who were watching a movie on a laptop. The bulk carrier passed the

first of the two fishing vessels at a CPA of just under 0.5 miles. The skipper of the second fishing vessel realised that the ship was now on a steady bearing and did not appear to be altering course or speed. The skipper called the bulk carrier on VHF radio, but received no response. It was clear that the actions of the bulk carrier alone would be insufficient to avoid a collision and so the skipper made a turn to starboard with the fishing gear still deployed.

The OOW became aware all was not well and started to alter course to port but it was too late for the bulk carrier to avoid contact with the port derrick arm of the fishing vessel, which momentarily keeled over by about 15° (Figure 1) before it righted itself and passed clear down the starboard side. The fishing vessel limped back into harbour several hours later, hampered by its unrecoverable fishing gear. The crew were uninjured but there was substantial damage to the derrick's arm and posts (Figure 2) and the fishing gear was written off. The bulk carrier suffered plate and frame damage (Figure 3).

The Lessons

- Plan** → The actions required by the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs) are theoretically straightforward; however, complications can certainly arise in their practical application. An early and bold alteration of course to starboard might have reduced the risk of the bulk carrier's collision with the two fishing vessels but could also have resulted in close-quarters situations with the other fishing vessels. Another option was to slow down, although this jeopardised the bulk carrier's planned arrival at its next harbour. Every plan requires trade-offs; a good plan balances the risks and keeps everyone informed of the possible consequences. Call the master for advice if in doubt, especially if you are new to the job and uncertain of what to do.
- Monitor** → Whatever the plan, it must be monitored throughout. The OOW became distracted by the other crew members watching a movie on the bridge, which resulted in a delayed reaction to the developing situation. The safety of the crew, the ship and other mariners relies on watchkeepers staying alert while on duty.
- Guide** → New and junior crew need to learn their trade through experience. The OOW had previously worked on ferries operating a quiet route in East Asia and was unaccustomed to the practice of altering course to avoid other vessels. This collision resulted in the OOW leaving the sea to seek other employment.



Figure 1: Video still showing the bulk carrier hitting the fishing vessel's deployed derrick arm



Figure 2: One of the cracks in the derrick posts



Figure 3: The area of plate damage

Getting to know new joiners, including the details of their previous training and experience, is vital to understand what risks need to be managed. The provision of effective training and guidance by senior watchkeepers to inexperienced crew is essential when they are taking their first few steps to a great career.

- Risk** → The collision was significant for the fishing vessel. The damage to its derrick prevented the recovery of the fishing gear and the nets were dragged across the seabed until the vessel reached shallow enough water for the crew to mark and release them for later recovery. This skipper was aware that this posed several risks, including the nets becoming snagged on an underwater obstruction and the collapse of the entire derrick arrangement. The skipper kept the crew well informed, sought guidance from the fishing vessel's owners and made contingency plans to deal with these hazards. The eventual arrival of the damaged fishing vessel and its uninjured crew back into port is testament to the skipper's proactive response to this accident.

Two hook, or not two hook, that is the question

cargo vessel | accident to person

It was late afternoon and a cargo vessel alongside in port had completed discharging its cargo of animal feed. The port's operational staff finished for the day shortly afterwards, switching off the terminal's overhead shore crane floodlights as they left. It was dark and raining.

With the cargo hold empty and the hatches open, the cargo vessel's crew were instructed on the risk assessments for working in the hold and signed the working at height form. The crew then entered and installed a single spotlight at the aft end of the hold and began moving the hold's internal dividing bulkheads.

A couple of hours later, the ship's cook/AB was working at the bulkhead at the forward end of the hold. Wearing a safety harness with a lanyard and safety hook, the AB used the recessed footholds (Figure 1) in the side of the cargo hold to climb about 2.5m to access one of the bulkhead locking bolts and attached the safety hook.

The AB was unable to reach the locking bolt and, using one hand to hold on, disconnected the safety hook and attempted to move it to another position. The AB's foot slipped from the foothold and their hand slipped from the single handhold



Figure 1: A recessed foothold

before the safety hook could be attached to a securing point. The AB fell to the hold bottom, resulting in an open fracture to their upper arm (Figure 2).

The ship's master called the emergency services and, due to the difficulties of lifting a casualty out of the hold bottom, medical attention was administered at the scene for over an hour before the AB could be recovered to a waiting ambulance and transferred to hospital for further treatment.

Figure 2: The injured AB lying in the hold



The Lessons

- Equipment** → The safety harness worn in this case was equipped with only one lanyard and hook, limiting the ability of the wearer to move around safely at height. Once the safety hook is disconnected to move to another locking point, the wearer remains at height without any fall arrest or fall prevention measures apart from hand and footholds; this might be unsuitable in the local conditions. A harness with twin lanyards and safety hooks enables movement at height while providing a means of fall prevention.
- Risk** → It was inappropriate for the AB to be working at height in the dark and rain with no shore floodlights and only a single spotlight at the aft end of the hold. The ship's working at height risk assessments did not include such factors, demonstrating that all realistic scenarios in which crew might be expected to work had not been considered and resulting in documentation that was of little safety value.
- Procedure** → The ship did not have procedures or equipment to recover an injured person from the cargo hold. Without suitable crew training and recovery equipment, it is possible for a survivable injury to become a fatality. Think about what could go wrong and then plan and be prepared to respond in the event that it does; it could be you lying at the bottom of the hold in serious pain.

FISHING VESSELS



For me, fishing is a vocation not a job. The love of the sea in all its states and care for my vessel and crew make me the man I am today. Some 8 years ago, via a Baltic crewing agency, I was lucky enough

to be selected by Favis of Salcombe to join the *Emma Jane*. I would say this was a slight gamble for Favis as I do not have the usual stature of a fisherman; oversized would probably be a fair description – on board I am known as ‘Big Dima’ and a long-serving member of the deck crew who is half my size has been nicknamed ‘Little Dima’.

I started working on deck under the guidance of Gints Niedols who had worked on *Emma Jane* for several years. It soon became clear just what a lovely, workable vessel and family business I had joined. The Favis family have been fishing since the early 1970s and three generations now work at the firm. The vessel is a much-loved family member, built and cared for like their own child. Everyone knows the big red boat in Salcombe.

Emma Jane fishes in the English Channel, one of the busiest shipping lanes in the world. We fish in what we call crabbing boxes, which were designed as part of the Mid Channel Agreement between UK and EU registered fishing vessels to stop overfishing and minimise damage to the gear. Different fishing boxes assigned to specific types of fishing at certain times of the year help to achieve a collaborative approach and make sure we all look after the grounds we fish. Crab fishing is a tough industry and very dangerous, probably one of the most hazardous forms of sea fishing. There are many lines to deal with, heavy pots and lots of large metal equipment that, if you take your eye off the ball even for a second, could cause injury or death. It is a vocation that

is definitely not for the faint-hearted, especially when coupled with working at close quarters with all sorts of characters...

The Favis family’s confidence in my abilities developed over several trips and I was asked to stay on as part of *Emma Jane*’s permanent crew on rotation. Although it takes me away from my family in Russia for 6 weeks at a time, I always look forward to rejoining my boat family. I gained a lead deckhand position and, 3 years ago, was taken on to train as skipper. For the last 18 months, I have worked as relief skipper to Gints, who was selected from deck crew 6 years ago to train as skipper. The Favis family have always considered the safety of the crew their top priority, and my conversations with Kevin over the years have inspired and fed my determination to skipper *Emma Jane*.

Safety drills are completed every few weeks without exception

With the introduction of the International Labour Organization’s Work in Fishing Convention (ILO188) Favis took on a crew manager, Jen, who is like a mother/sister to all the crew and makes sure all our contracts, certificates and drills are up to date. Jen is always on the end of the phone if anyone needs help and soon tells us if she sees something not being done to the required standard. Safety drills are completed every few weeks without exception and we pay particular attention to the manoverboard procedure.

On 17 December 2023, we were fishing mid-channel in sea state 3 to 4 with good visibility. We had lost a couple of strings of pots due to the end Dan buoys being cut off. This occasionally happens due to other vessels, but every skipper dreads it as you then have to creep with a big metal hook to find the back line of the string to haul the pots. There were four very experienced crew on deck who had fished

... we all thanked God, our lifejacket harnesses and our training for the successful outcome

together and with me for several years; while none of us were thrilled to start creeping, we understood the necessity.

As we started to creep forward, hoping to catch the back line of the string we were looking for, one of the crew experienced a momentary lapse in concentration and stepped into a bight of the line as it fed out over the rail, pulling him up onto the shooting table and overboard in a flash. Luckily, I saw him step into the bight of the line before I heard the shout as *Emma Jane* is designed to give me full visibility of my crew and there are cameras at the blind spots. Automatic pilot took hold and I performed a Williamson turn, something I had learnt during the rescue boat training we had been repeatedly drilled in; admittedly, it was a little bit different doing it on a 124 gross tonnage fishing vessel but the same principles apply.

