

Department for  
**Transport**

# Fishing 2005 Safety Digest



# MAIB

MARINE ACCIDENT INVESTIGATION BRANCH





The Marine Accident Investigation Branch is an independent part of the Department for Transport, (DfT) and is completely separate from the Maritime and Coastguard Agency (MCA). The Chief Inspector of Marine Accidents is responsible to the Secretary of State for Transport. The offices of the Branch are located at Carlton House, Carlton Place, Southampton, SO15 2DZ.

This *Safety Digest* draws the attention of the marine community to some of the lessons arising from investigations into recent accidents.

This information is published to inform the fishing industry and the public of the general circumstances of marine accidents and to draw out the lessons to be learned. The sole purpose of the *Safety Digest* is to prevent similar accidents happening again. The content must necessarily be regarded as tentative and subject to alteration or correction if additional evidence becomes available. The articles do not assign fault or blame nor do they determine liability. The lessons often extend beyond the events of the incidents themselves to ensure the maximum value can be achieved.

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The *Safety Digest* can be obtained by applying to the MAIB. Other publications are also available from the MAIB.

# MAIB

## MARINE ACCIDENT INVESTIGATION BRANCH

**If you wish to report an accident please call our 24 hour reporting line 023 8023 2527.**

The telephone number for general use is 023 8039 5500.

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Extract from

# The Merchant Shipping (Accident Reporting and Investigation) Regulations 2005

The fundamental purpose of investigating an accident under these regulations is to determine its circumstances and the cause 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.



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# Chief Inspector's

Again in 2004,  
10 UK fishermen  
died in needless  
accidents at sea.

This brings the  
total to nearly  
300 deaths in  
15 years...

# Foreword



Sadly, flooding/foundering and stability still head the list of causes. Regularly tested bilge alarms, and working pumps and seacocks will virtually eliminate the flooding/foundering losses. Getting a vessel checked for stability by an expert before buying it, and getting all structural changes approved before carrying them out, will largely solve the stability related deaths.

But you also need to consider your lifesaving equipment. In fishing vessels, catastrophes normally occur very rapidly, certainly too rapidly for orderly preparations to be made to abandon the vessel. In these cases, three things make the difference between life and death:

1. **AN IN-DATE LIFERAFT**, properly secured and easily accessible. Lashing down your liferaft may be the easy way to stop it being lost, but it could cost you your life in an emergency.

2. **LIFEJACKETS**. Get lifejackets that you can wear routinely on deck.

Seafish/RNLI can help you identify appropriate types. At the very least, if you won't wear a lifejacket, make sure it is available on deck for an emergency. A small container on the wheelhouse roof is a good place. In an emergency, you will not be able to go down below to find your lifejacket.

3. **EPIRB**. EPRIBs may be expensive - although prices have come down - but they are the only means to ensure that help is on the way when you have an accident. It is a sensible investment for the future for you and your family.

Think about the worst, prepare for it, and you dramatically improve your chances of coming home safely.

*Good fishing.*

A handwritten signature in white ink that reads "Stephen Meyer". The signature is stylized and written in a cursive-like font.

# Modifications re of stability, vess

## Narrative

A 10-metre vessel was single-handedly trawling for prawns. It was dark, and the weather was fine and clear with light winds.

While hauling, it became apparent that a heavy object had entered the net. The skipper tried to clear it by hauling on the dog rope, but this parted under load. He then wound as much of the net as he could on to the net drum and started to tow the heavy object towards port, where he intended to get help to remove it.

During the tow, the skipper established radio contact with the coastguard, but communications were suddenly lost. A search for the missing vessel was initiated.

The vessel was subsequently found on the seabed. The skipper's body was recovered from the wheelhouse, and the vessel was later raised and inclined to establish her stability at the time of her loss. The heavy object was found to be a large rock.

The inclining experiment, and its subsequent analysis, indicated that her inherent stability had been poor. The vessel had been modified extensively: the gunwale had been raised and a shelter and net drum had been fitted, all of which reduced her inherent stability. The result was that it would have taken little to capsize her so suddenly that the skipper did not even have a chance to get out of the wheelhouse.

## The Lessons

**1** Without a stability standard, adequate stability awareness, and knowledge of the loading limits of their particular vessel, skippers of fishing vessels under 15 metres in length are severely hampered in their ability to judge when it is safe to lift, tow or carry heavy loads.

Knowledge of a vessel's stability and her loading limits is, therefore, an essential control measure aimed at reducing the risk of capsize. To this end, skippers should take advantage of the one-day safety awareness course offered by Seafish, and seek professional advice, particularly following any significant modifications.

**2** The *Code of Practice for the Safety of Small Fishing Vessels* does not stipulate any stability requirements for fishing vessels under 15 metres in length. However, it does require the fitting of a bilge alarm, which provides early warning of flooding, and ensures those on board have time to react. This vessel did not have a bilge alarm. Therefore, her skipper would not have been automatically alerted to any ingress of water which would have affected the vessel's freeboard and stability.

sult in loss  
el and a life

1



# Overloaded, overdue,



## The Lessons

**1** Most vessels are modified over the course of their time in service so that they keep pace with technology, are more efficient and comfortable, or as a result of a change in the type of fishing conducted. Consequently, some vessels have 'grown' considerably since build. However, any structural modifications have the potential to adversely affect a vessel's stability, which might not be obvious. So before making any significant alterations, such as adding a winch, extending a wheelhouse, fitting a deck and freeing ports, and adjusting ballast, it is always wise to seek the advice of a qualified person.

# over.....

## Narrative

A 6.5m creel boat failed to return to port as planned. A search began, and she was found partly submerged several hours later. The vessel was recovered, but there was no sign of her crew of two. It was concluded that the vessel was lost because of poor stability caused by material alterations, overloading and water ingress.

During the creel boat's 25 years in service, substantial

modifications had been made to her. In particular: the raising of gunwales, the fitting of a deck (which was not watertight), enlargement of the wheelhouse, the addition of an hydraulic pot-hauler and the fitting of ballast. All would have significantly changed her stability characteristics. The insertion of freeing ports above a non-watertight deck would also have increased the probability of

water accumulating in the bilge.

The vessel had recently changed ownership, and the previous operator's maximum load on deck was sixty creels. At the time of her loss, she was carrying ninety.

The vessel was not fitted with a bilge alarm, and her electrical bilge pump was defective. Lifejackets were found in the vessel, but a liferaft was not carried.

**2** The overloading of small fishing vessels is an ever-present danger, and almost total reliance is placed on skippers' experience and knowledge of their boats to guard against it. However, after a change of ownership, in most cases a new skipper will not be familiar with how a vessel handles. It is therefore important, when buying a second-hand boat, that its maximum loading and limiting conditions be included among the information passed on from its previous operators. Without this, a skipper's assessment is reliant on trial and error. Unfortunately, some crews don't get a second chance when such assessments are misjudged.

**3** In a decked vessel, the easiest way to ensure that an accumulation of water in the bilge does not pass unnoticed, is to fit a high level alarm. Physical checks of the bilge can tend to fall towards the bottom of the priority list when fishing, and even when automatic bilge pumps are working, they might mask, or not cope with, a serious ingress.

**4** There will not always be time to grab and don a lifejacket when things go pear-shaped. Think about wearing them at all times when on deck, particularly when conditions are marginal.

**5** Just because a vessel is not required to carry a liferaft, does not mean that her crew will never need one. If there is room to carry one, do so. It's not the regulators' lives which are at risk.

# Too much on top

## Narrative

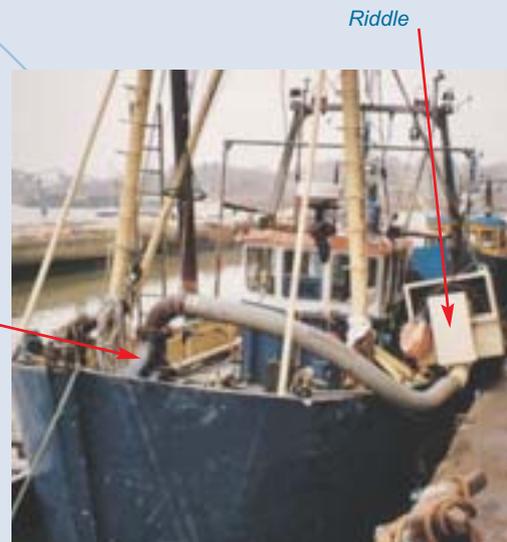
The owner/skipper of a 10-metre steel fishing vessel operated her for several years as a prawn trawler. He then decided to convert her to cockle dredging for operations in local rivers and a large estuary.

For this conversion, he removed the trawl winch and fitted a large diesel-driven water pump, a suction pump, a powered riddle and an 'A' frame for handling the gear. The two pumps were mounted on deck, and the riddle on the port bulwark. These three items were of substantial weight. Some extra ballast was added in an effort to compensate for this topweight.

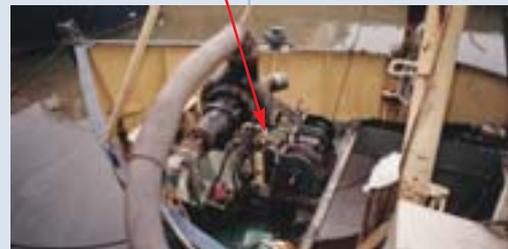
The vessel was operated with few problems for a couple of months by the skipper and one crewman.

On this occasion, the skipper agreed that a third person could join him for a day. The day went well, with a substantial catch of cockles. These were stowed in large bags, each holding an estimated one tonne. Two bags were stowed in the fish hold, three on deck and one on the fish hatch forward of the wheelhouse.

The skipper decided this was their limit, and hauled the dredging gear on board. The boat was in a narrow part of a river, and the skipper needed to turn her, to return to their landing quay. As he knocked the boat out of gear, to begin a three-point turn in the narrow river, the boat began to heel to port. This heeling continued. The three men realised something was



Diesel-driven pump



amiss, and managed to jump into the water before the boat completely capsized.

Fortunately, all three men managed to kick off their boots etc and swim to the shore. One managed to walk to a nearby house, where the emergency services were called. None suffered any serious injury.

