

Part 2 – Fishing Vessels



It is generally accepted that in excess of 80% of industrial accidents are mainly due to human error. It is also a fair assumption that in any serious incident,

more than one factor goes wrong to escalate a minor problem to a potentially lethal or catastrophic incident.

You will see from the following Cases that Human Error is the main cause of the incidents, however equipment failure after human error turns the issues into life threatening scenarios.

The MAIB dutifully publishes this Safety Digest regularly, and it is variously read and perused by many, but how many of us actually re-visit our daily lives and apply the lessons which are clearly demonstrated on a frequent basis and played out in this Digest? Sadly not enough.

At Scottish Boatowners Mutual we see incidents and accidents during our working day, as insurers, and all too often we are left scratching our heads, wondering why lessons are so often not acted upon from previous reported and well publicised accidents.

None of us are impervious to either our own human errors, or the impact of others' errors upon us, but we are able to minimise our own, by not cutting corners and not taking the risk.

I therefore would implore everyone involved in the Fishing Industry not just to read this from an academic standpoint, but to actually apply every case to your own daily life and make those changes – even if they might delay your progress by a few seconds or cost you a few pounds up front. It may just save your life, your friends' lives and your business.

Once you have done this, please pass on this Safety Digest to someone who you think may benefit from it. Even that action might save you from injury, or worse.


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.

As far as the MAIB is concerned:

“The sole objective of investigating an accident is to determine its circumstances and causes, with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame.”

“We do not enforce laws or carry out prosecutions.”

Therefore I suspect that in these “enlightened” days of our blame culture, they are almost unique.



All industry practitioners from the most senior to most junior should sit up and take notice. The MAIB are only interested in improving our safety culture and not in creating further bureaucracy or red tape.

They are on your side!

Stuart Forsyth

Stuart Forsyth

Stuart Forsyth joined Scottish Boatowners Mutual Insurance Association as Chief Executive in 2000. Previous to this he worked at Lloyd's of London specialising in the insurances of ocean going vessels from Ship Owners and Companies based all over the world. He also had an involvement in broking the reinsurance protections of several Mutual Insurers who specialise in the Fishing Industry.

Stuart is married with three children and is fanatical about Rugby Union.

What Did We Hit?

Narrative

At approximately 0615 on a still autumn morning, a single-handed 5m dory left port and headed south towards her fishing grounds at a speed of between 18 and 26 knots. Soon afterwards, her skipper saw a cluster of lights ahead and adjusted course by several degrees to port to avoid them. Once steady on the new course, he sat down to rest in a position from where he could not see ahead (Figure 1).

At about 0622, 1 hour before sunrise, the dory collided with a 9m open-decked gill-netter which was on an easterly course at 6 knots. The dory impacted almost head on with the port side of the gill netter (Figure 2).

The gill netter's skipper, who was on watch in the wheelhouse, and two deckhands, who were sleeping, were all thrown to the deck. The vessel was holed above and below the waterline and her wheelhouse was displaced to starboard (Figure 3). With the vessel taking on water, the skipper used a mobile phone to inform the coastguard while the deckhands

launched a liferaft over the stern. However, the liferaft did not fully inflate due to there being insufficient gas in its cylinder; it had not been serviced in accordance with its manufacturer's instructions. Fortunately, a local pilot boat quickly arrived on the scene and recovered the skipper and his crew. Although the damaged fishing vessel was taken in tow, she sank at 0646.

When the vessels collided, the skipper of the dory, who was not wearing a lifejacket, hit his head on a chart plotter (Figure 1) and fell to the deck. He then possibly lost consciousness for a short period as the boat's engine continued to run. The skipper managed to drive the dory back to port, and from there was taken to hospital for treatment.

Although the visibility was good and both skippers had a good working knowledge of the local area, neither saw the other vessel immediately before or after the collision, and both concluded they had struck semi-submerged objects.



