Part 2 – Fishing Vessels

Being a fisherman is by far the most dangerous occupation, and the industry is often condemned for this. Having seen fishing operations on all types of vessel, it is apparent to me that it is not because fishermen are foolhardy – although there are exceptions – but simply because the work is taking place on the sea. 'Things going wrong' in the factory ashore results in lost production, whereas on a fishing boat it can mean loss of life. Looking at the fluctuating statistics and trying to draw sensible conclusions is unlikely to provide answers, but reading the lessons drawn from MAIB reports does give a true picture of the 'things that go wrong' and the consequences!

Having been at Seafish for many years, and being involved with safety, I eventually found myself attending meetings of the Fishing Industry Safety Group, where I tried hard to follow the discussions about such things as Codes of Practice, cut off points, LSA, fire regulations and crewing regulations.

"Is the accident record for small vessels worse than the bigger vessels?" The industry said no, and pointed to the statistics. *"Ah, but small vessels are not at sea for as long as bigger ones and hence, the accidents per time period at sea is greater"* responded the MCA.

It was difficult to get a clear understanding of the true picture. One can argue about statistics and trends, but it has always concerned me that one incident can totally change the statistics. So, whilst not dismissing statistics totally, it is far better to look carefully at each incident that occurs.

All incidents have one thing in common: the persons involved did not expect them to happen! We all make assumptions that everything will be all right, because our experience is that it usually is. However, as the lessons in this Safety Digest show, circumstances can conspire, setting in motion a chain of events that result in the unexpected. The gear comes fast; there is a strong tide and a heavy swell; the watertight door is left open; or the freeing ports are inadequate. Suddenly, these are the factors that result in the loss of the vessel as you attempt to free the gear.

Wearing a lifejacket when it is rough makes sense, but most fishermen drown in calm conditions when they least expect to find themselves in the water. Fishermen are starting to wear lifejackets all the time – Seafish can help you identify the most suitable one for your type of fishing.

Carrying the mussels in cubic metre bags seems like an excellent idea, and it can work extremely well. However, if there is sudden bad weather and the engine fails, these bags can become the factor which causes the vessel to be lost by filling with seawater as it breaks over them. I can recall a similar incident happening with net bins some years ago. We don't appreciate that this can happen, until it actually does.

Hindsight is a wonderful thing: we are always right after the event. Everyone makes mistakes, and we usually get away with it, hopefully learning a lesson or two. The accidents featured in this Digest relate to fishermen who did not get away with it, and who have suffered severe consequences. It is up to all fishermen to take advantage of these hard lessons.

A major part of my work at Seafish in recent years has been risk assessment, as required by Health and Safety legislation. We have tried hard to find a sensible means for fishermen to do this easily and to meet the accepted standards. The Seafish Safety Folder has been acclaimed by health and safety experts to be very good, but not all the fishermen who had to complete it thought the same! Many fishermen

did fill it in, and stated that it worked well. However, many others felt it was too bulky and complicated and, hence, simply did not carry out any risk assessment. Improvements have been made to the folder, and it is now a reasonably slim book that fishermen, in general, are able to complete successfully.

Health and safety has grown into a big industry, with consultants all too willing to help – for a fee. However, risk assessment should be 'simple common sense', just weighing the job up and thinking about the possible problems. The current Safety Folder does comply with accepted risk assessment practice, and does satisfy all the requirements for the 'work activity' (slips, trips and falls), but it deliberately does not address the question of whether the vessel is fit for the purpose for which it is being used.

In the past, when most fishing was performed with vessels over 15m, regulations ensured that vessels were 'fit for purpose'. However, today, many vessels are under 10m, doing the work of much bigger vessels, and the regulations that apply are minimal. New vessels are built to Seafish Construction Rules, but existing vessels, under 15m, may be modified without any control whatsoever. MAIB reports are continually highlighting concern about the incidents involving modified small vessels; often having occurred as a result of flooding or a lack of stability. In response, the MCA has set up a working group to consider a new Small Vessel Code, which could result in more regulation with more costs to fishermen for inspections. Alternatively, a sensible assessment of the risks that apply in the particular circumstances of each vessel could enable fishermen to operate their vessel safely, and without the unnecessary expense that all-embracing regulations may require.