Fortunately, we had the right safety equipment at our fingertips. One crew member grabbed the nearest life ring, a second kept their eyes on our crew member’s position in the water and a third readied the life ring and line thrower.

As the Williamson turn pushed the boat around the two crew at the rail were able to reach and grab hold of our overboard crew member’s harness and pull him back on board with both

boots still on his feet. Apart from the odd bruise from hitting the rail as he went over and being a little soggy and shocked, our recovered crew member was fine. He was treated as a cold water casualty in line with our medical training and we all thanked God, our lifejacket harnesses and our training for the successful outcome.

The entire event had taken place over a period of minutes. This was my first serious incident in all my years fishing and I would never like to repeat it. That single, momentary lack of concentration is every fisherman’s nightmare.

So, fishing is most definitely my vocation, and my crew are my family; yes, I have a few grey hairs now but, like any father, I will make sure I keep them as safe as possible with the help and support of the Favis family and Jen.

Please do your bit to keep yourself and your crew family safe at sea: do not take risks; maintain focus; practice safety drills regularly; and wear your lifejacket and safety harness.

DMITRIJS SKRIPACEVS | Relief skipper of the *Emma Jane*

Dmitrijs was born just outside Riga, on the gulf coast of Latvia. His family fished mainly for wet fish on small day boats, so it was when Dmitrijs moved to Riga and was able to expand his knowledge that he realised he wanted to be a skipper. In 2006, he gained his basic Latvian seaman’s book – Latvian maritime law was ahead of the UK at the time, and this was not issued without STCW certificates for basic sea survival, firefighting and prevention, first aid, personal safety and social responsibilities and a comprehensive medical.

Dmitrijs went to work on a large Russian vessel to gain more sea time and attain navigation, radio license and rescue vessel certificates, among others, all of which he achieved with flying colours; however, he was unable to progress on the vessel and, after landing a job on a crab boat by accident, decided that crabbing (not wet fish) was for him.

Dmitrijs joined Favis of Salcombe as a deckhand 8 years ago, progressing to lead deckhand and then selection for skipper training. Dmitrijs has been the relief skipper on *Emma Jane* for 18 months. He lives in St. Petersburg with his wife Valerija and their children, Maskims and Agnija.

Untangled success

fishing vessel | man overboard

A crew member's leg became entangled in a string of pots that were being shot overboard from a large fishing vessel operating 40 miles off the south coast of England.

The crew member was initially dragged onto the shooting table from where, despite the best efforts of colleagues to keep their crewmate on board, the crew member slipped from their grasp and was pulled over the vessel's side. The auto-inflate lifejacket that the crew member was wearing functioned correctly on contact with the water, keeping the crew member afloat while they untangled their leg from the string of pots.

The well-trained crew on board the fishing vessel acted swiftly and their colleague was rapidly recovered. Although uninjured, the crew member was understandably traumatised by the ordeal.

The crew of the fishing vessel had been retrieving damaged gear at the time of the incident, an operation that required the simultaneous hauling and shooting of the string of pots and resulted in a significant amount of rope on deck. The crew member had inadvertently stepped into a bight of rope as it was being deployed through the vessel's shooting door.

The Lessons

- Risk** → The rate of fatalities in the fishing industry is approximately 100% higher than that of the UK general workforce, with 85% involving people ending up in the water¹. Not going overboard is the most effective lifesaver. Before starting a task, every crew member should be involved in discussions to identify the potential hazards and consider what steps can be taken to lower the likelihood of an incident. Measures to physically separate fishing gear from areas where the crew stand can significantly reduce the risk of someone becoming entangled and being dragged overboard.
- Equipment** → A personal flotation device (PFD) can be a lifesaver, as demonstrated in this case by the auto-inflate lifejacket that the crew member was wearing. Cold water shock can immobilise someone in the water and prevent them from being able to stay afloat without a PFD. Always wear a PFD when working on deck and know how to wear it correctly to stay afloat in the event of a fall overboard.
- Teamwork** → The fishing vessel's crew had practised manoverboard drills many times and were able to quickly recover their colleague from the water. It is essential that each crew member understands what their role is in an emergency and how to perform it. Regular practical drills covering various emergency scenarios provide crew with the skills required to respond efficiently and effectively in the event of a real situation.
- Monitor** → It went unnoticed by anyone on deck that the crew member had stepped into a bight of rope. Look after yourself first and foremost, but be vigilant towards others and speak up if you see someone at risk of accident or injury.

¹ <https://www.homeanddry.uk/wearing-a-pfd/>

Schrödinger's ships

beam trawler and cargo vessel | collision

An 8m beam trawler was fishing off the south coast of the UK on a sunny and calm early spring morning. The skipper handed over the watch to the deckhand and went below to rest in the forward cabin, located at the beam trawler's bow. The fishing gear was out and everything was in order so the deckhand settled into the wheelhouse chair with a cup of tea.

Meanwhile, the OOW on board a 90m general cargo vessel transiting the inshore traffic zone had sighted the beam trawler visually and on radar and assessed that the cargo vessel was passing clear of the beam trawler. Content with the situation, the OOW continued processing their paperwork in the chart room. There was no lookout on the bridge.

Back on the beam trawler, the deckhand had noticed that there was excessive weight on the port trawling gear. Concerned that the net may have picked up some rocks, the deckhand went out on deck to haul in the gear and check the nets. Distracted by this task, the deckhand

did not see the fast-approaching cargo vessel. The beam trawler's starboard derrick made contact with the cargo vessel's handrails shortly afterwards. The contact pivoted the beam trawler to starboard and its bow collided with the cargo vessel. Fortunately, the trawl gear did not become entangled in the handrails and the beam trawler came free at the cargo vessel's stern, having sustained minor damage to the gear and starboard bow (see figure).

The crew of the cargo vessel did not make contact with the beam trawler until 90 minutes after the incident, when the master arrived on the bridge and was informed of the incident by the OOW.

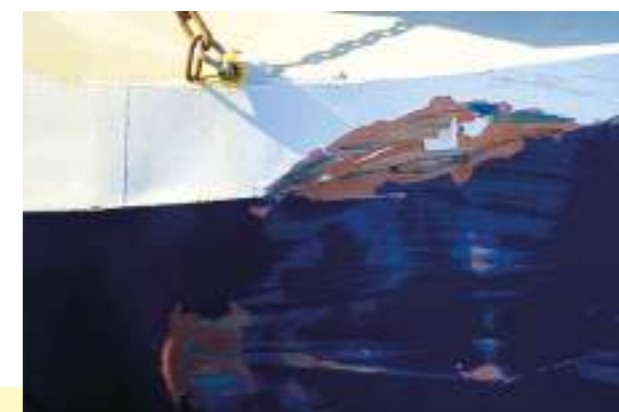


Figure: Damage to the beam trawler's bow

The Lessons

- Lookout** → In the minutes leading up to the collision, neither vessel was keeping a lookout. The deckhand on the beam trawler was distracted by the weight in the nets and the OOW on the cargo vessel was concentrating on paperwork. The COLREGs require that a lookout is maintained at all times, and this does not change due to ancillary tasks or the crewing of the vessel. The requirements for UK fishing vessels are clearly defined in Marine Guidance Note (MGN) 313 (F), Keeping a Safe Navigational Watch on Fishing Vessels, and owners and skippers should always plan to maintain a continuous and proper lookout.
- Monitor** → The OOW on the cargo vessel saw the beam trawler at a range of just over one mile and made an assessment that the fishing vessel was passing clear; however, the OOW neither acquired the beam trawler on the radar nor ascertained an accurate closest point of approach and carried on with paperwork until the two vessels collided. The primary role of an OOW is the safe navigation of the vessel. Radar should be used to determine if a risk of collision exists and whether avoiding action is needed, and nearby traffic should be monitored effectively until passed and clear.
- Communicate** → The beam trawler was fortunate to sustain only minor damage, but there was no way the OOW on the cargo vessel could have known the status of the trawler after the collision. No attempt was made to contact the beam trawler's crew to offer assistance, and the master was not informed until much later. When accidents do happen, taking immediate action can prevent the situation becoming much worse.

From fishing boat to mine sweeper

fishing vessel | near miss

It was a clear, pleasant day at sea and a fishing vessel's crew were completing their last haul before lunch. The skipper noticed a large object trapped in the net and, realising they had managed to catch a sea mine (see figure) for the second time in their seagoing career, immediately stopped the hauling operation. The crew could see that at least one of the sea mine's contact horns was fully intact. Aware of the danger this placed them in, the skipper contacted the coastguard to request assistance.

A Royal Navy Explosive Ordnance Disposal (EOD) team was tasked by the coastguard to attend and deal with the situation. On arrival, the EOD team identified some residual explosive material within the sea mine that could still be dangerous and proceeded to cut the sea mine free from the vessel's net, lower it carefully to the seabed and mark it with a yellow float.

The fishing vessel was able to resume its passage with all crew members safe and well. The following morning, having set up an exclusion zone, the EOD team used a controlled explosion to safely dispose of the sea mine.



