Part 2 – Fishing Vessels

Despite the enforced decommissioning in the >15m fleet (approximately 150 vessels in Scotland), and the ageing tonnage, fishermen still have a burning desire to go down to the sea in ships and do business in great waters.

Vessels are still pursuing the same species and using the same fishing methods as was the case 50 years ago. Although equipment is now more sophisticated, crew still have to deal with the daily rigours and dangers experienced on longer trips far from their home ports.

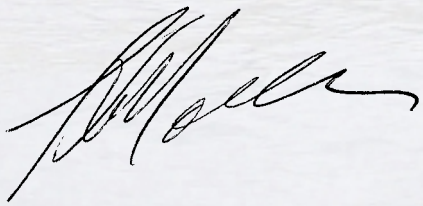
Today, the combination of legislation and the introduction of VCUs, has made it nigh impossible to build larger, more comfortable, safer ships. Industry has simply avoided the restrictions imposed on them by downsizing. "Putting a quart into a pint pot". This, in itself, could be a source of concern.

Many of the accidents which MAIB has investigated, have been due to materials failure such as sea intakes, cooling pipes, particularly in older tonnage, resulting in serious losses. The MAIB reports, widely acknowledged in the Industry, highlight such incidents.

Clearly there are specific problem areas previously mentioned, and others, such as towing points and stability, which must be addressed. Maybe we need more innovative **vessels** to match the demands for safety and reliability. However, Industry cannot afford to finance such projects without government assistance. The MAIB has an excellent record, and is highly respected. It has to be hoped that it can influence government departments to help upgrade our fleet.

At present, the emphasis seems to be on catch, preservation and presentation (for the markets) rather than safety and modernisation of the fleet. That said, it is surely the case anyway, that a safe and efficient vessel will be more likely to land first class catches at least equal to market demands.

Also, given the importance of training, it has to be hoped that the proposed closure of the Fisheries Department of the Banff & Buchan College can be averted, as the College has a key role in the training of young fishermen.



John Noble

John Noble has been in the fishing industry since 1950. His previous appointment was Manager of the last Scottish Distant Water Fleet consisting of vessels from 26 to 40 metres – freshers and freezers.

He is a Director of the Fishermen's Association Ltd (FAL) and a member of the MCA's Fishing Safety Group.

John is also a board member of the Scottish Fisheries Museum at Anstruther.

With the Best of Intentions …

Narrative

The owner of a 14 metre potter had looked at the shooting operation on his vessel and, recognising the number of fishermen who had been lost overboard by being caught in a bight of line, decided to modify his boat. In effect, he did a risk assessment and took action on its results; a commendable initiative.

To avoid the hazard of a bight around an ankle, it was decided to move the crewman handling the pots well away from any lines on the deck. This was done by putting a hinged door in the bulwark at one side of the deck which, when opened, allowed the pots to be drawn across the deck by the vessel's forward motion, with only limited intervention from the crew (see Figure).

This arrangement appeared to work well for several months, until a crewman was left working alone on deck one day, just after a string of pots had been shot. The weather conditions were reasonable, but the vessel was rolling a fair amount. He finished the job he was doing and walked past the still open shooting door to return to the wheelhouse. Unseen and unheard by the rest of the crew, the crewman lost his footing and fell overboard through the open door.

His absence was quickly noticed. The skipper broadcast a "Mayday" and turned the vessel around to retrace its track. A number of aircraft and surface vessels took part in the search, but nothing of the crewman was found. He had been wearing nothing to give him any buoyancy.

The Lessons

1. The owner's risk assessment did not extend to considering the hazards associated with the modifications, namely the dangers of the open shooting door.

2. Whenever a risk assessment suggests modifications to equipment or procedures might be beneficial, the hazards associated with the changes should be run through a new risk assessment. Only if the level of risk is reduced by the proposed changes are those changes worthwhile.

3. The practice of blocking off a second access route between the working deck and the wheelhouse forced this crew to walk past the shooting door, which was a substantial hazard when open.

4. Once in the water, the crewman was unable to stay afloat because he was not wearing a lifejacket or other buoyancy aid. His loss from the vessel had been noticed so quickly that, had he been able to remain afloat, for even a few minutes, he might have been safely recovered.

A Continuous Navigational Watch Must Be Kept

Figure 1

Narrative

A prawn trawler (Figure 1) was returning to port after a night's fishing. The skipper was helping the deckhand tail prawns on the working deck, but was periodically returning to the wheelhouse to attend to the navigational watch. He saw another small fishing vessel ahead during one of the periods when he was looking out. The skipper thought that this vessel was either hauling or shooting pots, and was underway at about 2 knots, in which case he would pass well astern of her. Having made this assumption, he returned to the working deck, thinking that he was safe. But the other fishing vessel was in fact adrift, and was not under command, after having suffered an engine failure. The vessels collided about 10 minutes later.