Figure 1: View from the seated position on the dory

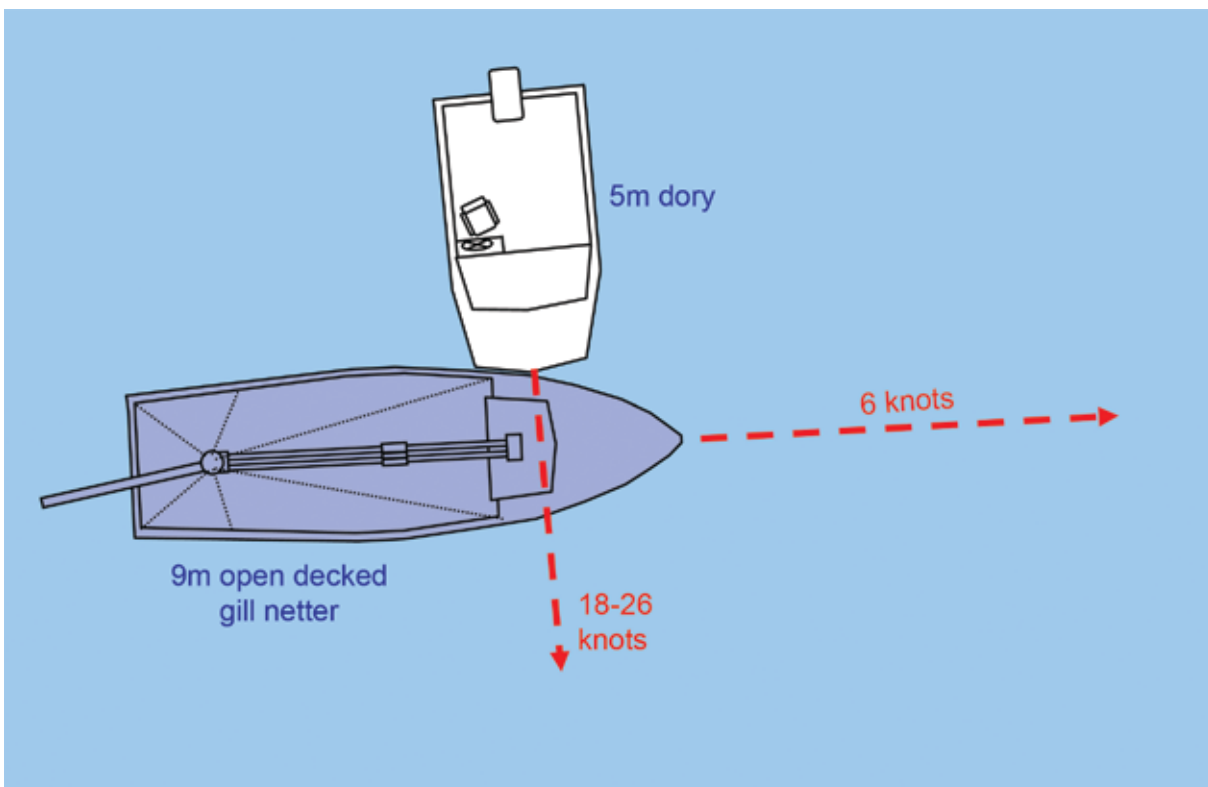


Figure 2: Relative positions on impact



Figure 3: Damage to bow of the dory

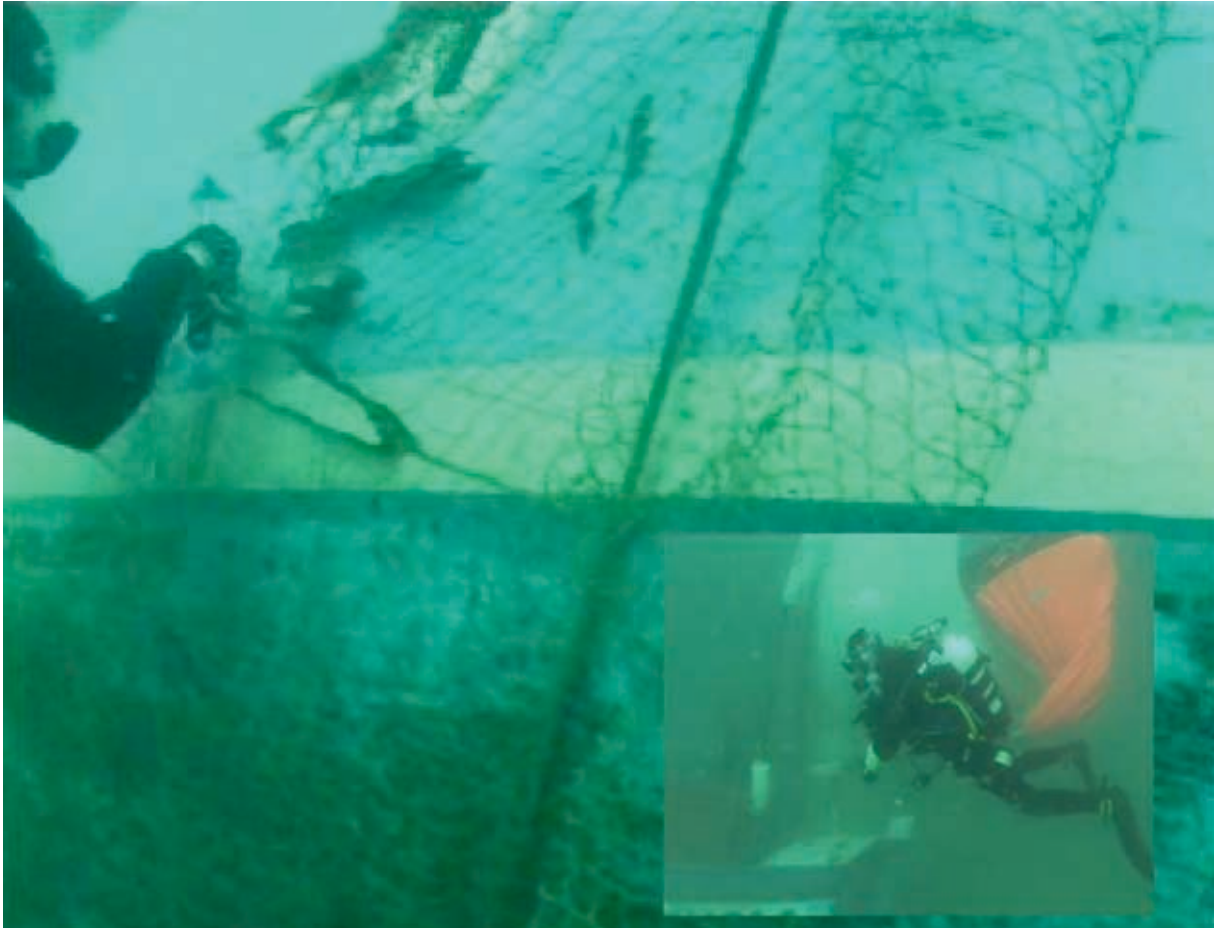


Figure 4: Gill netter diving survey

The Lessons

1. When in familiar waters, in good conditions, and when few other vessels are around, it can sometimes be easy to assign the keeping of a lookout a low priority. When this occurs, although more often than not no harm is done, there will always be a danger of being caught out. This is an unnecessary risk to lives and livelihoods; the effort required to keep an effective lookout is not onerous. It might take only a couple of minutes to make a cup of tea, but a boat moving at 25 knots will travel almost 1 mile in that time.
2. Unfortunately, liferafts occasionally do not operate as intended or expected due to poor design or maintenance. This can be prevented by ensuring that all liferafts carried meet a recognised standard and are serviced by approved technicians at intervals recommended by their manufacturers. Liferafts can and do save lives, so don't leave it to chance that yours will work when you need it.
3. The skipper of the dory was injured and was not wearing a lifejacket. Had he been thrown from his boat, he would have found it difficult to keep afloat and might have drowned. Wearing a lifejacket is always a *worthwhile* precaution when working on deck; it is *invaluable* when operating single-handed on a fast craft with low gunwales, where the risk of falling overboard is increased.

