Safety digest 1/2003

Contents

MARINE ACCIDENT INVESTIGATION BRANCH

The Marine Accident Investigation Branch (MAIB) is an independent part of the Department for Transport, the Chief Inspector of Marine Accidents being responsible directly 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. It contains facts which have been determined up to the time of issue.

This information is published to inform the shipping and fishing industries, the pleasure craft community 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.

The Editor, Jan Hawes, welcomes any comments or suggestions regarding this issue.

The Safety Digest and other MAIB publications are only available from the Department for Transport, and can be obtained by applying to the MAIB.

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

The telephone number for general use is 023 8039 5500.

The Branch fax number is 023 8023 2459.
The e-mail address is **maib@dft.gov.uk**

Summaries (pre 1997), and Safety Digests are available on the Internet:
www.maib.gov.uk

Extract from
The Merchant Shipping
(Accident Reporting and Investigation)
Regulations 1999

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

Glossary of Terms and Abbreviations

ARPA	Automatic Radar Plotting Aid
CPA	Closest Point of Approach
CPR	Cardio Pulmonary Resuscitation
GT	Gross tons
MCA	Maritime and Coastguard Agency
MGN	Marine Guidance Notice
OOW	Officer of the Watch
PA	Public Address (system)
RNLI	Royal National Lifeboat Institution
Ro-Ro	Roll-on, roll-off
UHF	Ultra High Frequency
VHF	Very High Frequency

INTRODUCTION

Since taking up the post of Chief Inspector of Marine Accidents last August, I have repeatedly been asked the question: what exactly does the MAIB do? Therefore, I am taking this opportunity to remind people of who we are, what we are trying to do, and how we do it.

Our role is very simple: to identify the *underlying* causes of marine accidents so that we can prevent them happening again. Our job is *not* to point the finger of blame at the normally conscientious skipper who, in an attempt to meet heavy quotas, took a few short-cuts. Nor is it to help prosecute the shattered watchkeeper whose vessel grounded after he fell asleep. Instead, by identifying the underlying problems that led to the accident, we can make recommendations to reduce the risk of such problems recurring. Simply, we seek to answer four basic questions:

- What happened?
- How did it happen?
- Why did it happen?
- What can be done to prevent it happening again?

As Chief Inspector of Marine Accidents, I report directly to the Secretary of State for Transport. I have four teams of accident investigators, all professionally qualified and experienced in the nautical (including fishing), engineering, or naval architecture disciplines of the marine industry, and a small administrative staff. You will find them all approachable, and any information given to them is treated in the strictest confidence.

We are empowered to conduct examinations and investigations into accidents to, or on board, UK merchant ships, fishing vessels and pleasure craft anywhere in the world, and to similar foreign vessels within UK waters. UK waters are, broadly speaking, out to 12 miles from the UK coast including canals, lakes, rivers and estuaries. The master or skipper of any commercially operated vessel within this definition is required to notify the MAIB of any accident to, or on board his/her vessel. This includes vessels in commercial use for sport or pleasure. Skippers of private pleasure vessels do not have to report accidents to us, but we would encourage them do so.

Obviously we cannot fully investigate more than a tiny fraction of the 1500 or so accidents that are reported to us each year. We conduct an administrative enquiry (by mail and or telephone only) on many accidents and incidents, we conduct a preliminary examination on a smaller number, and conduct a full investigation, leading to a full accident report, on only the most crucial accidents. Our criteria for deciding which of these is appropriate to each accident is simply the lessons likely to emerge for future safety.

In summary, our focus is your safety. Lets work together to make the sea a safer place.

Stephen Meyer
Chief Inspector of Marine Accidents
April 2003

Part 1 Merchant Vessels

In the last issue of the *Safety Digest* we highlighted the need to be safe:

- Slow down
- Speak up
- Stay alert.

We are all vulnerable to lapses of attention. But those moments of inattention can cost lives, cause costly and extensive damage to vessels, and they will often create huge embarrassment for all concerned. The conscientious seafarer will do everything possible to prevent them.

