MARINE ACCIDENT INVESTIGATION BRANCH

MAIB

SAFETY DIGEST

Lessons from Marine Accident Reports 1/2021

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April 2021

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 which has been determined up to the time of issue.

This information is published to inform the shipping and fishing industries, the pleasure 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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MARINE ACCIDENT INVESTIGATION BRANCH

The role of the MAIB is to contribute to safety at sea by determining the causes and circumstances of marine accidents and, working with others, to reduce the likelihood of such causes and circumstances recurring in the future.

Extract from
The 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."

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Glossary of Terms and Abbreviations

2/E	-	Second Engineer
AB	-	Able seaman
AFFF	-	Aqueous Fire-fighting Foam
AIS	-	Automatic Identification System
C	-	Celsius
C/E	-	Chief Engineer
COLREGS	-	International Regulations for the Prevention of Collisions at Sea 1972 (as amended)
COSWP	-	Code of Safe Working Practices for Merchant Seamen
EPIRB	-	Emergency Position Indicating Radio Beacon
kt	-	knot
m	-	metre
"Mayday"	-	The international distress signal (spoken)
MGN	-	Marine Guidance Note
OOW	-	Officer of the Watch
"Pan Pan"	-	The international urgency signal (spoken)
PLB	-	Personal Locator Beacon
RIB	-	Rigid Inflatable Boat
ro-ro	-	roll on, roll off
SOLAS	-	International Convention for the Safety of Life at Sea
VHF	-	Very High Frequency
VTS	-	Vessel Traffic Services

Introduction

Welcome to the MAIB's first Safety Digest of 2021. I would like to start by thanking Fran Collins, David Fuller and Roger Brydges for writing the introductions to the merchant, fishing and leisure sections of this Digest. Their perspectives on maritime safety make compelling reading.

At the MAIB, we try to keep our safety messages fresh. However, the articles in the Safety Digests are drawn from the cases reported, and all too often this means seeing the same sorts of accidents time and time again. Consequently, this edition contains accidents we have seen many time before involving safe means of access, suspended loads, noxious atmosphere and man overboard recovery. As mariners we take pride in our ability to get the job done, but many of the accidents reported here could have been avoided had those involved taken a little more time to assess the risks before getting on with the job. The old sailor's adage of *'one hand for yourself and the other for the ship'* is still valid today: doing your job should not involve putting yourself in danger.

I have made the point before that accidents often come in batches. However, after a prolonged period during which there were no fatal accidents in the UK's commercial fishing sector, the spate of such accidents over the winter months is concerning. Small fishing vessels can be extremely vulnerable both to capsize and to being overwhelmed by heavy seas, and 5 of the 7 fishermen lost over the winter months were likely trapped when their vessels suddenly and without warning capsized. The MAIB's reports into these recent accidents will follow, but I make no apology for again asking owners and skippers of small fishing boats to make a proper assessment of their vessel's stability and of the loads it can safely carry.

For Northern hemisphere leisure boaters, Spring has arrived, better weather is expected, and for many there is a feeling of hope that the worst of the COVID restrictions are perhaps behind us and we can get on with some serious boating. In the autumn 2020 issue of the Safety Digest, I made the point that there had been some terrible tragedies over the summer, and I encouraged all leisure boaters to take advantage of the winter months to refresh their knowledge, carry out the inevitable maintenance tasks, and to plan how best to start the 2021 boating season. With the freedom to resume boating still some weeks away, I make no apologies for repeating that advice. One of my favourite quotes is by the English businessman Sir John Harvey-Jones MBE, which is as follows:

> *Planning is an unnatural process; it is much more fun to do something. The nicest thing about not planning is that failure comes as a complete surprise, rather than being preceded by a period of worry and depression.*

When restrictions are eased and the sun is shining the temptation to get afloat will be immense. Please make the most of these last few weeks of enforced inactivity to properly plan and prepare for this year's boating. I am quite sure you will not regret it.

Keep safe

Andrew Moll
Chief Inspector of Marine Accidents

April 2021

Part 1 – Merchant Vessels

I firmly believe that safety at work must be considered a basic human right. Ensuring that both we and our colleagues go home safely at the end of each contract or shift is an individual, civic and moral responsibility, and it applies to each and every one of us – on land and at sea. Yet despite great improvements in systems and advancement for safety culture, accidents continue to occur with the same themes. When reading anonymised reports devoid of names and faces, it is all too easy to forget the human cost that results from accidents. Imagine if every report also included a "Where are they now?" section, complete with details about how the accident affected their physical health, mental health, relationships, career, financial situation and prospects, or worse, the impact on family, friends and children left behind. The next time you come to the end of an incident report, I ask to remember that it's not really the end. Pause and spare a thought for the rest of the story. Make it a habit to take just one minute to think about what might have happened next. When reviewing accidents, it's as important to focus on the human **impact** as it is on the human **element**.

As vessel owners, managers, designers and operators, it is imperative that we more fully challenge the root causes behind accidents, incidents and near misses. Focussing on the human elements that result in unsafe actions has historically been an easy excuse. But now, with the help of new and improved technology and deeper understanding, we must ensure that we proactively "design out" the root flaws in our infrastructure and systems so that we eradicate the causes that lead to unsafe behaviours.

I feel proud to be part of an industry that places great value on 'safety culture'. But as capable as we are within the maritime world, we are often guilty of failing to identify what truly drives and motivates those at the highest risk of accident or injury.

As seafarers, we take great pride in 'keeping the railroad running'. We are rightly proud of our abilities in being efficient and economical, to make do and make good (I'm sure many recall the 'used-but-good spares'), and to deliver to schedule. But this is often at higher than acceptable cost and risk and may have long lasting and tragic impacts. Culturally, these behaviours are self-perpetuating, and without intervention the tolerance of risk becomes ever higher. The challenge for us, both ashore and afloat, is to ensure that we collectively understand the boundary between 'enough' and 'too much'.

This boundary can only be defined through collaboration between ship and shore with each acknowledging the contribution of the other. Many shore-based managers have spent considerable time at sea, but it is often easy to forget the specific challenges faced by those on the front line when creating policies and defining procedures. This is particularly so when working with a diverse and geographically remote workforce, who may not be aware of management constraints.

As vessel operators we must ensure that we're always working to the perspective of an end-user who is potentially in a different time zone, managing conflicting demands, living and working on an unstable platform and missing their home. Working together to a shared mental model means we are ALL more likely to go home safely.

It would be remiss of me not to mention the Coronavirus pandemic. Aside from the very obvious risks to our colleagues that result directly from the virus, we must remember the indirect effects on safety more broadly. Operating within

the spectrum of the pandemic has resulted in many reactive changes, and changes to changes that by necessity have been made at lightning speed and within a short space of time. Crises in the maritime theatre are usually short-lived and operational in nature, whereas this pandemic has affected virtually every aspect of what we do and how we do it for some considerable time. There is a great risk that focus is taken away from the priorities that keep us safe and it is imperative that we do not compromise our core efforts.

For the time being, it appears as though our battle against the virus isn't going away anytime soon. Our efforts in this space must work alongside our continuous safety programs, not replace them. At no time is it ever acceptable to say, "we stopped focusing on elements of our safety program, because Covid took priority." That's not good enough. We need to accept that the pandemic has added to our scope and changed the look of the playing field.

FRAN COLLINS MNM
CHIEF EXECUTIVE OFFICER, RED FUNNEL

Fran Collins has been CEO of Red Funnel Group since in June 2018, having spent over 20 years in the merchant navy. With a 160-year history of serving the Solent, Red Funnel now operates a fleet of 7 ferries between Southampton and the Isle of Wight.

Fran's early career was as a Dual Cadet with Shell Tankers, from which she qualified with both Deck and Engineer licences and served on various vessel types, particularly oil & gas carriers and sub-sea cable laying and repair ships. In 2002 she joined Condor Ferries as Chief Officer, and subsequently became Condor's first female Master.

In 2008 Fran transferred into shore-based business management, and developed her career through several executive roles, the delivery of which included operational management, customer services and strategic projects such as vessel acquisition and disposal, transactions and refinancing, and long-term business planning. Notwithstanding her current corporate focus, Fran retains a long-standing passion for improving safety in the maritime industry, particularly from the perspective of cultural strategy and human behaviours.

Fran also chairs the Cruise & Port Group for Business South and sits on the Boards of the Merchant Navy Training Board and the IoW Chamber of Commerce. She is a member of the DfT's Clean Maritime Council and was recently sworn in as a Younger Brother of Trinity House.

Unsafe Access, Fatal Consequence

Narrative

A tug was employed for emergency standby duties at an oil terminal in the north of England on a January evening. The environmental conditions were severe with very rough seas, a 2.5m swell and strong gale force winds. The sea temperature was 4°C. Due to the extreme weather, the port control office ordered the tug to abandon the standby duties to meet and assist a passenger ferry in its berthing.

The master requested the chief engineer to let go the mooring lines from the quay. The chief engineer left the tug through its forward bulwark access gate (Figure 1) and stepped on to the quay's steps. Two crew members on deck helped to retrieve the lines as the chief engineer let them go. When he was ready to let go the forward line, which was on the towing winch, the master moved the tug forward to slacken the line. Having let go the final line, the chief engineer approached the vessel to re-board.

As the tug had been moved ahead from its original position, the quay's steps were no longer aligned with the tug's access gate, which was now aligned with one of the large, flat topped protective fenders on the quay. Seeing this, the chief engineer decided to step onto the fender to board his vessel. Unfortunately, in doing so he lost his footing and fell into the water through the gap between the fender and the quay. The master immediately informed the port authorities.

The chief engineer was wearing a lifejacket with the crotch strap fastened, and this auto-inflated immediately as he entered the water. The crew quickly attempted to throw him a lifebuoy with a lanyard and, after a few failed attempts, they threw it within his reach and he was able to put an arm through it. The crew then hauled him towards the mid-ships access door. However, having been immersed in the very cold water for some minutes, the chief engineer was too weakened to climb back on board using the recessed ladder in the hull.

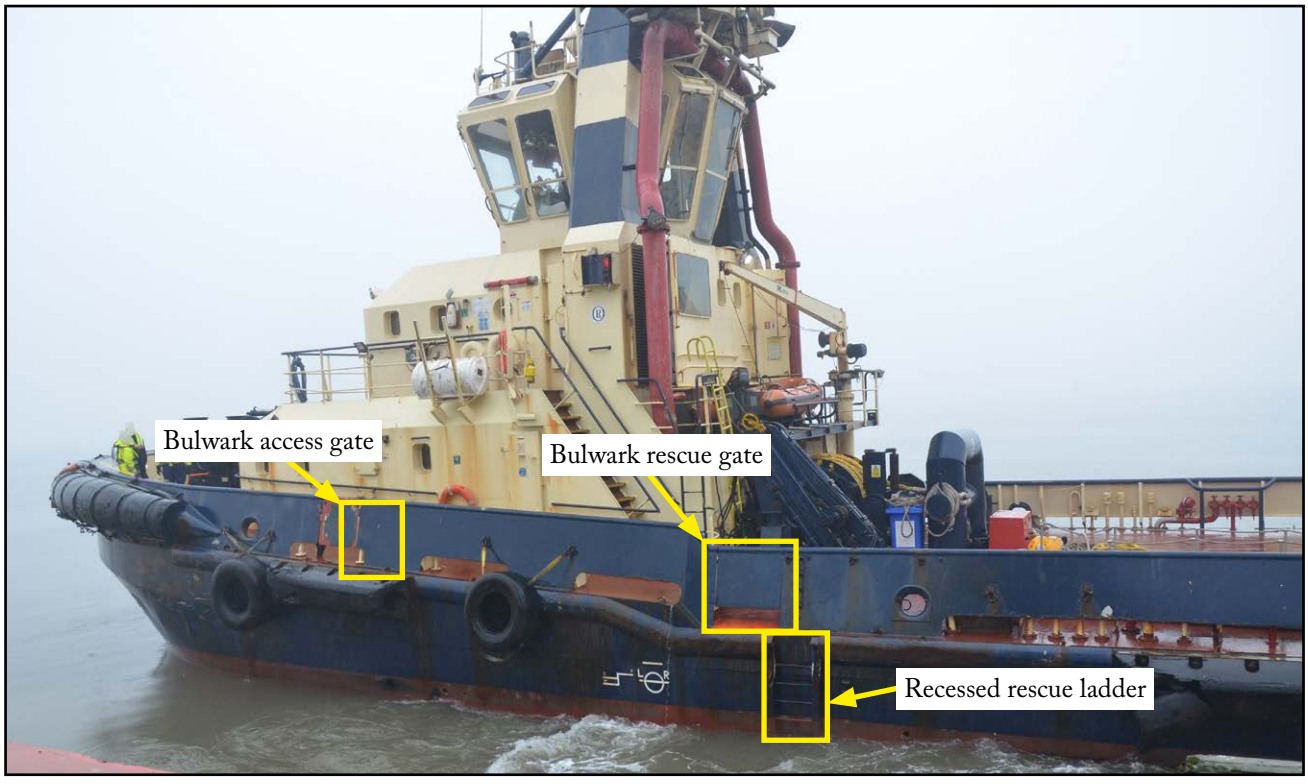


Figure 1: Tug and its access doors

The crew then attempted to use the vessel's manoverboard recovery device (Figure 2). However, they were not familiar with its operation and, having successfully looped it around the chief engineer did not tighten the strop around him. Shortly afterwards, the chief engineer appeared to lose consciousness and slipped out of the recovery device.

A rescue boat arrived within 22 minutes of the accident, and one of the rescue crew made a tethered entry into the water to recover the chief engineer. Unfortunately, the chief engineer did not survive the ordeal. The postmortem examination revealed that he had suffered a cardiac arrest shortly after falling into the water.

It was subsequently found that it had become a standard practice to use the quay's fenders to step on and off tugs, and that the terminal had facilitated this by painting them with non-slip paint.

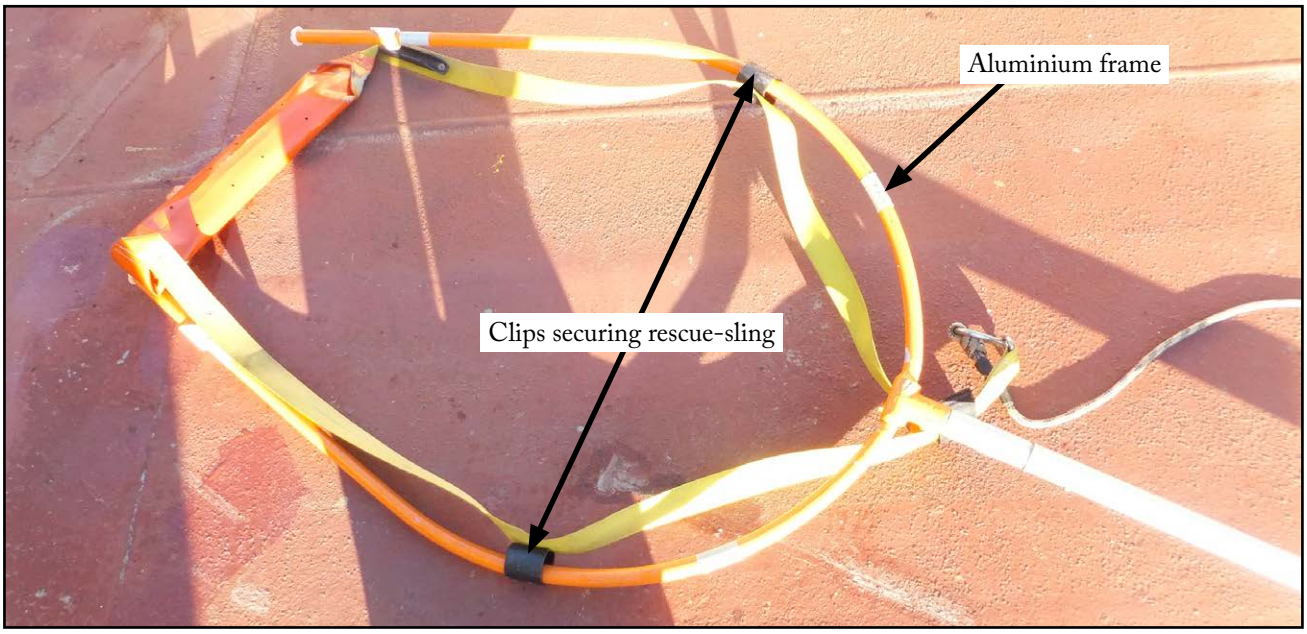


Figure 2: Man overboard rescue device with detachable strop

The Lessons

1. **Access to and from an un-moored vessel is a very dangerous activity, and should be avoided. When berthing or unberthing, shore-based linesmen should be employed.**

2. **Cold water incapacitation can set in within minutes, and cardiac arrest is not uncommon in such circumstances. Even if you are strong and healthy, if you fall into water that is below 14°C you will very soon be unable to help yourself.**

3. **Recovering an unconscious casualty back on board a vessel is an extremely difficult task without someone entering the water to assist. All crew members should be familiar with the use of manoverboard recovery equipment to recover an unresponsive casualty. This equipment could save your life; make sure you and the rest of the crew know how to use it. There is no substitute for regular and realistic drills using a manoverboard mannequin.**

Hi-Fog Hero

Narrative

Contractors were carrying out essential engine repairs during the night layover period on board a ferry that operated on a short sea route. Exhaust cladding had been removed in order that access could be gained to a sheared bolt on one of the main engine turbochargers. After the failed bolt had been replaced the engine was run briefly without the exhaust cladding to confirm that there was no leakage from the exhaust manifold. With this test run complete, the cladding was refitted to the engine.

As the ferry prepared to leave port, its four main engines were started and subsequently clutched in. Shortly after the ferry departed from the berth, with the engines running at full operating temperature, the second engineer (2/E) noticed a burning smell coming from the recently repaired engine. The 2/E contacted the bridge and requested that the engine be de-clutched and stopped, leaving the other three engines running.

Upon investigation the 2/E found a small fire burning in the exhaust lagging in the vicinity of the turbocharger. He immediately sounded

the fire alarm using the local call point and activated the Hi-Fog system for that engine. He then left the machinery space. Fire crews mustered at the fire locker and donned their fire suits in readiness for further instructions.

