

Part 2 – Fishing Vessels



Having spent the majority of my working life as a deckhand and skipper in the industry, I am delighted to have been asked to write this introduction.

Fishing remains the most dangerous occupation within the UK; fishermen are 115 times more likely to suffer a fatal accident than those within the general workforce, and 24 times more likely than those working within the construction industry. The rates of fishing fatalities have not shown any improvement in recent years.

Like most fishermen, I have encountered many 'close calls' which act as a timely reminder as to how dangerous the fishing industry can be. We do learn from these experiences, but we often only learn the errors of our ways by making mistakes. I recall an incident (and I am not ashamed to admit that it involved me) whereby a self-inflating lifejacket which had been worn for months but had not been regularly checked, had to be inflated by mouth as the less than balmy waters of The Little Minch lapped under my chin. The CO₂ canister had not fired due to it becoming unscrewed. Thankfully the incident happened in sheltered waters and I was rescued almost immediately.

We relate these incidents to each other, and they often come to mind when we are in a situation where we are reminded of another's misfortune. The MAIB Safety Digest gives us a wealth of such information, which not only acts as a reminder as to the day to day dangers which we all face, but it is where we can learn from the experience of others. The role of the MAIB is purely to discover the facts, not to apportion blame or culpability. These facts can be sobering reading, but they are beneficial to all mariners.

We read time and again how poor maintenance (how many times have we come across a stuck or seized valve?) or lack of training is the root cause or has been a compounding factor in a predicament. Many incidents which result in a serious emergency can be prevented or the situation can be recovered when crew with the right training are able to act efficiently.

Skippers and engineers employ routine checks such as checking engine and gear oil levels, inspecting bilges for unusual water levels and ensuring bilge pumps are serviceable etc. These can be expanded a little further to the inspection of smoke alarms, fire fighting and life saving equipment and checking that valves can be opened and closed fully. Even a bit of mundane housekeeping can make the difference; keep personal effects stowed away (sea-boot socks that have been worn for several days and then draped over a heater are not only offensive, but are also downright dangerous). Take time to involve the crew in these tasks, which will allow familiarity with procedures and equipment, and in the event of an emergency will buy valuable time.

I left the industry last year to work in marine engineering. There are many aspects I do not miss: fishing is demanding, torturous, frustrating and can be the most demoralising work. However, it is also exhilarating, rewarding and incredibly exciting, and the camaraderie and brotherhood are unique. I wish all fishermen many safe and successful trips.

A handwritten signature in black ink, appearing to read 'G. Minchin'. The signature is fluid and cursive, with a large initial 'G' and a long, sweeping underline.



Gavin Morrison

Gavin currently works as an engineer for SMS Salcombe, Devon. He left the fishing industry in January 2008 to pursue this career. Gavin has been fishing on and off since he left school in 1987; his first job was as a deckhand on a lobster boat in the Western Isles. Most recently, from 2003 to 2008 he skippered a vivier crabber in the English Channel, Irish Sea and waters around the Inner Hebrides. Gavin's fishing career has been punctuated with employment in the offshore oil industry and some time with an airline.

Watch Where You're Going



Narrative

At about 0300, an 18m wooden hulled prawn trawler left her port of landing for her fishing grounds. Once through the breakwaters, the two deckhands, who had helped letting go, turned in, leaving the skipper alone on watch in the wheelhouse. Although the skipper went home at weekends, during the working week he was receiving only about 4 hours sleep a night when the vessel was alongside. He was maximising the time spent fishing for prawns during the long summer daylight hours.

When the vessel cleared the approaches to the harbour, the skipper set a course on the automatic helm to pass on his port side a small island, which lay about 2 miles to the south-west. The tidal stream was flowing north to south.

The skipper then went to the aft-facing chart table to process the previous evening's

landing receipts. Shortly afterwards, the vessel grounded on an outlying shoal to the island, waking the deckhands who were all turned in. They quickly checked the vessel and ascertained that she was not taking water. The skipper was unable to drive the vessel off the shoal and he decided to wait until high water before making further attempts to refloat. He did not alert the coastguard of his situation, but he did inform the harbour authority, which later alerted the emergency services. The coastguard dispatched an all-weather lifeboat and an inshore lifeboat to standby the grounded vessel.