Figure: A typical sea mine recovered from the seabed

The Lessons

- Action** → Fishing operations can be risky, especially when recovering nets. The crew in this case were observant and responsive, ensuring swift action was taken as soon as the mine was sighted. By noticing their 'unusual' catch they made sure that everyone returned home safe.
- Procedure** → The UK has several Royal Navy EOD teams comprised of highly-trained divers and EOD experts. Call the coastguard immediately if you encounter suspected explosives at sea and follow the advice given. The Maritime and Coastguard Agency publication MGN 323 (M+F), Explosives Picked Up At Sea, provides instructions on what to do in the event of explosives being discovered or accidentally trawled.
- Risk** → Many remnants of war exist in UK waters that still pose a risk of explosion, including munitions from World War 1. The risk of exposure to such hazards can be reduced to a safe level through effective teamwork, clear communication and taking sensible precautions during routine fishing operations.

Alone and adrift

fishing vessel | fatal accident to person

The crews of a group of small fishing boats were working their fleets of creels off the coast in late summer. One lone skipper was shooting the fourth fleet of the morning when the gear snagged on the working deck. Leaving the engine running, the skipper attempted to clear the snag but, as it released, their foot became trapped in the gear. The skipper was pulled through the shooting door and into the sea as the gear payed out.

The skipper was able to free their foot from the gear, but could not catch up with the vessel as it motored away and had to fight to stay afloat in the water with no means to raise the alarm: the skipper was not wearing either a personal locator beacon (PLB) or personal flotation device (PFD), both of which were stowed in the wheelhouse (Figures 1 and 2).

The uncrewed fishing boat passed within a few metres of another from the fleet, the skipper of which dropped their own gear and set off in pursuit. A crew member was transferred onto the uncrewed boat and, when it was confirmed that no one was on board, a "Mayday Relay" was broadcast and the search and rescue operation began. The skipper was found in the water an hour later and airlifted to hospital, but could not be resuscitated.



Figure 1: The skipper's PLB



Figure 2: The skipper's PFD

This is one of several similar accidents investigated over the years where the inherent risks involved in the lone operation of small boats had not been managed, resulting in tragedy.

The Lessons

- Margin of safety** → Lone working presents real risk as there is no one to help you or raise the alarm if things go wrong. On a creel fishing vessel, maintaining a distance between yourself and moving fishing gear is paramount to being able to work safely.
- Equipment** → The outcome might have been different had the skipper been wearing their PFD and PLB while working on deck. If the worst happens and you do end up in the water, the wearing of a PFD to help you stay afloat and the carriage of a PLB to help rescuers find you both improve your chances of survival.
- Procedure** → Planning how you might reboard your boat could mitigate some of the risks of operating alone. With no one to assist, no means to stop the engine, and no reboarding equipment such as a ladder or tyres, the skipper had little chance of being able to self-recover from the water.

The time has come to talk of many things

oyster dredger | capsized

During a brief break in wintry weather, the lone skipper of a 7.5m fishing vessel set out in the early hours to dredge for oysters. The fishing went reasonably well and by lunchtime, which was just after low water, six 25kg bags of oysters were on the deck. Another boat was fishing nearby and the two vessels operated together to avoid getting in each other's way.

With only a few hauls left before the end of the day, the skipper of the oyster dredger turned the boat to the next course and deployed the single dredge line and bag. The 20m dredge line ran from the deck winch up and over a 2.9m gantry, before passing over the stern into the water. The skipper increased the vessel's speed to 3kts when the gear was out, but the dredge line suddenly went taut and the bow quickly came around to starboard. As the skipper stepped out of the wheelhouse to see what had happened, the starboard side dipped under the water and

the boat capsized within seconds, ending up on its side and almost fully submerged despite the shallow water (Figure 1). There had been no opportunity to raise the alarm.

The skipper, who was wearing oilskin over-trousers and a PFD, climbed the port side bow rails and entered the water. Fortunately, the crew of the other fishing vessel had witnessed the accident and quickly recovered the skipper, who was found to be fit and well after hospital assessment.

The fishing vessel's wheelhouse had partially collapsed during the capsize and, in the days following the accident, the dredge line had parted due to rough weather (Figure 2). The fishing vessel was recovered during the next spell of good weather and later repaired. On recovery of the dredge it became clear that this had come fast on a disused anchor for salmon nets.



Figure 1: The dredger capsized to starboard with only the bow rails and dredging gantry visible



Figure 2: The dredger before recovery

The Lessons

1. **Plan** → The skipper in this case did not have a PLB fitted to their PFD and the outcome could have been tragic had the crew of the other fishing vessel been less vigilant. It is vital to be able to raise the alarm should you go overboard when operating a vessel alone; consider how well-prepared you are to self-recover or raise the alarm and take steps to make sure you have a man overboard plan.
2. **Risk** → The dredge line led over a high gantry presented a foreseeable risk of capsize should the gear foul, and obstructions on the seabed are not uncommon. It is important to assess potential risks from a fishing operation and mitigate them should they happen. In this case, alternative gear arrangements with quick-release devices or a cutter to release the dredge could have made all the difference when things went wrong. Adherence to well-prepared risk assessments and realistic safety procedures offers protection from the hazards you are likely to encounter at sea.
3. **Drill** → Know what to do well in advance of a situation arising: make sure you understand how to abandon your vessel safely and practice regular drills covering various scenarios to help you stay calm and take an effective course of action in a real emergency.

Ready or not

fishing vessel | grounding

A 10m scalloper (see figure) departed its home berth on a clear, chilly winter morning to head out to its fishing grounds. The sea was calm with a low swell and offered little indication that the two experienced crew, who knew the area well, would soon encounter choppier seas.

Once the fishing vessel had cleared the harbour, the mate left the wheelhouse to rest while the skipper set the vessel's course to follow a previous track on the chart plotter. About an hour later, the skipper adjusted the course to avoid the shallows that lay on the south side of a nearby island. Minutes afterwards, the skipper felt the vessel ground briefly and then continue its course.

The skipper shouted a warning to the mate and went to the engine room to check for signs of damage, establishing that the port side of the hull had been breached and the floodwater was just below engine level. The skipper immediately started the bilge pumps and tried unsuccessfully to block the breach with rags. The floodwater

continued to rise, despite further attempts to reduce it that included rigging a submersible pump and using the deck wash pump to bail out the bilges.

With the water level now halfway up the engine, the skipper and mate returned to the wheelhouse and sent a "Mayday" call via VHF Channel 16. The skipper set a course to beach the vessel and donned an auto-inflate lifejacket, as did the mate. When the engine cut out, the skipper made a decision to abandon ship and the mate deployed the liferaft and then collected the Emergency Position Indicating Radio Beacon and handheld emergency VHF radio. With the water almost at deck level, the skipper and mate boarded the liferaft and cut the painter. The scalloper sank minutes later.

Twenty minutes after boarding the liferaft, the skipper and mate were rescued by a fishing vessel that had responded to the "Mayday" call and returned to land unharmed.



The Lessons

- Plan** → The skipper was familiar with the area and confident to navigate without a planned voyage. However, while there might have been more water on previous transits, the neap tide on this occasion was extremely low. It is vital to check and verify all parameters as part of the passage planning process. As the old saying goes, "If you fail to plan, you are planning to fail".
- Monitor** → Regular checks during a voyage can often be viewed as a chore, but are vital to the safety of the vessel, the people on board and the environment. The COLREGS provide that all navigational equipment should be used to assess the prevailing circumstances and conditions.
- Drill** → Emergency preparedness saves lives. The skipper and mate had practised emergency drills and completed the mandatory Seafish safety training; consequently, they were rescued without getting their feet wet. Training and drills help prepare you to respond to different emergency situations, including what equipment to carry and how and when to use it and, when a situation arises, what to do and when to do it.

RECREATIONAL VESSELS



“What time does the cargo arrive?” one of my volunteer watch leaders would say before we crewed up with a group of 12 teenagers to take them sailing on our 22m sail training vessel. The volunteer also had a full-time

job in the merchant navy, and this phrase made me smile because of course there is nothing that carries a higher burden of responsibility than taking a group of young people to sea.

I still recall my first command, and a group of parents and carers dropping their children off at the quayside and entrusting them to my care. Our ‘cargo’ is indeed very precious, and that charge has stayed with me in every role I have had at sea and ashore. Indeed, it is one reason why I took on the role as Chair of the Association of Sail Training Organisations (ASTO), a charity that supports over 30 UK Sail Training charities, which between them operate more than 50 vessels taking around 1200 people to sea every year. Most of these people will be 11 to 25 years of age and some, as you might expect, from disadvantaged backgrounds. Many will be seeking to build their confidence, deal with anxiety and overcome the mental, physical and social difficulties that COVID-19 has left in its wake. A Sail Training voyage really can help with this; anyone who has sailed knows how good it is at building resilience, teamwork, communication skills and much more.