A Costly Snack

Narrative

Having departed port in the early hours of the morning, the skipper of a wooden prawn trawler altered course to parallel the coast and head towards his intended fishing grounds. It was dark and he was following an old track on his plotter which took the vessel within 0.5nm of the shore. The vessel was fitted with radar, but this was not used.

Shortly afterwards, the skipper engaged the vessel's autopilot before leaving the wheelhouse to make a cup of coffee and a

sandwich. Minutes later, the vessel struck charted rocks close inshore, and rapidly started to take on water. The skipper quickly alerted the vessel's two deckhands who were asleep below, and told them to don lifejackets. A "Mayday" was broadcast on VHF channel 16 before the skipper and deckhands abandoned into a liferaft.

The "Mayday" was received by the local coastguard station and a nearby fishing vessel, which recovered the men within 15 minutes. When the vessel sank shortly afterwards, her EPIRB released and activated.

The Lessons

1. No matter how familiar with the waters a crew might be, leaving a wheelhouse unattended is not advisable at any time, particularly when navigating close to the shore and in the dark. When dangers are close by, a 5 minute break from the wheelhouse is potentially 5 minutes too long.
2. There is no doubt that plotters and autopilots have eased the burden of wheelhouse watchkeepers in recent years. However, although their use

might generally be problem free, equipment failure or operator error will always be a possibility. Therefore, the cross-checking of a vessel's position and movement by all of the navigation aids available, which might seem unnecessary, is a really good habit to adopt.

3. The broadcast of a "Mayday", the donning of lifejackets, the use of a liferaft, and the carriage of an EPIRB all contributed to ensuring the safety of this vessel's crew, despite the vessel being lost in a remote area in the dark. Are you as well prepared for the unthinkable?

A Basic Mistake Costs a Deckhand His Life

Narrative

A long-liner fishing vessel was in the process of paying out her baited hooks onto the sea bed to a depth of 200m through a stern shooting hatch. At the end of the line there were three heavy weights to which was attached a 300m riser line. The other end of the line was to be attached to two dhan buoys, which were, in turn, connected by a 15m rope to a 3.3m tall marker buoy weighing 27kg. The buoys were stored on the aft deck, which was above the shelter deck shooting area.

An accident occurred at night in force 5 wind and 2 to 3 metre seas.

Two deckhands, who were wearing inflatable lifejackets and oilskins, went up onto the aft deck to prepare to launch the buoys. The free end of the 300m riser line was passed through the shooting hatch and over the stern bulwark, and then attached to the dhan buoys. The marker buoy had been positioned outboard and was held in place with a slip rope. The vessel was stopped to lower the weights to the sea bed, after which the vessel began to move

ahead. When the riser line was nearly all out, the first deckhand threw the dhan buoys over the side and, shortly afterwards, the second deckhand released the marker buoy. Suddenly, the second deckhand was lifted up and thrown over the metre-high bulwark. The first deckhand shouted to the shelter deck crew who saw the second deckhand land in the sea, face upwards, and threw two lifebuoys towards him. He made no attempt to swim to the lit marker buoy or to the lifebuoys, and he was quickly lost from sight.

The skipper manoeuvred the vessel to pick up the marker buoy to see if the deckhand had become entangled in the line, and he broadcast a “Pan Pan” message, which was relayed to the local coastguard by another fishing vessel nearby. An extensive search by 11 vessels, a helicopter and a fixed-wing aircraft was unsuccessful in finding the deckhand.

It is likely that the deckhand had stood in a bight of the connecting rope and was thrown overboard when weight came onto the rope between the dhan buoys and the marker buoy.