Seafish is currently preparing very simple 'safety assessments' for under 15m vessels, each designed for a particular fishing method. They are not long, fewer than 10 pages, and they consider all aspects of operating the vessel, and its condition. They are simply a series of questions which are answered with a tick or cross. This new approach is being considered by industry and the MCA and, if approved, will be made widely available. I hope and believe that an assessment or safety checklist, which fishermen consider to be sensible, and easily and honestly completed, will provide a way of improving safety – without unnecessary cost.

Perhaps in the future, MAIB reports will have fewer fishing incidents but, as always, the reports will be very valuable, as they do provide the true picture.

Alan Dean

Alan joined the White Fish Authority in 1969 for a temporary job to produce the drawings for a gutting machine. Since then, he has been involved in many of the projects that WFA and, subsequently, Seafish has undertaken. During the past 15 years, much of the work has been aimed at improving safety, and various safety related projects and studies have been undertaken. Alan has participated on the Fishing Industry Safety Group and its sub groups and through this became involved in the development of risk assessment for fishing vessels. As part of the Seafish re-structuring exercise, Alan took early retirement from Seafish at the end of September 2006.

CASE 17

Delay Structural Repairs at Your Peril

Figure 1

Narrative

An experienced skipper of an 11 metre prawn trawler was well known around the many landing ports he used, as a "colourful" character, enjoying life to the full.

The skipper had mixed success at fishing, so money was fairly tight. This might help to explain the extremely poor condition of the vessel (Figure 1). On many occasions, harbour authorities and other skippers had advised him to attend to the poor – and in their view, dangerous – structural condition of his vessel. There were holes and splits in the weather and forecastle deck and bulwarks. The fish hold did not have a watertight cover or even a tarpaulin to cover the hatch boards, and there was virtually no paint protection to prevent hull corrosion (Figure 2).

Over the years, some attempts had been made to carry out patch repairs to the deck. But these had to be frequently abandoned because of the lack of parent metal to weld to and could be considered as only temporary measures. Perhaps this was because permanent repairs would have been too costly and burdensome for a commercial venture that was, at best, marginal. Although regarded as a capable skipper, those who knew him, found it extremely difficult to balance this with his ambivalent attitude towards the condition of his vessel.

On the final day of sailing, the wind was force 3-4 and sea state 2-3. It was a fairly pleasant day. The skipper took his vessel to a well known, fertile fishing ground, which bordered on a steep contour. Throughout the day, the weather deteriorated and other vessels in the

Figure 2

vicinity returned to port, their skippers fully expecting the prawn trawler to follow them in. It did not. The last positive sighting of the vessel was as she was still trawling in deep water near the contour.

The skipper's operational pattern varied, so his acquaintances were not surprised that he did not return to his departure port. However, 9 days after the last sighting of the trawler, his now concerned family and friends contacted the coastguard to report that the vessel had not been seen for some while. Despite a radio and widespread harbour search, the trawler could not be located.

A further 9 days passed before a fishing vessel picked up a sonar contact and nets in the vicinity where the trawler was last seen.

Subsequent remotely operating vehicle surveys identified the contact as the missing vessel. Her trawl gear was deployed and it appeared that one trawl door was buried under the seabed.

Sadly, 9 more days passed before the skipper's body was found on a remote stretch of the coastline.

It is likely that the vessel's trawl gear came "fast" during the evening of the last sighting. In attempting to free the gear, or during the process of coming "fast", it is probable that the deck edge became submerged, rapid downflooding occurred through holes in the weather deck and the non-watertight fish hold hatch, causing the vessel to founder. As there was no "Mayday" alert, the foundering is likely to have happened very quickly.