Both fishing vessels were a little less than 10 metres in length. The wind was force 2 and the visibility was good. The trawler was steaming at slow speed to give the crew time to tail the prawns before reaching port. The other fishing vessel was a potter (Figure 2), and had broken down when on passage to her grounds.

About 15 minutes before the collision, the potter's skipper saw the prawn trawler and steered to pass well in front of her. However, the problem with his vessel's engine led to him stopping directly ahead of her. He tried to attract attention by using his VHF radios and a portable foghorn, but these messages were not heard. No one appeared to be in the other vessel's wheelhouse. The skipper and his deckhand watched the trawler as it bore down on them, and they jumped onto the other vessel once the collision had taken place. It was just as well that they did this, because the potter's hull was penetrated and she flooded and sank shortly after the impact.

The prawn trawler had just two crew members, although three was optimum. It was

Figure 2

difficult to get people to take up fishing in the vessel's home port and an untrained eastern European labourer had been employed.

The liferaft had recently been fitted to the potter and had been supplied free under a local initiative. However, it failed to deploy when the vessel sank – either because the hydrostatic release was incorrectly fitted, or because it became snagged in the mast or rigging.

The Lessons

1. **The skipper of the prawn trawler was away from the wheelhouse for at least 10 minutes before the collision. It is not acceptable to leave the wheelhouse to help with processing the catch; a continuous navigational watch must be kept. The collision regulations are quite clear on this.**

2. **The difficulty in recruiting should not be used as an excuse for dangerous practice. The skipper should have been in the wheelhouse dealing solely with the navigational watch while the prawn trawler was steaming. It was therefore probably necessary either for two deckhands to be on board to deal with the labour intensive task of tailing the prawns, or for the task to be carried out when the vessel was safely back in harbour.**

3. **It is possible that the liferaft on the potter failed to deploy because it had been incorrectly fitted or poorly sited. The free issue of liferafts is an excellent safety initiative, but they must be installed correctly. Fishermen who fit liferafts should follow the instructions very carefully. If there is any doubt about the correct procedure, assistance from an experienced seafarer such as a lifeboat man or harbourmaster should be sought.**

CASE 19

Capsize – a Question of Stability

Figure 1 – General view of vessel

Narrative

A 26 metre mussel dredger (Figure 1) converted from a Dutch river barge, built in 1908, was flagged into the UK register in 2002 having been inclined and surveyed. An MCA approved stability book was produced, setting out loading conditions, but it was not normal practice to hold it on board. Modifications, which added weight to the vessel, were made following inclining, but the MCA was not notified.

The vessel was arranged with a single continuous double bottom extending only under the two holds. A "tell tale" pipe with valve fitted in the after engine room drained any water which accumulated in the double bottom. The skipper noticed that there was a trickle of water coming from the pipe, but was unconcerned about it and did not investigate it further. There were no wing tanks to aid buoyancy.

On sailing, the weather was fine and the skipper and two crew were relaxed as they approached the mussel seed beds. All was normal, but the collection of the wild mussels was curtailed because of a failure of a steel wire rope used in the dredging operation. At that point, the skipper believed he had about 15 tonnes of mussels on board in the after of the two holds. This estimate was based on his experience of the volume taken up with previous dredgings. In fact, he had about 60% spoil in his catch, which consisted of large stones and gravel, with the amount totalling nearer 30 tonnes.

The return trip to the mussel bed to be seeded with the catch was uneventful. At 0230, the weather was fine, the water flat and there was no hint of the impending disaster. The skipper did his usual positional checks and opened the centreline circular seeding hatch at the after end of the hold. He noticed water entering the hold as normal. He then started the high

Figure 2 – Slusher jet

pressure salt water "slusher" pump used to drive the mussels out of the seeding hatch using the directional "slusher" jet (Figure 2).

The skipper began his usual 2-3 knot circular seeding pattern. One of the crew was operating the "slusher" jet, the other crewman was adjacent to the after hold. He believed the water level in the hold was higher than usual, but did not recognise the significance of this, so did not inform the skipper. After about 5 minutes, the skipper turned to starboard and the vessel listed about 10 – 15 degrees into the turn. Instead of righting herself as expected, she continued to slowly list over, submerging the deck edge, which resulted in downflooding of the forward hold. The vessel continued to roll over, coming to rest on top of the mussel bed, leaving her port side clear of the water (Figure 3).