## The Lessons

**1** The weight of cockle bags on deck was substantial for a boat of this size. This topweight, coupled with the unknown effects of the modifications made to the boat, generated a condition where she had no reserves of stability. For boats of this size, which are not required to comply with any formal stability standards, it is vital that owners and skippers take great care when modifying and loading them, so that they retain some reserve of stability.

**2** Fortunately, all three men were able to make their way to the bank of the river. In less friendly conditions they might have been less fortunate. Permanent wear buoyancy, that is comfortable to wear while working, can provide vital support in such circumstances. All fishermen should consider wearing such aids.



Diesel-driven pump

A-frame

# Quick action saves fishing boat and crew

## Narrative

The skipper of a 22-metre fishing vessel was reading in his bunk at about 2130, when he noticed a strong smell of burning plastic. He quickly left his cabin and checked the engine room. Although the engine room was clear of smoke, there was a light smoky haze in the accommodation.

On carefully opening the galley door, the skipper saw that the area was full of smoke. He shut the door immediately, and raised the alarm by shouting for all the crew to get up and bring their lifejackets to the bridge. He told the cook to shut off the power to the cooker, and then went up to the wheelhouse. Once there, he again raised the alarm over the tannoy, and was met on the bridge by the rest of the crew. Not all had brought their lifejackets.

Having told the crew that there was a fire in the galley, he called the coastguard on Channel 16. The coastguard put out a “Mayday” distress call.

The smoke by that time was very heavy, and the cook shut the hatch down from the wheelhouse and checked that the entry to the forward shelter was shut.

An offshore stand-by vessel in the vicinity reacted to the “Mayday” and sent its fast rescue boat to the fishing boat, with 4 lifejackets and a breathing apparatus set. The stand-by vessel then came in close, and trained its fire monitors on to the hotspot on the lower accommodation.

The fire was brought under control, and the fishing vessel was able to return to port under her own power, having first evacuated three of the five crew members as a precaution.

Investigation showed that the fire had been started by a survival suit coming into contact with a ‘black heater’ in the drying room when the vessel had started rolling, about 30 minutes before the fire was noticed. This spread through a bulkhead to the galley area.

## The Lessons

This incident shows how a difficult situation can be brought under control by clear thinking and quick action.

- 1** By opening the galley door carefully, and only a little, the skipper prevented the fire from spreading, and ensured his own safety.
- 2** Immediately raising the alarm and instructing all the crew to muster on the bridge allowed further action to be taken once all the crew were accounted for.
- 3** Ensuring that all available hatches and openings were closed, contained the fire long enough for it to be brought under control.
- 4** The unguarded ‘black heater’ has since been fitted with a guard six inches all around it, and the bulkhead to the galley has been replaced by a steel one. Think about where *you* dry wet clothing.

# Winch problem leads to capsizes

## Narrative

A large vessel was fishing to the west of Scotland. The wind was north-west force 3, there was a heavy swell, the visibility was moderate to poor in rain, and it was dark. A crew of six was on board.

In the late evening, the port fishing gear became snagged on an underwater obstruction. While trying to pull it free, the winches stopped. This effectively anchored the vessel to the seabed in the heavy swell, which caused her to take a large list to port. Because she was rolling either side of the

port list, the port engine intakes went below the waterline. This, in turn, caused the engine room to flood. Between 5 and 10 minutes later, the vessel capsized to port.

After the winches stopped, all six hydraulic pumps that powered them were restarted, but before the load could be taken off the port winch, the system failed again. The computer-controlled winch system on the vessel was very complex. It has not been possible to identify clearly the reason why the winches stopped. However, had the

emergency start been used, it is possible that the load on the port winch could have been released. Also, it was not necessary to restart all six hydraulic pumps. Starting one of them that supplied the port winch might have been sufficient to release the load. However, there was very little time to consider the options, because the capsizing and foundering were very rapid.

The brakes were set up so that they came on automatically when the winches stopped. The winch



*Winch control panel*



control system could have been configured so that the brakes stayed off. Had the safety brake been enabled, and worked as intended, it might have saved the vessel.

The engine intakes were low on the port side. Although this arrangement met the requirements of the regulations, these intakes should have been positioned

higher up and/or further inboard to avoid the risk of downflooding.

Events happened so quickly that the crew did not have time to radio for help before they abandoned their vessel. Five of them successfully boarded the liferaft; tragically one man was lost. The five survivors were wet and very cold; it was crucial that they were rescued without delay. The

EPIRB saved the day; the coastguard were able to pinpoint the accident, and immediately dispatched a helicopter which rescued the survivors.

## The Lessons

**1** If your vessel is fitted with a complicated winch control system, be sure that you would know what to do if faced with this sort of emergency. If a safety brake feature is fitted, it should be enabled.

**2** If your vessel is fitted with vulnerable engine intakes, be aware of the risk of downflooding. Such intakes should ideally be moved further up and/or further inboard.

**3** The liferaft and EPIRB almost certainly saved five lives:

- ◆ Without the liferaft, the five men would have found themselves in rough seas and darkness. Their survival time would have been severely limited.
- ◆ The EPIRB alerted the coastguard and enabled the recovery to be initiated.

In cases like this, the value of such safety equipment is clearly demonstrated.

# ‘Dodgy’ alarm, so no warning

## Narrative

A 9.9 metre length wooden stern trawler was operating with a crew of two. She left her home port in the early morning and, after steaming for about five hours, shot her gear. The weather conditions were very good.

After towing for about 1½ hours, the skipper, suspecting a problem with the gear, decided to haul it in. The gear was hauled on board and the cod end emptied on to the deck. The skipper’s suspicion was unfounded; the gear was in good order and was shot again.

After gutting and boxing the small amount of fish caught, the crewman asked the skipper to turn on the deck wash water. The skipper did this by switching on the electromagnetic clutch of the deck

wash pump from the wheelhouse console.

When the crewman reported there was no water coming from the deck wash hose, the skipper opened the engine room hatch in the wheelhouse to investigate. He immediately saw water halfway up the engine. This surprised him, as there had been no sound from the bilge alarm, all the electrics were still working, and during his last look into the engine room, about three hours earlier, he had seen no problem.

Inspection of the fish room confirmed that the flooding was widespread and serious.

After telling his crewman to remove his leggings and boots, and to fetch the lifejackets, the skipper called a nearby fishing

vessel on the VHF radio, asking for assistance. The two men then launched and inflated their liferaft, and the crewman climbed on board. In the meantime, the skipper had broadcast a “Mayday”. The floodwater on their boat had reached deck level.

Before any further assistance was required, the nearby fishing boat came alongside and took both the skipper and his crewman on board.

Not long after evacuating their boat, the two men watched it sink.

This was a well-maintained boat, and there was no obvious cause for the flooding. However, there is some suspicion that there was a failure of a flexible hose in the engine’s seawater cooling system.

## The Lessons

**1** The boat was fitted with a bilge alarm, but the last occasion the skipper had heard it sound was about a year before this accident. A routine for testing the alarm, before departure and during normal working conditions, would have allowed any defect to be detected and remedied as soon as it developed. Had the bilge alarm sounded early in this accident, it might have given the skipper time to take corrective action, such as closing seacocks.

**2** This boat was not required to carry a liferaft by the code of practice governing its operation. However, the skipper prudently carried one on board, and had it serviced annually. It worked during this accident and, had the nearby fishing vessel been a little slower in coming to assist, could have proved vital to the survival of the two men.

**3** Although the cause of the flooding has not been established, because of their age, some suspicion has fallen on the flexible hoses fitted to the engine’s seawater cooling system. Flexible hoses have a limited life span and, where their use is unavoidable, best practice is to inspect them regularly, together with any worm drive clips used to secure their ends.

## Narrative

An 11-metre prawn trawler was normally operated by her skipper and a deckhand. However, on this occasion, the skipper was unable to employ anybody as a deckhand so decided to sail single-handed.

The vessel's layout was conventional: a fishing winch amidships, just aft of the forward wheelhouse, and a net

The skipper left his home port early in the morning and sailed for about an hour until he shot the gear. It was probably at the end of his first tow that he ran into trouble.

He hauled the gear until the doors were hung from the gantry. He then attached the bridle to the net drum, and began hauling to bring the net in.

caught in the shackle and, as he was out of reach of the control lever, he was unable to stop the drum.

He was dragged around with the moving drum until he was covered by a number of turns of the bridle. The force in the bridle fatally crushed him.

# A fatal override

drum mounted on a stern gantry. The winch and net drum were hydraulically-powered from an engine-driven pump.

The control levers for the winch and net drum were both self-centring, so whenever they were released, each returned to the 'stop' or safe position.

However, he latched the spring-loaded lever of the drum control into the 'haul' position, using a bent wire hook, so he could stand aft of the drum to guide the net on to it.