After the Hi-Fog system had been running for 30 minutes, the chief engineer (C/E) and 2/E re-entered the engine room, removed the heat shields from the engine and found burnt remains of an oily rag on the exhaust manifold. Having determined that the situation was under control the C/E shut down the Hi-Fog system and confirmed to the bridge that the fire had been extinguished. The fire crews were then stood down.

Before the engine was run and placed back into service the exhaust manifold was inspected thoroughly for any other debris; the lagging and heat shields were then refitted.

The Lessons

1. **This incident shows the effectiveness of high-pressure water fire-fighting systems, and the need for all staff to have the confidence and knowledge to use them. Fast action and early intervention prevented this incident from quickly becoming much more serious. Make sure you are familiar with the systems you have on board, and be confident when using them should the need arise.**

2. **Allocating sufficient time for thorough maintenance on board this type of vessel can be a challenge, especially when running on very tight schedules. Staff should ensure that good housekeeping checks are carried out after any maintenance, but especially where hot surfaces have been exposed.**

3. **Having contractors working on machinery can be an efficient way of carrying out work, especially unplanned and breakdown maintenance. It always remains the ship's staff's responsibility to monitor the works being undertaken and to ensure that the machinery is safe to start once work has been completed.**

Are you secured for the Weather, Even Alongside?

Narrative

A cross-channel ferry was berthed starboard side to with its stern to the linkspan, loading passengers and vehicles ahead of an overnight sailing. There was a fresh breeze of 15-20kts on the starboard quarter, with forecast gusts of around 27kts. Winds during the day had been steady, but gusts above 30kts had been recorded, and some forecasts mentioned squally showers and winds up to Beaufort Gale Force 8 (34-40kts).

Due to the layout of the ferry's berth, if the winds were consistently less than 25kts it was normal practice, with the master's agreement, to remove the breast line (Figure 1) at half tide or below in the period before sailing. This was because at lower states of tide the line obstructed the passengers' route to the boarding access tower. This left the vessel moored with two stern lines and a spring line aft, all on self-tensioning winches.

About an hour before departure, as a squall passed through the area, there was a rapid increase in wind speed, with gusts up to 50kts. This bore on the ferry's starboard quarter. After about a minute, the three after lines all began to pay out together and the vessel's stern moved to port, away from the berth.

A section of the passenger gangway, which was secured to the ship about two-thirds of the way from the bow, was drawn out from the embarkation tower until all its weight was on the lightweight lashings to the ship. These quickly parted, and the section of gangway fell into the water (Figure 2). Fortunately, a port employee operating the gangway spotted the danger developing and stopped two passengers who were about to board the ship.

As the stern moved away from the berth, the stern vehicle ramp hit two guardrail posts on the edge of the linkspan, carrying them away (Figure 3). The chief officer, present on the vehicle deck, reacted quickly, stopped any further loading, and ordered that the stern ramp be raised. He also ordered the mooring party to heave on the mooring winches, arresting the swing with the ship's quarter around 12m from the berth.

After an emergency start of engines and thrusters, the ship's master manoeuvred the ferry back alongside. The wind had reduced to 10-15kts on the passing of the squall but, as a precaution, the breast line was re-secured. The remaining passengers and vehicles boarded over the stern ramp and the ferry departed an hour later than scheduled to allow more water over the submerged gangway. The gangway section was recovered with the aid of divers the following day.

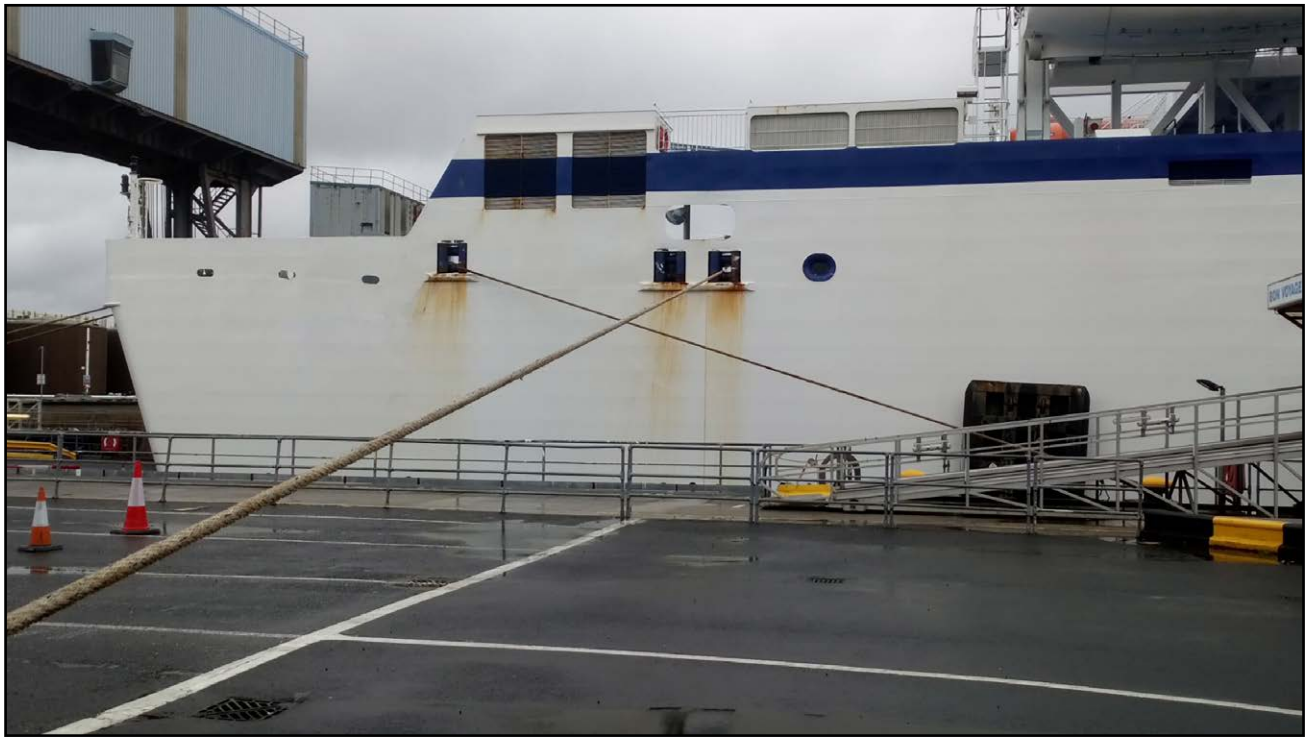


Figure 1: Breast, spring and stern lines

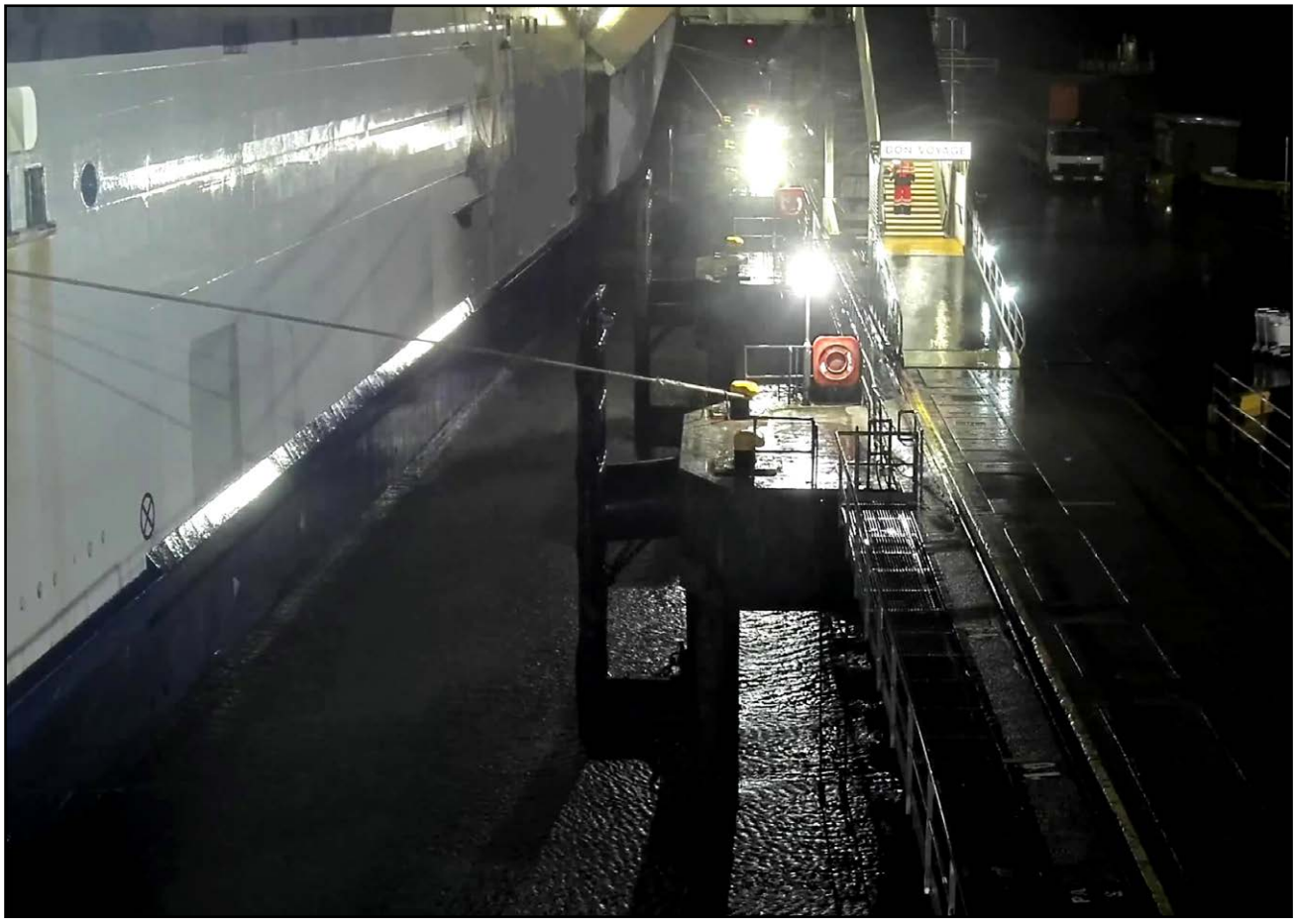


Figure 2: Spring paying out and gangway falling into water

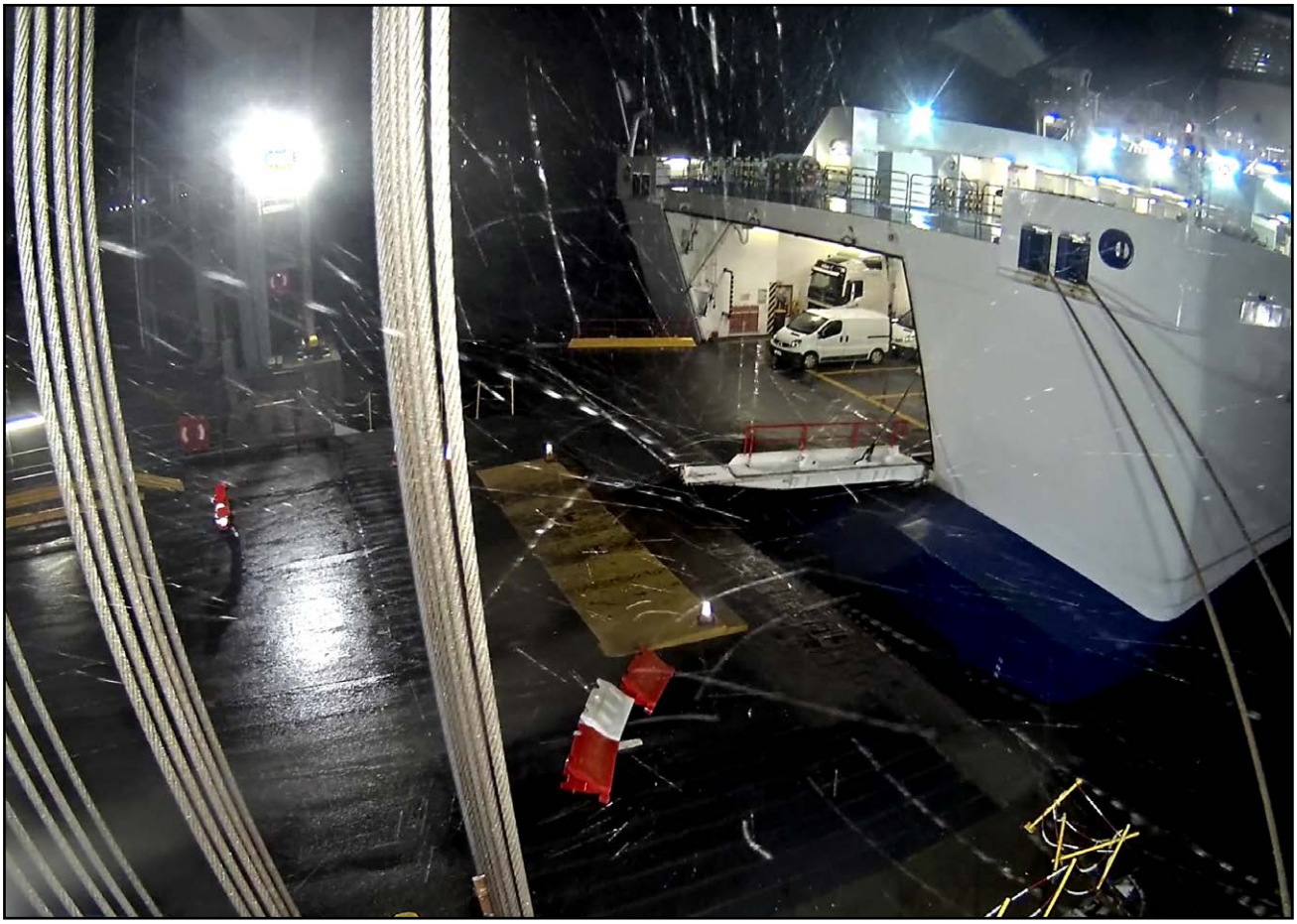


Figure 3: View of stern of ship being blown across linkspan

The Lessons

1. Self-tensioning winches are designed to work at a constant tension, and will heave in if tension is less than set and pay out if tension is greater. They are designed to keep a ship alongside in varying tidal or draught conditions. Here, in response to a sudden increase in wind speed, and a corresponding increase in forces on the ship and tension in the line, they payed out, operating as designed. If using winches in the self-tension mode, expected conditions for the period alongside must be carefully assessed, and if there is a chance that limits will be exceeded then use of higher tension settings, or holding on the brake with manual monitoring as the tidal height varied, could be considered.

2. While winds at the time of the decision to remove the breast line were within the pre-agreed limits, some forecasts indicated that winds could increase up to force 8 and had mentioned the possibility of squally showers. If considering reducing the security of a ship alongside, then the most up to date forecasts must be sought. If conditions are marginal, mooring lines should be removed only if other mitigations are in place.

3. The sliding gangway section had a minor defect that meant two doors had to be tied to the ship while the gangway was in place. As the ship moved away from the jetty, these ties prevented the gangway operator from disengaging the gangway and led to it falling into the water. Some seemingly minor defects can have major consequences – think carefully before putting off maintenance.

Pinned by the Digit

Narrative

The crew of a tug were rigging the towing gear in preparation for a seagoing tow. Two crewmen were working on deck to attach the bridle to the main tow wire using a length of rope known as the 'stretcher'. The rope stretcher had been lifted into place using a crane and was suspended above the deck as the crew threaded it through the hydraulic deck towing pins (Figure 1).

As the stretcher was being manhandled into place, it rapidly and unexpected came under tension, crushing the hand of one of the crewmen under the top plate of the hydraulic deck pin (Figure 2). The crewman suffered a serious hand injury requiring hospital treatment.

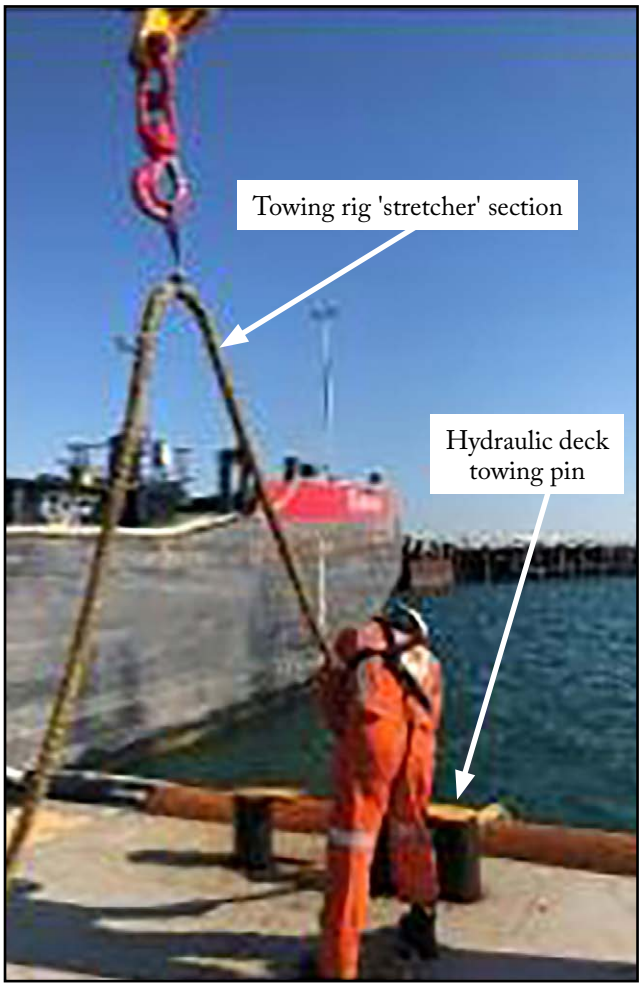


Figure 1: Reconstruction of the suspended rope stretcher being held above the deck

Figure 2: Reconstruction of the two crewman working on deck illustrating how the hand injury occurred

The Lessons

1. Keep hands well clear of danger. While it is intuitive to keep away from moving machinery, it is also important to consider situations where body parts can become trapped if something changes in the system. In this case, when the slack stretcher rope became taught, the crewman's hand became trapped because it was too close to the towing pin to allow time to release the rope or address the sudden tension.