The Lessons

It is very difficult to understand why the skipper did not heed the advice of his peers, harbour authorities and contractors, and deal with the severe hull and bulwark plate wastage. It must have been abundantly clear to him that the vessel was in a poor material state and was at severe risk of flooding, but he was happy to risk his life and take it to sea. Sadly, in this case it was once too often.

Steelwork repairs and plate replacement is never cheap. But the potential consequences for not doing so are far mostly costly, and traumatic.

The following lessons can be drawn from this accident:

1. Skippers and owners of fishing vessels must ensure their vessels are safe to proceed to sea. This means that watertight hatches and doors should, indeed, be watertight and the structure should be in a seaworthy condition. Do not delay repairs – the situation will only get worse.

2. The condition of a ship's hull will inevitably deteriorate over time. However, ensuring that the paint preservation is intact and regularly touched up, is one, relatively cheap and effective way of protecting structure against corrosion. In this particular vessel, it was difficult to find evidence of any external paint coatings.

3. Regularly examine upper deck, non-watertight hatch arrangements. The risk of downflooding through fish hold hatches that are fitted with boards can be much reduced by fitting tarpaulin covers over them.

Mobile Phone Causes Grounding

Narrative

A 23m long fishing vessel grounded at night close to a light beacon. She had been returning to her home port after 18 days on guard duty near a North Sea pipeline. The experienced skipper was on watch when she grounded only a few miles from a harbour entrance.

The crew of five comprised the skipper, three deckhands and a cook. The crew were suitably qualified, with the skipper holding a Class 2 (Fishing Vessel) certificate.

The vessel had been at sea twice as long as her normal fishing trips, but the guard ship work was considered relaxing by comparison. The skipper usually carried out the day watch between 0730 and 2230, and two crew members split the night watch.

At the beginning of the trip, the vessel had been well equipped for navigation, with two radars (one of which was an ARPA), three electronic chart plotters (one of which plotted continuously) and two GPS. However, on the second day of the duty period, the radar which was not fitted with ARPA failed and could not be repaired on board.

The final return passage to port was carried out late at night, and recent strong winds had left a large swell. During the 5 hour passage, the skipper was at the helm and was, mostly, alone in the wheelhouse. He made several course corrections to avoid other vessels.

Two hours into the passage, the ARPA radar also failed. The skipper replaced the fuses but was unable to re-start the radar. He usually relied heavily on the radar for navigational guidance when making a landfall. However, he allowed the vessel to continue on the same heading, expecting to make fine course adjustments when he could see the lights of the port. To aid his night vision, he dimmed all the bridge equipment lights, effectively making them unusable.

The skipper noticed the lights of the port gradually appearing as he neared the coast. He

CASE 18

allowed the vessel to continue on the same heading toward a light beacon, which was situated on rocks about 2 cables from the shore and which marked the southern entrance to a wide bay. The skipper intended to pass quite close to the north of the beacon in order to line up for the harbour entrance. The characteristic of the beacon was a white flash once every 10 seconds, and the direction from which the fishing vessel was approaching could be lost easily among the background lights of the port.

As the vessel approached the light beacon and the bay, the skipper's mobile telephone rang. His wife wanted to know what time he would be home. During the ensuing conversation, the vessel grounded less than 100m from the light beacon.

The skipper contacted the harbour office, which immediately contacted the Coastguard. Lifeboats and a helicopter were tasked and the vessel crew were winched to safety a short while later.

Due to difficulties in salvaging the vessel, which had been holed in various compartments, and the sea conditions preventing easy access, she became a constructive total loss.

The Lessons

1. The skipper received no help from his crew during this late night passage, despite having no radars and despite having been in the wheelhouse alone for most of the previous day. The crew were available, and had not been working long hours. A crew member posted to look out would have been sufficient to alert him that the ship was about to hit a light beacon.