For some reason, he put his hand on to a swivel shackle on the bridle as it came on to the net drum; probably to lay the shackle flat. But his gloved hand became

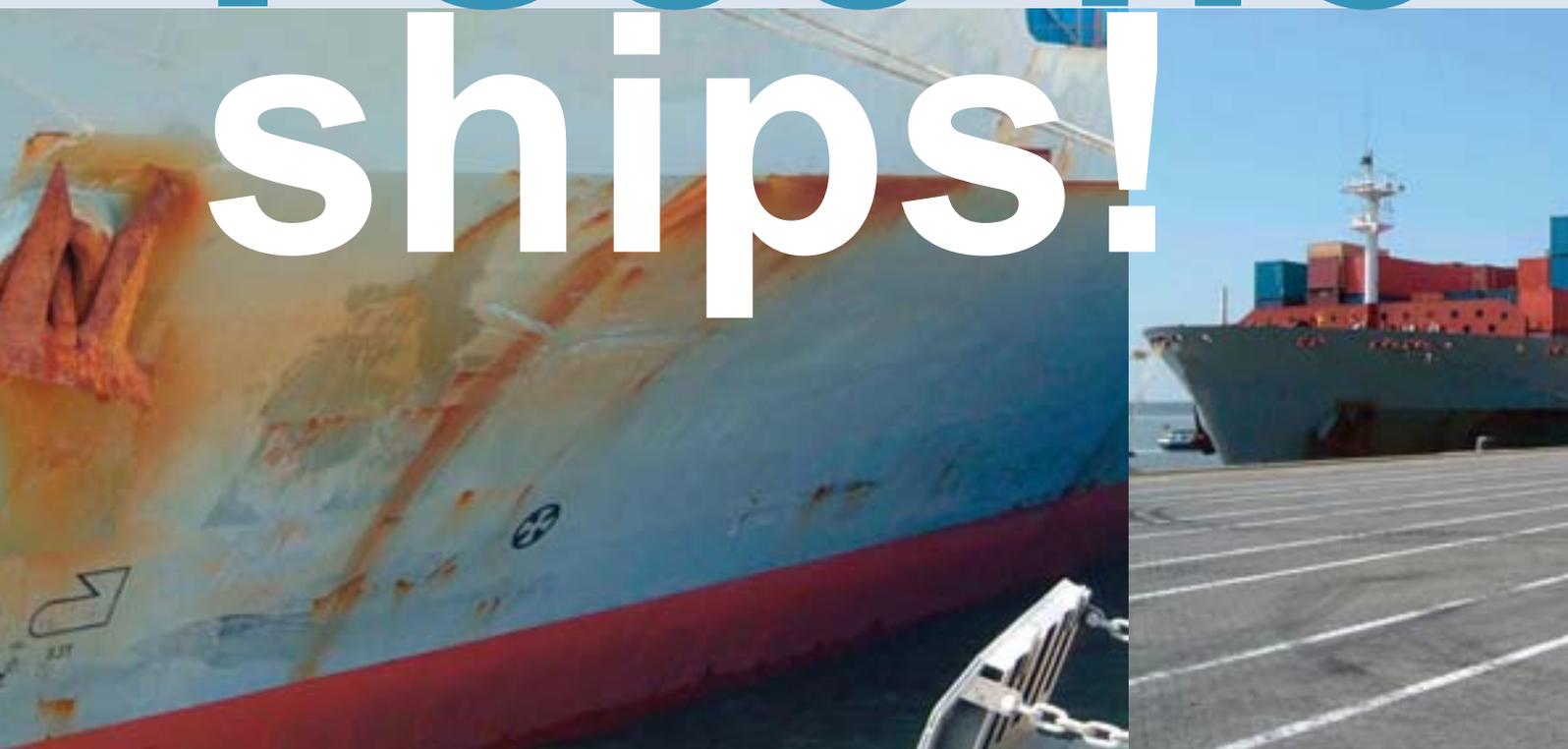
Meanwhile, the vessel was still steaming under control of the autopilot. She slowly sailed on her pre-set course for several hours until she grounded on a headland. There she was found, with her engine still running and with the dead skipper horribly wrapped around the net drum.

## The Lessons

**1** A fishing vessel of this size is required to operate under *The Fishing Vessels' Code of Practice for the Safety of Small Fishing Vessels Under 12 Metres in Length*. This Code requires that a risk assessment be performed on the operations carried out on board. In this case, no risk assessment had been done. Ideally, a risk assessment should have identified the unsuitability of this vessel for single-handed operation as a trawler.

**2** A risk assessment should also have shown that the self-centring control levers of the net drum and the winch were critical safety devices, and essential to the safety of those on board. Overriding these safety features completely removes a vital control measure, makes a nonsense of any risk assessment performed, and places crew in serious danger.

# I see no ships!

A large blue and red container ship is docked at a pier. In the foreground, the side of a smaller fishing vessel is visible, showing a red hull and a blue upper section. The text "I see no ships!" is overlaid on the image in large, bold letters.

## The Lessons

**1** Passing ahead of other vessels at close range is asking for trouble. Even where it is estimated that the passing distance will be several cables, it only takes an error of judgment, a mechanical problem, or for the other vessel to alter course or speed, for the situation to change for the worse very quickly. As a give way vessel, it does not pay to try and cross the bows of the other vessel, particularly when it is much larger. There will only be one winner.

**2** Ideally, when two ships are closing on a steady bearing, each is aware of the other's presence, and action is taken in accordance with the collision regulations. At worst, an accident can still be avoided if only one of the ships sees the other, providing the person on watch knows what is happening, and then does

something about it. In this case, where the watchkeeper of the fishing vessel wrongly assessed the situation and did not alter course as the give way vessel, there would still have been hope had he kept a close eye on the container ship. Because he did not, the outcome was in the lap of the gods, who unfortunately did not smile on this occasion.

Regardless who has right of way, or the distance another vessel is passing, the actions of all ships passing nearby need to be closely watched until they no longer pose a threat. Self-preservation is an unwritten, but golden rule of collision avoidance, particularly for smaller vessels.

## Narrative

At about 1245 UTC, a fishing vessel was on ocean passage when returning to port on a course of 168° at a speed of 9 knots. Visibility was good, the wind was north-east force 6, and the sea state was 5. Her lone watchkeeper detected a container ship by radar and visually at a range of about 6 miles, and considered that she was on his



starboard quarter and would pass under his stern. The container ship, however, which was about 4300 TEU, was on a course of 073° at a speed of 22 knots, and was forward of the fishing vessel's starboard beam. This was therefore a crossing situation, in which the fishing vessel was the give way vessel, and should have taken avoiding action. The OOW of the container ship was also alone, and did not see the fishing vessel on his port bow, either visually or by radar.

The watchkeeper of the fishing vessel did not keep a close eye on the closing container ship, and just before 1300 the two vessels collided. Initial contact was made several metres aft of the container ship's port bow, before the fishing vessel scraped down her port side. Almost immediately, the fishing vessel started to go down by her head, indicating that she had been holed below the waterline forward. A "Mayday" call was sent via VHF channel 16, requesting the ship that she had collided with to turn back

and assist. The crew then abandoned ship using the vessel's two liferafts.

At the time of the collision, the container ship's OOW was at the chart table completing the hourly entries into the deck log. He felt the impact of the fishing vessel, but considered this to have been caused by a large wave. Although he checked along the port side, the containers on deck obscured the fishing vessel. Shortly afterwards, the OOW heard the "Mayday" sent by the fishing vessel and, after seeing the fishing vessel about 4 miles astern, called the master to the bridge. The master immediately turned the container ship towards the stricken fishing vessel. As the liferafts were drifting apart, a lifeboat was launched to assist in their recovery.

The fishing vessel sank at about 1340 when her EPIRB was activated. All her 16 crew were recovered on board the container ship within 2 minutes, and only minor injuries were sustained.

**3** Bridge watches during ocean passages can be a little tedious, if not boring, with nothing to see, no contacts on the radar, and no navigational worries. Even when other ships are sighted, they tend to be large and are easily detected. In such circumstances, it is probably human nature for a degree of complacency to set in, with the checks out of the window and on the radar becoming less frequent in keeping with the slow pace of activity. When this happens, the chances of not detecting smaller craft, such as sailing and fishing vessels, which are seen on the oceans in rising numbers, increases. Ocean watchkeeping is not usually busy, but the need for vigilance remains.

**4** The use of an additional lookout on the bridge can give a huge amount of support to an OOW. It increases the chances of detecting other vessels, it allows a lookout to be maintained while the OOW is occupied

with other tasks such as completing logs or fixing the ship, and, importantly, it provides stimulus to an OOW when there is apparently little going on. Although an additional lookout is only required by STCW during darkness and restricted visibility, the benefits of having one closed up at other times should not be overlooked. Two pairs of eyes are always better than one, no matter where a ship is or what she is doing.

**5** Electronic detection aids, such as automatic target acquisition and radar guard zones, can only help bridge watchkeepers if they are used.

**6** "Mayday" calls, liferafts, and EPIRBs are effective. And they save lives!

# Fishing vessel flooding and foundering

## Narrative

While trawling 60 miles from land, it became evident that problems possibly lay ahead for the crew of a fishing vessel. Her trawl doors had closed up, which indicated that a heavy weight had been picked up in her nets.

The crew were called, and the engineer went to the engine room to start the hydraulics ready for hauling. On reaching the engine room, he became alarmed to discover the vessel was flooding rapidly; by that time, water was well above the engine room floor plates.

The engineer alerted the skipper, and both men attempted to locate the source of the ingress.

Their attempts, however, were made futile because the water was black with oil, believed to be from the main engine sump. Due to the level of floodwater in the engine room, the crew were unable to reach the engine room bilge discharge pumps. The vessel was fitted with a bilge alarm, but it had failed to activate.

After informing the coastguard of the situation, arrangements were made to have an emergency pump flown out to the scene. Another vessel that was fishing in the area also stood by.

When the pump arrived with the rescue services, the crew did their best to pump out the

floodwater. However, they were unable to get the piping fully into the engine room, so were forced to abort the attempt.

Anxious about the rapidly deteriorating situation, the skipper instructed the crew to abandon the vessel. They were transferred safely to the other vessel that was standing by. Fifteen minutes later, the flooded vessel sank.

## The Lessons

**1** The flooding is thought to have been caused by engine room seawater piping failure, due to erosion or corrosion. Sadly, this is nothing new: the MAIB is aware of many fishing vessels having flooded and, sometimes, having been lost as a result of engine room seawater piping failing. In light of this, it is wise to carry out simple regular checks on all pipework, especially in the engine room and in places which may, at first, appear to be inaccessible. A simple check for signs of corrosion or weeping pipework, culminating in the repair or replacement of the piping, might well save your vessel.

**2** Another frequent problem in the fishing industry, is the failure of high-level bilge alarms. They are the last line of defence against flooding, yet all too often are not properly inspected and maintained. Always ensure high-level bilge alarms are not only accessible, but that they are also inspected and maintained on a regular basis. They should be tested daily. A fully operational bilge alarm would have bought this crew valuable time by giving them early warning of the flooding, which might have resulted in a different outcome.