The cases in this safety digest are worth reading, and all are timely reminders that things go wrong and there are steps we can take to guard against that. While it goes without saying that you should be sober when going to sea, there are valuable reminders of the importance of good

communication, keeping your skills fresh and up to date, carrying out drills and keeping a good look out. These are all matters that stay in my mind when I go to sea. I have been at sea at night when a watch leader mistook the vessel that they could see as being the distant AIS target on the screen; the vessel was actually much closer and without AIS.

I am clear that if I make a mistake in my job, or a poor call at sea, I review it with my staff

Training for all staff and the open discussion of near misses are key to building a safety culture on board. I am clear that if I make a mistake in my job, or a poor call at sea, I review it with my staff. It is important they know that what I did was incorrect or could have been done better. Early on in my career I recall taking a vessel into port in conditions that were not entirely favourable. I put various mitigations in place to keep the vessel safe, but I later reviewed it with the staff and concluded that the better decision would have been to go elsewhere. I wanted them to know there was a better and safer way of doing things.

The young people who sail with us are definitely not cargo. Many are inspiring

A significant number of the young people who sail with us are future Sail Training skippers or will work elsewhere in the industry, so it is vital to get it right and set a good example. These trainees are worth investing in because they bring a variety of skills, enthusiasm and diversity of background that can only make our sector stronger.

The young people who sail with us are definitely not cargo. Many are inspiring. Many are energising. Many are working hard to overcome the challenges that life has thrown at them. Some have spatial awareness better than mine – I really should have listened to the boy who told me my 22m sailing vessel would not fit in that berth: I realised a bit later than he did!

... share good practice and learn from each other

They deserve that we, as sail trainers, deliver the highest standards of safety, seamanship and youth work. Sail Training is committed to this, and ASTO undertakes a strong leadership role. Along with Trinity House, we fund courses to equip our sea staff with the skills and knowledge to be even better seafarers; we help with regulatory advice and compliance; and we

organise a conference where thought-provoking speakers challenge us to be better. At this year’s conference the MAIB shared with us how it looks at accidents and helped us think about how to prevent them, which is invaluable to our member organisations. We also facilitate sessions where we talk about incidents and near misses, share good practice and learn from each other. It is only by having a culture where we speak openly about incidents and the lessons arising from them, where we seek to learn and improve, that we can then look those parents and carers firmly in the eye and be trusted with their precious young people. Not cargo!

MARK TODD AFNI | Chair of the Association of Sail Training Organisations and CEO of Ocean Youth Trust South

Mark Todd started dinghy sailing while working as a solicitor and went on to crew friends’ yachts before becoming an RYA day skipper. Tired of working to buy a yacht on retirement, he left the law and became a bosun with the Ocean Youth Club (now Ocean Youth Trust). In 2001, Mark took command of *John Laing*, Ocean Youth Trust (OYT) South’s 22m steel ketch, and was the vessel’s full-time skipper until 2010. With a Trinity House bursary, he obtained Master (Yachts 200 gross tonnage) and Officer of the Watch (Yachts 3,000 gross tonnage) certificates of competence and was the inaugural winner of the MCA/ASTO Award for Command Commitment to Sail Training. After 25 years in sail training, he is now chief executive officer of OYT South, sailing as a relief skipper on *Prolific*, the charity’s 32m vessel. Mark became a trustee of ASTO, the organisation that did so much to develop his career, keen to continue that work with others and build the reputation of Sail Training nationally. He is an RYA Yachtmaster instructor and examiner and sits on the RYA Yachtmaster Qualification Panel. Mark has just started dinghy sailing again and has also taken up canoeing. As he says, you can never have too many boats!

A turn to port too far

rigid inflatable boat | accident to person

A powerboat was being used to train novice coxswains in general boat handling and emergency procedures. The training was taking place on a lake in calm conditions and the students were attending a practical drill on how to conduct emergency stops. The instructor explained that a training dummy would be thrown overboard and "Man overboard!" shouted to initiate the drill. The novice coxswain at the helm would then need to turn immediately to port and stop the boat as quickly as possible.

The instructor was standing next to the novice coxswain at the helm and another student was sitting on the starboard sponson towards the stern. The novice coxswain conducted the drill as instructed, but as the boat turned sharply to port the student on the sponson fell into the water and was struck on the shoulder by the propeller (see figure).

The student was recovered and the powerboat returned immediately to the training centre, where first aid was administered.



Figure: The student's injuries

The Lessons

- Procedure** → The instructor was qualified and had considerable experience, but was teaching a legacy technique that they were unaware was out of date. Any procedure is subject to change over time and as techniques and equipment evolve; it is important to make sure that students are taught current best practice methods during safety training. This can be achieved by observing other instructors, undertaking peer reviews, or reading the latest training notices and guidance updates from parent organisations such as the Royal Yachting Association (RYA).
- Communicate** → The manoeuvre had been briefed beforehand, but it is advisable to provide a commentary or countdown to its execution. This is especially so when the drill is likely to induce excessive movement in the vessel or there is a risk that crew members may be unaware that the exercise is underway and are unprepared for any subsequent movement.
- Monitor** → The training centre relied on a pool of infrequent, part-time instructors to fulfil its training programme, which can introduce challenges when monitoring the continuous professional development and currency of staff. Training centres can help instructors update their knowledge by promulgating RYA training updates and providing training days, technique workshops and opportunities to observe other instructors.

Just one more for the road

rigid inflatable boat | grounding

A group of seven friends boarded a rigid inflatable boat (RIB) one fine summer morning, departing from a marina and visiting various locations through the course of the day. As evening approached, the group decided to stop for dinner at a waterside pub. They stayed there for several hours and consumed alcoholic drinks along with their meal. At around 2200, the group returned to the RIB and began their 20-minute journey back to the marina. It was a warm clear night, and the surface of the water was calm.

The RIB was driven at high speed and the driver did not use the on board plotter to guide the craft's track. On approach to the marina the driver made a turn to follow the channel when, without warning, the RIB stopped. The fast deceleration caused all the occupants to be thrown forward, one of whom suffered a back injury. The RIB had grounded at high speed on mud flats at the entrance to the channel (Figures 1 and 2). One of the group raised the alarm by using VHF radio to call the coastguard and two RNLI lifeboats, a coastguard rescue helicopter and emergency ambulances were immediately tasked to the scene.

One of the lifeboats rescued the six uninjured RIB occupants from the mud flats, while the coastguard helicopter airlifted the casualty to a waiting ambulance.



Figure 1: The RIB on the mud flat



Figure 2: Aerial view of the RIB's predicted track to its place of grounding on the mud flat

The Lessons

- Hazard** → Do not drink and drive. As with driving a car, alcohol can impair judgement, increase reaction times, lower inhibitions and increase confidence. The RIB's occupants had all consumed alcohol, including the driver, which might have affected decision-making capability and compromised the safe operation of the craft. Avoid alcohol when boating and, if necessary, make sure designated drivers are assigned while participating in trips.
- Aware** → The driver did not reduce the RIB's speed to safely navigate the channel on approach to the marina and could not see the drying mud flats in the darkness. Dark conditions are not ideal for a high-speed passage over open water, when unlit hazards such as non-navigational buoys or objects in the water cannot be seen.
- Monitor** → The RIB's driver decided not to use the on board plotter because the route back to the marina was a familiar one. However, the driver ended up further to the east than anticipated and ran aground as a consequence. The on board plotter would have indicated the deviation from the imagined course and given warning of the fast-approaching mud flats.

A hatch in time

sailing yacht | flood, fire and foundering

A 23.9m luxury racing yacht was on a long passage back to its home port in steadily worsening weather. The sailing was exciting as the wind direction gave the three crew members little shelter from nearby land and the seas were up to 4m in height. As the yacht pitched and rolled the crew noticed water coming in through one of the forward hatches but could not make it watertight. Facing a slowly worsening flood the crew started the bilge pumps, believing this would bring the water ingress under control; however, the water deluged some electrical circuits and short-circuited the navigation lights and the furler for the sails. The short circuit also caused a couple of small fires that the crew quickly put out using handheld extinguishers, but which rendered the forward bilge pump unusable.

The sailing yacht still had power from the main engine and could pump out the bilges aft, so was in no immediate danger of sinking. A third fire started and was again extinguished rapidly, but the skipper was by now concerned that the extinguishers were running low. As nightfall approached, the crew called for assistance to make it safely to port.

The coastguard arrived 45 minutes later, by which time a fourth small fire had been extinguished and the crew had retreated to the upper deck due to smoke inside the yacht's cabin. The coastguard started to tow the yacht but yet another fire started around 30 minutes before arrival into port, this time engulfing the yacht. The crew were beaten back by clouds of thick smoke (Figure 1) and evacuated to the attending rescue vessel.



Figure 1: Smoke envelops the yacht, forcing the crew to evacuate

The crew of the coastguard vessel used their fire monitors to hose down the yacht but the flames continued to spread (Figure 2). The yacht crew watched aghast as the main mast collapsed and

the yacht burned down to the waterline. The waves overlapped the remnants of the hull, which sank silently to the bottom of the bay.