2. As well as not using his human resources, the skipper failed to use the available equipment to assist him navigate the vessel safely. He had an electronic chart plotter which was switched on and running but, because it was not supposed to be used for navigation, he left its lights turned down and did not refer to it. In the absence of any radars, it would have been prudent to refer to the chart plotter, at least for warning purposes and general guidance.

3. The skipper had made the approach to his home port many times before, and in all weathers. Although the lack of any radar was a concern, it was not sufficient to overcome the complacency that this familiarity engendered. He thought he knew exactly where he was – but he was wrong. It is very difficult to judge direction and distances at night, irrespective of how well you know the area.

4. To make matters worse, the skipper allowed himself to become distracted at a critical moment, by a mobile telephone call. Mobile phones have a role to play in modern communications, but their use in the wheelhouse should be very carefully controlled.

CASE 19

Loss of "Rulebeater" With Poor Freeboard

Narrative

A 9.8m long fishing vessel (photograph) with two people on board was swamped by a wave which came over her stern while her trawl was snagged on a seabed obstruction. Floodwater was trapped in the shelter, and the vessel capsized before the water could escape through the freeing ports.

When he realised that the net was snagged, the skipper reduced power to dead slow

ahead. The autopilot was then set to keep the vessel steering in the same direction (downwind) while the skipper heaved the vessel back towards the trawl. The trawl warps and trawl doors were hauled on board, and some of the bridles were wound on the winch. The length of the gear to the fastener was then about 210m and the depth of water was about 55m when the skipper used a substantial burst of engine power to try to break free. A wave broke over the stern at this time and swamped the shelter. The vessel did not have enough freeboard and buoyancy aft to resist the downforce on the stern caused by the use of the engine and the tension in the bridle wires. The engine was put into neutral, but the freeboard had reduced, and this resulted in more waves coming on board. It became clear to the crew that the boat was about to founder.

The deckhand was aft and was able to jump overboard as the vessel started listing to port. The skipper was at the forward end of the shelter and he made his escape through a hatch on the starboard side just as the vessel capsized. There was no time to make a distress call or retrieve the lifejackets that were stowed in the wheelhouse.

The crew found themselves in the water and were lucky to find two lifebuoys that floated up as the vessel sank. Shortly afterwards, the vessel's liferaft appeared and began inflating. The crew boarded it and, after spending a worrying 5 hours afloat, were eventually seen and rescued by a passing vessel.

The fishing vessel had been fairly new and, like many modern vessels, the build philosophy had been to maximise the fishing capacity while keeping the length under 10m so that the owner would not have to purchase a fishing quota. Heavy equipment was installed including: a main engine capable of providing 265kW (but de-rated to 228kW); a trawl winch with a core pull of 5.3 tonne; two net drums each with a core pull of 2.1 tonne; heavy nets; a shelter; and an extensive suite of bridge equipment.

There was no minimum freeboard requirement for a fishing vessel of this size, but there was for an equivalent sized workboat. If the workboat standard had been applied to this vessel, she would have been about 5 tonnes too heavy. She was overloaded with equipment and fittings, and her freeboard and buoyancy were inadequate as a result.

The Lessons

1. **The commercial advantages to be gained by "*rulebeaters*" like this one must be weighed against any resultant reductions in safety-critical areas like freeboard. The builders and first owners of this vessel had no idea that she was dangerous under certain conditions. Research is currently being carried out which will probably lead to new regulations on minimum freeboard. In the meantime, owners of "*rulebeaters*" similar to this one should carefully consider whether the amount of freeboard on their vessel is appropriate and safe.**

2. **The standard for workboats provides useful guidance. A fishing vessel with a continuous watertight weather deck and a length of 9.8m would require a minimum freeboard of 415mm when fully loaded. If your vessel meets this description, but with reduced freeboard, you need to be aware that she suffers from a lack of buoyancy which may substantially reduce her capability to survive in certain circumstances.**

3. **The area of freeing ports on this vessel did not meet the basic minimum guidance. When the effect of the shelter was taken into account, her freeing ports were woefully inadequate. Trapped water on a vessel can easily cause capsize, and adequate means for water to quickly escape should be provided. If your vessel has a shelter which could trap water on the after deck, try to avoid operating while stationary and stern-to the sea waves.**

Aggregate Bags Sink Mussel Dredger

Narrative

Over the years, fishermen have thought of many ideas to reduce time spent alongside and unloading the catch. Recently, some fishermen have taken to loading their shellfish catch into 1 cubic metre aggregate bags, which are more commonly used in the building industry by builders' merchants. These bags are stowed on the open deck and unloaded quickly by crane.