The skipper managed to collect two lifejackets and the hand-held VHF radio before joining the two crewmen on the port side of the hull. The coastguard was alerted and a lifeboat rescued the crew soon after. Happily, there were no injuries – other than severely dented pride.

Salvage was agreed and the MAIB was subsequently able to closely examine the vessel.

Figure 3 – Vessel capsized

Figure 4 – Plate corrosion

The Lessons

During the accident investigation, it was found that the double bottom "tell tale" pipe isolating valve was blocked. Once cleared, water gushed out, proving that the double bottom was flooded. The cause of ingress was found to be plate corrosion in the after hold bilge suction well (Figure 4). Now this is not a big problem if the double remains pressed full, but the slight drainage into the engine room removed some water, which resulted in a large free surface effect.

It was also found that the mussel seed contained large stones and a considerable amount of gravel. This increased the weight of the catch and exceeded the maximum loading condition as set out in the stability book. During discussions, neither the owner nor the skipper was aware of the vessel's maximum loading condition as set out in the stability book.

Following remodelling of the stability of the vessel, it was found that the probable cause of capsize was an obstructed seeding hatch. This led to an increase in the water level in the after hold, coupled with free surface in the double bottom and a cargo shift.

The following lessons have been identified from this accident:

1. It is no use signing the stability book just to satisfy a regulatory requirement. It is a live document which must be carried on board for reference purposes to check that loading conditions are not exceeded. Keeping the book in an office serves no purpose!

2. It would be very helpful to skippers if holds were indicated internally with a load line, to ensure that loading is not exceeded. A welded plate could serve such a purpose.

3. If water is seen to be leaking from a "tell tale" system it should be investigated without delay. The investigation does not end there: the cause of water ingress must be determined and rectified. Your life could depend on it.

4. Where additions or disposition to weights are made to the vessel, the MCA should be notified, as stipulated in the stability book, so that the effect on stability can be assessed.

5. In this case, the catch had an unusual amount of spoil. Remember that gravel, and to a slightly lesser extent stone, acts in a fluid manner and can easily shift, especially when under water in flooded holds.

6. Should you notice anything unusual, don't keep it to yourself. Had the crewman alerted the skipper about the increased water level in the hold, he might have considered the seeding hatch to be obstructed, and taken corrective action.

CASE 20

Collision and Sinking While Pair Trawling

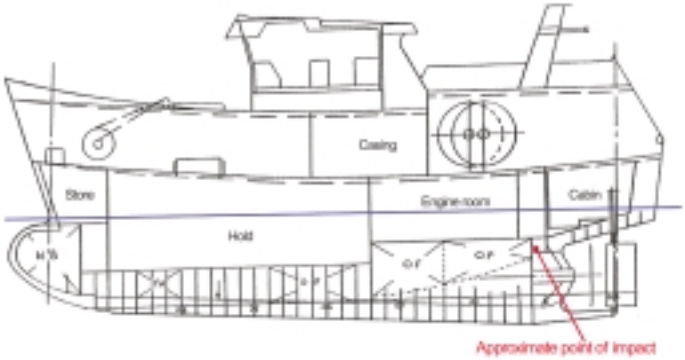
Narrative

Two steel trawlers had been pair trawling together for about 2 months. On this particular trip both sailed with a crew of 5, including 2 Latvian crew members on each vessel. The weather was reasonable, with a wind force 4 to 5, and this was to be the last haul before returning to shore.

The vessels clutched in their hydraulics and removed the towing chains in preparation to haul. The skipper of the first vessel set his autopilot to 15° starboard helm. Shortly after, the auxiliary engine of this vessel shut down. The skipper started his second auxiliary engine and left the wheelhouse to go to the pump room to change over the hydraulics, and other services, onto the running generator. On his way to the pump room, the skipper indicated to one of his crew to go to the wheelhouse to take over the watch. He then continued on to the pump room as intended. On returning from the pump room, after changing over the services, the skipper met the crew member on the open deck; he had misinterpreted the skipper's signals and had followed him to the pump room, leaving the wheelhouse unattended.

Meanwhile, the skipper on the second vessel had started to haul, and was donning his oilskins in the wheelhouse when he looked up to see the other vessel coming straight at him. Although he took avoiding action, by releasing the haul and swinging his vessel to starboard, it was too late and the vessels collided, with the oncoming vessel striking the other at frame 6, the bulkhead situated between the engine room fuel tanks and crew accommodation. The bulbous bow penetrated the vessel's hull, and sea water immediately began to flood into the accommodation spaces, which started to fill rapidly. The skipper, realising his vessel was badly damaged, put out a "Mayday" call on VHF channel 16 and ordered his crew to launch the liferafts. He then ordered his

Minimal damage caused to bulbous bow of first fishing vessel



Latvian crew members to transfer to the first vessel by liferaft while he, and his remaining crew, assessed the state of his vessel. This they did. However, they failed to use the lifejackets provided, even though these were available.