2. All operations, however routine they may seem, need supervision. At the time of the accident, the crewman was holding the rope stretcher in place, ready for it to be pinned to the deck by the hydraulic system. However, the skipper, who was in the wheelhouse, could not lower the pin as he could not see what was happening on deck. The need for slack on the stretcher was also not prioritised by the crane operator. This routine task lacked supervision and co-ordination – no-one was standing back, watching what was going on and ready to intervene if a dangerous situation developed.

3. System familiarity and teamwork are key ingredients for success. The injured crewman had only recently joined the tug and lacked familiarity with this procedure. This emphasises the importance of teamwork, supervision, familiarisation and training.

Swimmers can be 'Ferry' Hard to Spot

Narrative

It was a fine, clear afternoon and a small open passenger ferry was nearing the end of its scheduled passage between an island and the mainland. As the ferry entered the mainland harbour a loud bang was heard, and the ferry jolted. Realising that the ferry had hit a submerged object, the skipper put the engine in neutral and looked aft, where he saw a swimmer who was evidently conscious but bleeding from a head wound.

Figure: The ferry involved in the collision (not at the time of the accident)

Assisted by the crew of another local boat, the swimmer was helped ashore and taken to hospital, where he was found to have suffered a serious cut to the head and fractures to his spine and ribs. The swimmer was treated in hospital before completing a full recovery at home.

The Lessons

1. **Warning signs serve a valuable purpose. This accident happened in a small town with a significant tourist population, where local beaches and the harbour were frequently used by swimmers. Recognising the risk, the harbour authority had put up warning notices about the hazards of swimming in the harbour. However, these signs had been removed due to vandalism. With nothing to inform the swimmer that the ferry service was running on the day of the accident, he was not expecting any vessel movements in the harbour and judged it to be a safe location in which to swim. Where a known risk exists, harbour authorities should take action to minimise this risk. A warning sign indicating when the ferry service was running might have led the swimmer to choose an alternative swimming location out of the way of the ferry.**

2. **Open water swimmers are semi-submerged objects that can be almost impossible to see and avoid, by any vessel. In this case the swimmer was wearing a black wetsuit and floating with his head under the water to test his goggles at the time of the collision. While aids to visibility, such as brightly coloured swim caps and towed floats, are available, and advised for open water swimmers, the best way to prevent a collision is to achieve separation between swimmers and boats. A designated buoyed-off area for swimming might have provided a more suitable location for the swimmer to test his new kit.**

Failure in the Fall Zone

Narrative

The deck crew of a general cargo vessel were getting ready to load wind turbines for transportation. The first step was to use the vessel's crane to hoist the wire strop hatch lifting gear out of its stowage in preparation for opening the cargo hatches.

Prior to work commencing, the chief officer gave a safety brief including an instruction that crew were not to stand underneath the crane's hook. Two ABs then entered the ventilation duct space where the lifting gear was stowed and connected it to the crane's hook using a fibre strop. The ABs then climbed out of the duct space and stood on the deck edge ready to help guide the lifting gear as it was hoisted out.

As the lifting gear was being raised, it snagged on the edge of the duct space. The chief officer ordered the crane driver to stop while the two ABs freed the snag by hand, then the lifting operation was restarted. Soon after, the lifting gear snagged again; the chief officer saw this and ordered the crane driver to stop. However, this order came too late as the fibre sling had parted under tension and the lifting gear crashed to the deck, striking both ABs, one of whom suffered a serious head injury.

The Lessons

1. **During lifting operations, it is vital that crew avoid the hazardous fall zone under the suspended load. This is not just the area directly under the suspended load; it extends to the entire area where it is reasonably foreseeable that a load could fall (Figure 1).**

2. **All lifting operations should have a safe plan, ideally a task specific risk assessment and method statement. In this accident, the ABs were struck because they were standing in the fall zone, which had not been assessed as a dangerous area. At safety briefs or toolbox**

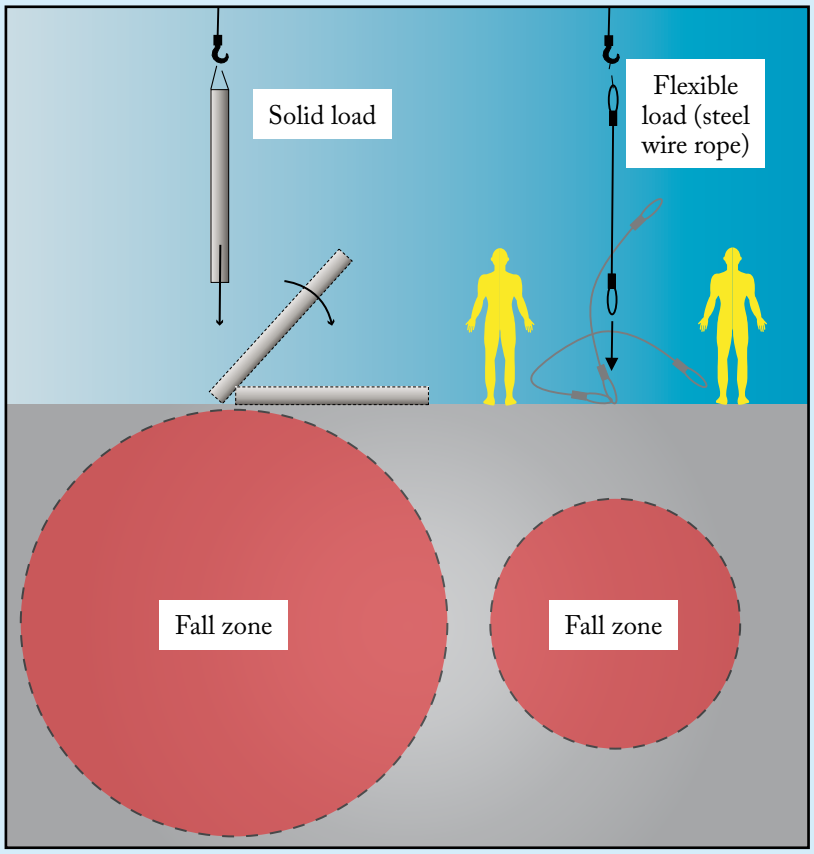


Figure 1: Illustration of the danger zone under a suspended load

talks, crew should be reminded that anyone can call a halt to unsafe operations – in this case, any of the other crew could have alerted the chief officer that the deck ABs were in danger.

3. The ventilation duct space was unsuitable as a storage for the lifting gear due to the snagging hazards, which the crew were aware of. The lifting gear had snagged before, including just prior to this accident. The previous snaggings should have served as a warning that the stowage arrangements needed to be reviewed or improved.

4. All fixed and loose lifting gear should be regularly inspected and documented. The purpose of inspections is to check that the gear is being maintained in a satisfactory condition for safety-related operational use. After the accident, it was discovered that the fibre sling in use was in a poor condition (Figure 2) and had not been recorded in the vessel's lifting gear log. Although the breaking load of the sling was sufficient to hoist the lifting gear, it should have been disposed of due to its poor condition.

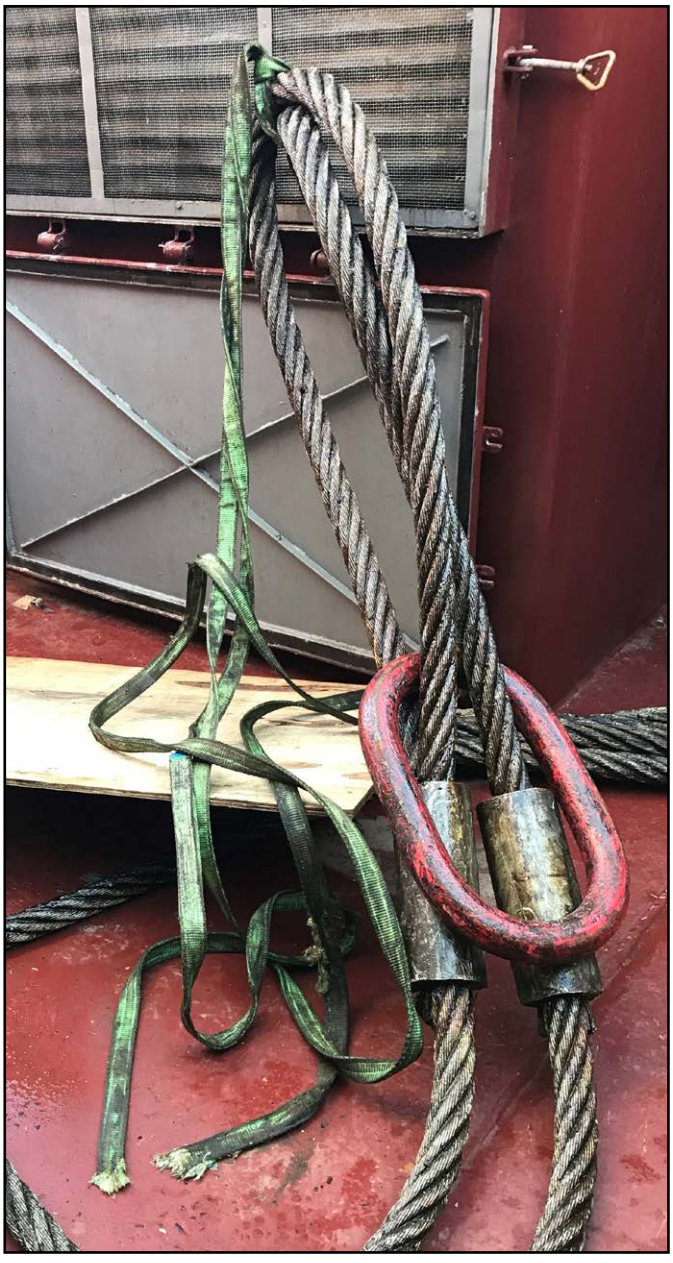


Figure 2: The broken fibre sling, still attached to the lifting gear, after the accident

Bend in the River

Narrative

An inshore passenger vessel was undertaking a tourist trip along a river running through the centre of a historic city. There were three crew and 42 passengers on board, including families with small children. The vessel's passenger carrying capacity was significantly reduced due to social distancing measures required during the COVID-19 pandemic. It was a sunny day but there was a strong breeze and peak flow of the ebb tide in the river.

Having departed the pier, the master headed upstream and into wind passing under bridges and along the riverbank as the passengers enjoyed the trip. The master followed the usual route to a point in the river where the vessel was turned around just upstream of a bridge, for the return trip downstream back to the pier.

As the vessel's heading was being reversed close to the bridge, it was swept sideways towards one of the bridge's pillars by the combined effect of the strong stream and wind. The vessel's port side made heavy contact with the bridge, resulting in a dent on the fendering (see figure). Some passengers fell over and glasses were damaged in an internal bar area, however there was no injury.

The Lessons

1. **Irrespective of a vessel's size or purpose, every journey, however repetitive, needs a passage plan. In this case, the strong breeze and peak flow of the river made for very difficult conditions for manoeuvring the passenger vessel close to the bridge. The master was familiar with the area and conditions, so the additional risks could probably have been recognised and avoided. Since the incident, the vessel's operator has issued guidance to its ferry masters to turn around downstream of the bridge during peak river flow or windy conditions.**

2. **There were a small number of passengers on board compared to the vessel's normal maximum capacity; this meant the risk of passenger injury was also reduced. If there is any risk to passengers, the public address system should be used to make sure everyone is sitting down or holding on prior to an impact of this nature.**

Figure: Damage to the passenger vessel's port side after the contact with the bridge

A Breath of Fresh Air

Narrative

Having fully discharged its previous cargo, a small coastal bulk carrier vessel was transiting the English Channel to a port in northern Europe, where its next cargo was waiting to be loaded. During the sea passage the AB and the motorman were tasked by the master to clean out the forward hold bilge wells (see figure) to prepare them for painting.

The two crew members spent the morning chipping, scraping and grinding in the bilge wells. They cleaned up the area once finished, and then the AB poured an oxalic acid solution into the wells to prepare the area for painting before they both went up for lunch.

Shortly after returning to the accommodation, the AB started to feel unwell; he was dizzy and was struggling to breathe. The cook and the captain went to his aid. They gave him medical oxygen and then a "Pan Pan" urgency call was made by VHF radio.

A nearby naval vessel responded to the urgency call and sent medical staff over to the bulk carrier by fast rescue boat. The AB's condition was assessed and the captain was advised to request helicopter evacuation for the injured crewman. The naval medical team helped to keep the AB stable until the helicopter arrived. The crewman was airlifted to a nearby hospital, and after receiving medical attention made a full recovery.

Figure: Cargo hold bilge wells

The Lessons

1. The use of chemicals had not been discussed at the toolbox talk before the work commenced. If you plan to use chemicals when carrying out a task, always assess the hazards, refer to the safety data sheets, and take the appropriate precautions to minimize the risks.

2. Oxidising chemicals should be used only in well ventilated places. Because the hatch covers to the hold remained closed while the maintenance was carried out, and no forced ventilation fans were used, the space was not well ventilated. When intending to carry out maintenance in any space that is not regularly used or accessed, always follow enclosed space procedures, which would include ventilating the area well before commencing work. If using chemicals or paint that will change the environment while working, consider the use of continual forced ventilation.

3. It was fortunate that the AB was out of the hold before becoming unwell. Regular enclosed space rescue drills are a legal requirement under SOLAS regulations for the protection of the ship's crew. Practising procedures for extracting casualties from an enclosed space should be carried out on board every vessel at a maximum of 2-monthly intervals.

What Bulk Carrier?

Narrative

The wind was light and the visibility good when a ro-ro passenger ferry departed its berth on a scheduled night crossing. On the bridge were the master, who held a pilot exemption certificate, an OOW and a helmsman. During departure the local VTS informed them of the traffic situation, which consisted of a bulk carrier that was inbound with a pilot on board, and a coaster, outbound ahead of the ferry, which was due to drop its pilot at the seaward end of the buoyed channel.

The ferry's bridge team acknowledged receipt of the traffic information from VTS but did not attempt to acquire the inbound bulk carrier on either radar or AIS.

After a few minutes the outbound coaster amended its passage plan with VTS to leave the buoyed channel earlier (Figure 1) and disembark its pilot to the south. The ferry's master identified this as an opportunity to overtake the coaster, so moved to the north side of the buoyed channel in order to avoid creating wash for the pilot disembarkation to the south.

Soon afterwards the pilot on the inbound bulk carrier raised his concerns with VTS that the ferry's position appeared to be to the north of the channel and was likely to cause a risk of collision (Figure 2).

Having appreciated the proximity of the bulk carrier, the ferry's master confirmed to both VTS and the bulker carrier his intention to alter course back to starboard. After the course alteration, the ferry and the bulk carrier passed at approximately 1 cable (Figure 3).

The Lessons

1. **The ferry's bridge team had not appreciated the proximity of the inbound bulk carrier due to their focus on the outbound coaster and insufficient use of either radar or AIS to monitor the traffic. By not following the principles of the COLREGS and using all available means to monitor the traffic situation, the ferry's bridge team had an inadequate awareness of the ships in their vicinity. As a result, they created an unnecessary risk of collision with the inbound bulk carrier.**

2. **The ferry's bridge team's reliance on visually tracking the incoming bulk carrier was further impeded by the presence of background shore lights, making the bulk carrier's navigation lights hard to see. This is a common problem when navigating near shore at night, and further demonstrates the need to make the best use of bridge equipment such as AIS, radar and electronic chart systems.**

3. **Applying good bridge resource management techniques can help defend against bridge team mistakes, such as the loss of positional awareness, miscommunication, distraction and overload. Fostering an environment in which all the bridge team are empowered to raise their concerns will help in preventing close quarter situations arising.**

4. **Bridge teams on scheduled ferry services are exposed to repetitive navigation within coastal and pilotage waters, and as such the associated hazards can become normalised. All efforts should be made by ship operators and their bridge teams to understand and mitigate against the lack of attention to the potential risks that this can lead to.**