This practice had been adopted by the owner and skipper of a 9 metre mussel dredger fishing out of a port in southern England.

The vessel, with a crew of three, had a successful day's fishing, and was heading back to port with a good catch when the weather deteriorated unexpectedly and she experienced strong winds and large seas. As the vessel closed her home port, her engine failed and she began rolling heavily and shipping seas which started to fill the bags on deck.

The vessel began to list, or possibly loll, to one side and the skipper, realising the danger the vessel was in, broadcast a "Mayday" on VHF channel 16. The local lifeboat was launched and a nearby yacht headed for their position. The vessel's movement began to be of grave concern to the skipper as she laboured in the heavy seas, so he ordered the crew to launch the liferaft and to prepare to abandon ship. As the crew carried out his instructions, the vessel rolled onto her side, throwing them into the sea. She sank a few minutes later.

The liferaft had been launched, but it was taken down to the seabed, trapped in the rigging. Not all the crew were wearing lifejackets, despite some warning of the impending capsize.

Fortunately, the men were in the water only a short time before the yacht was on scene, and they were able to clamber on board to safety. The fishermen were later transferred to the lifeboat and returned to shore. No one suffered lasting injuries.

The Lessons

1. Both the owner and skipper failed to notice the serious stability implications of the bags having no means of drainage. Using these bags had the same effect as blocking the vessel's freeing ports, because water could not escape. Be aware of the dangers of water trapped on deck. It can happen quickly and unexpectedly. Always ensure that freeing ports are kept clear, and that containers on deck have adequate drainage holes.
2. Fishermen on small vessels should consider wearing constant wear buoyancy aids all the time at sea. The MAIB frequently comes across accidents where vessels capsize suddenly, with little or no warning. In such a circumstance, it is *too late* to scrabble around to find the lifejackets which are often stowed in the most inaccessible location.

Are Lifejackets Really Too Much Trouble?

Narrative

A skipper and his deckhand were hauling a string of pots on an 11 metre fishing vessel.