Figure 2: The fire takes hold, despite the best efforts of the rescue vessels

The Lessons

- Maintain** → Regular checking and maintenance of hatch seals and operating mechanisms can make all the difference. This accident stemmed from a leaking hatch in the forward cabin but the yacht crew did not discover this leak until the weather worsened, by which time it was too late; the flooding caused the fires and the fires resulted in the loss of the vessel. A very costly lesson.
- Communicate** → Early transmission of a distress message via methods such as digital selective calling can improve a casualty's chances of survival. While it took some time for the skipper in this case to raise the alarm, the coastguard was already on scene when the situation got out of hand and the yacht's crew escaped without injury; the outcome could have been far more serious given there was no time to launch liferafts or don lifejackets when the fire rapidly took hold.
- Plan** → The yacht's crew lost clothes, personal effects and, most importantly, their passports, insurance documents, keys, and bank cards. A well-prepared, easily accessible grab bag can aid survival, assist with rescue and protect vital documents. Consider what goes in this bag and who on board knows its

whereabouts and contents. The RYA provides advice on grab bags and what to keep in them, recommending that the grab bag is waterproof, brightly coloured and able to float for 30 minutes when fully packed. The contents should address your chances of survival within the shortest time possible and enable you to:

- indicate you are in distress;
- attract the attention of nearby vessels;
- support your survival (sea sickness tablets, sun cream, energy bars, sunglasses, etc.); and
- help yourself once rescued (passport, bank cards, spare keys, insurance documentation, etc.)

This list is not exhaustive and can vary according to individual circumstances and whether a liferaft is available. Visit <https://www.rya.org.uk/blog/grab-bags-what-do-you-keep-in-yours> for more information.

INVESTIGATIONS

started during the period 1 September 2023 to 29 February 2024

Date	Occurrence
21 September	Capsize of the 7.29m UK registered fishing vessel Lexi Rose east of MacDuff, Aberdeenshire, Scotland, resulting in 1 fatality.
28 September	Recreational diver struck by the passing diver support vessel Karin during an underwater decompression stop in Scapa Flow, the Orkney Islands, Scotland, resulting in 1 fatality.
2 October	Fall from a gangway on board the UK registered sail training vessel Pelican of London moored at Sharpness, Gloucestershire, England, resulting in 1 fatality.
6 October	Failure of fishing gear on board the UK registered fishing vessel Honeybourne III approximately 16nm south-west of Beachy Head, East Sussex, England, resulting in 1 fatality.
24 October	Collision between the Isle of Man registered general cargo vessel Verity and the Bahamas registered bulk carrier Polesie in the German Bight traffic separation scheme, resulting in the sinking of Verity with the loss of 1 life. Of the remaining 6 crew members, 2 were recovered from the water and 4 are missing, presumed deceased. Under investigation on behalf of the Isle of Man Ship Registry, as the lead marine safety investigation state, and in agreement with the vessel flag states and the coastal state.
4 November	Loss of propulsion of the UK registered passenger vessel Spirit of Discovery in the Bay of Biscay during heavy weather, resulting in multiple passenger injuries.
16 November	Grounding and loss of the UK registered fishing vessel Sustain at the western entrance of Loch Broom in Ullapool, Scotland. The crew were rescued uninjured.
12 December	Man overboard, presumed deceased, from the UK registered fishing vessel Amadeus in the German Bight, approximately 54nm north-west of Heligoland, the North Sea.
13 December	Fatal man overboard from the UK registered 8.18m fishing vessel Nista approximately 1nm west of the island of Luig, Scotland.
21 February	Flooding and sinking of the UK registered fishing vessel Freedom II south-west of Oban, Scotland while under tow. The crew were rescued with no serious injuries.

Correct up to 29 February 2024. Go to www.gov.uk/maib for the latest MAIB news

Preliminary Assessments 2024

Crig-A-Tana

Capsize and loss of a UK registered fishing vessel off Lizard Point, Cornwall, England on 12 November 2022.
[PA1/2024](#) Published 6 February

Thames Kestrel

Contact of a passenger ferry with the brow of Gravesend Town Pier, England on 19 July 2023.
[PA2/2024](#) Published 6 February

REPORTS

issued in 2023 and 2024

Emma Louise

Carbon monoxide poisoning on board a privately-owned sports cruiser moored in Port Hamble Marina, River Hamble, England on 12 January 2022, resulting in 2 fatalities.
[1/2023](#) Published 27 April

Harriet J

Person overboard from a lone-operated creel fishing vessel west of Fast Castle Head, south-east Scotland on 28 August 2021, with loss of 1 life.
[2/2023](#) Published 22 June

Copious

Person overboard from a twin rig stern trawler south-east of the Shetland Islands, Scotland on 18 February 2021, with loss of 1 life.
[3/2023](#) Published 29 June

Moritz Schulte

Engine room fire on a liquefied petroleum gas/ethylene carrier in Antwerp, Belgium on 4 August 2020, with loss of 1 life.
[4/2023](#) Published 17 August

Scot Carrier/Karin Høj

Collision between a cargo vessel and split hopper barge in the Bornholmsgat traffic separation scheme off the coast of Sweden on 13 December 2021, with loss of 2 lives.
[5/2023](#) Published 8 September

RRS Sir David Attenborough

Lifeboat davit failure on a polar research vessel while practising lifeboat drills on Loch Buie, Isle of Mull, Scotland on 4 March 2021.
[6/2023](#) Published 2 November

Inflatable migrant boat

Flooding and partial sinking of an inflatable migrant boat in the Dover Strait on 24 November 2021, with loss of at least 27 lives.
[7/2023](#) Published 8 November

BBC Marmara

Grounding of a general cargo vessel on the island of Eilean Trodday in the Little Minch, Scotland on 25 July 2021.
[8/2023](#) Published 30 November

Resurgam

Accidental discharge of a condensed aerosol fire-extinguishing system on a beam trawler while alongside at Newlyn Harbour, Cornwall, England on 15 November 2019, with loss of 1 life.
[9/2023](#) Published 7 December

Seadogz

Heavy contact between a high-speed RIB and a navigation buoy on Southampton Water, England on 22 August 2020, with loss of 1 life.
[10/2023](#) Published 14 December

Eder Sands

Person overboard from a UK registered fishing vessel in the Atlantic Ocean, approximately 150 nautical miles west of Ireland on 7 October 2022, with loss of 1 life.
[1/2024](#) Published 8 February

SAFETY BULLETINS

issued during the period 1 September 2023 to 29 February 2024

MAIB SAFETY BULLETIN

MARINE ACCIDENT INVESTIGATION BRANCH

SB3/2023

SEPTEMBER 2023

Extracts from
The United Kingdom
Merchant Shipping
(Accident Reporting and
Investigation) Regulations
2012 Regulation 5:

"The sole objective of a safety investigation into an accident under these Regulations shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of such an investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame."

Regulation 16(1):

"The Chief Inspector may at any time make recommendations as to how future accidents may be prevented."

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NOTE

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

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Serious passenger injury on board a sea safari rigid inflatable boat



MAIB SAFETY BULLETIN 3/2023

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

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

The Marine Accident Investigation Branch is carrying out an investigation into a serious passenger injury on board a sea safari rigid inflatable boat.

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

A handwritten signature in black ink, appearing to read "Andrew Moll".

Captain Andrew Moll OBE
Chief Inspector of Marine Accidents

NOTE

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

This bulletin is also available on our website: www.gov.uk/maib

Press Enquiries: 01932 440015 Out of hours: 0300 777878

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BACKGROUND

On 7 June 2023, a passenger on a rigid inflatable boat (RIB) sea safari suffered a spinal injury that left them paralysed from the waist downwards. Twelve passengers had boarded the RIB and, once it was clear of the jetty, the two crew gave them a safety briefing and instruction on the wearing of lifejackets. The RIB then proceeded out to sea and was increasing speed in choppy sea conditions when it encountered a steep-sided wave. The boat fell off the wave and slammed violently into the trough, dislodging a passenger from a forward jockey seat (**Figure 1**). The passenger immediately lost feeling in their legs.

The boat returned to the harbour and the casualty was removed by emergency services to an air ambulance and flown to hospital. There, diagnosis identified that the casualty had suffered a wedge compression fracture of the spine that left them with permanent paralysis below the waist. The passenger had no pre-existing conditions, was in good health and had normal bone mineral density (BMD).

The RIB was 3 years old, in good condition and certified under the Maritime and Coastguard Agency's (MCA) Small Commercial Vessel (SCV) Code, which was an annex to Marine Guidance Note (MGN) 280 (M)¹.

The RIB's owner had several years' experience operating this type of excursion, and the boat's skipper was appropriately qualified.



Figure 1: Front of RIB with jockey seats

INITIAL FINDINGS

The accident

The accident happened in weather conditions that the skipper considered favourable for the trip. Although the RIB was not travelling at high speed, as the bow pitched up on encountering waves it restricted the skipper's view ahead. The steep-sided wave caught the skipper unaware and without time to mitigate the impact.