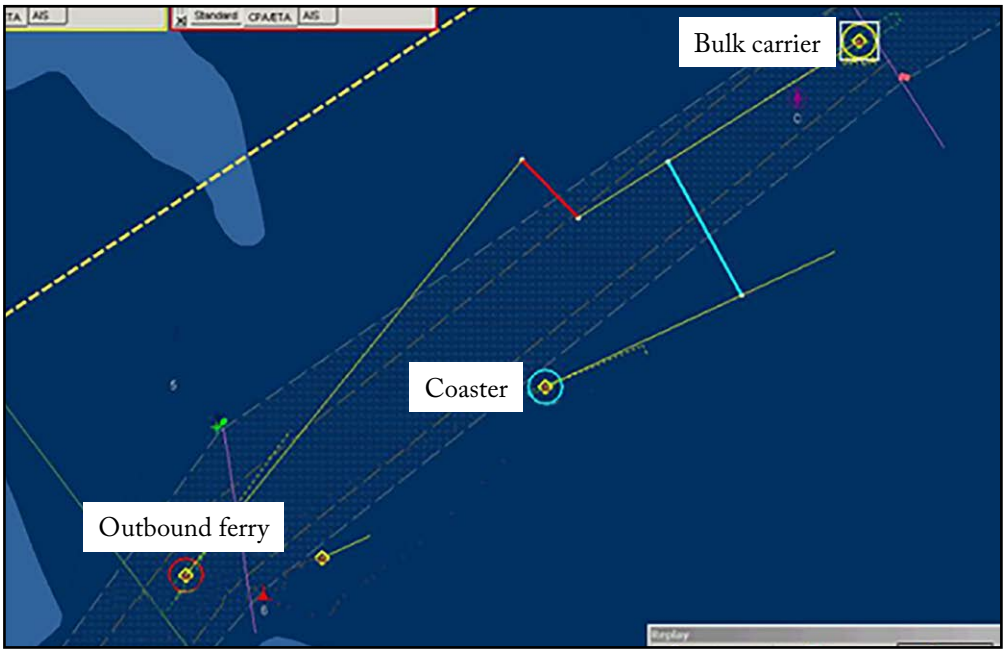


Figure 1: The coaster leaving the buoyed channel early

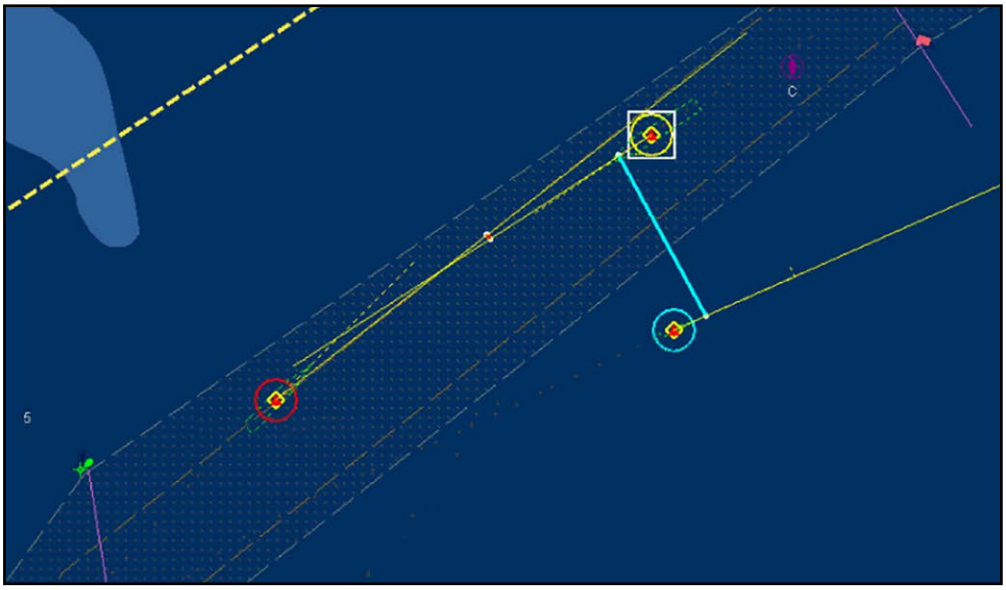


Figure 2: The bulk carrier pilot raises his concerns

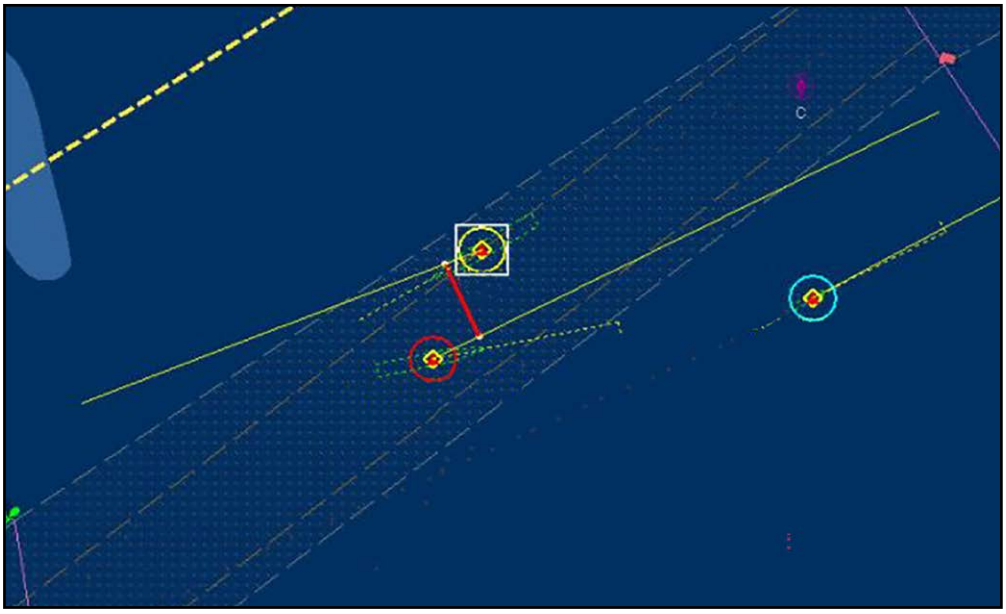


Figure 3: Passing at 1 cable

Fire After Engine Maintenance

Narrative

A vehicle ferry was outbound returning to its operating area after a routine refit. There were no passengers or vehicles on board. Once the pilot had disembarked and the vessel was in open water, the bridge team gradually increased the engine speed while the engineers monitored the engine room. A small amount of vapour was noted coming from the aft main engine lagging, close to the turbo blower. Work had been completed on the cooling system in this area, the lagging smelt damp and it initially appeared to be water vapour being produced.

Shortly afterwards, the fire alarm activated in the aft engine room and small flames were seen coming off the lagging (Figure 1). This was rapidly extinguished using an aqueous fire-fighting foam (AFFF) extinguisher, and the bridge team were asked for approval to stop the main engine.

After clearing up, and in consultation with the senior chief engineer, it was decided to restart the engine and monitor the situation carefully. The fire reignited after a few minutes' running and was once again extinguished. Again, the engine was stopped, and this time the lagging was removed; the engine restarted with no further issues. The lagging pad was subsequently replaced.

The company investigation later identified that during maintenance work on the main engine cooling system a pipe had been removed to allow a leak to be repaired by replacing a seal. This was not a planned task, and no risk assessment or method statement had been produced. When the pipe was removed, around 5 litres of water had drained from the top of the crank case breather box, and some oil residue inadvertently washed into the lagging. Main engine runs conducted alongside after the repair had not produced sufficient heat to ignite the oils. However, when the main engine was run under load at sea, the increased temperature produced was enough to cause a fire.

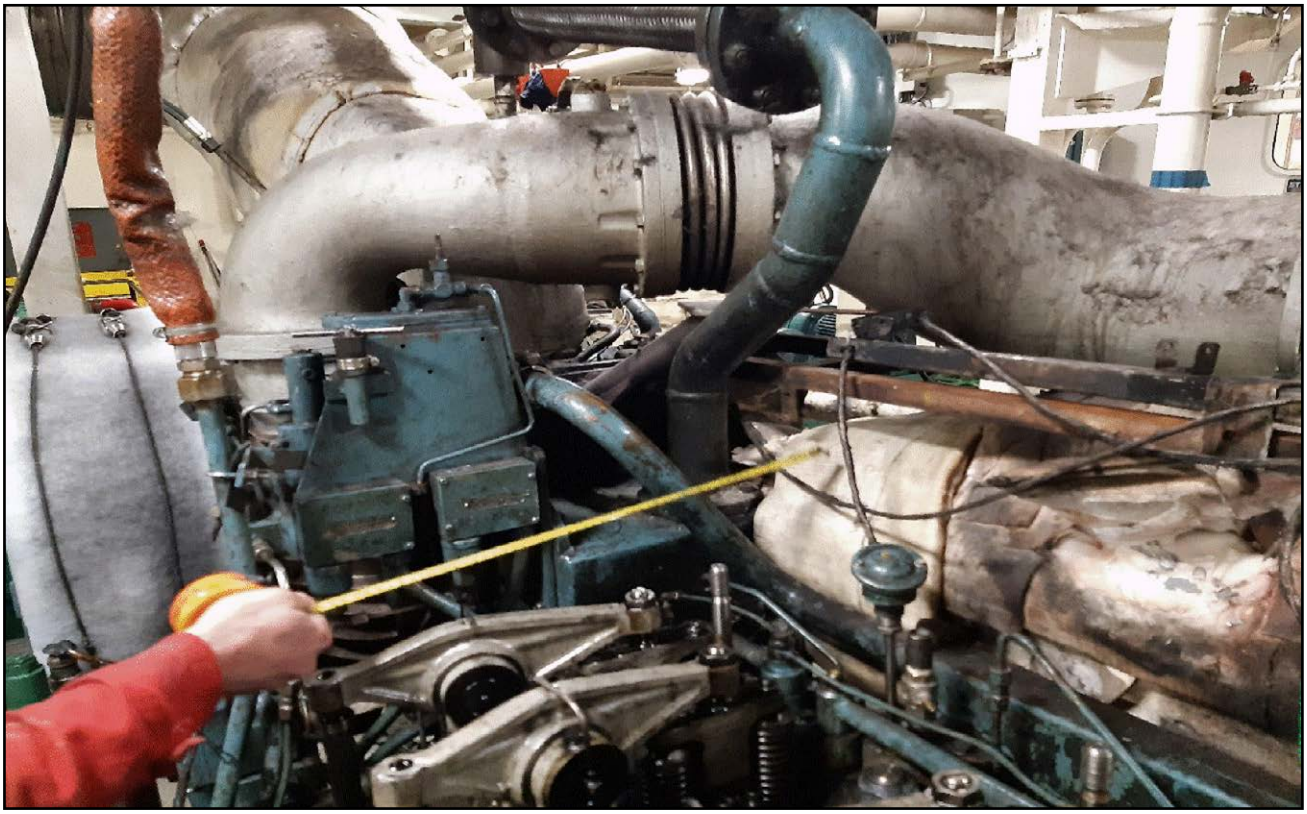


Figure: Location of lagging that ignited indicated

The Lessons

1. Whenever maintenance work is carried out around or near potential sources of heat, a risk assessment must be conducted to ensure unexpected results are considered. The working and adjacent areas should be protected from contamination – even if you expect only water to be present. If water can wash oils into places that can then become hot when machinery is running, a source of ignition can be created. In this case the crew were alert and the fire was small. This may not always be the case.
2. Even after AFFF is used, sufficient heat will cause flammable material to reignite once it gets hot enough. The crew involved in this incident were monitoring the site carefully and quickly extinguished the second fire. However, the only real solution would have been to remove the flammable material from the source of heat, which was subsequently done by removing and replacing the lagging.

Mind the Gap

Narrative

An offshore support vessel was proceeding to its allocated berth in harbour; it was calm with a moderate breeze and, although it was dark, visibility was good as the whole area was well lit. The passage into the harbour had been uneventful and a pilot was on board to assist with the pilotage and berthing.

The allocated berth has another support vessel berthed immediately in front and another opposite. As the support vessel reached the berth (Figure 1), speed was reduced in preparation for manoeuvring alongside; the berth was overshot by about 20m (Figure 2), although this was not a concern to the master or the pilot.

At about the same time, conning control was being changed over from the bridge centreline to the bridge wing in preparation for coming alongside. During the transfer of conning position, control of the vessel was lost and it sheered to port; the bow made contact with the vessel berthed ahead and the stern made contact with the vessel opposite (Figure 3).

The Lesson

1. **Pilotage and ship-handing in harbour requires the highest standards of planning and execution. This manoeuvre had been conducted before by the crew and pilot, who were all familiar with the vessel and the harbour. However, the situation deteriorated rapidly when control of the vessel was lost during transfer of conning positions. This changeover occurred at a time where there was very little room to recover if anything went wrong. Assuming that conning the vessel from the bridge wing position was key to safe berthing, then the changeover of control position could have been undertaken after entering the harbour but prior to the final approach to the berth.**

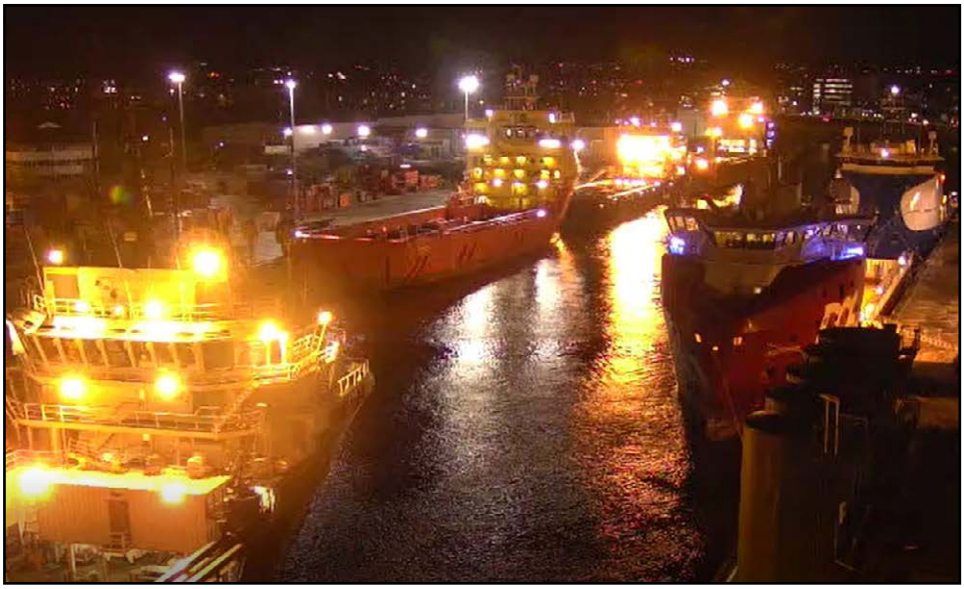


Figure 1: The support vessel approaching the berth (port side alongside)

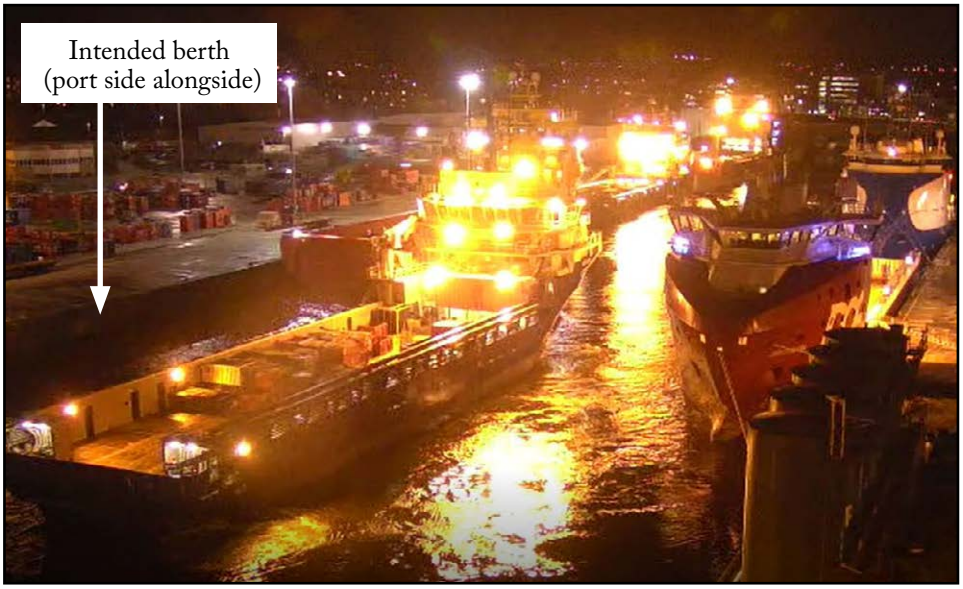


Figure 2: The support vessel overshoots the berth

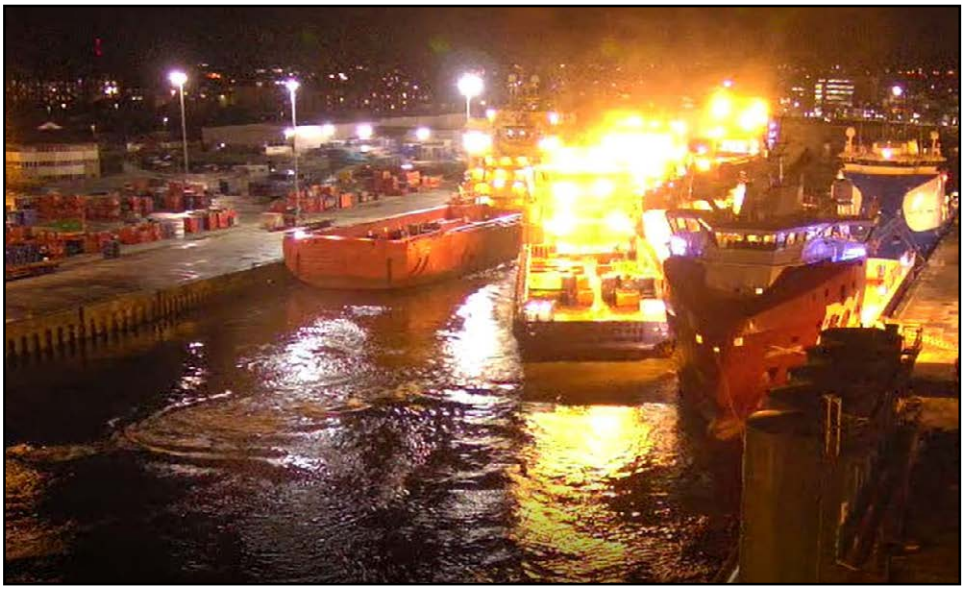


Figure 3: Loss of control and sheer to port, with contact made with berthed vessels

Balancing Act

Narrative

A 2/E was working alone in the engine room of a passenger ro-ro ferry conducting his post start-up checks of the main engines. This was a routine job undertaken before passing the machinery controls to the bridge, ready for departure. He was a very experienced engineer and, having completed this task many times, had developed his own systematic route around the engines to ensure that all required items were inspected.

He had checked all the fuel pumps for leakage by walking across the side of the engine on a raised walkway and looking vertically down into the fuel pump area. The 2/E planned to then check the oil flow for the bearings within the turbocharger. In order to get a better view of the oil sight glass, he placed his right foot on a nearby handrail that ran around the side of the engine. Once his full weight was transferred, one end of the handrail broke away from its stanchion, causing the 2/E to lose his footing and fall off the side of the engine. He fell about 2m to the bottom deck plates, hitting pipes and their brackets on the way down and injuring his ribs and his left arm.

He made his way to the engine room control room and telephoned the bridge to inform the master of his accident. As the vessel was still in port, the local emergency services were called and the 2/E was transported to a local hospital. There, he was treated for a broken rib before going home to recuperate.