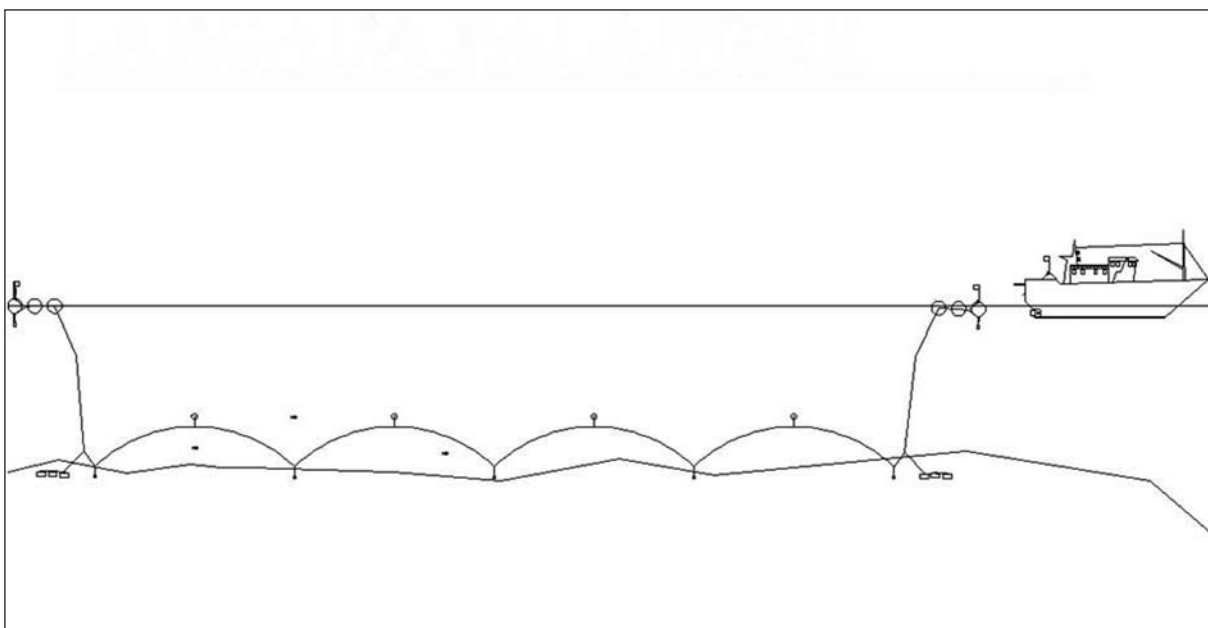


Figure 1: Diagram showing the long-line on the seabed



Figure 2: Two fishermen showing the point of letting go of the dhan buoy

The Lessons

1. The activity of letting go two dhan buoys and a heavy marker buoy, at night, and with weight on the connecting rope, rendered the two deckhands particularly vulnerable to accidents. The connecting rope was black and lying on the deck between the two deckhands. The deck lights were behind them and they would have cast a shadow over the line. Furthermore, the deckhands were visually concentrating on releasing the buoys rather than keeping their feet clear of the connecting rope. In this case, the connecting rope should not have been attached to the riser line until such a check had been made. The dangers of standing in a bight of rope are well publicised. It is, therefore, essential that a positive check is made to ensure that the rope is clear before allowing weight to be taken.
2. A documented risk assessment on board covered the activity of launching the buoys and listed a number of control measures, including the need to keep away from the lines. It is necessary for skippers to ensure that safety-critical control measures are emphasised to the crew, and that they are adhered to. It is also important that all the crew embrace the safety culture promoted by risk assessments and their resulting safe systems of work.
3. The deckhand's body was not found. It is possible that his lifejacket did not inflate automatically due to a malfunction, and that he was rendered unconscious and therefore unable to pull the manual inflation cord. Any inflatable lifejacket held on board should be regularly serviced according to manufacturer's instructions. Ideally, a light should also be fitted.

Over and Out



Narrative

Two fishermen were on the deck of their small fishing boat, attempting to recover an anchor, which they had laid earlier in the season on one of their regular fishing marks, several miles off the south coast.

The anchor, which was used to hold bait for rod and line fishing, was proving very difficult to heave in. The fishermen led the line around the pot hauler and pulled hard, causing the boat to list heavily. At this point the boat was suddenly and unexpectedly lifted on a larger than average wave, causing her to heel right over.

The fishermen were thrown off balance by this sudden heel and both fell overboard into the water. As they surfaced, they saw their boat on her side, capsizing. The anchor rope had remained tight around the pot hauler and

appeared to be preventing the boat from righting; the boat then sank rapidly.