# Bilge alarms, bulkheads and televisions

## Narrative

A 26m long fishing vessel (see figure) was trawling north of the Shetland Islands in fair weather and a force 3 wind. The skipper and engineer were on the bridge and the two deckhands were turned in. They were about half way through a tow and there was little traffic about. The bridge team was monitoring the trawl and the other bridge instruments, but they were also chatting and watching television.

Shortly before midnight, the skipper noticed that the engine room bilge alarm light was on. The light was partially obscured by the fish plotter. The engineer went to

investigate and found floodwater up to the top of the main engine. He started the bilge pump immediately and told the skipper. The skipper informed the coastguard and the two deckhands were roused.

The floodwater was so deep when it was first discovered that it was impossible to locate its source. The rate of ingress was high, and it soon became apparent that the bilge pump was not coping. The skipper was concerned that the vessel would capsize, so instructed the crew to deploy a liferaft without delay. The main engine stopped at around that time.

With the situation deteriorating rapidly, the skipper had no choice



but to abandon ship. He alerted the coastguard and gave their position. Just before they abandoned the vessel, one of the deckhands peered down the hatch into the fish room, and found that space to be flooding also. The crew boarded the liferaft moments before the vessel sank, and were picked up by another fishing vessel.

## The Lessons

**1** An *audible* bilge alarm might have given the crew sufficient time to identify and stem the source of the flooding. Currently, fishing vessels over 24m do not have to be fitted with them. The requirements for 15 to 24m vessels have recently been revised and *audible* bilge alarms are now required for this size of vessel. Although those for over 24m vessels will be revised shortly, and will include the fitting of audible bilge alarms, owners should not wait for this requirement. They should, instead, fit audible bilge alarms to all the main watertight compartments as soon as possible.

**2** The flooding spread from the engine room to the fish room. This is puzzling because the bulkhead between this space and the engine room was supposed to be watertight. It is possible that a non-watertight

penetration of this bulkhead was made at some stage. Watertight bulkheads are a very important safety feature. If it is necessary to run a cable or pipe through a watertight bulkhead, a proper gland should be used.

**3** Clearly, the television in the wheelhouse was a major source of distraction for those who should have been paying full attention to their duties. Without it, the bridge team might have noticed the bilge alarm before. Televisions should **never** be sited in a wheelhouse; the proper place for them is the accommodation. Unless, that is, you are looking for a little more 'entertainment' than you previously bargained for.

# Anchored bulk carrier sinks fishing vessel



## Narrative

A 16-metre wooden fishing vessel was returning from fishing grounds after a successful trip. It was the early hours of the morning and, although rainy and overcast, visibility was good. Three crew were on board, along with three passengers gaining experience of being at sea on a fishing vessel. At the grounds, they had worked for 12 hours, taking just a 1 hour break. They had then anchored for 4 hours in an area between sandbanks, while all on board slept, before another 4 hour stint of hauling.

The fishing had been good recently, and the vessel had been

working a schedule of 2-day trips with a day off in between. Everyone on board was tired, and a couple of the regular crew were on leave, so the men were keeping 1 hour watches on the return voyage.

After two uneventful watches, the skipper took over. He left the wheelhouse briefly to make a cup of tea, and settled down in the chair to compose a poem. It was then that he noticed a large vessel about 6 miles ahead. He thought she was moving, but didn't check her range on the radar. Almost immediately, the battery alarm sounded. He cancelled it, and descended briefly to the engine

## The Lessons

A large vessel is immediately ahead, when alarms start to sound. It is easy, given hindsight, to suggest that before leaving the wheelhouse the skipper should have altered course or woken one of the crew to assist. But it is early morning, you are exhausted, and faced with a similar split-second decision. What would you do?

The skipper here was highly experienced, and should have known better. But it is evident that fatigue, low manning, and poor watchkeeping practices all played a part in this collision, the consequences of which could have easily been so much worse, both for those on board the fishing vessel, and whatever else she might have collided with.

**1** Manning levels depend on various circumstances, and there may be a temptation to cut back for financial reasons. This is all very well when everything goes according to plan, but, when things go wrong, it might leave you dangerously short of cover.

**2** It is human nature to keep working when times are good, pushing yourself to the limit to make the most of a good spell of fishing, especially when you know this won't last forever. But don't let it catch up with you. This skipper felt tired, and fatigue probably allowed him to become distracted in the engine room, helped him lose track of time and affected his decision-making when it mattered.

**3** The MCA publication MGN 84 (F) *Keeping a Safe Navigational Watch on Fishing Vessels*, provides sound advice on the importance of maintaining a proper watch at all times. Its message is clear, and, if followed, would have



room to find out why. Everything appeared normal, so he returned to the wheelhouse.

Straightaway, both the battery alarm and bilge alarms sounded together. The skipper had just seen there was no water in the bilges, so he cancelled the alarms; both continued to sound.

Thinking this most unusual, the skipper decided to return to the engine room. He glanced out of the wheelhouse window, and saw the large vessel now much closer. Checking her position on the radar to be at about 1.5 miles range, he thought he had plenty of time to investigate the alarms.

No water was evident in the engine room. Glancing over the engine, he saw two parted wires, which were normally clipped

together, and thinking that he had time to deal with them, went over and twisted them together.

Suddenly, he remembered the vessel ahead, so ran back to the wheelhouse, now in darkness due to the shadow of the vessel, which by now was towering above. Grabbing the wheel, he twice spun it hard over to port, but with no effect, before realising too late that the autopilot was still engaged. The fishing vessel collided head-on with the port quarter of the anchored bulk carrier, before bouncing along her port side.

There were no injuries or fatalities on either vessel, and the bulk carrier suffered only minor damage. The fishing vessel was severely damaged, and soon began to flood. All on board, with the

exception of the skipper, donned lifejackets, and the skipper decided to head for port, with all three bilge pumps operating.

As the flooding worsened, the engine and pumps failed, and the liferaft was inflated ready to abandon ship. The skipper then informed the coastguard – over half an hour after the collision.

An RAF helicopter, and various vessels, were soon in attendance, and all on board were evacuated to the lifeboat. Although the lifeboat attempted to tow the fishing vessel back to port, the flooding worsened and the vessel subsequently sank.

prevented this accident. The watchkeeper's job is paramount. He must be fit for duty, and not be distracted from maintaining a proper lookout.

**4** MGN 84 (F) also strongly recommends the installation of a watch alarm where there may only be one person on navigational watch. Had this been fitted with a suitable time interval, and relayed to the accommodation, the wheelhouse might not have been left unattended for 8 minutes before the collision. The skipper had considered fitting a watch alarm after a recent near manoverboard incident on his vessel, but had "not got round to it": a phrase all too often used when it's too late.

**5** Following the collision, the skipper chose not to don a lifejacket, nor to call the coastguard immediately. He considered that he had assessed the situation and may have thought that he had everything under control; he chose not to let others know of his predicament. Had the coastguard been

informed earlier, a pump might have been dispatched in time to save the vessel, and the safety of those on board would have been more assured.

**6** The lead up to the incident highlighted the practice of mooring up in the hours of darkness to allow all on board to rest before another shift of work. The need to reduce fatigue has been stressed above; by all means stop for a rest, but don't rely on someone else to keep your lookout. Otherwise you might not be as lucky as the bulk carrier in this case!

**7** If passengers are to be embarked on your vessel, for whatever reason, ensure they are aware of what to do in an emergency situation. No regular drills were carried out on this vessel, and the passengers had not been briefed. Fortunately, in this case, there was plenty of time to muster and prepare for evacuation, but what would have happened if this vessel had sunk almost immediately? Be prepared for the worst!

# The price of Coronation Street

## Narrative

During the late morning of a cold winter's day, a 21 metre wooden fishing vessel had most of her crew working on deck, with her skipper in the wheelhouse.

Although there was nobody in the main cabin, it was usual practice to leave the cabin's TV switched on. A 24Volt to 240Volt inverter in the cabin supplied power to the TV.

Since beginning work that morning, all had run smoothly, except for a few rather odd problems with the two plotters and radar in the wheelhouse. At intervals of several minutes, each of these pieces of kit had given 'loss of power' signals, or had spontaneously shut down and restarted. Although the skipper went to the engine room to check the electrical system, he could find no problems or explanation for these symptoms. However, he did

not look into the cabin because he saw no need to do so.

About 30 minutes after the radar shut down and restarted, the skipper smelled smoke emanating from the area of the galley. After knocking the engine out of gear, he went to the galley and found smoke coming from the hatch leading to the cabin. Looking down into this hatch, he saw flames and smoke coming from the open cabin door.

He immediately contacted the coastguard by VHF and alerted the crew working on deck.

One of the crew promptly tackled the fire with a foam extinguisher. This appeared to put out the flames, but the smoke then changed from white to black, rapidly filling the galley and wheelhouse and forcing everybody onto the open deck.

In the meantime, the remainder of the crew had launched the

liferafts and had prepared them for embarkation. Brief consideration was given to tackling the fire with a hose, but this was quickly dismissed as thick smoke and flames coming from the cabin door prevented access to the engine room to engage the fire pump.

After closing the windows and doors of the wheelhouse and galley, all the crew then assembled on the forward deck ready to take to the liferafts, if necessary. The skipper released the EPIRB from its mounting, unsuccessfully attempted to activate it and then carried it forward. However, nobody was wearing a lifejacket as these had been stowed in the cabin, with survival suits, and the fire prevented access.

About an hour after calling the coastguard, skipper and crew were safely lifted from the vessel by helicopter. The still burning boat drifted for several more hours before sinking.

## The Lessons

**1** Domestic TV sets might not be capable of operating continuously, day and night, under the conditions of vibration, shock and humidity found on fishing vessels. When they fail, they might do so in a way that results in a fire. Similar comments can apply to inverters, particularly those aimed at the budget end of the market. When not in use, keep these non-essentials switched off.

**2** An early warning from a fire alarm and detection system might have given the crew time to tackle the fire in its very early stages, but this vessel was not fitted with a system covering the accommodation and galley. This incident shows their potential value.