The Lessons

1. **The company had recognised the problems involved when checking the turbocharger oil some time previously, and had installed a step for this specific purpose. However, accessing this step would have meant the 2/E climbing down off the engine; this did not fit in with his routine route. Rather than change his routine, the 2/E had developed an unsafe work-around, which he had been using for a long period of time without incident. This adaptive behaviour led to him lapsing into danger and away from the company's safe way to operate. Had the 2/E stood back for a moment and considered what he was doing, and then discussed it with colleagues undertaking a risk assessment, he would most likely have recognised the danger and stopped the practice.**

2. **Routine tasks can often lead to a slow drifting away from standard operating procedures and mitigating measures detailed in risk assessments. Before undertaking a task it is always worth spending a few minutes to reacquaint yourself or your team with the standard operating procedures, and to review the risk assessments. Standard operating procedures and risk assessments can always be amended to reflect a safer and more efficient way of undertaking a task, and good quality organisations will have a process in place for making these changes.**

3. **Lone working carries a unique set of hazards that require steps to be taken to mitigate them. The 2/E was fortunate that his injuries were not severe and that he could summon help. Local risk assessments for lone work should always consider the additional potential consequences of the worker not being able to communicate or to raise the alarm.**

All Decked Up

Narrative

A ro-ro passenger ferry was loading vehicles in preparation for departure. A maximum capacity of vehicles was due to be loaded, so the hoistable car decks (known as the mezzanine decks) (Figure 1) were planned to be in use.

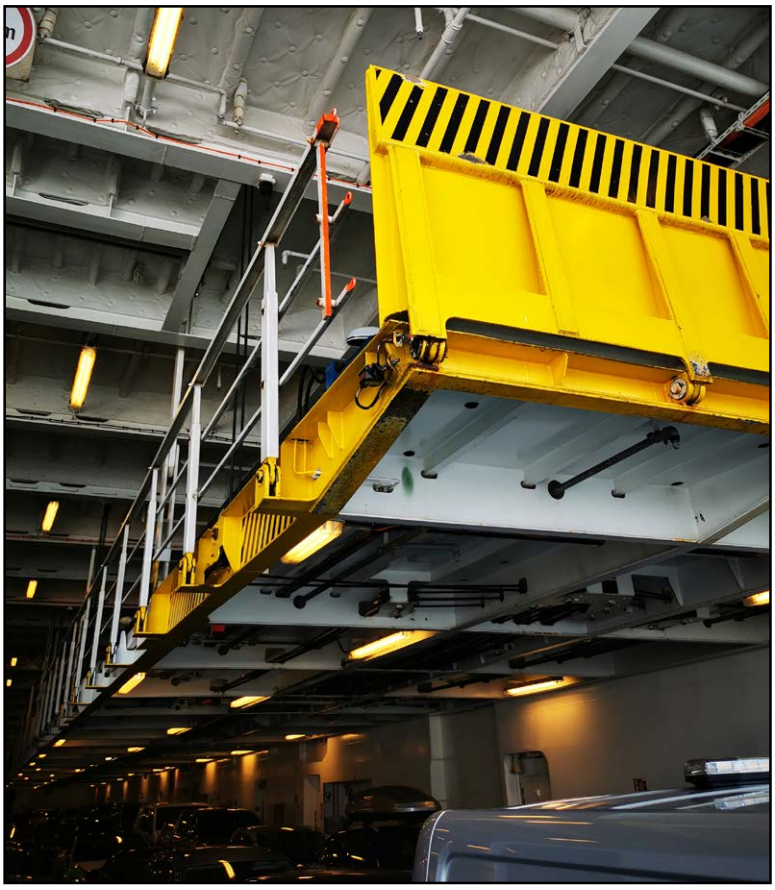


Figure 1: The loaded mezzanine decks in the raised position with the vehicle ramps in the vertical (safe) configuration

The mezzanine decks were loaded with cars at the main deck level, then hoisted up to allow loading of other vehicles onto the main deck. The mezzanine decks were certified as 'man passenger lifts', which meant that drivers and passengers stayed in their cars whilst the decks were raised or lowered. Crew members were also permitted on the mezzanine decks when being operated. The procedure for moving the decks involved two crew members: one stationed on the mezzanine deck, and the other operating the control panel at main deck level. The mezzanine decks had three positions: 'ramp', 'working' or 'stowed'. The ramp and working positions were used to load and unload cars on busier voyages. The stowed position fully raised the mezzanine deck against the deckhead; this was available to facilitate loading of high-sided vehicles on the main deck, when the mezzanine decks were not in use.

This incident occurred when the mezzanine deck had been loaded with cars and was being hoisted with one crewman at the controls and another on the mezzanine. As the mezzanine deck approached the raised position, the vehicle ramps at the ends of the mezzanine deck started to move to the horizontal position. The crewman on the mezzanine deck saw the ramps starting to move and immediately realised that this meant that the 'stowed' position must have been selected and there was, therefore, an immediate risk of serious damage or injury to the people and cars if the deck continued upwards beyond the working position.

The crewman on the mezzanine deck shouted to the crewman at the controls to immediately press the stop button. The mezzanine deck stopped, the controls were reset, and then it was correctly located at the working position so the drivers and passengers could transfer to the ferry's accommodation area.

Figure 2: The hoistable car deck control panel

The Lessons

1. This was a near miss that highlighted the risk associated with a potential loss of control of heavy hydraulic and mechanical equipment. The crewman operating the controls was newly appointed to the task and, although he had received training, he had no practice or experience. The most likely cause of this near miss was the lack of supervision when the crewman became confused by the layout of the control panel (Figure 2), and selected the wrong command. It was fortunate that the crewman on the mezzanine deck realised what had happened and intervened before the mezzanine decks were raised dangerously high.

2. Consideration can be given to protecting control switches where a hazard of this nature could arise. The control panel does not clearly indicate the difference between working and stowed positions. A simple cover over the stowed button might prompt an operator to think about which button to press when operating the deck with cars on it.

Watch Your Step

Narrative

A small tug was secured alongside an aggregate barge to reposition it ready for loading at a river aggregate quay (Figure 1). It was a mild, summer's day with a moderate breeze.

During the repositioning operation, the tug's deckhand was required to go ashore from the barge to move a rope to the next bollard. It was close to high water and there was a drop to the quayside, so the deckhand sat on the edge of the barge before pushing himself off, jumping over a gap of around 1m between the barge and the quay (Figure 2). As he landed on the quayside, the deckhand slipped on loose aggregate (Figure 3) and fell backwards between the barge and the quayside, and into the river, where his lifejacket immediately inflated.

Quickly spotting this, the mate informed the tug's master, who held the barge away from the quay. The engineer threw a life-ring on a line to the deckhand, and with this the deckhand was able to swim to a nearby ladder and exit the water. Once the barge was secured, he then re-boarded the tug, showered, changed his clothes and proceeded to hospital for a check-up. There, he was confirmed to be uninjured.

Figure 1: Tug alongside barge

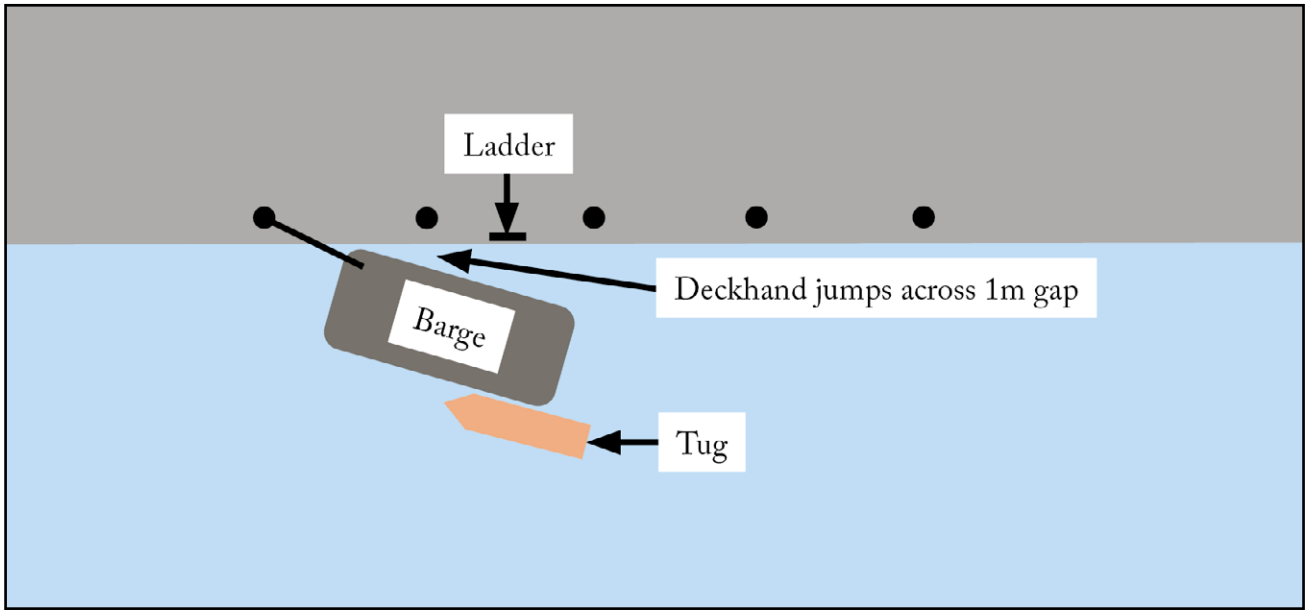


Figure 2: Quayside with tug and barge repositioning

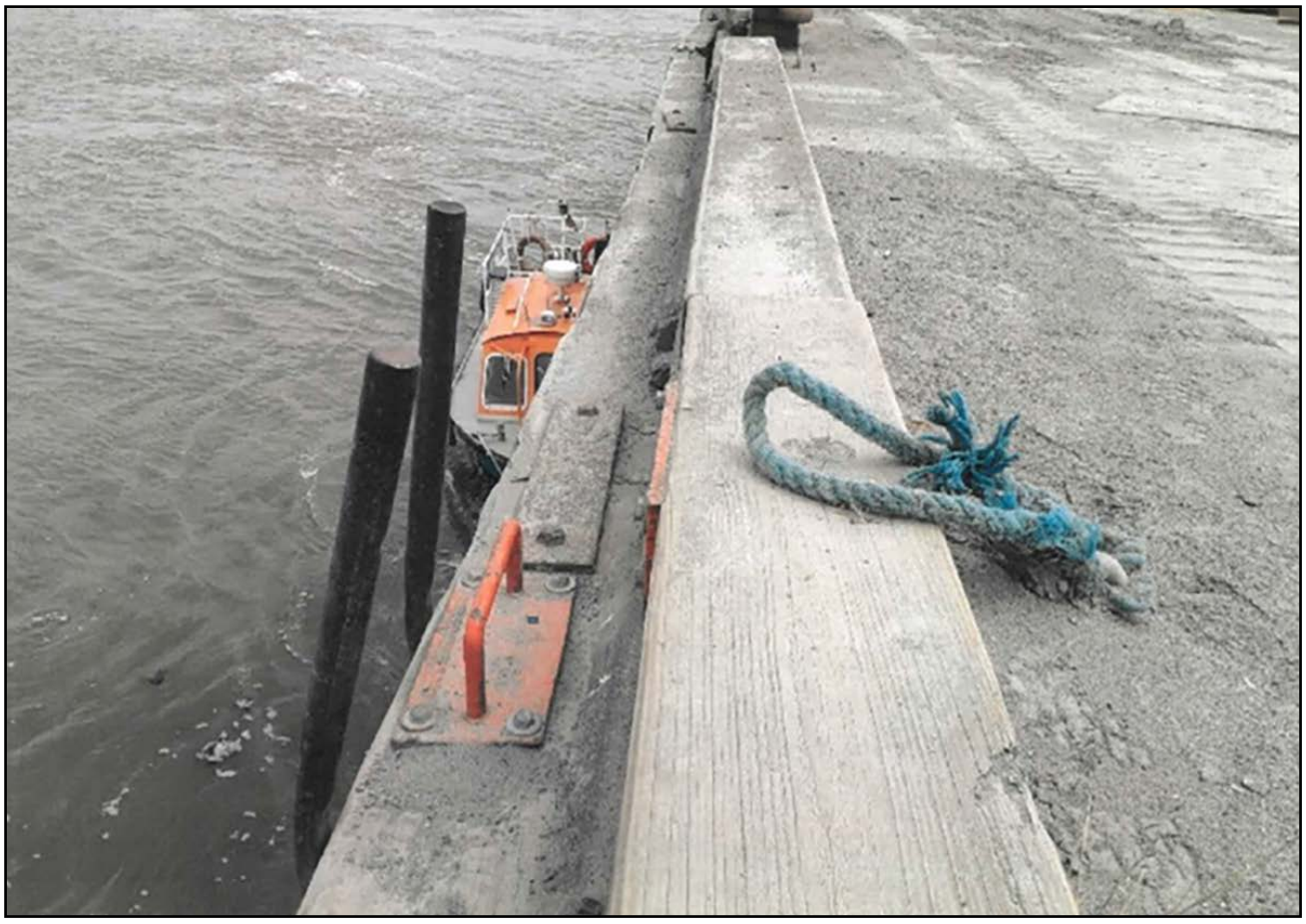


Figure 3: Quayside showing ladder and loose aggregate

The Lessons

1. The deckhand involved in this incident was lucky. He fell into the water and did not become crushed between the barge and the quay. In many similar incidents, including a number investigated by the MAIB, people have been killed or seriously injured. Jumping any distance to get ashore or onto another vessel is extremely dangerous, even more so when the landing surface is slippery. Stepping across a small gap may be acceptable provided the vessel is stopped and held alongside securely, but the crossing should be level. In this case a ladder was available and, once the barge was alongside, would have removed the need to jump. Guidance on safe access ashore is given in MGN 591 (M+F) and the Code of Safe Working Practices for Merchant Seafarers (COSWP).

2. Although a toolbox talk had taken place before this operation, the safety of the access method was not challenged as it had become 'normal' practice. All methods of access to vessels must be robustly risk assessed, and it is the owners' and masters' responsibility to ensure that safe access is provided, and used correctly, every time. Just because something has become 'normal' practice does not make it safe. If you think something is unsafe, speak up.

3. The deckhand was wearing a lifejacket, conditions were relatively benign, and he did not suffer cold shock. Therefore, thankfully he was able to pull himself out of the river uninjured. The crew were drilled and organised.

    - When was the last time you practised a manoverboard drill?
    - How quickly could you recover someone who has become incapacitated by cold water, in the dark?
    - Does everyone on board know the procedure?

Getting Your Wires Crossed

Narrative

A vessel's number 2 diesel generator was experiencing starting difficulties. After conducting some tests, the chief engineer decided to remove the starter motor and send it ashore for an overhaul.

During the period the starter motor was being overhauled, the vessel remained alongside and a crew change occurred, which included the arrival of the relief chief engineer. The off-going chief engineer referred to the removal of the starter motor in general terms in his handover notes.

On return of the overhauled starter motor to the vessel, the relief chief engineer carried out the re-installation, and connected the power cables to the positive and negative terminals of the starter motor. As the generator was started, smoke and a small fire appeared from the starter motor and surrounding area.

A subsequent examination of the heat damaged starter motor and cabling (see figure) identified that the electrical wiring had been incorrectly connected. On that particular engine model, some of the positive side cabling was coloured black instead of the more usual red. This had not been mentioned in the handover notes or noticed during the reconnection.

Figure: Heat damaged electrical cabling

The Lessons

1. **Damage sustained to machinery after repair or overhaul can be due to poor communications, such as where the reinstallation is carried out by a different person to the one who disassembled the piece of machinery. It is very easy to assume that your opposite number understands what is involved and what the correct re-build process is. But what if they do not? If you are unable to discuss the reassembly in person, ensure detailed notes, photographs and references to the manufacturer's manual are provided. This will potentially save costly embarrassment or, worse, a major fire or other disaster.**

2. **Arriving on board to find a pile of parts from your opposite number and limited handover notes, it may be tempting to quickly pick up the spanners and get on with reassembly. Does the benefit of putting something back together quickly outweigh the potential for a catastrophic failure if it is assembled incorrectly? Time spent on reading instructions or getting assistance could be time well spent.**

One-armed Paper Hanger…

Narrative

A rigid inflatable inshore rescue craft had been launched to search for a missing person seen entering the water close to its base. It was a dark winter's night with no moon, with a moderate breeze and a slight sea state. Weather was fair and visibility of lit objects was good.

After the first 2 hours of searching, the rescue craft returned to base for a routine crew change. The new crew consisted of an experienced helm together with three trainee crew, two of whom had been volunteering for 2 years, and a third who had been volunteering for only 2 months.

After the crew change, the craft departed the base. Concerned that searching and spotting unlit objects in the dark night would be difficult, the helm kept the speed to around 12kts and asked one of the crew to go forward and rig the searchlight. While the crew member was doing this, another crew member suggested that the radar should be transmitting; the helm agreed.

As the crew member finished rigging the searchlight, and the second crew member bent over to turn on the radar, the craft hit an unlit mooring buoy covered with heavy marine growth (Figure 1). The impact caused the bow to lift and roll to port, and the outboard engine skegs became caught on mooring pick-up lines attached to the buoy. The boat stopped instantly, propelling the forward crew member out of the boat and resulting in the crew member who was turning on the radar hitting his head on the handrail in front of him, causing a cut above his left eye.

Figure 1: Unlit mooring buoy, with significant marine growth

The crew member in the water inflated her lifejacket and swam away from the boat to keep clear of the propellers. The lifejacket functioned correctly, and its light came on automatically. The helm, concerned for the crew member in the water and initially unable to manoeuvre, made a "Mayday" call. The boat was quickly freed from the lines and the crew member recovered.

The craft returned to base and no serious injuries had been sustained. The boat was taken out of service for assessment, and after repairs to minor gelcoat damage (Figure 2) was returned to service.