The fishermen were now in a very serious situation. They had not been wearing lifejackets and, due to the rapid sinking, had not had any time to alert the authorities to their predicament. Although it was daylight and the weather was fair, they were a long way from land and, being in an area of strong tidal flows, realised they would not have the strength to swim to the shore.

Although the boat had carried a liferaft fitted with a hydrostatic release, it was not in date and had not been serviced or checked for some considerable time. Predictably, it failed to inflate, and the two lifebuoys which the boat also carried failed to float free. They did not carry any float free device, such as an EPIRB, which would have alerted the authorities to their distress.

Fortunately for them, the helmsman of a yacht, which was on passage a few miles away, happened to be looking towards the boat when she suddenly disappeared from his view. He altered course to investigate and came across the two fishermen in the water, informed the coastguard, and stood by until the men were rescued.

The men recognised that they had been lucky to survive, and although they had been fishermen for many years they had never worn lifejackets. They both intend to return to sea, but will always wear a lifejacket on deck in the future.

The Lessons

1. Although the men had been fishing for many years they did not wear lifejackets, and when they were suddenly thrown into the water they were at serious risk of drowning. They were very lucky to have been seen by the crew of a passing yacht and subsequently rescued. Always wear a lifejacket when on deck.
2. Although there was no statutory requirement for the boat to carry a liferaft, the fishermen had fitted one, which they had transferred from their previous boat. However, neither the liferaft nor its hydrostatic release unit (HRU) had been serviced for several years and the system failed to operate. While the fishermen had shown good judgment when fitting the liferaft and HRU, they should have kept them regularly serviced by an approved agent.
3. The MAIB has investigated many accidents in which small fishing boats have capsized and sunk very rapidly, giving the crew no time to make a distress call; in many cases with tragic consequences. Although not a statutory requirement, the MCA strongly recommends the carriage of an EPIRB, which will inform the authorities of your location in the event of an accident.

Downflooding and Stability Reminder

Narrative

A 2 year old, 11.7m mussel dredger left port during the early hours for her fishing grounds, in company with another fishing vessel. The weather conditions were good, and dredging took place until 0930 when there was insufficient water over the mussel beds to continue. The fishing vessel was beached and waited for the next tide. Approximately 11 bags of mussels had been gathered in the hold by this time, equating to approximately 14 tonnes of catch.

At about 1415, the fishing vessel returned to the mussel beds and started dredging again. After a few tows, when the vessel was heading into shallower water and turning to starboard to haul the starboard dredge, the dredge

became fast. The vessel quickly heeled to starboard, taking water onto the deck.

Despite the skipper's efforts, he was unable to free the dredge or correct the heel before downflooding occurred into the engine room via the vents sited under the bulwark. As the vessel capsized to starboard, the two crewmen on deck managed to scramble on to the port side of the wheelhouse. As a result, none of the crew entered the water. The skipper, who was in the wheelhouse, called the coastguard and the accompanying fishing vessel.

With the other fishing vessel's assistance, the capsized boat was pulled upright and the crew were rescued, before the boat slowly sank in the shallow water. The vessel was salvaged the following day and towed back to port.



Figure 1: Deck, showing engine room air intakes



Figure 2: View of stern showing limited freeboard

The Lessons

1. The fishing vessel had been built by the owners from a proven hull design. However, the four air intakes for the engine room had been positioned inside the bulwark only 0.3m off the deck. It has been estimated that these intakes would have been immersed at only 17 degrees of heel. Although your vessel may appear to have good initial stability, ensure that downflooding does not occur before 40 degrees of heel so as to maintain an adequate righting moment at greater angles of heel.
2. To improve a bow down trim when fully loaded, roughly 2 tonnes of concrete ballast was added in the engine room 6 months before the accident. Although this ballast would have improved initial stability, the effect of the decreased freeboard would have also reduced the vessel's righting lever. It would also have resulted in the air intakes being immersed earlier. Before modifying your vessel, make sure you get an expert to assess the possible effect on your vessel's stability.
3. The loading limit for this fishing vessel was based on approximate calculations, since vessels of 'under 12m' registered length require no formal stability assessment. The stability performance of your fishing vessel is fundamental to you and your crew staying safe. Act on Seafish's recommendation and ensure your 'under 12m' fishing vessel has a stability assessment. At least then you will be able to operate knowing your vessel's loading limits.
4. The crew of this fishing vessel were extremely fortunate not to have ended up in the water. Given the circumstances, it would have been prudent, if possible, to retrieve and don the lifejackets to prevent the incident escalating. However, the lifejackets were stowed down in the cabin and were not readily available.