The skipper was able to obtain the assistance of two passing fishing vessels to tow his vessel off the shoal at the next high water. The trawler then returned to harbour, where it was found that damage was limited to the forefoot and the steel keel band.

The Lessons

1. It is essential that watchkeepers maintain a proper navigational watch at all times and do not undertake any other duties that would interfere with the safe navigation of the vessel. Further advice on best navigational practice can be found in the MCA's MGN 313 (F).
2. Skippers should take full account of the quality and quantity of rest taken when determining fitness for duty, and use additional crew members as necessary to ensure that a proper lookout is maintained.
3. In this case, the skipper did not alert the coastguard because he believed that he was in a stable position, and that his vessel would refloat safely at high water. It is always wise to alert the coastguard as soon as possible following an accident or incident, even if assistance is not needed immediately. Do not adopt a false sense of security. Incidents can deteriorate rapidly. Forewarned emergency services can respond more effectively.

Lucky to Survive

Narrative

An 8m fishing vessel, trawling in an estuary on the west coast, was preparing to haul her gear when the net snagged on the sea bed. The crew of two attempted, unsuccessfully, to knock the winch out of gear in order to slacken the warp, and also attempted to turn the boat back to starboard as the vessel took a shear and a heel to port.

Before the vessel snagged her net she had been towing down-tide, and when she

initially heeled over, waves started to come onto her deck, causing her to heel over even further. A short time later she started to capsize, and the crew were pushed back into the wheelhouse by the power of the onrushing water, leaving them no time to send a 'Mayday'.

After the vessel had capsized, the crew found themselves inside the now inverted and flooded wheelhouse. One of them managed to swim clear quite quickly, while the other relied on a pocket of air to survive the initial capsize



Vessel with illustration of trawler assembly

until he, too, was able to swim out of the upturned wheelhouse. Although his clothing snagged on the winch, he was able to get himself to the surface and clear of the vessel just before she began to settle by the stern, shortly after which she sank.

Once clear of the vessel, the crew joined together and clung onto a lifebuoy, which fortunately had floated free as the vessel sank. However, they were now at the mercy of a strong tidal current, and a mile off a sparsely

populated shoreline, which they were unable to reach owing to the strength of the tide.

After an hour in the water, the crew were seen from the shore by a member of the public, who alerted the coastguard, and they were soon rescued by the local inshore lifeboat.

Had they not been spotted at that time, they could potentially have been in the water for a very long time as there were no paths or roads close to the shore further up the estuary.

The Lessons

1. The crew were young and inexperienced; when they got into difficulties they were unable to react quickly enough to release the trawl warp. They also attempted to power the vessel back to starboard, when it would have been prudent to reduce the power and de-clutch the engine. Always ensure that, in accordance with the guidance given in MGN 20 (M&F) and MGN 265 (F), a risk assessment is undertaken of work activities, and personnel are suitably trained and practised in resolving foreseeable problems.
2. The crew were fortunate in that they were able to cling to a lifebuoy which had floated free of the sinking vessel. MSN 1813(F) lists the minimum safety equipment requirements for small fishing vessels, and recommends the carriage of a liferaft and EPIRB. In this case neither was carried; had they been, the crew would not have had to place such reliance on good luck and the vigilance of a member of the public to ensure their survival.

Foundering – Always Check Why Bilge Alarms Sound

Narrative

A successful, wooden gill netter sailed for her routine 7 day trip with a skipper and three crew on board. The team were well trained, they had completed all the mandatory safety training courses and were serving in a vessel that had a reputation for being well maintained and run.

For the first couple of days the fishing was variable, so it was decided to move to new grounds. Luck was not with them. The weather deteriorated and the vessel was hove to for a day. A day later things looked up, at least for while; the weather improved and, with it, the fishing. At about 1400 on the sixth day, the nets were being hauled on board when the engine room bilge alarm sounded in the wheelhouse. The skipper was not overly concerned because this frequently happened during trips. As usual, he cancelled the alarm, switched on the electric bilge pump and continued hauling. Significantly, he did not investigate the cause of the alarm.

At about 1410, the haul was completed. The skipper then went to the engine room to de-clutch the hydraulic pump from the main engine while the rest of the crew made lunch. As he entered the engine room he found that the bilge water level was up to the floor plates, but he could not see where it had originated from, and there were no obvious signs of leakage. He re-configured the on-engine pump from deck wash supply to bilge pump suction but was unable to shut the seacocks as they

were under water. The skipper immediately returned to the wheelhouse. He informed the crew about the flooding and, as a precaution, instructed them to don their lifejackets, which were stowed in the wheelhouse.