**3** Keeping the cabin door open at all times obviously made day-to-day access easier. However, the open door allowed flames and smoke to escape into the access trunk between the cabin and the galley. As access to the engine room door was also from this trunk, the crew were prevented from

getting into the engine room to engage the fire pump. An important fire-fighting system was thus disabled. Fire doors have no value unless they are kept closed.

**4** Although not affecting the outcome of this incident, the unsuccessful attempt to manually activate the EPIRB could have been important had the skipper not been able to contact the coastguard with a position. It is important to know how to manually activate a vessel's EPIRB, as it provides an important method of raising the alarm and giving the coastguard the vessel's position in an emergency.

**5** Stowing lifejackets and survival suits in the cabin had the advantage of keeping these items clean and free of damage. However, if space permits, keeping these important items in a locker in the wheelhouse would give the crew an improved chance of being able to reach them when things go wrong.

Seacock for refrigeration system

New section of pipe

Larger part of failed pipe fitting (including nut)

Sections of pipe either side of the failed pipe fitting



Example pipe fitting – showing design of failed item

# Seacocks – so important

## Narrative

A 16.5m length vessel was fishing to the north-east of Scotland. The sea was moderate to rough, with the wind about force 5. The first indication of a problem was when the bilge alarm activated. The engineer went below to investigate and found the engine room flooding, so he quickly lifted some floor plates and closed all the vessel's seacocks. This stopped the floodwater rising, which indicated

that saltwater pipework was the source of the ingress.

While the engineer was dealing with the problem in the engine room, the skipper was handling the situation on the bridge. He transmitted a "Mayday" call on VHF channel 16, which another vessel relayed to the coastguard. The skipper also arranged for another fishing vessel to provide a tow to keep the vessel's head to the weather, to help minimise motion.

The main engine could not be used because the cooling water had been shut off. There was a small air-cooled engine, which powered an auxiliary bilge pump. This was started but, owing to its low pumping rate, it did not reduce the level of the floodwater perceptibly. A search and rescue helicopter flew out to the vessel, and a portable pump was lowered. It took about an hour to pump out the engine room.

With the floodwater evacuated, the engineer was able to inspect the pipework below the floor plates. The source of the flooding was found to be a fractured pipe in the refrigeration system serving the fish room. The seacock for the refrigeration system (Figure 1) was kept closed while the others were opened. The vessel was then able to sail back to port under her own power.

The fracture occurred at a screwed joint between steel and brass piping; the problem was probably caused by galvanic action (Figure 2).

Watertight bulkheads fitted at either end of the engine room prevented the floodwater spreading.

## The Lessons

This is largely a good news story. Although something did go wrong – from which we can all learn – there were good safe practices which meant that a problem did not become a tragedy:

- 1** The seacocks on this vessel were well maintained. The engineer was in the habit of closing them before leaving the vessel in harbour. This served two purposes: it kept the seacocks in working order, and it helped to prevent flooding in harbour if a problem with the pipework occurred while the vessel was alongside. This routine is considered to be good practice and should be followed by all fishing vessels. The MAIB has come across many cases where seacocks have been seized open, preventing their operation in an emergency.
- 2** Many fishing vessels of this size do not have a dedicated engineer, and responsibility for engine room maintenance is left entirely with the skipper. The MAIB does not consider such a system of manning to be safe. It is very difficult for one qualified person to adequately monitor what is happening on both

the bridge and in the engine room during a fishing trip lasting several days. This vessel did carry a dedicated engineer, who was able to deal with the flooding while the skipper handled the overall safety of the vessel and put out a distress call. The skipper was also able to continue to maintain a proper lookout.

- 3** The MAIB has often reported cases where bilge alarms have not worked. It is therefore pleasing to see that in this case adequate warning of flooding was provided. Bilge alarms are very important pieces of equipment. Good quality, robust and reliable units should be fitted, and they should be checked for correct operation at the start of each fishing trip and every day while at sea.

- 4** One way to minimise galvanic action in salt water piping, where this is made of dissimilar metals, is to fit sacrificial anodes in sea water systems. However, the pipework should be opened up periodically to inspect such anodes and, if found to be badly corroded, they should be replaced.

# One skipper's relief causes stress to another

## Narrative

Three anglers were fishing from a 6m sports pleasure craft at anchor when they saw a fishing vessel heading quickly and directly towards them. An attempt was made to call the fishing vessel on VHF radio channel 16, but no reply was heard. As the fishing vessel closed, the anglers shouted and sounded the boat's horn, but this had no effect; they also tried to cut the anchor rope. With collision imminent, the anglers were forced to abandon the boat just before the fishing vessel collided with their boat's port side.

The 8.7m fishing vessel had been on autopilot, and her skipper had been absent from the wheelhouse while relieving himself over the stern. On his return to the wheelhouse, he did not see the pleasure boat because steam from a kettle had misted over the wheelhouse windows.

Following the collision, the anglers swam back to their boat, and the fishing vessel skipper agreed to keep an eye on them while they returned to shore. Soon after, however, the skipper of the pleasure boat became concerned

that his boat had taken on a lot of water during the collision, and his engine was not working correctly.

Unfortunately, the fishing vessel was now slowly disappearing into the distance, and although attempts to recall her via VHF radio were made, they were unsuccessful. The anglers then contacted the coastguard, and a lifeboat was able to escort them safely to the shore.

## The Lessons

**1** Leaving a wheelhouse unattended with the autopilot engaged is dangerous at the best of times, to do so when on passage in close vicinity to other vessels, and not keeping any form of lookout ahead, is asking for trouble. The wheelhouse is the only place on board where it is possible to maintain a good visual and radar lookout, control the steering and main engine, operate the sound signalling apparatus, monitor and use the VHF radio, and monitor the vessel's internal alarms. This is not by chance, it is by design and at some expense. It's a shame not to make use of it.

**2** Windows aren't windows unless they are see-through. Keeping wheelhouse windows clean can be a bit of a pain, but allowing kettles to boil for several minutes is a bit of an own goal.

**3** After a collision, it is unwise to assume that just because a vessel *looks* seaworthy, she actually is seaworthy. Not all damage sustained might be readily apparent; it can take some time before its effect on a vessel's seaworthiness can be determined. That is one reason why all vessels involved in a collision are required to remain in attendance until released by the damaged vessel (s) or, where involved, the coastguard. However, even in situations where there does not appear to be a need to remain in close proximity to another vessel following collision, it costs nothing to keep in touch via VHF radio, should something untoward become apparent.

# Are you alone?



## Narrative

A small 6m open fishing boat was single line creel fishing close inshore on the Scottish coast. The creels were recovered by hand as there was no hauler onboard. The weather was good with only a force 2 south-westerly wind. The skipper, who normally fished alone, put to sea every day, weather permitting, to check his creels and retrieve any catch. He had fished for many years, both on his own and with others, in small fishing boats. On the day of the accident he departed from the harbour and headed off to the furthest creel so that he could work his way back towards home. He never returned.

During the late afternoon, the skipper fell over the side of his boat. The boat was washed up on to rocks, intact and with the throttle still ahead, although the engine had stopped. The skipper's body was retrieved 2 days later, close to where the boat was found.

The skipper was a non swimmer and was not wearing a lifejacket. He had believed that, on balance, he was better off not wearing one, even though family members had tried to persuade him otherwise. He even had prior experience of a 'near-miss', where he was forced to jump out of his boat as it neared rocks without any

engine power. Luckily, that time, he landed in water only waist deep, and waded ashore.

The boat had an old bulky lifejacket stowed in the bows, and a lifebelt. However, the lifejacket would have been little use in an emergency, due to its age and poor condition. No VHF radio was carried onboard, although normally the skipper took his mobile telephone. On this occasion he had left it in his car.

## The Lessons

**1** There is no need for single-handed fishing to be any more dangerous than other types of fishing, so long as a proper risk assessment has been conducted and consequential safety measures put in place. Just because you have not yet suffered an accident, is not grounds for continuing unsafe working practices. Planning for the unthinkable, and carrying the appropriate equipment, will ensure you have every chance of returning home to your loved ones after your fishing trips. Don't become complacent!

**2** Wear a lifejacket! It could save your life. There are plenty of different types available which will allow you to conduct hauling and other fishing operations without undue hindrance. Although wearing one is a personal choice, consider, also, the concerns of those around you.

**3** There was a regulatory requirement to carry a fixed or portable VHF radio on the vessel involved in this tragedy. A VHF radio, in a waterproof pouch kept on your person, will dramatically improve your chance of survival if you end up in the water. Carrying a mobile telephone is not a satisfactory alternative.

**4** There is plenty of guidance and regulatory information freely available from the MCA. Don't wait to be inspected to find out. Take action now and be safe!

# Deckhand dragged overboard and lost while shooting creels



## Narrative

After the last of a fleet of creels had been shot over the side, a deckhand shot a 56Kg drag anchor from the bulwark just forward of the shooting post. The deckhand's right ankle was instantly trapped in a bight of either the back line, or the line securing the anchor to the back line. He was dragged hard up against the top of the steel bulwark. The skipper immediately put the engine astern, and a second

deckhand rushed to the wheelhouse to fetch a knife.

The trapped deckhand was pulled over the side within seconds, and quickly disappeared under the water. With the boat stopped in the water, the skipper took hold of the lift line and quickly recovered the anchor via the pot-hauler. Unfortunately there was no sign of the missing deckhand, who was not wearing a lifejacket.

*Working deck area showing configuration of pound board and back line*



## The Lessons

**1** Shooting creels is a dangerous business, and the deck layout of many fishing vessels has been altered in recent years to allow fishermen to keep their feet clear of the working ropes. Indeed, in this case, the deckhands were separated from the back-line by pound boards for all of the shooting procedure, other than when the anchor had to be thrown overboard. When precautions are taken, although risk is normally reduced, it is seldom eliminated.

**2** When working in a dangerous environment, keep an eye on the people you are working with. Two pairs of eyes are better than one.



# Own goal

## Narrative

While trawling, a vessel's main engine suddenly stopped when her propeller was fouled by discarded fishing gear from a beam trawler. The vessel had to be towed back into port; fortunately there was no damage to the main engine or gearbox.