The dangers inherent when that old enemy *fatigue* sets in are all too obvious. Even the most experienced seafarer will begin to make mistakes; his/her judgment will be affected, decisionmaking skills will be impaired and the ability to stay alert will be lost.

Tiredness at sea can be brought on by many factors: long hours, a shortfall in the number of crew required to safely man a vessel, work pressure, or several days at sea working a gruelling schedule. The seafarer working a night watch, feeling completely drained, will find the monitoring of complicated modern navigation, or machinery controls, that much more difficult. He/she will also be less able to keep a good lookout for other vessels.

If you find yourself in the position of having to work when tiredness has long since set in, ask another officer to check that all course and engine changes are as planned. This person must be alert, well rested, and prepared to voice their concerns if they see something that doesnt look quite right.

We are well aware of vessels trading around the UK coast with just two watchkeepers and a commercial workload which involves little, if any, break in the watchkeeping routine. Cumulative fatigue can build up and if control measures, such as watch alarms and a lookout, are not in place or fail, then the result can be a missed alteration at a waypoint, or the failure to take avoiding action in the event of a situation involving risk of collision.

The MAIB has made recommendations following fatigue-related accidents on several occasions in the past. These recommendations have addressed both manning as well as control measures. We are also aware of other underlying issues involved with fatigue, such as management, environment and teamwork, relating to quality of sleep as well as sleep deprivation.

Finally, never allow other duties, or fatigue, to jeopardize the maintenance and inspection of safety equipment. We all know that when this equipment is needed it must be fully operational. Peoples lives will be depending on it. And it may be your own!

CASE 1
Hooked!

Narrative

A 22,986gt ro-ro passenger vessel was berthed stern to the jetty for loading/unloading, and starboard side alongside dolphins. As part of the vessels normal routine of testing of lifeboats, it was decided that No 1 lifeboat on the starboard side should be deployed, as it was well clear of the dolphins. With the ships officers and crew in attendance, the lifeboat was prepared for lowering.

As the davits moved outboard, both forward and aft auto release trip mechanisms operated, but only the forward gripe dropped free. With the aft gripe still hooked on, further lowering of the davits caused the lifeboat to twist on the davits. The davit brake was applied, and the aft gripe released by hand, causing the lifeboat to swing violently on the falls. The test was abandoned, and the lifeboat winched back into the stowed position so that the cause of the hang up could be investigated.

On examining the aft auto release trip mechanism, it was found that the hook, on which the gripe wire link was secured, had developed a very well defined groove where the link normally lay. The depth and contours of the groove were sufficient to hold this link in place, even when the operating arm had tripped. The wear on the hook had obviously taken some time to develop, and had probably been caused by a combination of corrosion, slight movements of the lifeboat in the davits, and vibration.

The company repaired the hook and fitted a new heel pad to ensure that the gripe wire link was correctly placed when the lifeboat was in the stowed position.

The Lessons

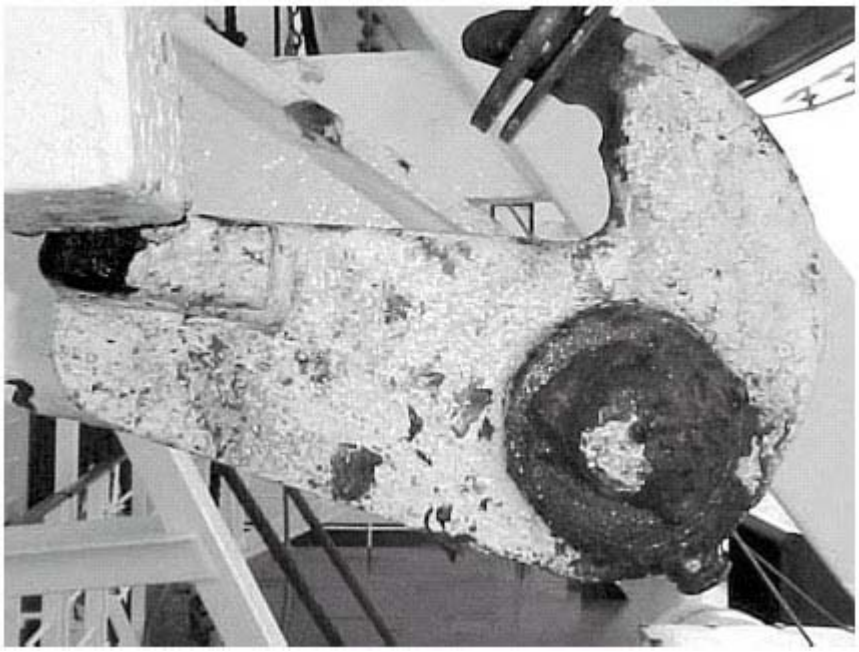
1. Any mechanism that uses a release mechanism requiring a sliding action between solid materials, should be examined at regular intervals. Wear is a natural phenomenon, and with the addition of corrosion, surface irregularities soon develop.