¹ Small Vessels in Commercial Use for Sport or Pleasure, Workboats and Pilot Boats – Alternative Construction Standards.

When the boat hit the trough, the resulting force applied to the passenger's spine was of sufficient magnitude to fracture a vertebra. With a normal BMD level and no pre-existing conditions to increase their susceptibility to this type of injury, the factors contributing to the fracture related to the activity being undertaken. These included:

- the speed and movement of the RIB in the sea conditions
- the forward location of the seat that the passenger was using
- the passenger's seated posture and their ability to react and compensate for the RIB's motions
- the passenger's awareness of the hazards associated with the RIB's movement.

Wider context

Commercial passenger tours using RIBs, including sea safaris and thrill rides, have experienced a surge in popularity across the UK, with a corresponding increase in the occurrence of accidents. Since 2001, the MAIB has been notified of 54 accidents during RIB rides that have resulted in lower back injuries, 17 of which resulted in spinal fractures. Initial analysis of these previous accidents as part of this investigation indicates that passengers seated in the front third of a RIB's overall length (**Figure 2**) are exposed to a significantly higher risk of lower back injuries than those seated further back, as the vertical motions experienced are generally greater towards the bow.

For illustrative purposes only: not to scale

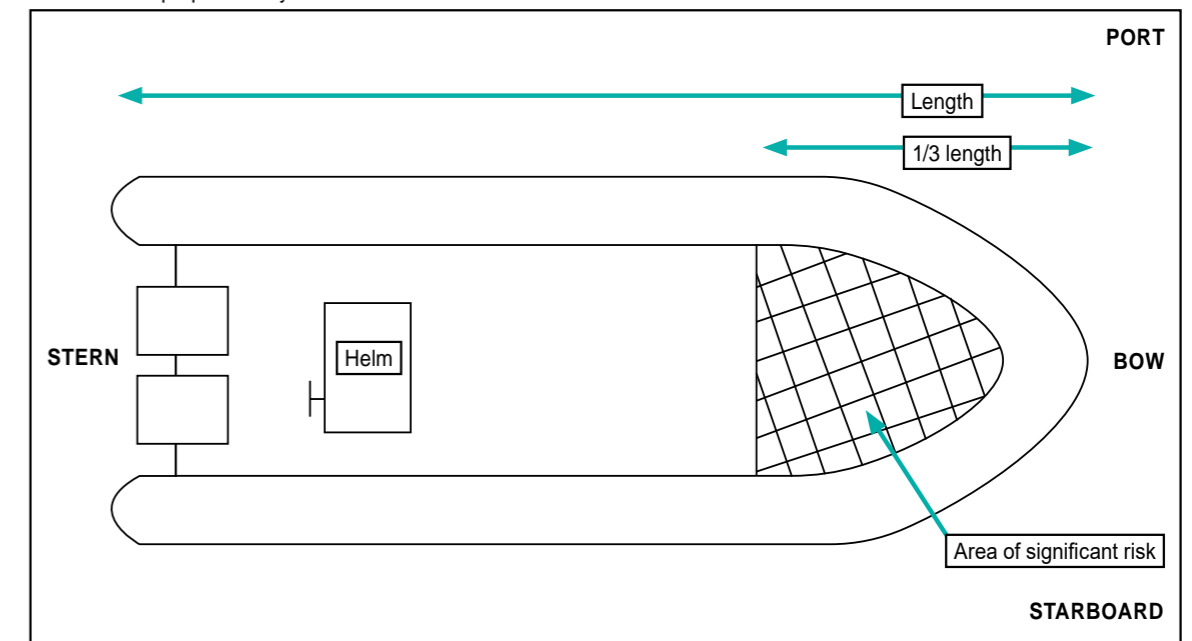


Figure 2: RIB outline highlighting the area of significant risk

The passenger RIB industry has conducted research on shock mitigation and whole body vibration, primarily focused on high-speed operations, which has led to the development of codes of practice and seating designs. This accident, combined with the previous accident data, has highlighted concerns regarding the design, construction and location of seating on RIBs used for passenger operations, particularly when the seated individuals have little or no understanding of boat movement or how to mitigate its effects.

Small commercial high-speed craft guidance

In the UK, commercial RIBs carrying no more than 12 passengers to sea are certified to meet the standards set out in the SCV Code, but the conduct of operations and safety management are currently largely self-regulated.

In 2010, in response to an MAIB investigation report², the Passenger Boat Association (PBA) and Royal Yachting Association (RYA) issued guidance on the safety of small high-speed passenger craft. In April 2019, issue 3 of the guidance was issued by the RYA, PBA and British Marine as the *Passenger Safety on Small Commercial High Speed Craft & Experience Rides – A Voluntary Code of Practice (CoP)*. Additionally, in September 2021, MGN 436 (M+F)³ Amendment 2 was issued, which was further updated by Amendment 3 in July 2023.

Both the CoP and the MGN include guidance on seating location, design and shock mitigation. Also included is advice on the design of vessels, the posture and stability of occupants and the content of pre-departure briefings.

SAFETY LESSON

There is a significantly higher risk of spinal fractures to people seated in the front area of RIBs, regardless of speed.

Owners and operators of small commercial passenger vessels are strongly advised to:

- Urgently review their operations and risk assessments, with reference to the CoP and MGN 436 (M+F). This review should assess and mitigate the risks associated with the requirement to seat passengers in the front area of a RIB and ensure that the risk assessment includes and addresses the variability of weather conditions and the ability of passengers.
- Review their passenger pre-departure briefing and ensure that it includes a specific explanation of how to use the seat(s) and their associated handholds, including how to maintain the correct posture and stability to mitigate against injury.

Issued September 2023



² <https://www.gov.uk/maib-reports/heavy-landing-during-boat-trip-on-the-rigid-inflatable-boat-celtic-pioneer-in-the-bristol-channel-near-penarth-wales-with-1-person-injured>

³ MGN 436 (M+F) Whole Body Vibration: Guidance on Mitigating Against the Effects of Shocks and Impacts on Small Vessels.

Extracts from
The United Kingdom
Merchant Shipping
(Accident Reporting and
Investigation) Regulations
2012 Regulation 5:

"The sole objective of a safety investigation into an accident under these Regulations shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of such an investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame."

Regulation 16(1):

"The Chief Inspector may at any time make recommendations as to how future accidents may be prevented."

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Fatal injury to a deckhand following a chain failure

on the scallop dredger

***Honeybourne III* (PD905)**

approximately 16 nautical miles south of Newhaven, England

on 6 October 2023



Honeybourne III

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

The Marine Accident Investigation Branch is carrying out an investigation into the fatal injury to a deckhand following the failure of a chain on the scallop dredger *Honeybourne III* (PD905).

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

Captain Andrew Moll OBE
Chief Inspector of Marine Accidents

NOTE

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BACKGROUND

At about 2345 on 6 October 2023, the lifting arrangement for the dredging gear that was suspended from the raised port derrick on the UK registered scallop dredger *Honeybourne III* (PD905) fell to the deck without warning. The gear struck a deckhand working below, causing serious head injuries.

The crew of *Honeybourne III* alerted His Majesty's (HM) Coastguard and administered first aid to the unconscious deckhand. HM Coastguard tasked a search and rescue helicopter and a Royal National Lifeboat Institution (RNLI) lifeboat to assist, but the deckhand was declared deceased by the attending helicopter paramedic.

INITIAL FINDINGS

The ongoing MAIB investigation has found that a section of chain in the port dredging gear quick-release assembly failed as the gear was being retrieved. A 32mm chain link, which was led over a static steel pin at the derrick head (**Figure 1**), parted (**Figure 2**) and allowed the towing block, monkey face block and associated gear to fall to the deck below.