On realising that the vessel was flooding rapidly, the skipper decided to abandon ship, and all crew members transferred, via the liferaft, to the adjacent vessel. Again, even though they were available, the crew failed to use their lifejackets during the transfer. The badly damaged vessel sank some moments later. The EPIRB floated free and activated.

The "Mayday" call was picked up by a nearby offshore platform, which launched a rescue boat to the scene and alerted the Coastguard of the incident. Fortunately, the first fishing vessel had suffered little damage from the collision and was able to return to port with all the crew members from both vessels safely on board.

The Lessons

1. **The standard of lookout and communication between the vessels was poor and contributed directly to this accident. Pair trawling is an inherently dangerous operation; the MAIB has investigated a number of accidents which have occurred while engaged in such procedures. Extreme vigilance and good communication, at all times, is essential if the operation is to be conducted safely. This is particularly true while shooting and hauling nets.**

2. **The skipper of the first vessel left his wheelhouse unattended while he went to the pump room to change over services after starting his standby generator. During this period, his vessel's heading changed to a collision course with the other vessel, without warning. To leave the wheelhouse unattended for any period is unacceptable, and endangers both your own vessel and those around you.**

3. **The use of foreign national crew within the fishing industry is an increasing practice. This is perfectly legitimate; however the ability to communicate effectively, particularly during an emergency situation, is essential for the safe operation of the vessel and all its crew. On this occasion, the skipper recognised this and controlled any risk by evacuating these crew members early in the emergency. This, however, left him with fewer crew members to tackle the flooding.**

4. **A "Mayday" call was initiated immediately following the accident. This was a commendable action because it thwarted any possible delay had the situation worsened. However, the use of VHF Channel 16 for this call restricted those able to receive it to the local area of the incident, and might not have alerted the coastguard, who are best placed to co-ordinate any rescue operation. For this reason, any such emergency call should be initiated via DSC, on an appropriate frequency, to ensure it is received and acted upon. There is, of course, nothing lost by making a VHF "Mayday" call in *addition* to activating the DSC, if time and circumstance permits.**

CASE 21

Water in the Bilges – So What?

Narrative

A 16 year old, 24.5m steel trawler was 7 days into her usual 10-day period at sea, when she flooded and sank. She was operating in deep water, and towing for about 6 hours at a time. All had been going well, with the gear shot away at about 1800. The catch was processed by 1930, the skipper took the towing watch and the other three crew members went to bed.

At about 2130, the engine room bilge alarm sounded. This was not unusual, as the generally small amount of water that got into the bilges could, if the boat was rolling, slop around and set the alarm off. With a 3 metre swell running, this was initially thought to be the case, so the driver was called to pump the bilges.

On arriving in the engine room, the driver started the bilge pump and then returned to the wheelhouse. He checked the overboard discharge to ensure that water was coming out, and spent the next half-hour chatting to the skipper. At approximately 2200, a gearbox high oil pressure alarm went off, so the driver returned to the engine room. He found the water level now halfway up the engine, and returned to the wheelhouse to inform the skipper. The skipper went to the engine room, saw how much water there was, and returned to the wheelhouse. The skipper then instructed the driver to wake the remaining crew. He did this, and then returned to the engine room, where he attempted to shut the seacocks. These were situated just below deck plate level, and were now under about 0.9 metre of water. No extension spindle or remote closing device was fitted to the sea cocks, and all attempts to close them were unsuccessful.

While the driver was in the engine room, the skipper told the other crew men to launch the liferaft and don their lifejackets. On returning to the cabin to fetch the lifejackets, it was noted that there was water on the deck. The liferaft was launched and the youngest

member of the crew was put into it to fend it off the boat's side.

The skipper had, by that time, broadcast a distress message on 2182kHz, which was received by the coastguard. The SAR helicopter was scrambled with a salvage pump on board, and a "Mayday" relay was broadcast to inform other shipping. A number of other vessels responded to this, and the coastguard began organising the recovery of the crew members. The skipper was advised to put the EPIRB and hand-held VHFs in to the liferaft, which he did.

Shortly after that, the vessel lost electrical power. With the radios now working from the emergency power supplies, the coastguard could no longer hear the fishing vessel, but the fishing vessel could hear the coastguard. It was decided to abandon the fishing vessel, with water in the cabin, the engine room almost full of water and the deck aft awash.