Immediately afterwards, the skipper started the second electric bilge pump, but the two emergency hand-operated bilge pumps could not be used as these were stripped down for maintenance. The skipper then contacted a nearby fishing vessel and told them of the problem. Afterwards he returned to the engine room and found that the water level had not reduced but had increased by a further 20cm; it was now well above the floor plates and half way up the main engine. To determine the extent of flooding, the skipper checked the fish room and found water at the same level as that in the engine room. He also checked the forepeak and found that to be dry.

The situation was clearly deteriorating. The skipper was unable to determine the cause of the flooding so he made a “Pan Pan” call by VHF radio, to which the coastguard responded. The skipper advised the coastguard that he expected to remain afloat for about 1½-2 hours. Despite this, the coastguard recommended that the skipper remove the EPIRB to ensure that it floated free, and to launch his liferaft. The skipper did this, but it inverted as it inflated. A “Mayday Relay” was also broadcast by the coastguard, and a number of vessels responded. The coastguard then tasked a rescue helicopter and a lifeboat to assist.



Figure 1



Figure 2

The skipper checked the accommodation area and found that the cabin deck was just under water. Sensibly, he did not enter the compartment because at about the same time the vessel made a sudden lurch and began to roll to starboard. The skipper immediately instructed the crew to jump into the water. They had insufficient time to right the still

inverted liferaft, so opted to swim approximately 100 metres to the fishing vessel which had responded to the “Mayday Relay”.

At 1509, the vessel sank. Fortunately, the rescue helicopter was overhead at about 1510 and winched the crew members to safety (Figures 1 and 2).

The Lessons

Without the vessel being available to inspect, the cause of the flooding is a matter of speculation. However, the rate of flooding calculations suggested that a 60mm diameter hole or comparable split would have caused the conditions which led to the foundering. The skipper was unable to see the source of water ingress, which suggested that it was under the engine room floor plates, below the water level. It is noteworthy that the main engine sea water cooling system used 60mm diameter pipes.

The flooding of the fish room confirmed that the forward watertight bulkhead had been breached. The fish room bilge suction flexible hose had been passed into the fish room through an oversize hole which would have allowed water to enter the fish room from the engine room and vice versa.

Had the cause of the bilge alarm been promptly investigated, there would have been a good chance that the cause of the flooding would have been found and effective measures could have been taken to deal with the problem. The following lessons can be drawn from this accident:

1. Investigate bilge level alarms on every occasion. It is all too easy to become complacent and switch on the bilge pump without identifying the cause of the alarm.
2. Use suitable components when penetrating watertight bulkheads so as to maintain, so far as is practicable, the watertight integrity.
3. Consider fitting extended spindles to sea valves that are not already required by regulation to be fitted, and regularly check the condition of related pipework.
4. Ensure that all bilge pumps, including hand-operated emergency pumps, are maintained ready for immediate use.
5. Conduct regular emergency drills.
6. Consult MGN 165 (F) – Fishing Vessels: The Risk of Flooding. This publication, which is available on the MCA's website, provides comprehensive advice on flooding prevention measures, and makes essential reading.

The Blind Leading the Blind

Narrative

During the first week of a planned 2 week pair-trawling trip, one of the vessels suffered a failure of its satellite gyro compass. The skipper changed over to another compass but was unsure exactly what equipment it now supplied. A check of the magnetic compass revealed that the card was 180° displaced. The skipper borrowed a large magnet from the engine room, placed it close to the binnacle and managed to turn the card 180°, but thereafter the compass's reliability was found to be somewhat suspect.

After some good fishing, the vessel returned early to port and landed its half catch. Visibility was good for entering harbour, the catch was soon discharged, and the crew stood down until the vessel's planned sailing time of 2000 that evening.

When the skipper and mate returned to the vessel, the visibility had reduced to between 20 and 50 metres. The reduced visibility did not change the skipper's plan to sail at 2000.

The bridge equipment was switched on, and at 2010 the vessel left the quayside. With the wheelhouse windows open, the mate stood looking out of the port window and the skipper looked out of the forward facing starboard window. Each had an electric tiller at his side, and they shared the responsibility for the manoeuvring.