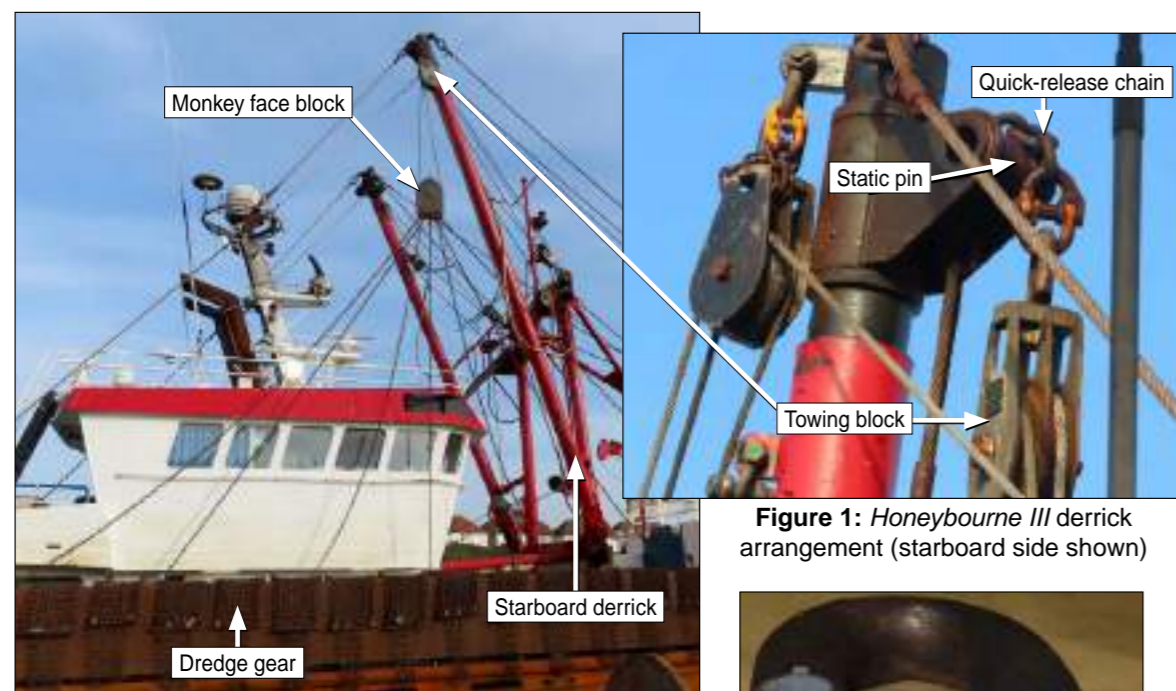


Figure 1: *Honeybourne III* derrick arrangement (starboard side shown)



Figure 2: Failed chain link on *Honeybourne III*

The configuration of a chain led over a static pin as part of a quick-release gear is commonly used on board scallop dredgers and beam trawlers. Such arrangements are known to have failed previously and chain fractures have been identified during routine inspections of quick-release gear (**Figure 3**).



Figure 3: Identified chain defects in static pin arrangements

In February 2021, the failure of a similar chain to that which failed on board *Honeybourne III* resulted in the death of a deckhand on board the beam trawler *Cornishman* (PZ512). As a result, the Maritime and Coastguard Agency (MCA) issued Safety Bulletin 20¹ in August 2021. The safety bulletin highlighted the need for action by owners, operators, skippers, crew and safety advisors to ensure that for vessels under their control they:

- Have an inspection regime sufficient to inspect all items of lifting equipment including those likely to be subject to high load, high wear and high impact;
- Have provided the competent person sufficient opportunity under appropriate conditions to be able to make an assessment for continued operation – which may require inspection techniques other than visual;
- Have determined the parameters within manufacturer's recommendations for continued acceptance of items of lifting equipment;
- Have determined the frequency of inspection, and where the risk indicates possibility of premature failure, to increase the frequency of inspection in accordance with the Regulations²;
- Have a system to record all inspections and changes to lifting equipment.

Safety Bulletin 20 built on concerns raised in MCA Safety Bulletin 17, issued in October 2020³, regarding the safety of lifting operations on fishing vessels. That safety bulletin noted that:

It is the owner's responsibility to identify key areas of risk in respect of lifting operations in accordance with the Fishing Vessels (Health and Safety at Work Regulations 1997 (SI 1997/2962))...

¹ MCA Safety Bulletin 20: Safety concern over lifting equipment inspections on fishing vessels (<https://www.gov.uk/government/publications/safety-bulletin-20-safety-concern-over-lifting-equipment-inspections-on-fishing-vessels>).

² Merchant Shipping and Fishing Vessels (Lifting Equipment and Lifting Operations Regulations) 2006 (SI 2006/2184).

³ Safety Bulletin 17: Safety concern over lifting operations on fishing vessels (<https://www.gov.uk/government/publications/safety-bulletin-17-safety-concern-over-lifting-operations-on-fishing-vessels>).

...If a lifting operation cannot be undertaken safely then it shall not continue.

In May 2022, the MAIB issued an interim report on the investigation into the fatal accident on board *Cornishman*. The interim report highlighted that an arrangement containing a chain passing over a static pin makes it *very difficult to calculate the tensile strength of the arrangement and makes it more susceptible to failure*. The interim report further stated that:

It is therefore imperative in the short-term that these types of release mechanisms and derrick head pins are subject to regular inspection and replaced at the earliest sign of wear.

Alternative arrangements for the quick-release mechanisms at the derrick head that either do not include a chain passing over a static pin, or remove the risk of the gear falling in the event of a failure, have been fitted to vessels to mitigate the risk of gear falling from height in the event of a failure of the chain arrangement. The alternative configurations observed by the MAIB have included the use of wire and sheave arrangements (**Figure 4**), the replacement of the derrick head arrangement with a swinging arm mechanism (**Figure 5**), and the provision of warp tension monitoring and release systems. Options have also been suggested for a secondary means of retaining the gear, in addition to the chain, to prevent the gear from falling in the event of a chain failure while still allowing the release of the gear in an emergency (**Figure 6**).

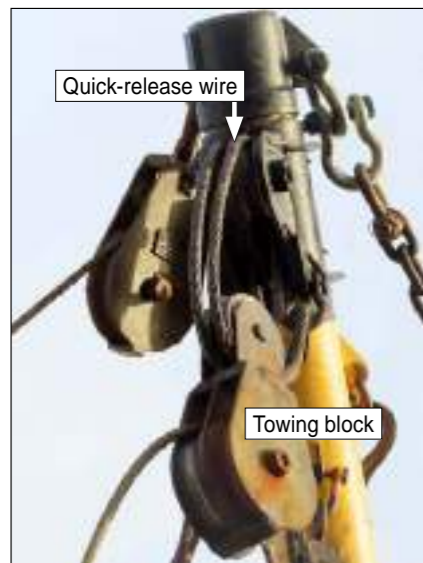


Figure 4: Quick-release arrangement with derrick head quick-release wire and sheave

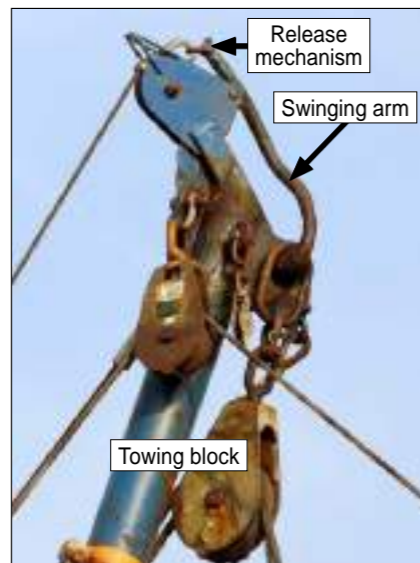


Figure 5: Quick-release arrangement with derrick head swinging arm

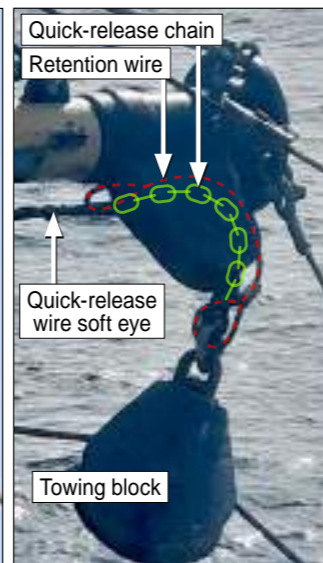


Figure 6: Quick-release arrangement with secondary means of gear retention

SAFETY ISSUES

The initial stages of the investigation have identified that:

- The recent recorded accidents and failures of chain links leading over a static pin as part of a quick-release mechanism indicate the significant risk of such arrangements failing when loads are applied to the chains. These arrangements can induce complex loading forces in the chain links, leading to excessive wear on the chain links and significantly reducing the chain strength.

- The location of the chain links at the derrick head and the fact that the deterioration of the chain links may not be easily visible mean that it can be difficult to inspect and identify issues with the quick-release arrangement.
- The potential failure of chains used in this manner presents an unacceptable level of risk to crew members working on the deck below.

RECOMMENDATIONS

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

- S2024/101 Conduct a focused inspection campaign on board UK scallop dredgers and beam trawlers fitted with derrick head quick-release mechanisms that incorporate chain to:
- raise awareness among skippers and crews of the significant hazards associated with the use of chain links passing over a static pin as part of the derrick head quick-release mechanism;
 - confirm that the risk of a failure of the derrick head quick-release mechanism has been assessed, mitigated and documented by the owner, operator and/or skipper of the vessel; and
 - verify that the crew has been informed of the findings of the risk assessment and the measures taken for their protection in the event of a failure of the derrick head quick-release mechanism.

All owners, operators and skippers of UK scallop dredgers and beam trawlers that use chain as part of the derrick head quick-release mechanism on board their vessels are recommended to:

- S2024/102M Urgently ensure that a suitable and sufficient assessment of the risk of a failure of the derrick quick-release mechanism chain has been undertaken and documented, noting the safety issues identified in this safety bulletin, and that:
- mitigations are identified and immediately implemented to reduce the risk to the crew associated with a failure of the derrick quick-release mechanism to a level that is as low as reasonably practicable; and
 - the crew are informed of the findings of the risk assessment and the measures taken for their protection.