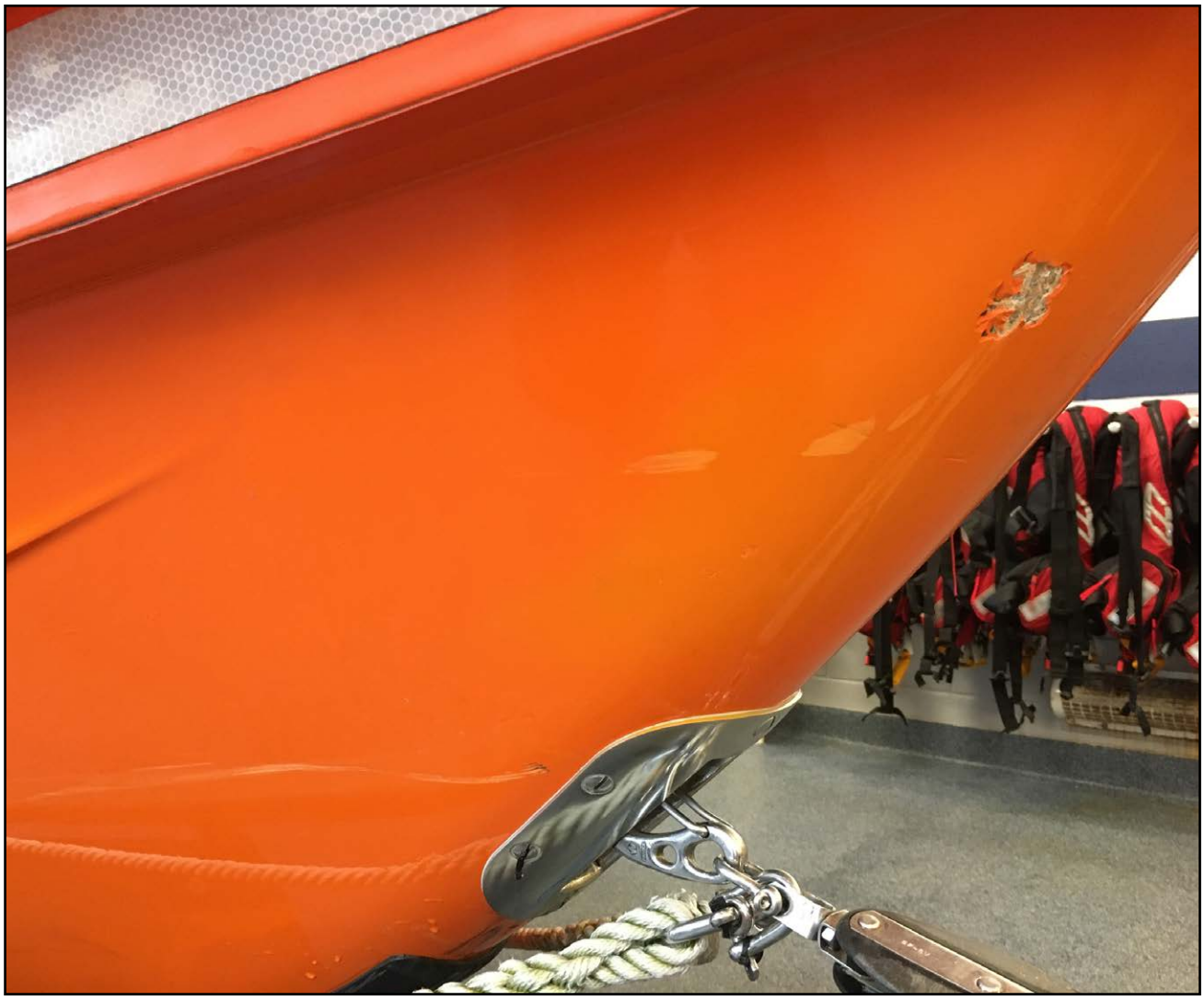


Figure 2: Damage to gelcoat

The Lessons

1. The organisation's manning guidance allowed for one trained helm and three trainees providing that at least some of the trainees were competent to operate the VHF radio, electronic chart navigation and radar equipment. However, once underway, it became clear that the helm was having to take on many of the trainee's tasks and was acting as boat driver, radio operator and navigator. He became overloaded and quickly lost situational awareness.

2. The helm had considered asking one of the crew members to drive the boat, which would have allowed him to concentrate more on navigation and directing the crew. An additional qualified helm was also available ashore and would have provided better support in lieu of one of the trainees. Whatever the activity, always be sure you understand the capabilities of your crew and ensure that they are used to the best effect, with responsibilities shared so that no one crew member, including the person in charge, is overloaded.

3. A safe route had not been programmed into the chart system prior to departure, hazards had not been identified, and the crew member operating it had not been adequately briefed. Therefore, support from this equipment was limited. The radar was also not transmitting, denying the crew another source of information on dangers. In addition, the crew member setting up the spotlight might also have obscured the helm's view forward. Keeping a good lookout is vital, and this should involve the whole team, making use of all available means. This is particularly important when operating close to unlit objects at night.

4. All crew were wearing full immersion suits, lifejackets and safety helmets, so the crew member who fell into the very cold water was recovered quickly and suffered no injuries. Being properly dressed for the conditions is vital, and in this case made recovery relatively simple and assisted with the satisfactory outcome. Do you consider the expected worst-case conditions and dress appropriately every time? Do you conduct regular drills and are you ready for a person overboard?

Part 2 – Fishing Vessels

Having completed a career at sea with various Merchant Navy companies I came ashore to take up an appointment as a Superintendent Engineer with J Marr Ltd in Hull. The company at the time operated a fleet of fishing vessels, some fresh fish, and some freezer trawlers and at one point expanded into the Beam Trawling sector.

As an introduction to the fishing industry I do not believe it could have been a better one as the variety of fishing vessels I started to see, whilst small with the company, was expanded by introductions around the industry especially in ports where the company vessels operated – around the UK and European ports. In addition, during this time I was involved in following up and taking actions for safety failures on company vessels which was to help me in the future.

On joining the Department for Transport as a Fishing Vessel Surveyor, I was able to apply the skills and experience gained already into surveys and inspections of fishing vessels for issue of certification. This new role expanded my knowledge as I was able to learn on the job and develop new skills in the survey of smaller vessels than I had previously been involved with and, importantly, both wooden and GRP vessels in addition to steel. It also helped tremendously that I was able to reassure fishermen that I was there to help them operate in a safer manner and that I was not there to find fault with everything they did.

Moving onwards several years and having spent five years as a Classification Society Surveyor I was appointed as Principal Fishing Vessel Surveyor for the East of England (in reality Berwick to Devon). This allowed me to put even more into practice safer operation of fishing vessels, especially as I was now involved with the fishing federations and other safety minded organisations, through the Fishing Industry Safety Group, promoting safe fishing. I can honestly say that the individual members from the federations, and organisations such as RNLI, MAIB, Seafish and more have made a significant difference to the operation of many fishing vessels, not just the ones I have had direct contact with, but for others around the country, and in fact overseas too with the Anglo Dutch and Anglo Spanish fleets, together with the fishing vessels the MCA surveys for the Falkland Islands and St Helena flag administrations.

These Marine Accident Investigation Branch reports show that, regrettably, despite all the efforts of the regulator, safety representatives and many others involved with safety around the industry, there is still room for improvement.

All too often, the same mistakes are made, and sometimes even on the same fishing vessels, where lessons have not been learned. As a Mountain Leader I equate some of the incidents highlighted in this edition with the kind of things I would expect when out in the mountains.

Preparation is one example where a route is planned before taking it and navigation points taken note of. Some of the incidents described here could so easily have been avoided by preparing a passage plan,using it and having enough watchkeepers in the wheelhouse, especially during the hours of darkness or in fog. Weather conditions are something that anyone who sails on any vessel should be well aware of, and underestimation of the power of the wind, tide or sea state can lead to hazards being encountered which could have been avoidable. Knowing when to call for help is vital to the safety of fishermen; and doing so at the right time can make all the difference between life and death. I would also say that making that call to the Coastguard, and not just to another fishing vessel by mobile phone, is key to the Emergency Services being able to render assistance. So often,

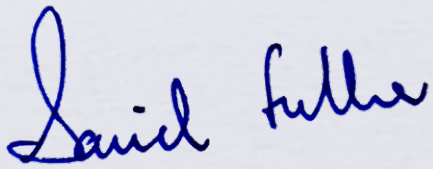
accidents are caused or made worse by fishermen trying to avoid a follow up by MCA surveyors in the mistaken belief that they will be unfairly penalised for calling for help.

Ensuring that all the equipment on a fishing vessel is reliable, is tested regularly and repaired if it is deficient is another cause for concern. Something as simple as cleaning fish room strum boxes can mean the difference between being able to pump out a fish room if a flooding occurs or losing the vessel. Fortunately, the skipper of one of the incidents described in this edition of the Safety Digest, made the right call and help arrived. Had any delay occurred or the vessel been further out to sea, the outcome could have been so much different.

Training is an important consideration that should be at the forefront of a crew's thinking before going to sea – is the crew prepared for any emergency, have they access to all the lifesaving and firefighting equipment, and especially now that the requirements under the Work in Fishing Convention have been applied, are all crew on open decks wearing personal Flotation Devices (PFDs)? The industry, through FISG, has made huge steps towards educating fishermen in the wearing of PFDs, yet still we see cases of fishermen, who have not been wearing one, going overboard and losing their lives.

In closing, I endorse the safety messages seen in this Safety Digest and MAIB publications. All seafarers, whether they be merchant, fishing or recreational, would be well advised to read and note the lessons learned, and ensure that their vessels are well prepared to go to sea, for whatever purpose, to avoid accidents, injuries and fatalities. If you are reading this then you will know what I mean; do share this information where possible to increase awareness throughout the industry.

I wish you safe fishing.



DAVID FULLER OBE MNM DL
MARITIME AND COASTGUARD AGENCY

David joined the Merchant Navy in 1972 sailing worldwide with BP Tankers, Indo China Steam Navigation and in the North Sea on Anchor Handling, Supply and Dive Support Vessels in all ranks to Chief Engineer. Coming ashore in 1987 he joined J Marr Ltd in Hull as Superintendent Engineer and commenced a 30+ year relationship with the fishing industry.

Having worked closely with fishermen he joined the forerunner of the MCA as a Fishing Vessel Surveyor in 1992. Concurrently he also commenced a part time degree in Mechanical and Electrical Engineering, graduating with First Class Honours in 1997. He spent five years with Germanischer Lloyd, before returning to the MCA in 2003, appointed as Principal Fishing Vessel Surveyor in 2005, which post he has held since, with the exception of two years as Technical Performance Manager.

He has developed his links with the fishing industry and chaired the UK ILO 188 Tripartite Working Group through to the introduction of the Work in Fishing Convention. In addition, he also carries out surveys and inspections of Merchant Ships and is a Principal Examiner of Engineers. He is an active member of the Institute of Marine Engineers and has been Chairman of his local branch twice.

In his own time, he has served with the Army Cadet Force, holding appointments as Colonel Cadets, 4 Infantry Brigade and as Vice President of the Cadet Forces Commissioning Board, together with Vice Chairman, the Army Cadet Force Association, and the Reserve Forces' and Cadets' Association in Yorkshire. In 2014 he led a successful four week joint service cadet expedition in the Canadian wilderness. He is the Editor of the joint service cadet magazine for Yorkshire and The Humber; and a trustee of the Sailors Childrens Society, the Army Cadet Force Association, and the Yorkshire Cadet Trust.

Between a Rock and a Hard Plaice

Narrative

It was a fine winter's day with a light onshore breeze; some would say the perfect day to go fishing. Just before dawn and 2 hours before low water, a small fishing vessel sailed from its home port for a day's creel fishing.

Just after the vessel passed the end of the breakwater a screeching noise was heard coming from the engine room, and almost immediately the engine stopped. The skipper reacted quickly and instructed his deckhand to let the anchor go while he restarted the engine. The engine started, but as soon as the skipper engaged ahead gear it stalled again.

The deckhand had set the anchor, but it found no purchase on the rocky seabed; the fishing vessel began to be set towards the shore. Realising they were in danger, the skipper phoned the coastguard, and lifeboats were despatched. The fishing vessel's crew were unable to prevent the vessel from washing onto the rocky shore, where it became stranded in the falling tide. A lifeboat arrived rapidly and was able to recover the two crew safely to shore, but in the heavy swell the fishing vessel pounded on the rocks, resulting in the engine room quickly becoming holed and the vessel taking on water.

At low water, the skipper and the lifeboat crews tried to patch the hole in the hull, but by that time the damage was too great and the attempt to recover the vessel had to be abandoned as the tide rose again. The vessel was totally engulfed, and with an onshore swell still running it broke up on the rocks (Figures 1 and 2), with its fuel causing some minor pollution.

The fishing vessel's propeller was almost certainly fouled by a line from an unmarked creel fleet that had been laid close to the harbour entrance. The propeller wound this in tightly, jamming the shaft and stopping the engine. With no way of quickly clearing the fouled propeller, and poor holding ground for an anchor, there was little more the skipper could do.

Figure 1: Fishing vessel aground on rocks

Figure 2: Bow section ashore

The Lessons

1. Floating ropes from static fishing gear are a major hazard to all small craft, and it is vital that they are not laid in or close to channels or fairways. Wherever possible use non-buoyant ropes, and clearly mark strings of creels or fleets of nets. Also, ensure that gear on deck is properly secured and that there is no chance of it falling overboard and becoming a hazard to you or your fellow mariners.
2. In this case, although his vessel could not be saved, the creel boat skipper and his crew member were well equipped and well prepared; this resulted in a successful rescue. He quickly realised he was in trouble and made the right decision to call for help early. The importance of asking for help as soon as you get into difficulty cannot be emphasised enough. The longer you leave it, the less likely help will arrive in time to ensure a successful rescue.

A Flipping Fishing Trip

Narrative

On a blustery autumn morning two fishermen headed out to sea in their sturdy 8m catamaran boat (Figure 1) to line fish for bass. Both men were familiar with the boat and the area, and intended fishing near a notoriously strong tidal race, close to shore and capable of creating overfalls dangerous for small vessels.

When they arrived at the fishing grounds, the skipper positioned the boat about a mile upstream from the race, then let the boat drift with the wind and tide as they fished (Figure 2). As the boat approached the overfalls, the crew reeled in their lines and repositioned to start fishing again; this process was repeated three times without incident. However, on the fourth occasion, just as the two fishermen had returned to the wheelhouse to reposition, the boat was struck by a large wave and capsized. After the capsize, the boat floated upside down (Figure 3).

Both crewmen were initially trapped inside the wheelhouse. To escape, they had to remove their lifejackets and swim down through the wheelhouse door and up to the surface. The skipper was then able to inflate the liferaft that had floated clear and both crewmen scrambled in. The crew then used the liferaft's flares to raise the alarm.

Figure 1: The catamaran fishing vessel (not at the time of the accident)

Ashore, the accident had been witnessed by a member of the public who informed the coastguard. A warship that was operating in the area responded to the distress call and rescued the fishermen from their liferaft, transferring them to the lifeboat, using a RIB. One of the fishermen had suffered a minor head injury, so was transferred to hospital by helicopter, but was discharged that day.

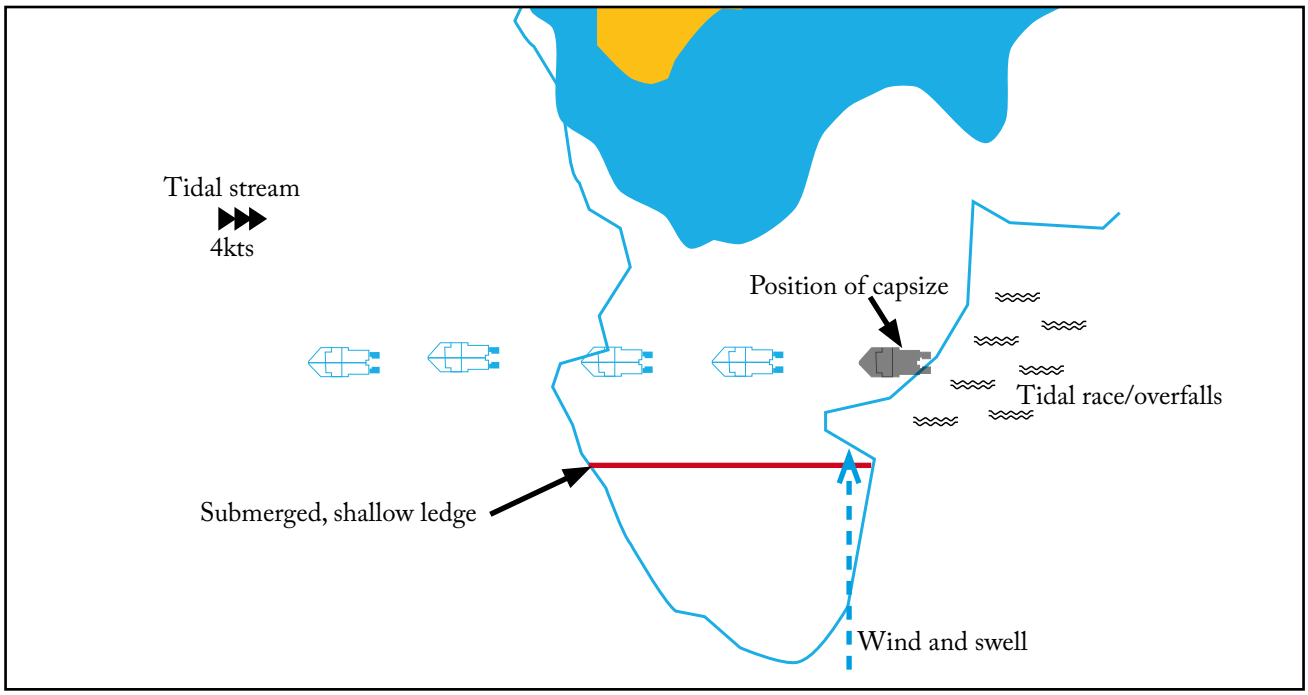


Figure 2: Overview of the fishing vessel's track showing the position of the capsize

Image courtesy of the RNLI

Figure 3: The catamaran fishing vessel capsized and the inflated liferaft

The Lessons

1. This accident almost certainly happened because the skipper underestimated the hazard associated with operating the boat in the strong tidal rips and overfalls. Extreme care should be taken when navigating in the vicinity of such dangerous areas. Given that the crew were familiar with the area, it is reasonable to conclude that repeated previous exposure to this hazard had normalised their fishing in potentially hazardous waters.

2. When this fishing boat capsized, the lives of the crew were put in immediate danger, and were almost certainly saved by critical safety equipment – in this case, the liferaft and flares. Maintaining safety equipment is vital to ensure that it works when you need it. The crew's sea-survival training also paid a dividend as they both stayed calm and dealt with the emergency.

3. It was fortunate that the alarm was raised by a member of the public because the crew were unable to raise the alarm by any electronic means. The boat was well equipped with VHF radios (fixed and handheld), an EPIRB and PLBs. However, none of these methods of alerting the coastguard to distress could be used because all were left behind in the wheelhouse when the boat capsized.