*Photograph of propeller fouled by discarded fishing gear*

**3** Having a sharp knife within arms reach when working on deck is a simple precaution, and one which has saved many lives in the past, and hopefully will do so in the future.

**4** Even the fittest and strongest of swimmers would struggle to survive in water if badly injured or suffering from the considerable effect cold water can have on the body. In such circumstances, the wearing of lifejackets will not guarantee survival, but it will certainly increase the chances.

## The Lessons

**1** Throwing worn and unwanted fishing gear over the side might be the simplest way of solving a problem for one vessel, but apart from harming the marine environment, it can also cause serious damage to others.

**2** Many fishermen already struggle to make a living, and can do without own goals like this. Don't be selfish, think of them, and dispose of all unwanted gear ashore in the appropriate manner.

# Another unchecked flooding

## Narrative

A modern, steel, 24 metre fishing vessel was towing in deep water with the skipper on watch in the wheelhouse. The high-level bilge alarm sounded. Before going to the engine room to investigate, the skipper woke one of the other four crewmen and told him to go to the wheelhouse to keep an eye on things.

By the time the skipper reached the engine room, floodwater was covering the floor plates and was well up towards the top of the main engine. All handwheels for closing the sea inlet valves were already considerably below water level and inaccessible. However, he noticed a stream of bubbles in the water over one of the main sea inlet strum boxes. This suggested that the cover of the strum box had failed or been displaced.

He returned to the accommodation, alerted the remainder of the crew and told them to assemble in the wheelhouse.

Back in the engine room, the skipper found the water level over the main engine, which then stopped. However, an auxiliary engine, being higher than the main engine, remained running and maintained the 240-volt system.

Recognising the difficulty of the situation, a "Mayday" was broadcast. This was picked up by another fishing vessel only a few miles away, which offered to assist. At this stage the 240volt system failed, suggesting floodwater had reached the level of the auxiliary engine.

All five men donned lifejackets, and a liferaft was thrown overboard and inflated. One man also put on

his survival suit. The others also had survival suits, but did not put them on.

By this stage the vessel was listing to 25° to 30° and it was decided that all five men should board the liferaft.

Once the liferaft was clear of the vessel, the survivors were able to watch her sink by the stern. A short while later they were picked up by the fishing vessel that had earlier responded to their "Mayday". All five men were later landed safely, with few ill effects other than some discomfort due to the cold.

## The Lessons

**1** High-level bilge alarms are vital pieces of equipment for alerting crews to potentially serious problems. However, unless other important systems are designed so that worthwhile remedial action can be taken, the value of bilge alarms is diminished. In this case, an ability or system to allow sea inlet valves to be closed from a high position, such as by having extended spindles reaching well above floor plate level, could have taken advantage of the warning given by the alarm and stopped the ingress of water.

**2** Although survival suits were readily available to all five men, only one chose to wear his. All were sufficiently disciplined to wear their lifejackets, but it would have been prudent for them to have linked the need to put on a lifejacket with the need also to put on a survival suit.

# Fire on unmanned crabber

## Narrative

An 11.85m, 20 year old timber hulled crabbing vessel suffered a flooding incident while alongside her berth. She needed a refit to the machinery and accommodation spaces, part of which required the electrical systems in the engine room to be checked, and water damaged cabling to be renewed as necessary. An electrical sub-contractor carried out this work.

During the work, the electrical sub-contractor noted that the wiring leading from two junction boxes situated in the port forward corner of the wheelhouse, although not damaged by the flooding, was in poor condition. He noted that it had probably been installed by an amateur using non-marine fittings. He recommended that it should be renewed, but the owners were reluctant to take on the extra work and expense, and delay the vessel's return to service. The

owners intended to get the wheelhouse wiring fixed by a friend when they had finances available.

The vessel returned to work and had some very successful days fishing during the next few weeks. On one such trip, she returned to port early due to worsening weather, and, being unable to land the catch ashore, the owners decided to leave the crabs on board in the vessel's vivier tank. To keep the crabs alive, an electrical seawater pump was kept running to circulate seawater through the tank. An auxiliary engine located in the forward part of the vessel provided the electrical supply. The owners slept ashore, but were present on board during the following day when they carried out general maintenance. The next day, a Saturday, the owners took off.

The two owners visited the vessel during the day to ensure that

the auxiliary engine was running. However, it was merely a cursory inspection from the berth's security access gate; they did not go on board. That evening, a fire was reported on board, and by the time the fire brigade arrived, and had gained access to the berth, the fire had taken hold, burned through the mooring lines, and the vessel had drifted out into the river.

With the assistance of two tugs, a pilot launch, and a fire brigade RIB, the fire was brought under control and eventually extinguished. However, the vessel was later declared a constructive total loss.

The fire brigade investigation determined that the seat of the fire was in the port forward area of the wheelhouse, and was probably electrical in origin.

*Port forward bridge*

## The Lessons

**1** The auxiliary engine not only supplied power to the seawater pump, but also to other electrical systems, including those in the wheelhouse. During the Saturday, no safety checks were carried out on board. Regular visits and inspections on board the vessel might have alerted the owners to the problem, and the fire might have been avoided. The lesson here is obvious: if machinery has to be left running on an unattended vessel, then regular and thorough inspections should be carried out.

**2** Only competent electricians should carry out electrical installation work on board a vessel. What may seem adequate to an amateur, might, in fact, not meet accepted electrical standards, and could possibly invalidate the vessel's insurance. All marine electrical



systems should be correctly installed using marine components, and should be regularly tested. To do otherwise is courting disaster.



*Views into and out of the fish hold indicating the distance the casualty fell*



# Down the



## Narrative

A 34m vessel was trawling when one of her crew fell down into the fish room through the open hatch from the deck above.

At the time of the accident, the casualty was on deck in the fish preparation area, helping another crew member. They were transferring empty bins, which were stowed on the deck forward, down into the fish room. Two other crew members were in the fish room ready to receive them.

The additional bins were required below to store the catch. Normally, sufficient empty bins were kept in the fish room, but on this occasion, many were being used to store ice. Whenever extra bins were

required, it was usual practice to manhandle them from their stowed position forward, and lower them down into the fish room using a line and pulley attached to the deckhead above the hatch opening.

At the time of the accident, the casualty was pulling on one of the bins which had become lodged behind a fixed pound board. He was standing next to the open hatch when he lost his grip on the bin and fell down the open hatch. He was not wearing a hard hat. The height from the deck to the fish room floor was 4.15m. The deckhands in the fish room saw him fall, but were unable to do anything. He sustained serious injuries to his head and shoulder.

A short time later, he was airlifted off by a helicopter and rushed to hospital. He is expected to make a full recovery following a lengthy period in hospital.

A risk assessment had been conducted and records were kept on board. However, it had been done by a shore-based consultant who had never been to sea on the vessel. Consequently, an assessment of the risks for this operation was never carried out.

The risk assessment did identify the hazard presented by unprotected openings. The suggested control measures were: to exercise extra caution, to have open hatches guarded and to display warnings. However, the risk was considered low and the control measures were not implemented.

# fish room

## The Lessons

**1** Whenever working close to open hatches, always ensure safety measures are in place, such as portable guard rails. If that is not possible, use a safety harness attached to a point which will prevent a person working close to an open hatch from falling down. It's also a good idea to wear a hard hat with a chinstrap, just in case.

**2** Contrary to popular belief, the assessment of risk is not a complicated exercise. It requires all concerned in any operation to stand back, for a few minutes only, and consider the risks associated with that particular operation. If hazards are identified, often, simple control measures can be put in place to prevent accidents from happening.

**3** The best people to carry out risk assessments are the skipper and his crew. It is they who know their vessel better than anyone else, and it is they, therefore, who are able to more readily identify risks.



*Bin being lifted into fish hold*

# Flooding – a positive outcome

## Narrative

A 10m fishing coble had hauled 5 fleets of gill nets, and was in the process of steaming towards her remaining fleets. Her three crew members suddenly heard a loud clatter at the aft end of the vessel in the area of the propeller. The main engine then stalled.

The skipper restarted the main engine, but the propeller shaft would not turn. At the same time, the crew noticed a substantial ingress of seawater into the vessel

through the propeller inspection box cover. The crew believed the damage had been caused by a large piece of floating timber initially striking the propeller and then the underneath of the hull in way of the propeller inspection box.

Immediately, the crew began pumping out the water using two bilge pumps that were fitted to the vessel: an automatic electrical pump with a built-in float switch, and a hand pump.

Meanwhile, the skipper contacted the coastguard and requested assistance. The local lifeboat was launched.

The skipper then instructed the crew to move all the fishing gear from aft to forward, in an effort to lift the vessel's stern as high as

possible in the water. This action, along with the use of both bilge pumps, stemmed the ingress of water.

As a precaution, all three crew members donned their lifejackets. The vessel was not equipped with a liferaft.

The local lifeboat arrived on the scene approximately 20 minutes later, and a portable salvage pump was put on board the fishing vessel. She was then towed back to port where she was lifted out of the water, and where a detailed inspection revealed that the propeller and the propeller inspection box had both been damaged. In addition, the splines on the propeller shaft, connecting it to the gearbox, had sheared.



## The Lessons

**1** The fact that this vessel was fitted with two independent operational bilge pumps, combined with the skipper's excellent management of the incident, particularly in relation to the redeployment of the fishing gear, was an important factor in preventing the vessel from foundering. The use of both pumps kept her afloat until help arrived in the form of a high capacity salvage pump, provided by the rescue services.

**2** Although not needed during this incident, and not required by law, the carriage of a liferaft on this fishing coble would have been prudent. Statistics clearly show that liferafts save lives; had the vessel foundered, the three men would have ended up in the water – and at the mercy of the sea.

**3** A four-person liferaft, stored in a portable valise or container, can be hired for a nominal annual charge. This is a very small price to pay for a piece of kit which may one day save your life!

# Fire-fighting training saves the day

## Narrative

A 13.6m steel construction beam trawler was fishing off the south coast when her skipper noticed back smoke coming from the engine room ventilators. As he “cracked” open the engine room hatch, he was confronted by dense black acrid smoke. He closed the hatch immediately and alerted the crew.