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

Issued February 2024

SAFETY FLYERS

issued during the period 1 September 2023 to 29 February 2024



SAFETY FLYER TO THE SHIPPING INDUSTRY

Circumvention of navigational safeguards



Beaumont



Seagate and Timor Stream



Scot Carrier and Karin Høj

Narrative

This safety flyer highlights the continuing trends found in accidents investigated by the MAIB, where the officer of the watch (OOW) had been the sole watchkeeper during hours of darkness or in restricted visibility and/or the Bridge Navigational Watch Alarm System (BNWAS) had been disabled.

In June 2009, the BNWAS was first mandated with the aim of monitoring bridge activity and detecting any operator disability that could lead to marine accidents. The MAIB has since completed 81 investigations of collisions, groundings and contacts, of which 20 involved sole watchkeepers at night or in restricted visibility and/or the BNWAS being disabled. These cases shared similar contributory factors, including:

Lookout

- Prioritisation of day-to-day maintenance over provision of a dedicated lookout during hours of darkness;
- Minimum, or near minimum, crewing levels that did not cater for the full range of shipboard activities;
- Underappreciation and misunderstanding of the benefits of a lookout integrated into the bridge team; and
- Falsification of documentation, such as the deck logbook, records of hours of rest and watchkeeping schedules, to avoid company and port state sanctions.

BNWAS

- Perception of the system as an unnecessary nuisance instead of an important safety barrier;
- Continued use of retrofitted, standalone systems that required an operator action to reset them rather than an integrated reset function triggered by bridge equipment or movement sensors;
- Keeping the system key or code on the bridge, providing an opportunity for disablement; and
- Status of the BNWAS not recorded on the voyage data recorder (VDR), removing the opportunity to review BNWAS use during inspection and audit.

Other factors such as alcohol consumption, fatigue and use of ECDIS¹ were also identified; however, it is a cause for concern that these safety barriers were often circumvented despite the international requirements to post a dedicated lookout during the hours of darkness and to operate a BNWAS.

Ship owners and managers are urged to carry out detailed and accurate reviews of the use of a lookout and BNWAS on board their vessels and make provisions to support crew to comply with the mandatory requirements contained in the regulations.

¹ Electronic Chart Display and Information System. In September 2021, the MAIB and Danish Maritime Accident Investigation Board published *Application and usability of ECDIS*, a collaborative study on ECDIS use from the perspective of practitioners: <https://www.gov.uk/government/publications/application-and-usability-of-ecdis-safety-study>

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Published: November 2023

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SAFETY FLYER TO THE FISHING INDUSTRY

Inadvertent discharge of a condensed aerosol fire-extinguishing system on board the fishing vessel *Resurgam* (PZ1001) on 15 November 2019

Image courtesy of Richard Kiessler (MarineTraffic.com)



Resurgam

Narrative

At 1609 on 15 November 2019, an apprentice engineer died when a FirePro condensed aerosol fire-extinguishing system was inadvertently activated in the engine room of the fishing vessel *Resurgam*. The apprentice engineer together with a shore engineer and two installation technicians were working in the engine room when the system activated, filling the engine room with the fire-extinguishing aerosol.

All four people attempted to escape the engine room's rapidly deteriorating atmosphere by climbing up an access ladder, which was the only exit. Three people escaped to the open deck but the apprentice engineer succumbed to the effect of condensed aerosol inhalation and collapsed at the foot of the ladder. The escape route for all four people passed in close proximity to a discharging fire-extinguishing generator. The apprentice engineer was later rescued by fire and rescue service personnel wearing breathing apparatus, but he could not be resuscitated and was pronounced dead at the scene.

At the time of the accident, *Resurgam* was undergoing a maintenance period and the skipper and crew were not on board. As the fishing vessel was non-operational and the work was being carried out by contractors, not under the control of the skipper or crew, the Health and Safety at Work etc. Act 1974 was applicable for all work activities on board.

Safety lessons

1. Any gaseous or particulate fire-extinguishing medium is hazardous to health when inhaled in significant quantities. The apprentice engineer died because he inhaled a concentrated mixture of hot particles and carbon monoxide and collapsed in a reduced oxygen atmosphere. Skippers of fishing vessels are to ensure that both they and their crew are aware of the hazards of exposure to fixed firefighting system media.

2. In the event that installation or maintenance of a fixed firefighting system is being undertaken, work in the area protected by the fixed firefighting system should be restricted to the people carrying out the work.
3. Fishing vessel crew do not usually consider an engine compartment an enclosed space. However, an engine space can become an enclosed space under the new regulations on enclosed spaces, *MGN 659 (M+F) Amendment 1 The Merchant Shipping and Fishing Vessels (Entry into Enclosed Spaces) Regulations 2022*¹, which came into force in May 2022 and applied to fishing vessels from May 2023.
4. The atmosphere in an engine space can rapidly change from a safe to a hazardous atmosphere for a number of reasons, including fumes emanating from hot work being carried out, leaking fluids and smoke emissions from overheating or smouldering machinery. In this case the inadvertent activation of a fire-extinguishing system adversely affected the breathable atmosphere and was harmful to anyone working in the engine room at the time. Make sure plans and procedures are in place so crew and contractors know how to react to such a situation.
5. The person in charge of the work in the engine space is responsible for ensuring that appropriate risk mitigation measures are taken before the work starts. This includes the completion of risk assessments and a detailed plan of the work, and identification of any conflicts with other tasks. As above, personnel working in the engine space need to know how to respond in an emergency.

¹ <https://www.gov.uk/government/publications/mgn-659-mf-entry-into-enclosed-spaces>

Attention is also drawn to the lessons published in MAIB's safety bulletin SB1/2020:

<https://www.gov.uk/maib-reports/safety-warning-after-inadvertent-activation-of-condensed-aerosol-fire-extinguishing-system-leads-to-a-fatality>

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

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SAFETY FLYER TO THE FISHING INDUSTRY

Fatal fall overboard from the fishing vessel *Eder Sands* (UL 257) approximately 150 nautical miles west of Ireland on 7 October 2022

For illustrative purposes only: not to scale



Reconstruction, showing the positions of the deckhands during the final phase of shooting the net

Narrative

At about 1915¹ on 7 October 2022, a deckhand from the UK registered gill netter *Eder Sands* fell overboard while the vessel was shooting a net approximately 150 nautical miles west of Ireland. Despite an extensive 21-hour search involving other vessels and fixed-wing aircraft, the deckhand was not found.

The onboard procedure for shooting the final part of the fishing gear required three deckhands, one standing close to the vessel's stern and the other two tending the net marker buoys next to the starboard wheelhouse door. All three deckhands were wearing foul weather dungarees, boots and an auto-inflate lifejacket. The deckhand at the stern was standing on the lid of a storage locker that aligned with the top of the bulwarks; he was holding on to a bight of the buoy line and might have been holding on to a steel post, which was subsequently found to have sheared off.

As the last of the net was about to be laid, the deckhand at the stern shouted to stop the vessel and call the bosun. The deckhand at the stern was seen to fall overboard 30 seconds later.

¹ Universal time coordinated.

Safety lessons

1. The procedure for shooting nets must be included in a fishing vessel's safety management system and properly risk assessed. *Eder Sands*' crew had developed an informal routine that required one of them to stand on the lid of a storage locker close to the stern while holding a bight of buoy line. This process had not been appropriately risk assessed, resulting in no guard rails or safety harness to prevent the crew member falling overboard. Additionally, the crew were routinely handling the fishing gear when shooting the nets, putting themselves at risk of becoming entangled and dragged overboard by the gear.
2. PFDs must be worn correctly. The crew shared 10 auto-inflate lifejackets as working PFDs. However, these were routinely worn incorrectly, with the waist strap left slack so a lifejacket could be quickly put on or removed by slipping it over the wearer's head. PFD trials conducted by the MAIB following the accident found that the wearer slipped out of the lifejacket when they entered the water with the waist strap loose, and that the inflated lifejacket would then have been quickly blown from the scene. MGN 588 (F) advises owners and skippers to prominently display onboard posters showing crew how to wear PFDs in accordance with manufacturer's instructions. Further, it is the responsibility of owners and skippers to make sure the crew follow these instructions.
3. The capability of PFDs should match the vessel's intended operation and working environment. *Eder Sands* operated independently, 24 hours a day, hundreds of miles from shore. Although compliant with the regulations, the PFDs provided had no light, crotch straps or spray hood and no automatic means to enable a crew member to be located in the water. Fishing vessel owners should fully risk assess their vessel's operational profile to make sure that the PFDs provided to their crew for work on deck are of a suitable standard and include appropriate features to mitigate the hazards of falling overboard. Consideration should be given to the provision of lifejacket lights, crotch straps, spray hoods and personal locator beacons to help ensure the victim's survival and their swift location and recovery.

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

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