Feeling their way out of harbour and only just able to see their own forecastle, alterations of course were made whenever a vessel or structure was identified. The skipper continued outbound, but although becoming more and more concerned as the visibility continued to decrease, at no time did either he



Some of the damage caused by the grounding



Vessel's track – recorded from electronic chart plotter

or the mate make use of the electronic navigational aids – despite the two radars and electronic chart plotter being switched on, and on suitable range scales.

By chance, the mate glanced at the rudder indicator and saw that the rudder was set hard to starboard. He immediately alerted the skipper, who started to bring the helm back to port. As the rudder returned to amidships, the noise of the vessel grounding could be heard. The mate de-clutched the main engine and then reduced the pitch and revolutions to zero.

Port control contacted the vessel when it was no longer held on radar, and the skipper advised them that he had grounded. The crew checked for water ingress; none was found. The skipper decided to wait for a rise in tide before attempting to refloat, and 12 minutes later the vessel was afloat. The skipper and mate carefully made their way back into the harbour, this time making use of the chart plotter. On their arrival, the coastguard noticed a considerable amount of pollution in the vicinity of the propeller, and the decision was taken to remove the vessel to a nearby slipway.

The Lessons

1. It had been some considerable time since the skipper had attended a radar simulator course. Although he was familiar with the electronic navigation equipment on board, he had not grasped the navigational techniques necessary to navigate in fog. The need for continuation training in blind pilotage techniques and electronic navigational aids should not be underestimated.
2. There was no heading readout available because of the defective satellite compass. This was the main factor behind the disorientation suffered by the skipper. The absence of essential navigational equipment, in this case a heading display, changes the risks involved in sailing. A further assessment of the risks should be made and, if necessary, sailing deferred until the equipment is repaired.
3. A probable reason for the rudder being applied hard to starboard was the location of the tiller next to the skipper. With his attention focused on looking for visual navigation marks, he had failed to realise that he had nudged the tiller over to starboard. Given the prevailing conditions, it would have been better to have a dedicated helmsman on the wheel, which would have allowed the skipper and mate to concentrate on navigating and looking out.
4. The echo sounder was switched off while leaving and entering harbour, a scenario often identified by the MAIB. In such waters, the echo sounder is an essential piece of navigational equipment, particularly if it is fitted with a depth alarm facility. However, remember to check whether the datum is set to show depth below the keel, or depth below the waterline.

No Safety Training, Faulty Fire Detectors and Emergency Equipment – A Sorry Tale of Woe

Narrative

A 33 metre, UK registered long-liner left her home port for the 4 day passage to her fishing grounds. The skipper had been with the boat for about a year, but for the majority of the 15 mixed nationality crew, none of whom had completed any of the mandatory safety training courses, this was their first time on board.

Familiarisation training was never carried out and emergency drills were not considered important enough to waste time on. Most of the emergency equipment, including ventilation shut-off valves and the emergency fire pump, were not properly maintained and no-one could remember when they were last

tested. To make matters worse, the skipper knew that the fire detector heads in the crew's cabins were routinely covered to prevent the alarms sounding as the crew smoked, but he turned a blind eye to this dangerous practice.

What the skipper did not know was that the cabin dividing bulkheads stopped short of the deckhead, and that cabin power supply cables were draped over the sharp edges, and consequently the insulation had been badly chafed (Figure 1). The crew also connected numerous electrical devices to untested electrical extension leads.

So, all in all, the boat was poorly prepared to deal with the emergency which was just over the horizon.



Figure 1: Cable chafing



Figure 2: Blistering of the paint on the main deck

At 0100 the skipper called the crew to recover the long-line. They left their cabin doors latched open and went on deck. At 0630, a fisherman looked up the accommodation alleyway and saw thick black smoke coming out of one of the cabin doors – notably, the fire detection system had not alarmed. At the same time, a fisherman on the port side heard the shout of “fire” and headed towards its source. But he was beaten back. The second engineer had more success, and tackled the fire with a water extinguisher until he, too was beaten back; no one closed the watertight doors to contain the fire within as small an area as possible.

The skipper sensed something was wrong when the crew mustered in front of the wheelhouse. He opened the rear wheelhouse door to the alleyway below and was confronted by the heat from the fire, and the wheelhouse filled with smoke. It became clear to him that he had a major incident on his hands.