Getting Ahead of Yourself

Narrative

A 23m long fishing vessel with five crew on board had just left its berth for a regular 10-day fishing trip. The vessel sailed in the early hours of the morning; it was dark but the sea was calm and visibility was good, and the rocky coastline and the port and starboard lateral channel markers were clearly visible.

The skipper, who was alone in the wheelhouse, was waiting for the duty watchkeeper to arrive. Meanwhile, he began to prepare the tracks for the fishing grounds on the electronic chart system using a scale and sea area that did not include the departure port. The vessel was travelling at about 8.5kts.

Fully engrossed in looking at the electronic chart of the fishing grounds, the skipper forgot that the vessel was still in a narrow channel with the buoys about 0.2 nautical mile apart (Figure 1).

The vessel suddenly took a heel to starboard and rapidly came to a stop; the main engine continued to run. The skipper looked up from the electronic chart and realised that the vessel had sailed the wrong side of the starboard marker buoy and had run aground (Figure 2).

The skipper raised the alarm via VHF radio to the coastguard, and a local all-weather lifeboat was launched with salvage pumps on board. The fishing vessel's crew were able to confirm that there was no water ingress. With the rising tide, the vessel refloated and another fishing vessel escorted the casualty back to port. A subsequent examination by divers found no damage as fortunately the grounding had occurred on sand.

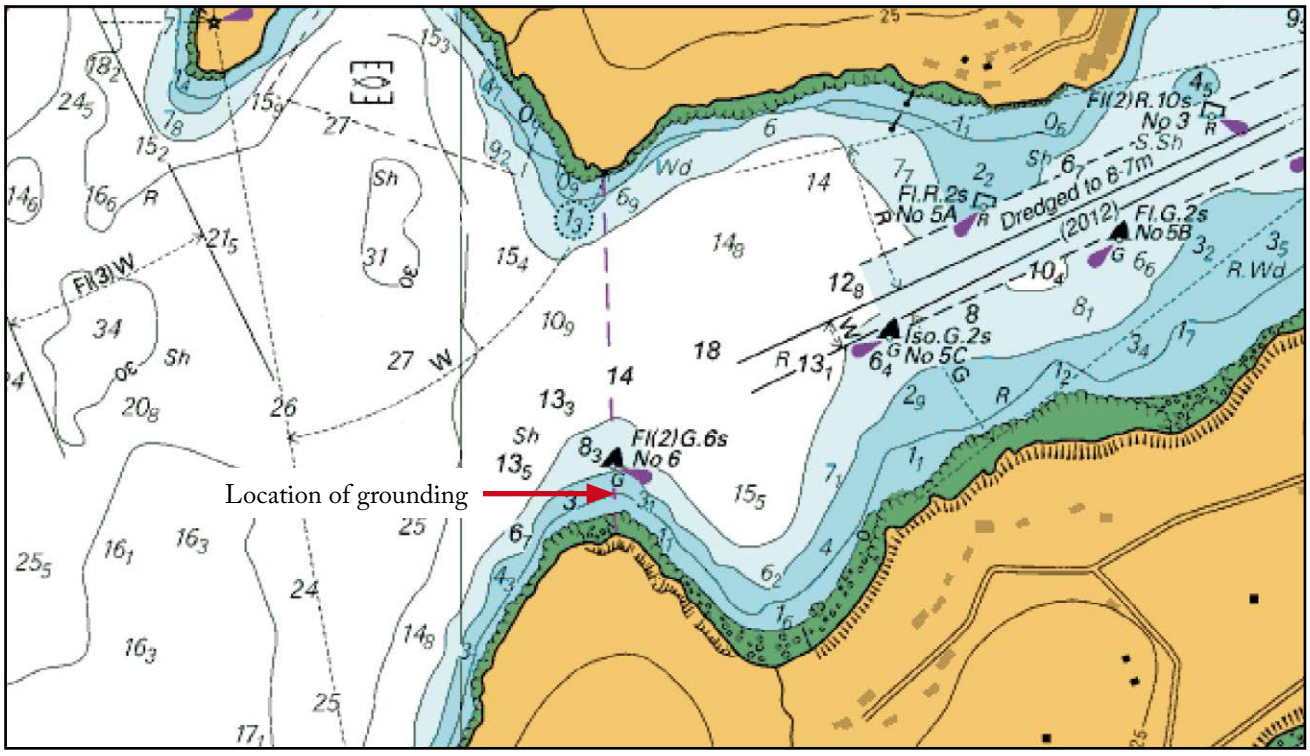


Figure 1: Chart of the fishing grounds showing narrow channel

Figure 2: Vessel aground

The Lessons

1. Keeping a safe navigational watch must be the number one priority for the crew of any fishing vessel. Other tasks must wait if sufficient personnel are not available to keep a look out and maintain control of the vessel. There was plenty of time for the plan for the fishing grounds to be developed on the way to the fishing grounds; alternatively it could have been completed while still tied up alongside.

2. When engrossed in a subject requiring concentration, it is very easy to become detached from what is happening and to lose track of time. Travelling at over 8kts, it did not take long before the vessel was outside the channel and aground. It was fortunate for the crew that the seabed was soft, the weather was good and assistance was quickly available. Groundings are often not so kind, and vessels and lives have been tragically lost.

3. Benign sea conditions combined with familiar waters have a habit of lulling seafarers into a false sense of security. Watchkeepers must always be alert and extra vigilant when arriving and departing port, where the risk of grounding or colliding with other traffic is greatly increased. It is imperative that distractions are kept to a minimum during such times to prevent accidents from occurring.

A Fatal Fall

Narrative

While in port awaiting the evening tide, the skipper of a fishing trawler went to a public house with one of his crew. Having consumed several rounds of alcoholic drinks they returned on board. On arrival at the vessel, each helped the other to safely embark the vessel down the quay ladder. The crew member then went below to make a cup of tea, while the skipper finished his cigarette on deck.

Having finished his cigarette, the skipper entered the wheelhouse. Once inside, he crossed over to the hatch leading down to the mess area. However, as he lent across the hatch to grab a hand-hold, he lost his balance and fell head-first through the hatch opening. The crew member in the mess deck heard the fall and rushed to attend to the skipper, but could find no sign of life. He then swiftly climbed the ladder to the wheelhouse and raised the alarm on VHF radio.

Emergency services attended the vessel, but were unable to resuscitate the skipper, who had suffered a fatal head injury as a result of his fall.

Figure: Access via the wheelhouse hatch

The Lessons

1. MAIB accident statistics indicate that, since 1992, alcohol was a contributing factor in 62% of the 42 fishing vessel fatalities that have occurred while in port. While limited alcohol consumption by crew may be acceptable when off duty, excessive consumption can severely compromise an individual's judgment and coordination. In this case, the skipper's significant alcohol consumption contributed to his fall and the severity of the injuries he suffered.

2. A clear drug and alcohol policy issued by the owner, defining alcohol limits and when crew are considered to be on or off duty, as well as specifying the circumstances under which crew may be required to undergo drug and alcohol testing, would help prevent future alcohol related accidents. Professional seafarers, which includes fishermen, must be fit for duty and ensure they adhere to the UK legal alcohol limits for seafarers, which are the same as the drink-drive limits set in Scotland (50mg of alcohol in 100ml of blood).

3. Modifications made to the vessel's wheelhouse hatch and ladder had resulted in an awkward and potentially dangerous access route (see figure). It placed those working in the wheelhouse at significant risk of falling through an unguarded opening. Fishing vessel risk assessments will naturally focus on the dangerous activities that surround the operation of the vessel's fishing gear. However, the risks posed by internal hatches, ladders and stairways should not be overlooked. Just because crew use an awkward access without incident for many years does not make it safe.

A Wee Hole

Narrative

A large, steel-hulled fishing vessel was about 40 miles offshore when its fish hold bilge alarm sounded. The engineer went to investigate and found water rising in the fish hold, so then lined up the bilge system to pump out the floodwater. The crew also rigged their portable submersible pump to help evacuate water from the flooding compartment.

Despite the crew's efforts, the water level in the fish hold continued to rise slowly, so the skipper called the coastguard for help. A coastguard rescue helicopter and an RNLI lifeboat were tasked to assist; three other fishing vessels in the area started hauling their gear in preparation to help.

When the helicopter arrived, it lowered its powerful, petrol-driven salvage pump. Once this pump was set up and running, the situation was brought under control. As the water level reduced, the engineer was able to gain access to the fish hold's bilge well where the suctions were blocked by debris. The fishing boat then made its way safely back to harbour under its own power, escorted by the lifeboat. When the fishing boat was lifted out of the water, a 25mm diameter hole was found in the shell plating under the fish hold (see figure).

Figure: The 25mm hole in the fishing vessel's shell plating, observed when the vessel was lifted out of the water.

The Lessons

1. The vessel was 18 years old and had been subject to regular hull thickness inspections; nevertheless, the cause of the hull failure was attributed to corrosion. If there is any concern, hull thickness assessments could be conducted more regularly. The area of corrosion was also under cladding at the bottom of the fish hold, and very difficult to inspect internally.

2. All bilge suctions should be regularly checked to make sure they are not blocked. Post-accident calculations showed that the size of the hole and its location would have resulted in a flooding rate of approximately $7m^3$/hour, which should have been well within the bilge pumping system's capacity. However, the fish hold bilge suctions were clogged with debris, severely restricting the pumping rate.

3. Always call for help early. It is almost certain that this fishing vessel was saved by the arrival of the helicopter and its powerful salvage pump. This happened because, as soon as the skipper realised that the situation was not under control, he called for help.

Are you Ready for Fog?

Narrative

A 9.4m fibreglass fishing vessel (Figure 1) was working gill nets about 5nm from its home port having departed early in the morning. At the same time, a 33m steel scallop dredger was passing through the same area on its way to fishing grounds. As was its normal practice once at sea, the scallop dredger's skipper lowered its derricks (Figure 2) from the vertical to about 45° to assist with stability. Winds were calm, but the area was in thick fog, with visibility reported to be 25-50m. Despite the conditions, neither vessel was sounding fog signals.

The gill netter was stopped in the water with its engine in neutral, and the skipper, who was working alone, was recovering his nets and sorting his catch. He intended to then move the boat and recover his last net of the day. Without warning, the scallop dredger appeared out of the fog, crossing the gill netter's port bow at a speed of 9kts. A chain on its lowered starboard derrick struck the upperworks of the gill netter. Fortunately, although shaken the skipper was not injured, but his boat suffered significant damage to its A-frame and mast. The radar dome was shattered and its VHF aerials were ripped out.

The scallop dredger, which was undamaged, stopped and returned to the gill netter to ensure that the skipper was unharmed, the vessel was safe to continue and to exchange contact details. The gill netter's skipper recovered his last net and returned to harbour safely.

This incident resulted in no injuries, but it did cause significant damage to the gill netter and gave its skipper quite a fright. Had the scallop dredger been a few metres further to starboard the outcome could have been much more serious, and the small, fibreglass hulled gill netter could easily have been lost.

Figure 1: The gill netter

Figure 2: The scallop dredger, steaming with the derricks extended

The Lessons

1. Keeping a good lookout **by all available means** is especially important when visibility is poor and there is no choice but to rely on methods other than sight. The scallop dredger's watchkeeper did not spot the gill netter on his radar, and the skipper of the gill netter was on deck, so he could not see his radar screen. Additionally, neither vessel was making sound signals. On this occasion, radar and hearing were vital tools to prevent the collision and keep both vessels and crew safe.

2. In certain conditions, particularly during poor visibility, vessels should maintain a safe speed. A 'safe speed' allows time for the watchkeeper to detect and identify contacts visually, by radar, or using other means, and to take action to avoid a close quarters situation; even stopping the vessel if necessary. The scallop dredger was steaming at 9kts. Was this a safe speed? To determine a 'safe speed' a watchkeeper must assess the conditions, including visibility and traffic density. In addition to adjusting the vessel's speed, the assessment could identify control measures, including more regular monitoring of radar, making sound signals and placing extra lookouts.

3. Finally, small vessels, especially those constructed from wood or fibreglass, can be difficult to detect on radar, even in good conditions. To ensure this type of vessel is more easily visible on radar they should be fitted with a radar reflector – is your vessel fitted with one?

Part 3 – Recreational Craft

Retiring from the MAIB in January this year after 25 years has allowed me to reflect on developments in marine safety during that time, and particularly in the sailing sector where I have the most experience. This began when I was plonked in my father's leaky National 12 at the age of two wearing a contrivance of a lifejacket that would certainly not qualify for a CE marking today.

But as well as being a life-long sailor, I have a great fondness for Britain's canal network and whenever we've had weeks away on a narrowboat, I've made a point of taking one of my inland waterway history books to add to the ambiance, much to the family's amusement. As is well known, the canals were something of a transport dead end in the UK. No sooner had an integrated network been established by the early 19th century, allowing the economic transportation of goods, the railways swept all before them leaving the canals struggling to compete. Commercial operations limped on but there was no appetite for further investment or development.

Now their prime purpose is leisure and enjoyable though that is, it must always be remembered that we are enjoying pre-Victorian engineering and design. The canals are narrow and the bridges, tunnels and locks narrower still. In Case 23, this family had a very bad experience while descending a lock in a boat that was only a few feet shorter than the lock itself. Cills were built as necessary foundations for the upstream gates but present a hazard as the lock is emptying. As a boy I was always keen to get through locks at breakneck pace but was once put firmly in my place by one of my elders and betters who explained that it was poor form to open both bottom gate paddles fully as damage can result, either to the boat, the gates, or both. I suppose the message is that if you're letting the tide go out in a matter of minutes, typically reducing the depth by 2-4 metres, it's important to know what's underneath you and where. The extraordinary photo in Figure 2 of Case 25 also makes this point!

The canals are a wonderful part of our industrial history, and navigating them in boats that can weigh anything up to 20 tonnes, with handling characteristics that can be described as ponderous at best, is akin to playing an active part in a working museum, and I for one wouldn't have it any other way.

Returning to sailing, the desperate circumstances the crew in Case 24 found themselves in would have tested the most experienced of us. As the article makes clear, the loss of control may have been prevented by having less sail up, but the speed of flooding when a skin fitting, or in this case the rudder post, becomes damaged or fails is sobering. A series of events had to go wrong in the right order to create this accident, as is so often the case, and they were fortunate that assistance was close at hand.

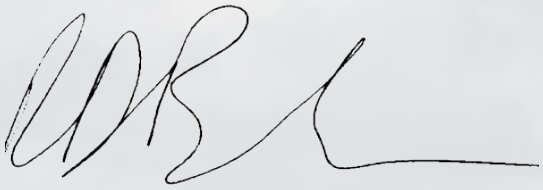
In 1995, the MAIB was half the size it is now and its working methods far more 'analogue'. Voyage data recorders were still undergoing proving trials and were certainly not mandatory. Paper charts were still the norm and AIS was still some way off. Investigations were heavily reliant on witness accounts and the gathering of physical evidence such as paint samples. The growth and development of the MAIB's Technical Department has matched the digitalisation of seafaring, and investigation techniques and reports now involve a depth of analysis that simply wasn't possible 25 years ago.

The speed with which the Branch is able to communicate urgent safety messages has of course changed out of all recognition. The Safety Digest has always been issued free of charge but until the end of the '90s the full accident investigation reports had to be bought, at no

small cost, from an official HMSO supplier! The MAIB was among the first UK government organisations to have a functioning website and the Branch's online presence has developed enormously to become the very well-used and respected resource it is today.

Attitudes to safety have changed too. You can have as much regulation as you like but it requires a cultural shift to see lifejackets being worn routinely on fishing vessels and leisure craft.

People have often asked me whether I worry about going sailing when I've been working for so long in an environment that highlights the dangers of being afloat. The key, of course, is to manage the risk in the same way as you do when driving a car or crossing the road, but it's healthy to have an underlying level of anxiety about, for example, falling over the side. However much safety equipment you or your boat may have, if you find yourself in the water you're at high risk. This is always a feature of my safety briefings to crew before even the most routine trip, as well as making sure they've all chosen and fitted a lifejacket, CE-marked of course!



ROGER BRYDGES

Roger retired from the Civil Service in January 2021 following a 34-year career, the last 25 of which were with the MAIB. He cruises and races a Wayfarer in the Solent, and skippers a friend's Oyster 54. Roger has given talks to yacht clubs and other organisations about lessons learned from the investigation of sailing accidents.

Hung Up On Me

Narrative

A family of three were looking forward to a late summer holiday on a narrowboat on the North of England canal network. It was their first boating holiday and they had hired a 20m long boat for a 3-day trip.

The first day was enjoyable as the family motored their way slowly upriver and negotiated three locks successfully before mooring up for the night. Early the following morning, the family decided to go back down the canal. They passed through the first lock uneventfully and a short while later entered the second lock. They opened the paddles (sluices) of the down gate to lower the water level (Figure 1), and as the water level in the lock reduced, the boat drifted towards the up gate. Soon the cill[1] was exposed and the stern of the boat came to rest on it (Figure 2).

[1] Cill - a structure that is underwater when the lock is full, supports the lock gates and protrudes 2.5m into the lock chamber.