The coastguard received a call from another fishing vessel saying that they were alongside and taking the men from the liferaft. This second fishing vessel had not responded to the initial call from the coastguard. The four crew members were put ashore from the second fishing boat later the following morning.

The vessel sank in about 200m of water, about 2 hours after the flooding was first discovered.

The Lessons

1. **The fact that there was water in the bilges, and that this had set the bilge alarm off, was not unusual. However, it is good practice to check around the engine room and see if there is an obvious cause for the water being there.**

2. **By the time the driver made his second visit to the engine room, the water was too deep for him to be able to reach the seacocks. Had they been fitted with extended spindles, or had another remote closing apparatus been available, the seacocks could have been closed from above the level of the water. This could have stopped the ingress of water and saved the vessel.**

3. **Had a portable bilge pump been carried on board, as recommended, it might have been possible to reduce the floodwater level and gain access to the seacocks.**

4. **The early launch of the liferaft, and the well ordered evacuation of the vessel is to be commended.**

5. **The fishing vessel that picked up the survivors had not responded to the coastguard's distress relay, and the coastguard therefore did not know that the fishing vessel was in the vicinity. A lot of effort was wasted by the coastguard co-ordinating the responses of other vessels which were much further away.**

6. **The distress call on 2182kHz should have included the use of the DSC alert on 2187.5kHz, since ships are no longer required to maintain watch on 2182kHz. It was fortunate that the transmission was heard by the coastguard, which maintains a speaker watch at selected stations around the coast.**

CASE 22

Rapid Capsize Causes Loss of Life

Figure 1

Narrative

An 8.7m potting vessel (Figure 1) capsized rapidly and without warning while starting out on passage back to her home port at the end of a day's fishing. The two crew members were thrown into the sea; neither was wearing a lifejacket. The vessel righted herself, and the deckhand returned to the partially submerged hull and was able to release the liferaft. He managed to inflate it, and board it from the water. The skipper, who had been seen on the surface, was lost from view before the deckhand could paddle the liferaft to him and was not seen again. The vessel sank shortly afterwards.

Analysis of the evidence indicated that flooding of the engine space, caused by a failure in the salt water cooling system, probably led to the loss. The vessel was not fitted with an operational bilge alarm, and there was no other warning that flooding was taking place. The engine space extended the length and width of the working deck, and had a free surface area of over half the vessel's water plane area. Consequently, the amount of floodwater to cause instability did not have to be great. This could be why neither crew member noticed any change in the handling of the vessel before she capsized.

The liferaft had not been serviced for many years (more than 12), and it was fortunate that it inflated when the deckhand pulled the painter, particularly as the gas cylinder was badly corroded (Figure 2). The condition of the liferaft fabric and equipment was also very poor, resulting in the deckhand spending a very uncomfortable night in it. The flares, torch and liferaft lights did not work, and no reflective tape was fitted to the canopy.

The vessel had not carried an EPIRB, so the search for survivors did not begin until a number of hours after the accident, by which time it was dark. During the night, the raft was

Figure 2

almost impossible to see without any form of illumination. The buoyancy tubes were leaking air, and the floor was leaking water, so the deckhand spent most of the night either pumping or bailing.

Fortunately, after being sighted by a passing ferry the next day, the deckhand was airlifted to safety. The skipper's body was recovered from the sea bed near the wreck some time later.

The Lessons

1. Bilge alarms have been mentioned many times before in Safety Digest articles. They are a vital piece of safety equipment, and must be tested before the start of every voyage to ensure they are working. Bilge alarms should be fitted in all the main compartments, but especially in the engine space. A single alarm is sufficient if it is robust and of good quality; better still, two units can be fitted.

2. Lifejackets are another regular feature of the Safety Digest, and their importance cannot be overemphasised. Over many years, MAIB inspectors have heard all the arguments highlighting the problems associated with the constant wearing of self-inflating lifejackets. But the problems are minor in comparison to those faced by a person in the water, with no support. Many fishermen have recognised this and now wear lifejackets all the time when working. The rapid capsizing of fishing vessels is relatively common; the wearing of lifejackets is one of the main defences to try to ensure that lives are not lost. Many fishermen would be alive today if they had been wearing a lifejacket, including, very probably, the skipper of this vessel.

3. A fishing vessel of this size does not have to carry a liferaft, although the benefit of having one has been dramatically demonstrated by this accident. Government agencies in many parts of the country now issue liferafts free of charge, so if you own a small fishing vessel, you should take advantage of this initiative if it is available. Once a liferaft is installed, it should be serviced in accordance with the manufacturer's instructions.