The crew stayed in front of the wheelhouse, unsure of what to do next. Fortunately, the bosun had the presence of mind to confirm

the crew were all accounted for. The skipper then decided to establish a fire/smoke boundary, and arranged for the watertight doors to be closed. Because the doors had not been closed early during the incident evacuation, the boundary encompassed over three quarters of the accommodation and fish processing areas. At the same time, the skipper alerted a nearby long-liner of his problems.

At about 0640 the skipper asked the chief engineer to start the fire pump. He could not do so because the electrical control supplies had been burnt through. No attempt was made to cross-connect the general service sea water pump to the fire main, nor was any attempt made to try the emergency fire pump, so there was no pressurised water supply to deal with the fire. It is noteworthy that most of the crew were unaware of the existence of the emergency pump which, in any case, was later proven to be defective.

The situation worsened as the paint on the starboard side of the main deck started to blister (Figure 2). The skipper decided to

starve the fire of oxygen. However, the ventilation closing flaps were seized and could not be closed. He then set about stuffing rags around the ventilation outlets to stop oxygen reaching the fire. At about 0700 one of the cabin scuttles fractured from the heat of the fire. The skipper and bosun donned safety harnesses, went over the side, and managed to throw buckets of sea water through the scuttle. However, this had virtually no effect. No thought was given to using the submersible salvage pump to provide boundary cooling, which was later proven during the investigation to have been a viable option.

At about 0815, the skipper contacted the vessel's owners. They advised him to "sit it out" and see if the fire would burn itself out. As the morning wore on, the crew became impatient and persuaded the skipper to try to make a re-entry to the fire despite there being no breathing apparatus on board and no fire suits (none were required by the

regulations). At 1215 the rags were removed from the ventilators and large volumes of smoke were seen to issue from the broken scuttle as the fire re-ignited. This finally persuaded the skipper to notify the coastguard of the emergency, some 6 hours after the fire was discovered.

A lifeboat, rescue helicopter, patrol aircraft and a warship were all involved in the rescue. The warship put a fire-fighting team on board and extinguished the fire. The boat, under escort, made her own way into port.

The fire was caused either by a short circuit where the electrical cables were draped over the non-continuous bulkheads, or by an overheating electrical device belonging to one of the crew. It caused widespread damage throughout the accommodation area, alleyways, galley and mess room. The 220 volt electrical distribution panel outside the engine room access was totally destroyed (Figures 3, 4 and 5).



Figure 3: Cabin damage



Figure 4



Figure 5: Damage to the 220v distribution panel

The Lessons

Fortunately there were no serious injuries as a result of the fire. However, the skipper and vessel's owners paid scant attention to the importance of safety training and contracting qualified crew who had attended the mandatory safety training courses. Attending the fire-fighting course would not necessarily have prevented the fire, but it would have enabled the crew to act more instinctively, and they might have dealt with the fire more effectively had the emergency equipment been properly maintained and available.

What perhaps is particularly disappointing is that the fire detection system had been intentionally disabled by the removal of the control panel fuses. The importance of a correct detection system cannot be over-emphasised. It provides the first line of defence and the chance to deal with the fire before it gets a real hold.

The following lessons can be drawn from this accident:

1. Make sure that properly trained crews are employed. Once on board, carry out regular emergency and familiarisation drills – your own survival may depend on it.
2. Maintain and check the correct operation of the emergency equipment – in this case, the emergency fire pump was in an

enclosure on the upper deck and suffered from the crew's attitude of "out of sight, out of mind".

3. Make sure that fire detection systems are always fully functional. Test them regularly – especially before sailing – and repair any defects without delay.
4. Adopt a closed door policy. In this case the cabin doors were of B Class standard but were left open, allowing the fire to quickly spread into the accommodation alleyway. In the event of a fire being discovered, establish a boundary as close as possible to the seat of the fire.
5. Skippers should not hesitate to alert the emergency services to a major incident, which this clearly was. Fires can escalate unexpectedly and rapidly, and delays can so easily compromise the chances of a safe rescue.
6. In March 2008 the MCA published the "Fisherman's Safety Guide – A Guide to Safe Working Practices and Emergency Procedures for Fishermen". The guide provides useful information on fire prevention, training, drills, and maintaining emergency equipment, and is available in foreign languages on application to the MCA headquarters. Owners and skippers are encouraged to request copies, which are free of charge.