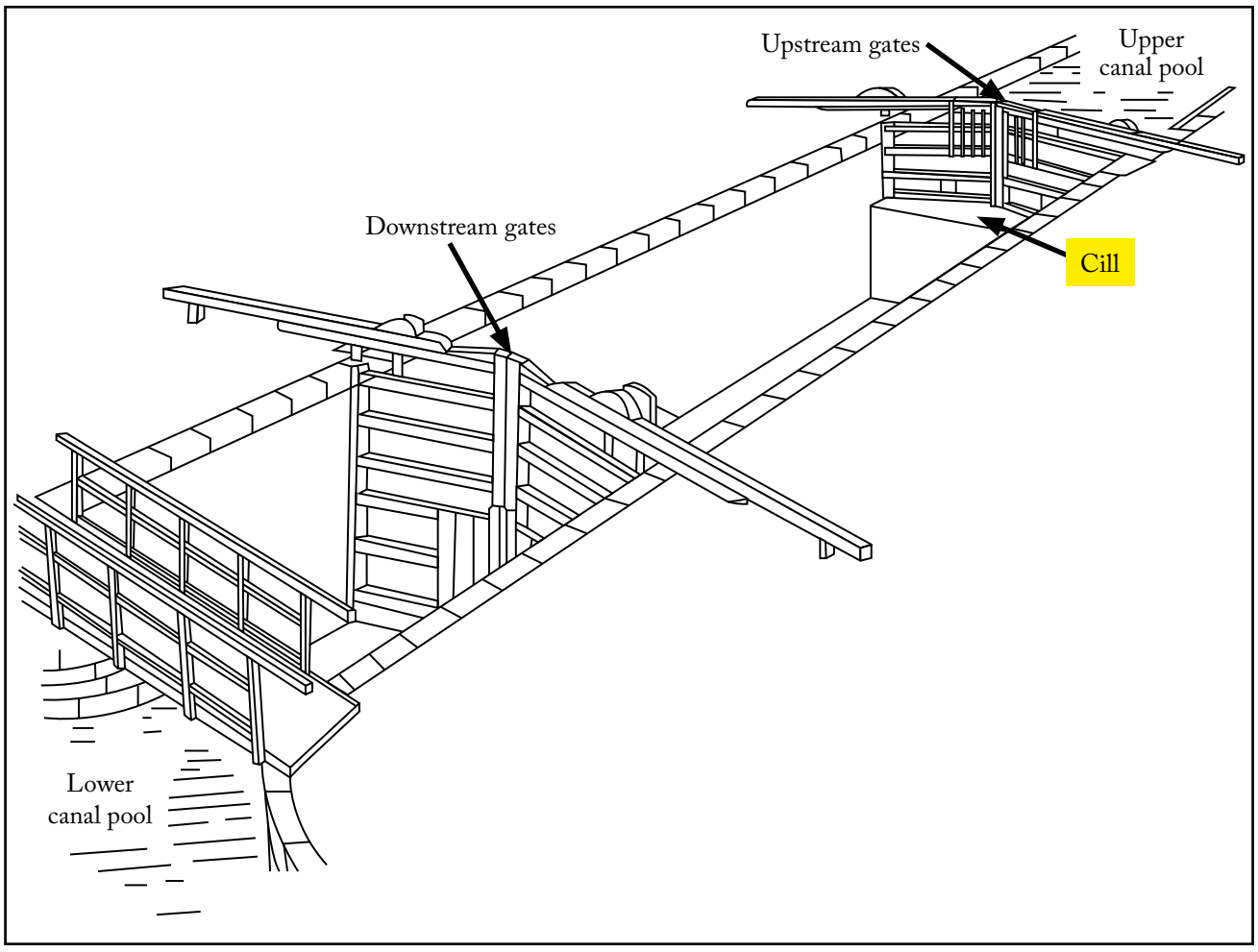


Figure 1: Diagram of a typical lock arrangement showing the cill

Figure 2: Hire boat's stern resting on the cill

As the lock emptied further, the boat's bow began to submerge with its stern still lodged firmly on the cill. A member of the family, who was tending to the mooring ropes on the canal bank, quickly closed the paddles of the down gate on the lock. However, by that time the forward section was fully immersed (Figure 3).

The family informed the boat hire company immediately and they were rescued from the boat shortly afterwards. A company that specialised in recovering 'cilled' boats attended the scene and completed the salvage of the boat over the next 4 hours.

Figure 3: Hire boat's bow fully immersed

The Lessons

1. When using locks, be aware of the extent of the cill and look out for cill marks, which are usually painted on the lock walls. By keeping the boat in the middle of the lock and not going too close to the lock gates you can avoid becoming 'hung up' on a cill.

2. When locks are being emptied or filled, water moves in or out, and this can generate turbulence and cause your boat to move about. Ensure that the boat maintains a steady position in the lock and let water in or out gradually by controlling the paddles.

3. Most canal networks and locks were built more than two centuries ago and date back to the industrial revolution. The locks, their gates and paddles are not of standard construction and sometimes vary widely from one lock to the next. Plan your journey well and get a good understanding of the canals and locks that you intend to use.

4. Take extra care when you are using one of the longer boats as the clearance at either end of the lock may be limited to less than half a metre.

Oh Buoy!

Narrative

Three experienced sailors were enjoying a winter's morning outing on a 40-foot sailing yacht, heading to a nearby port for lunch. The weather was quite blustery, with winds at force 5 to 6 and gusting up to force 7. The sailing had been exciting and fast, with several tacks needed in order to reach their lunch spot.

As the helmsman prepared to tack again close to a port hand channel marker buoy, the yacht was hit by a strong gust of wind, causing it to heel over and lose directional control.

The mainsail was eased out in an attempt to recover control of the steering, however this was ineffective and the yacht's starboard bow struck the red buoy with considerable force. The collision caused the yacht to ricochet off the buoy, swing round, and the rudder then hit the buoy and was torn off. The helmsman realized that the rudder had become detached as he saw it floating away from the yacht.

The skipper immediately sent the crew to check if they were taking on water, and broadcast a "Mayday" call on the yacht's VHF radio. The crew reported that water

Figure: The yacht

was flooding the vessel through the detached rudder post at a significant rate, so the skipper started the yacht's bilge pumps and the crew began to bail out the water using buckets.

A lifeboat quickly arrived on scene and a portable pump was deployed; however the yacht continued to sink. The skipper and crew quickly gathered what belongings they could, abandoned the yacht and made their way onto the lifeboat.

The yacht sank shortly afterwards.

The Lessons

1. **There is always the risk of heeling heavily and 'rounding up' when sailing as close to upwind as possible and broaching when sailing downwind. When sailing upwind in strong winds, the boat's angle of heel can increase to such an extent that the rudder comes out of the water, causing a loss of directional control. Putting a reef in the sails can help maintain steering control by keeping the yacht more upright.**

2. **Being prepared for dangers ahead and having a plan for your next manoeuvre are important when sailing. The skipper must always be assessing the situation, which will change almost constantly. If you don't need to be close to navigational marks, then stay well clear of them. Sufficient space must be left when tacking in case something does not go to plan.**

3. **Plan for emergencies and familiarise yourself with the emergency equipment on board your vessel. Furthermore, ensure you know how to use it. If the worst happens, a vessel can sink surprisingly quickly. Always keep the essentials in a grab bag and have easy, quick access to the liferaft. Make a distress or urgency call on the VHF radio early to alert others to your situation.**

What Lies Beneath?

Narrative

A narrowboat that had been tied up to a riverbank broke free from its moorings and was carried quickly downstream in a strong current that had resulted from heavy rainfall. The owner was on board at the time and did not have time to start the engine. The narrowboat came to a stop when it became pinned to guard piles, which protected a nearby weir.

The local fire and rescue services were called out to the emergency, and rescued the owner using an inflatable boat. They then made the narrowboat fast to the guard piles. Despite numerous attempts, the authority responsible for managing the river was unable to contact the barge owner, and it remained attached to the guard piles for some considerable time.

The owner had not insured the narrowboat, and it had no licence permitting it to be moored on the river. As a result, the owner left the boat in the precarious position for several months and made no attempt to recover it.

The weather conditions worsened over the next few months, with very strong currents due to the river flooding. The river authority was busy with safety operations so was unable to move the narrowboat on behalf of the owner.

With the river in full flood and flowing through the guard piles and over the weir, the narrowboat eventually broke free of its temporary moorings and was carried into the weir sluice (Figure 1). The boat started to take on water and partially sank. As this now posed a flood risk hazard due to the narrowboat partially blocking the weir, the river authority mobilised its local tug to tow the narrowboat from the weir in order to prevent further damage. However, during their attempts to tow it clear of the area, the narrowboat continued to rapidly take on water and it eventually sank in the navigable part of the river before the tug could tow it out of the way.

Figure 1: Narrowboat partially sunk on weir

The submerged narrowboat now posed a hazard to navigation, and it was marked at one end with an orange marker buoy. Licensed river users were notified via email and social media that this section of the river was closed to navigation, and the river website gave details of the submerged wreck.

Unfortunately, 2 months after the narrowboat sank, a motor cruiser ignored the instructions that the section of the river in way of the wreck was closed. It hit the wreck and became stranded on it (Figure 2).

The wreck was eventually removed when river conditions allowed for safe operations to be carried out.

Figure 2: Motor cruiser grounded on submerged wreck

The Lessons

1. All boat users are reminded to take care when mooring their vessels, and to remember that conditions can change quickly. Fast moving currents, wind and tide will put moorings and mooring ropes to the test. They should therefore be checked regularly.

2. The lack of insurance on the narrowboat prevented the owner from appointing a towage company to bring his boat off the guard piles and re-locate it to a safe position. Had the boat been properly insured and licensed to operate in this area, it is likely that the initial minor incident would not have developed into a major accident.

3. River users should familiarise themselves with local information before embarking on a trip. In this instance, by checking the river authority's notices, users would have been informed of the hazard posed by the wreck and that a section of the river was closed. If there is any doubt, always ask before departing.

APPENDIX A

INVESTIGATIONS STARTED IN THE PERIOD 01/09/2020 TO 28/02/2021

Date of Occurrence	Name of Vessel	Type of Vessel	Flag	Size	Type of Occurrence
03/09/20	*Waverley* (5386954)	Passenger ship	UK	693.00 gt	Loss of control | Contact
31/10/20	*Francisca* (9113214)	General cargo ship	Netherlands	4015.00 gt	Loss of control | Loss overboard
08/11/20	*Talis* (9015424)	General cargo ship	Panama	1662.00 gt	Collision | Loss of ship
	Achieve (HL 257)	Fishing vessel	UK	13.34 gt	
21/11/20	*Joanna C* (BM265)	Scallop dredger	UK	28.58 gt	Capsize | Loss of ship (1 fatality)
15/12/20	*Galwad-Y-Mor* (BRD116)	Fishing vessel | Potter	UK	43.00 gt	Explosion | Flooding
27/01/21	*Nicola Faith* (BS 58)	Fishing vessel	UK	8.89 gt	Missing | Loss of ship (3 fatalities)
06/02/21	*Cornishman* (PZ512)	Fishing vessel	UK	208.20 gt	Loss of control | Accident to person (1 fatality)
18/02/21	Copious (LK985)	Fishing trawler	UK	145.00 gt	Accident to person (1 fatality)

Appendix A corrrect up to 28 February 2021, go to www.gov.uk/maib for all current investigations

Reports issued in 2020

Artemis
Fall on board a fishing vessel in Kilkeel, Northern Ireland on 29 April 2019, with loss of 1 life.
Report 1/2020 Published 9 January

CMA CGM G. Washington
Loss of cargo containers overboard from a container ship in the North Pacific Ocean on 20 January 2018.
Report 2/2020 Published 16 January

European Causeway
Cargo shift and damage to vehicles on a ro-ro passenger ferry in the North Channel between Scotland and Northern Ireland on 18 December 2018.
Report 3/2020 Published 17 January

Seatruck Performance
Grounding of a ro-ro freight vessel in Carlingford Lough, Northern Ireland on 8 May 2019.
Report 4/2020 Published 6 February

Gülnak/Cape Mathilde
Collision between a bulk carrier and a moored bulk carrier at Teesport, River Tees, England on 18 April 2019.
Report 5/2020 Published 13 February

Red Falcon/Greylag
Collision between a ro-ro passenger ferry and a moored yacht at Cowes Harbour, Isle of Wight, England on 21 October 2018.
Report 6/2020 Published 20 February

ANL Wyong/King Arthur
Collision between a container vessel and a gas carrier in the approaches to Algeciras, Spain on 4 August 2018.
Report 7/2020 Published 19 March

Coelleira
Grounding and loss of a fishing vessel off the Shetland Islands, Scotland on 4 August 2019.
Report 8/2020 Published 20 March

Cherry Sand
Man overboard from a dredger at Port Babcock Rosyth, Scotland on 28 February 2019, with loss of 1 life.
Report 9/2020 Published 21 May

Seatruck Progress
Accident on the stern ramp of a ro-ro freight ferry in Brocklebank Dock, Liverpool, England on 15 May 2019, with loss of 1 life.
Report 10/2020 Published 11 June

ZEA Servant
Fall of a suspended load on a general cargo vessel injuring 2 crew in Campbeltown, Scotland on 2 March 2019.
Report 11/2020 Published 24 June

Anna-Marie II
Capsize of a fishing vessel off Brora, Scotland on 23 September 2019, with the loss of 1 life.
Report 12/2020 Published 8 July

***Stena Superfast VII*/Royal Navy submarine**
Near miss between a ro-ro ferry and a submerged submarine in the North Channel, crossing from Belfast, Northern Ireland to Cairnryan, Scotland on 6 November 2018.
Report 13/2020 Published 16 July

Ever Smart
Loss of cargo containers overboard from a container ship while 700 miles east of Japan in the North Pacific Ocean on 30 October 2017.
Report 14/2020 Published 22 July

Thea II/Svitzer Josephine
Grounding and recovery of a container feeder vessel and a tug in the approaches to the Humber Estuary on 15 December 2018.
Report 15/2020 Published 13 August

May C
Man overboard from a single-handed creel fishing boat at Loch Carnan, Outer Hebrides, Scotland on 24 July 2019, with the loss of 1 life.
Report 16/2020 Published 3 September

Fire and service rescue boats
Collision between 2 fire and rescue service boats on the River Cleddau, Milford Haven, Wales on 17 September 2019, with loss of 1 life.
Report 17/2020 Published 4 November

Karina C
Crush incident on a general cargo vessel in Seville, Spain on 24 May 2019, with loss of 1 life.
Report 18/2020 Published 26 November

Sunbeam
Enclosed space accident on board a fishing vessel in Fraserburgh, Scotland on 14 August 2018, with loss of 1 life.
Report 19/2020 Published 10 December

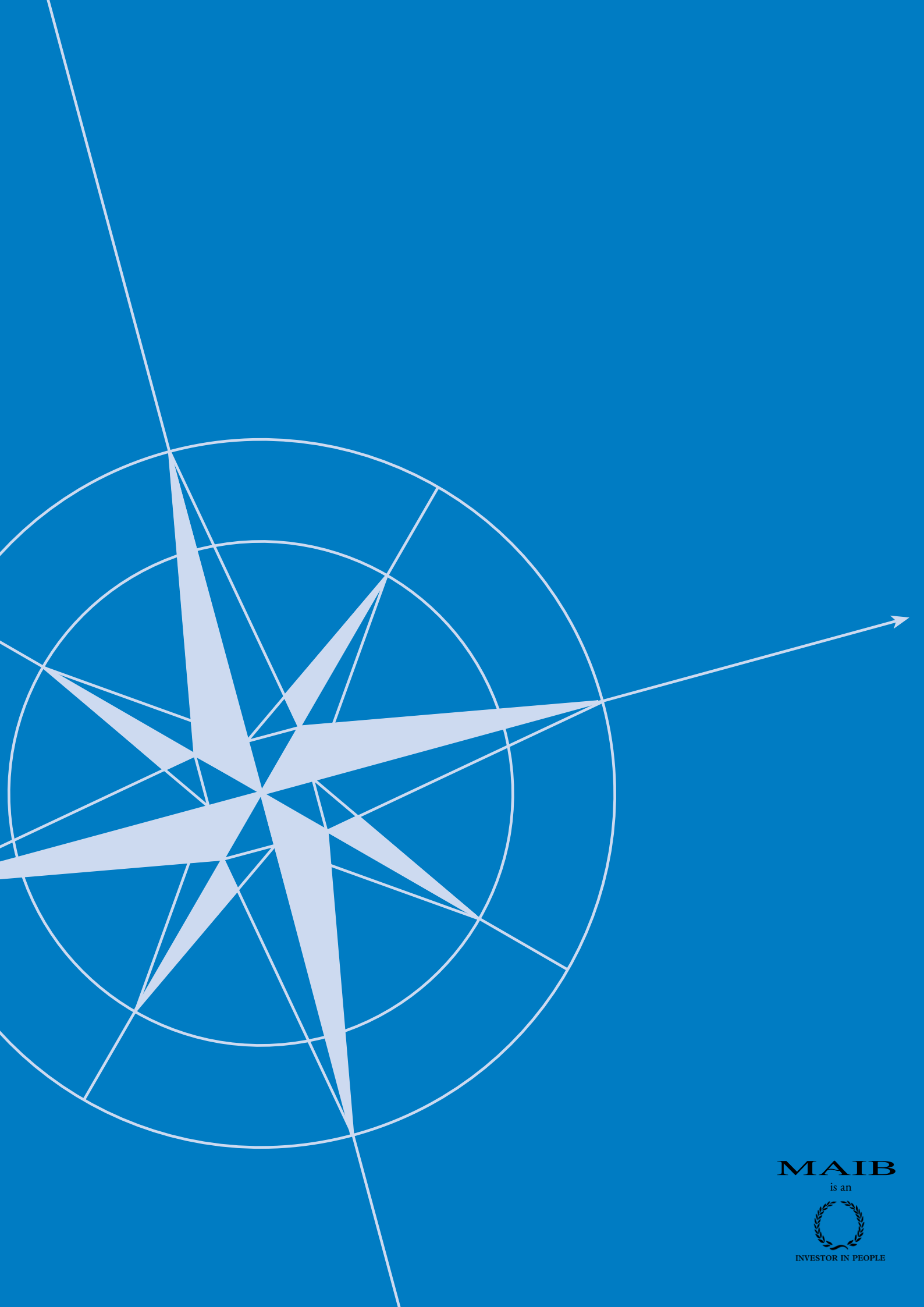
RS Venture Connect 307
Capsize and full inversion of a self-righting keelboat on Windermere, Cumbria, England on 12 June 2019, with loss of 1 life.
Report 20/2020 Published 17 December

Reports issued in 2021

Minx/Vision
Collision between a motor yacht and an anchored motor yacht at Île Sainte-Marguerite, near Cannes, France on 25 May 2019, with loss of 1 life.
Report 1/2021 Published 28 January

Finlandia Seaways
Catastrophic main engine failure resulting in an engine room fire and injury to the third engineer on board a cargo vessel, 11 miles east of Lowestoft, England on 16 April 2018.
Report 2/2021 Published 25 February

Appendix B corrrect up to 28 February 2021, go to www.gov.uk/maib for the very latest MAIB news



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