Conscious of the need to isolate the oxygen supply, and potential fuel supply to the fire, he blocked the engine room ventilators, and shut down the engine room fans, main engine and generator. The skipper re-assessed the situation and considered it safe to “crack” the engine room hatch and discharge two CO<sub>2</sub> extinguishers down the hatchway. This had little effect. He then

dogged the hatch closed and alerted his shore manager and the coastguard.

The coastguard helicopter arrived within 5 minutes and, using the on board infrared (IR) equipment, was able to identify to the skipper that the seat of the fire was in the starboard after corner of the engine room. The only equipment in this area was a plastic cased portable high-pressure washer, stowed adjacent the starboard fuel tank.

The lifeboat arrived shortly after and transferred a fire pump, which the trawler and lifeboat crew used to boundary cool the deck area above the fire. After about 10 minutes, the helicopter reported that the heat source was reducing. The deck water had also stopped steaming. The engine room hatch was again

“cracked open” and the fire hose directed at the seat of the fire.

When the fire appeared to be extinguished, the skipper cautiously entered the engine room, wearing a lifeline and accompanied by a member of the crew, and dampened down the area. Following a damage assessment, the generator and fans were re-started and the remaining smoke cleared.

After further checks, the main engine was started, fishing gear recovered and, under her own power, the trawler returned to her home port.

The trawler engine room suffered significant smoke staining, some electrical fittings in the vicinity of the fire were badly damaged and there was a large area of damaged paintwork. The high pressure water washer was completely destroyed.

## The Lessons

**1** Having recently attended a fire-fighting course, the skipper was able to effectively and calmly assess the risks and tackle the fire confidently during this potentially catastrophic incident. He fully appreciated the need to isolate the air and additional fuel supply from the fire.

**2** Although the trawler was not fitted with dedicated ventilator closures, the skipper used his initiative in utilising materials to further isolate the air supply. He also recognised the need to boundary cool the deck in the vicinity of the fire to reduce the heat required to sustain the fire. The benefits of being properly trained in fire-fighting techniques clearly influenced the manner in which the skipper dealt with the fire.

**3** The co-ordination of the helicopter IR facilities, lifeboat, and trawler crew resources was first class, and undoubtedly prevented the fire from spreading, with the possible loss of the vessel.

**4** Extreme caution must be exercised when accessing a compartment where a fire has occurred, or the condition of the compartment is unknown, in case the sudden air supply causes re-ignition. In addition, where it is suspected that combustion-related toxic fumes might exist, the compartment should be accessed wearing breathing apparatus – even after it has been ventilated.

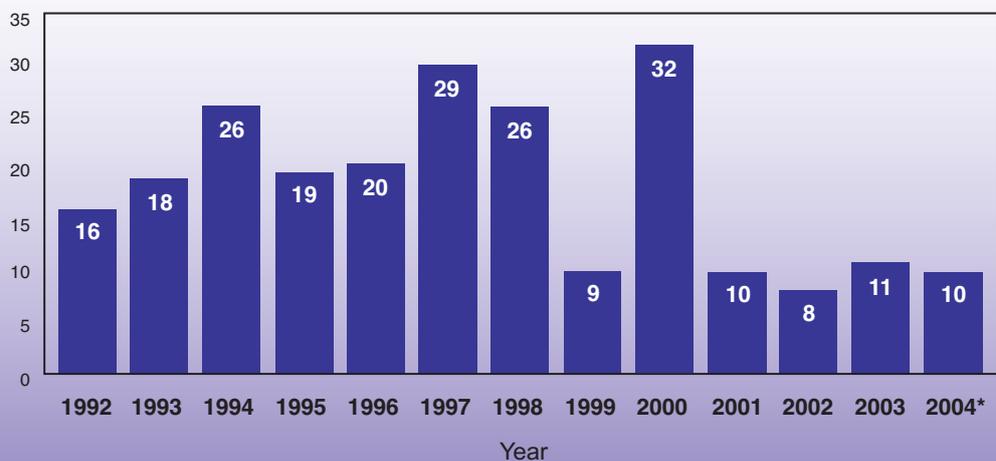
**5** Portable electrical appliances should be fully isolated when not in use, unless directed otherwise in the manufacturer’s instructions.

# Fishing vessel accident

## Fishing Vessel Losses 1992-2004



## Deaths 1992-2004



\* Figures for 2004 are provisional at time of publication. (May 2005)

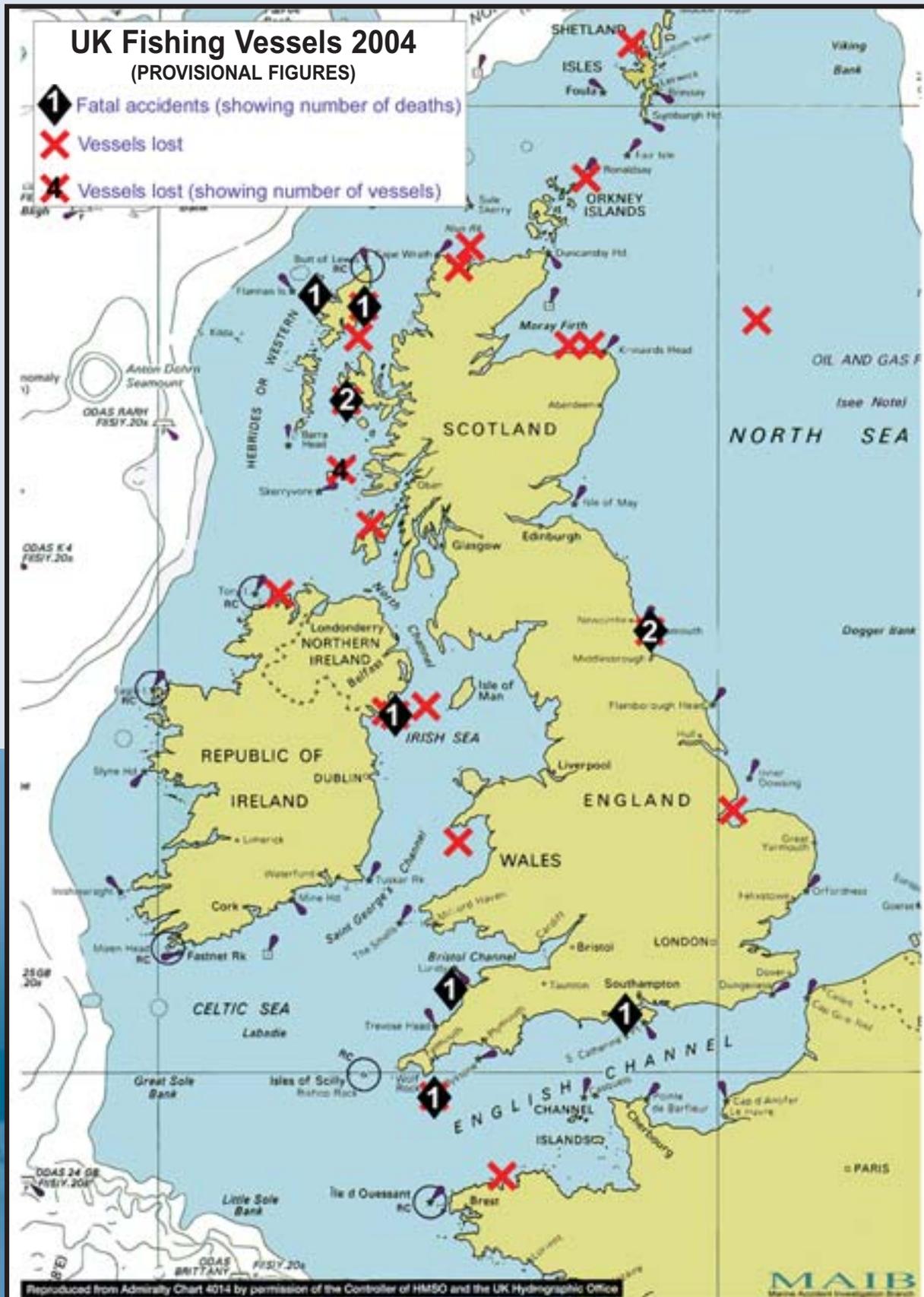
# statistics

## Fishing Vessel Accident Statistics 1990–2004

YEAR	LOSS OF LIFE					PERSONAL ACCIDENTS	VESSELS LOST
	Lost with vessel	Fell overboard	Involved Machinery	Onboard Accidents	Total		
1990	22	4	4	0	30	128	17
1991	25	5	0	2	32	165	41
1992	7	4	3	2	16	133	32
1993	9	7	0	2	18	115	38
1994	16	5	0	5	26	155	43
1995	10	8	1	0	19	108	33
1996	9	4	1	6	20	97	26
1997	16	7	0	6	29	138	23
1998	18	5	0	3	26	112	21
1999	3	4	0	2	9	89	33
2000	21	6	2	3	32	104	40
2001	1	6	0	3	10	81	33
2002	4	4	0	0	8	50	16
2003	4	5	1	1	11	58	27
2004*	7	3	0	0	10	60	24
<b>TOTAL</b>	<b>172</b>	<b>77</b>	<b>12</b>	<b>35</b>	<b>296</b>	<b>1593</b>	<b>447</b>

\* Figures for 2004 are provisional at time of publication. (May 2005)

# Major accident locations



# MAIB published reports

## List of fishing vessel accident reports published since 1999

**Alma C** - report on the death of Michael John Beedie, a fisherman from the fishing vessel Alma C, on Turbot Bank about 55 miles west-by-south of Thyboron in Denmark on 25 January 2001

**Amber** - loss of a fishing vessel in the Firth of Forth on 6 January 2003

**Amber Rose** - foundering of a fishing vessel with the loss of one life off the Isle of Man on 15 October 1998

**Angela** - capsized and foundering of a fishing vessel in the North Sea on 6 February 2000

**Annandale** - flooding and foundering of a fishing vessel 16 miles north-north-east of the Shetland Islands on 23 March 2000