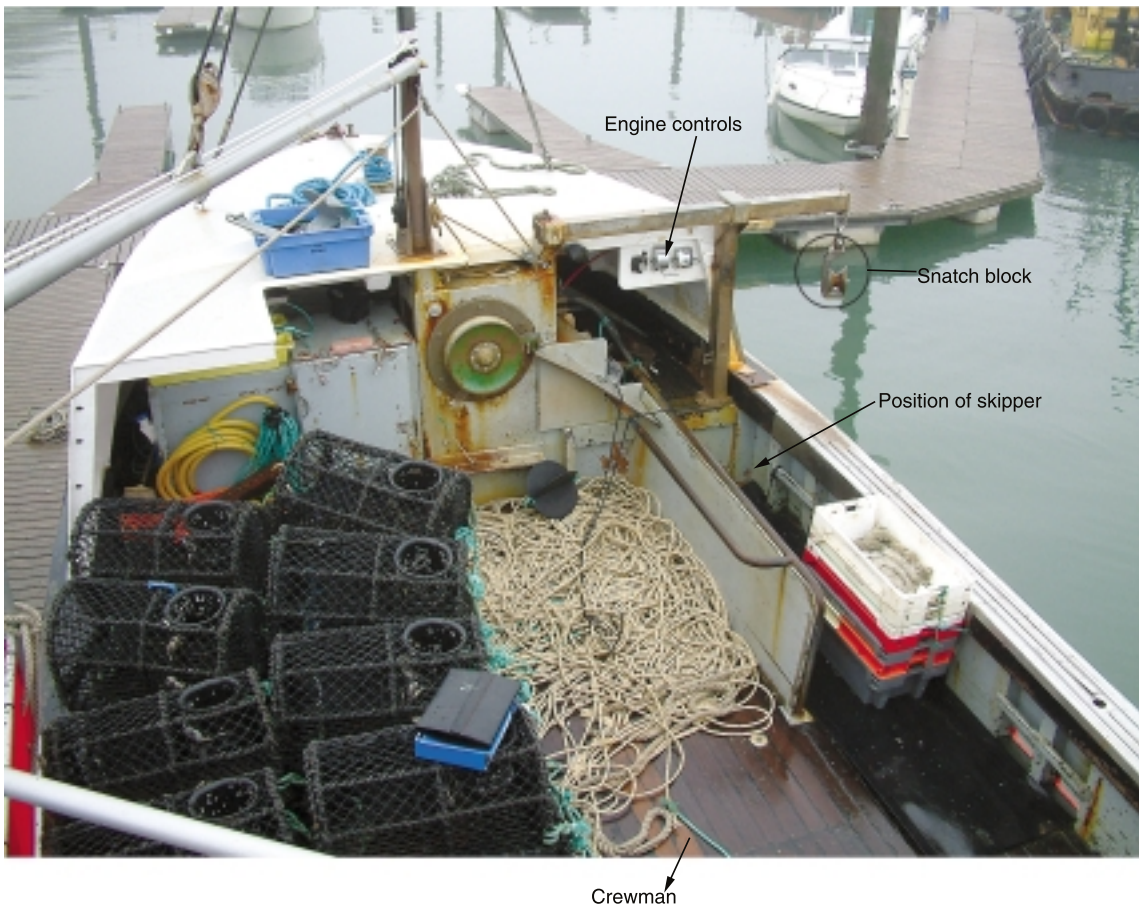
The skipper was guiding the line over a snatch block hanging from gallows extending beyond the side of the vessel. He was also controlling the vessel's heading, speed and hauler using local controls. The deckhand was further inboard, removing catch from the pots, re-baiting and stacking them. He had his back towards the skipper.

The skipper screamed and the deckhand turned to find him hanging from the snatch block with his legs in the water. Before the deckhand could take any action, the skipper slipped into the water.

After cutting free the string of pots, the deckhand went to the wheelhouse, turned the vessel and came alongside the skipper. He also called for help on Channel 16 VHF.

He first attempted to bring the skipper close alongside by using a boathook. The skipper


Snatch block


Engine controls
Snatch block
Position of skipper
Crewman

was able to grab one end, but the boathook slipped from the grasp of both men and fell into the sea. The boat was still moving through the water and the skipper fell astern.

The deckhand again manoeuvred the boat alongside the skipper, from the wheelhouse, but by this stage the skipper was face-down in the water.

Using a grapple, the deckhand was able to get a line on the skipper and, passing this line over the block and hauler sheave, lifted the skipper's head and torso clear of the water. Unable to lift the unconscious man inboard, on his own, he waited a few minutes until the skipper of a nearby boat came alongside to assist. Together they dragged the skipper inboard and began attempts to resuscitate him.

A lifeboat came alongside a few minutes later, with a doctor among its crew. In spite of the doctor's help, and being airlifted to hospital, the skipper lost his life.

The Lessons

1. **Had he been wearing a lifejacket, the skipper would have significantly increased his chances of being recovered alive. The small extra degree of discomfort from wearing a lifejacket on deck – and it is only small with modern self-inflating types – is surely worth the greatly increased chance of surviving going over the side.**
2. **The skipper had been very conscientious in carrying out a full written risk assessment. From this, he had identified that there was a risk from going overboard when shooting and hauling. His control measure, to reduce the risk from that hazard, was to wear a lifejacket. It is unfortunate he did not follow his own judgment.**