What Price an Arm?

Narrative

A large scallop dredger was recovering its gear in the early hours of a summer's morning. The weather was fine and, as was standard practice, the 14 dredges on each side had been brought alongside and draped over the vessel's gunwales prior to "tipping" the contents of each dredge onto the deck.

Unlike some vessels, "tipping" was still quite a manual process. A whipping drum, fitted either side of a winch house was used to control a rope, attached to a hook, which was connected to each dredge in turn to "tip" the contents onto the deck.

Three crew were on deck to "tip": the skipper and a deckhand working together on the starboard side, while on the port side an experienced deckhand was working alone. The latter had successfully "tipped" a couple of dredges when a riding turn developed in the several turns of rope being used around the whipping drum.

The deckhand let go of the dredge and "tipping" rope, and quickly moved back aft towards the winch head. He was aware of the problems with riding turns and knew he needed to stop the winch using the recessed emergency stop button above the drum.

As he approached the winch, he slipped on the recovered dredging gear lying on the deck and, as he fell, his left hand became caught in the rope between the winch head and the lower framework. He was subsequently dragged twice round the whipping drum and framework, effectively performing two backwards somersaults, and on both occasions was unable to reach the stop button due to the framework. It was only once his arm had broken and shoulder dislocated that the deckhand was able to stop the winch and avoid being dragged round a third time, probably to his death.

As soon as the winch stopped, the skipper and other deckhand hurried over to the port side to investigate. There they found the deckhand wrapped around the whipping drum and framework. They freed their colleague and then helped him into the galley. He had lost several fingers, fractured and severed his upper left arm and fractured nine of his left ribs. He had also punctured his left lung. With his condition deteriorating, the deckhand was evacuated by lifeboat and ambulance to hospital, where he was stabilised, but his arm subsequently had to be amputated.