**Arosa** - grounding and total loss of UK fishing vessel on Doonguddle rock off the west coast of Ireland with the loss of 12 crew members on 3 October 2000

**Astra II** - loss of two crewmen attempting to board the vessel while berthed at Carbost pier, Loch Harport, Isle of Skye on 2 April 2000

**Atlantic Princess** - man overboard incident from vessel in the English Channel on 23 November 2000

**Aurelia** - flooding and loss of fishing vessel Aurelia, 78 miles west of St Kilda on 13 August 2001

**Be Ready** - fire on board the fishing vessel while fishing 30 miles north-west of the Orkney Islands on 22 January 2000

**Betty James** - grounding and subsequent loss of a fishing vessel off Isle of Rhum on 10 July 2000

**fv Beverley Ann II/Cypress Pass** - collision between vessels on 9 March 1999

**Blue Hooker** - loss of a fishing vessel with two lives off Blackchurch Rock, North Devon on 12 November 1998

**Bro Axel/fv Noordhinder** - near miss between Bro Axel and fv Noordhinder and the subsequent grounding of Bro Axel at Milford Haven 5 December 2002

**Catrina** - capsized of a UK registered fishing vessel south of Newhaven on 13 October 1998

**Celtic King/De Bounty** - collision between UK registered feeder container ship Celtic King and Belgian registered fv De Bounty to the south of The Smalls traffic separation scheme off the south-west coast of Wales on 19 March 2000

**Charisma** - capsized of the fishing vessel Charisma (OB588) with the loss of one crew member in Carlingford Lough on 30 January 2002

**Chelaris J** - capsized and sinking of the fishing vessel Chelaris J (GU323) and loss of all crew members Banc de la Schôle (near Alderney) 1 October 2003

**Chelaris J** - le chavirement et le naufrage du bateau de pêche Chelaris J (GU323) avec la perte de tous les membres de l'équipage, Banc de la Schôle (près d'Alderney), 1er octobre 2003

**Christine Nielsen** - flooding and foundering of a fishing vessel 120 miles north-east of the River Tyne on 18 March 2001

**Constancy** - sinking of a fishing vessel on 30 July 1998 with the loss of one life

**Constant Faith** - loss of a fishing vessel about 100 miles north-north-east of Peterhead on 30 June 2001

**Crimond II** - loss of a fishing vessel 30 miles north-east of Scarborough on 24 April 2001

**De Kaper** - fire on board a trawler off Hanstholm, Denmark on 12 February 1999

**Donna M** - capsized of a fishing vessel off the Orkney Islands with the loss of two lives on 31 August 1999

**Dunan Star** - fatal accident on board a fishing vessel 1.5 miles south-west of the Isle of Arran on 10 August 2000

**Elegance** - investigation into 2 engine room fires, subsequent flooding and foundering of the fishing vessel Elegance 30 miles north-west of Shetland on 30 January 2004 and 8.5 miles west of Shapinsay on 5 March 2004

**Elhanan T** - flooding and foundering of the fishing vessel Elhanan T on 14 August 2003

**mv Elm/mfv Suzanne** - near miss incident on 11 February 1999

**European Tideway and Vrouw Grietje** - collision between vessels in the North Sea on 16 October 2000

**Fishing Vessel Safety Study 1/2002** - report on the analysis of fishing vessel accident data 1992 to 2000

**Flamingo** - capsized of a fishing vessel east of Harwich on 7 July 2002

**Fleur de Lys** - explosion on board vessel which then foundered 18 miles south-east of Portland Bill on 16 April 2000

**Fraoch Ban** - capsized of a fishing vessel off the coast of the Shetland Islands on 15 August 1999

**Geeske** - death of one person while fishing off Beachy Head on 9 December 1998

**Gemma Fidelis** - fatal accident on board Gemma Fidelis 9 miles east of the River Tees on 23 October 2001

**Girl Alice** - loss of skipper from vessel 1.5 miles south-east of Burnmouth on 19 November 2000

**Gradeley** - manoverboard fatality off the west coast of the Island of Mull on 28 October 1999

**Gudermes and Saint Jacques II** - collision between vessels in the Dover Strait on 23 April 2001

**Harbour Lights** - loss of a fishing vessel off Polperro, Cornwall on 8 January 2000 with the loss of one life

**Horizonte Claro** - grounding of a fishing vessel on Soyea Island, Loch Inver, on 21 October 2000

**Jasper III** - foundering of vessel 90 miles north-east of Fraserburgh on 10 September 1999

**Kingfisher II** - investigation of the fire on board the fishing vessel Kingfisher II whilst on passage to recover creels, 5 miles east of North Uist on 26 April 2004

**Kirsteen Anne** - loss of a fishing vessel in the Firth of Lorn on 31 December 2002 with the loss of her two crew

**Lomur** - grounding of a fishing vessel in the approaches to Scalloway, Shetland Islands on 14 June 2001

**Luc and Toisa Puffin** - collision between two vessels 8.5 miles due east of the river Tyne on 13 June 1999

**Lysfoss** - grounding of a fishing vessel in the Sound of Mull, Scotland on 7 May 2001

**Marbella/Bravo Delta offshore platform** - collision between UK registered fishing vessel and offshore platform in the Rough Gas Field about 25 miles south-east of Flamborough Head on 8 May 2002

**Mariama K** - carbon monoxide poisoning on board a fishing vessel in Douarnenez, France on 10 June 2000 - one fatality

**Mathilda and fv Lady Hamilton of Helford** - near miss incident between Mathilda and fv Lady Hamilton of Helford, 7 miles east-south-east of Lizard Point, Cornwall on 28 June 2001

**Ocean Star** - failure of a warp block on board a UK registered fishing vessel north of the Shetland Islands resulting in one fatality on 26 November 2001

**Opportune** - man overboard fatality from a fishing vessel 35 miles east of Wick on 23 February 2000

**Osprey** - fatal accident to a man overboard from a fishing vessel in Lochinver Harbour on 20 April 2002

**Our Nicholas** - grounding and loss of the crabber Our Nicholas near the entrance to Stornoway Harbour on 24 July 2001

**fv Our Sarah Jayne/Thelisis** - collision between vessels in the Thames Estuary on 20 June 2001

**Pescalanza** - sinking of a fishing vessel with the loss of six lives on 2 November 1998

**Philomena** - fatal accident on board vessel in the Moray Firth on 6 March 2001

**Primrose** - grounding of vessel on the Island of Rhum on 15 June 2001

**Purbeck II** - injury of crew member on board on 7 June 1999

**Purdy** - man overboard fatality from angling boat at Shipwash Bank off Harwich, on 17 July 1999

**Rachel Harvey** - grounding and loss of fishing vessel off Peninnis Head on 1 October 1999

**Radiant** - capsize and foundering of a fishing vessel about 45 miles north-west of the Isle of Lewis with the loss of one life on 10 April 2002

**Radiant Star III** - foundering of a fishing vessel 60 miles northeast of Fraserburgh on 6 August 1999

**Random Harvest** - flooding of a fishing vessel south-west of Brighton on 3 July 1999

**Rebecca Kay** - loss of a fishing vessel off Bideford Bar Buoy on 20 April 2001

**Reno and Ocean Rose** - collision between Reno and Ocean Rose off Whitby, North Sea 6 March 2004.

**Resplendent** - grounding of a fishing vessel in Bluemull Sound Shetland Islands on 13 June 2001

**Ross Alcedo** - fire on board vessel while underway about 32 miles north-west of the Isles of Scilly on 16 January 2000

**Sally Jane** - capsize alongside in Shoreham Harbour on 27 July 1998

**mv Sand Heron and fv Celtit** - collision between vessels NE Traffic Lane, Dover TSS on 30 July 2001

**Sharona** - flooding and foundering of a fishing vessel 80 miles north-east of Peterhead on 3 August 1999

**Silvery Sea/Merkur** - collision between Merkur/Silvery Sea which then foundered about 35 miles west of Esbjerg, Denmark with the loss of five lives on 14 June 1998

**Solstice II** - investigation of a fatal accident to a crew member, 25 miles south-west of Rockall on 13 May 2000

**Solway Harvester** - summary report on the investigation of the capsize and sinking of fv Solway Harvester 11 miles east of the Isle of Man on 11 January 2000 with the loss of 7 lives

**Sundance** - capsize and foundering of a fishing vessel off Gilkicker Point, East Solent with the loss of one life on 10 September 2001

**Suzanne** - see Elm

**Tullaghmurry Lass** - sinking of a fishing vessel with the loss of three lives in the Irish Sea on 14 February 2002

**Union Arbo/Philomena** - collision between Bahamian cargo ship Union Arbo and UK fv Philomena about 10 miles south of Newlyn, Cornwall on 2 September 1999

**Van Dijk** - loss overboard of a fisherman from fishing vessel while fishing 30 miles south-west of Guernsey on 16 April 2001

**Vertrauen** - investigation of the loss of Vertrauen about 75 miles north-east of Peterhead on 19 July 2001

**Wakil II** - investigation of an accident to the skipper of a fishing vessel 3.5 miles south-west of St Bees Head on 10 April 2000

## SAFETY DIGEST

**MAIB Safety Digest 1/2004** – Published April 2004

**MAIB Safety Digest 2/2004** – Published August 2004

**MAIB Safety Digest 3/2004** – Published December 2004

Copies of the Safety Digest publication can be obtained, free of charge, on application to the Marine Accident Investigation Branch (Mrs Judith Blackburn – 023 8039 5509).

## GLOSSARY of abbreviations

<b>CO<sub>2</sub></b>	Carbon Dioxide
<b>EPIRB</b>	Emergency Position Indicating Radio Beacon
<b>IR</b>	Infrared
<b>"Mayday"</b>	Spoken distress signal
<b>MCA</b>	Maritime and Coastguard Agency
<b>MGN</b>	Marine Guidance Notice
<b>OOW</b>	Officer of the Watch
<b>RAF</b>	Royal Air Force
<b>RIB</b>	Rigid Inflatable Boat
<b>TEU</b>	Twenty Foot Equivalent Unit
<b>VHF</b>	Very High Frequency



# MAIB

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