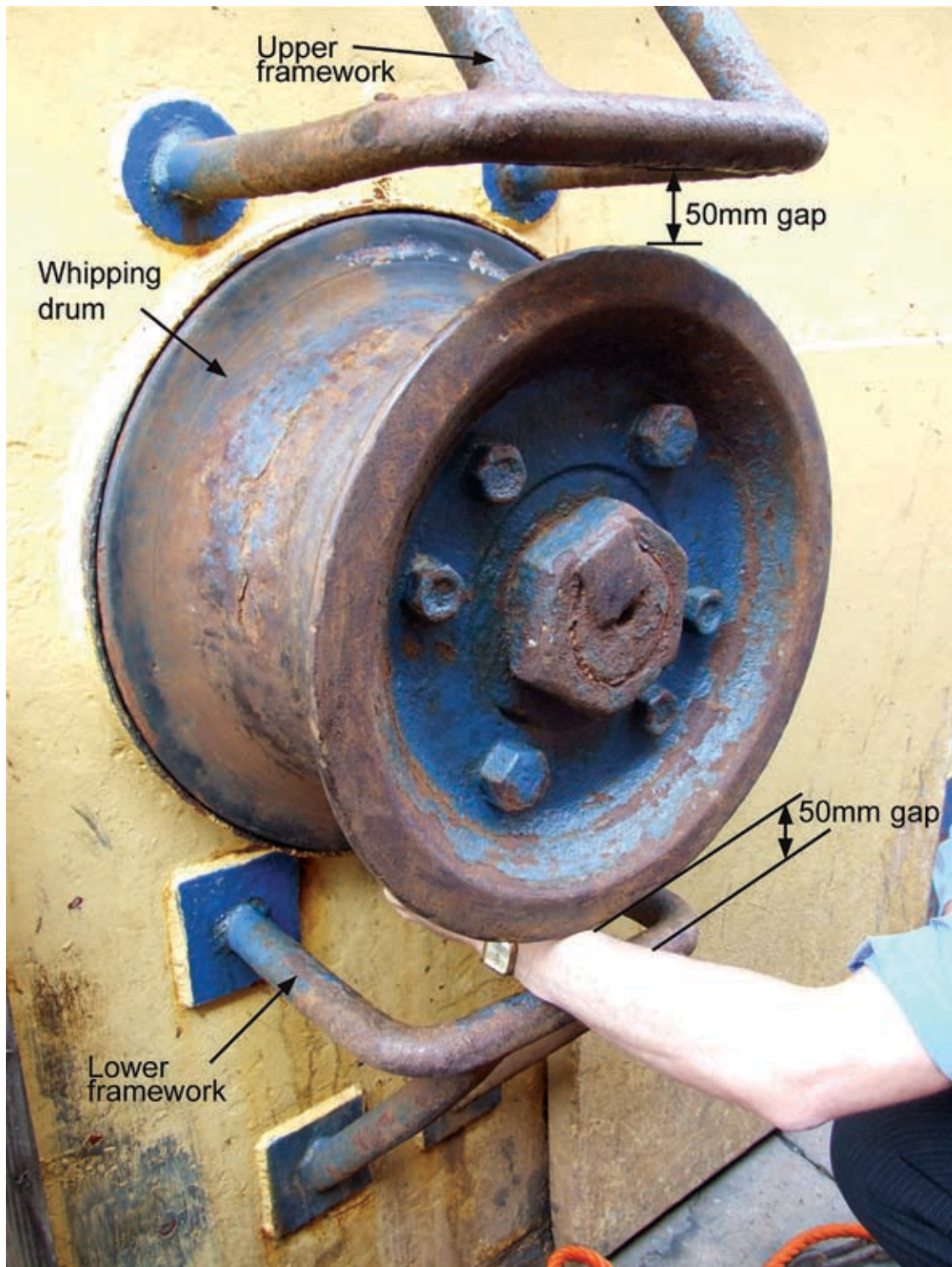


Figure 1: Port whipping drum with demonstration of an arm in the gap between winch head and lower framework



Figure 2: Demonstration of “as-found” position of deckhand, trapped in whipping drum

The Lessons

1. The nature of the injuries sustained by the deckhand during this accident was truly horrific, and he is indeed fortunate to have survived the ordeal. Yet given the working arrangement on board this vessel, it is a wonder that other serious accidents had not occurred before this one.
2. Had a risk assessment of the operation been conducted, it should have recognised the hazards posed and then measures to mitigate their effect could have been put in place, notably:
 - The frameworks above and below the whipping drum had been fitted when the vessel changed from a beam trawler to a scalloper. They created an additional entrapment hazard and undoubtedly contributed to the very serious injuries sustained by the deckhand.
 - The frameworks also meant the emergency stop button could no longer be easily reached, and clearly delayed the deckhand in stopping the winch once he was trapped around it.
 - The normal practice was for experienced deckhands to “tip” alone on the port side. However, the working arrangement was unsuitable for single-handed operation, and required two crewmen: one to control the winch, the other to “tip” the dredges.
 - The design of the vessel meant that the dredging gear had to sit on the side decks in way of the whipping drums, therefore creating a significant slip/trip hazard.
 - Problems were noted with the adequacy of the “tipping block” leading onto the whipping drum, which could have increased the frequency of riding turns.
3. A new “tipping” arrangement has now been fitted to this vessel, which should remove the dangers evident from the initial working arrangement. Various alternative “tipping” configurations are available, such as automatic systems, or the use of a dedicated “tipping” winch, with a remote control. Not only will such systems offer safety benefits, but they will also lead to more efficient operations, thus saving time and money.