2. Lifeboats are an essential part of the vessel, and every effort should be made to maintain them to a high state of readiness. By their very nature, they are placed in a relatively exposed position, and for that reason are susceptible to corrosion and varying weather-imposed loadings.

If you find noticeable wear developing, report it to a senior officer. It may not be significant or dangerous at that moment, but by reporting your concerns, action can be taken to prevent it developing further.

3. These events happened during routine testing, and a problem was found when nobody was at risk. This illustrates clearly the importance of testing.

No 1 lifeboat, starboard side



Worn hook on aft gripes

CASE 2
A Grounding in Navigation

Narrative

A small commercial vessel was on a river passage with ten foreign student passengers embarked for 'team-building' training. The master was an experienced mariner, but had not been to sea for about 2.5 years, and had previously visited the vessel on only one occasion. The students, who had no prior experience at sea, split into three watches and, during the passage down the river and under the supervision of the master, were tasked to keep the vessel within the navigable channel.

At 0600, about 3 hours after sailing, the master was feeling tired, so sat on a bench at the rear of the wheelhouse to eat a bacon sandwich. Fifteen minutes later, up to six Dutch students were in the wheelhouse during the watch changeover. The oncoming watch quickly became concerned that the vessel was on the south side of the river in a green-shaded area of the electronic chart, but decided that the position displayed was incorrect. As the master could not understand Dutch, and was unfamiliar with the electronic charts in use, he was unaware of the students of concerns.

The vessel had left the navigable channel and was heading towards the morning sun and into shallow waters. Although the master by that time had moved to the starboard side of the wheelhouse to discuss the passage plan with a student, and could see ahead, he was not aware of the vessel's position. About 10 minutes later, however, he noticed that she was starting to feel the ground, and instructed the student helmsman to steer for the middle of the river. The vessel grounded moments later.

The Lessons

1. Even for the most experienced mariners, returning to sea after a lengthy absence brings problems, including dealing with new technology and adapting to a different work pattern. Few individuals can pick up from where they left off, and will need time to familiarise themselves with new equipment, and settle into a watchkeeping regime.

2. When working alongside during the day, with everybody feeling fresh and alert, it is all too easy to forget the demands that will be made on individuals at sea overnight, after the ship has sailed. There's always a lot to do and many people to see, and inevitably time marches on without some crew being adequately rested. Fatigue affects us all, however, and staying up all day unavoidably results in tiredness at some stage during the night. Falling asleep is only one effect of fatigue; others, including a reduction in alertness, can be just as dramatic when watchkeeping. When preparing for a night sailing, always make sure that everyone has sufficient opportunity to rest during the day.

3. Supervising others can be tedious, particularly when trainees are doing well and appear to be coping admirably with minimum direction. Trainees, however, are unlikely to have the experience to spot the danger signals when things start to go wrong, and if those overseeing them do not keep a close eye on the situation, disaster can strike. Supervisors must, therefore, continually cross-check the work of the trainees, regardless of their apparent competency, and be ready to intervene should the need arise.

4. Over the years, the use of echo sounders has undoubtedly reduced as the accuracy of other navigational aids has increased. They remain, however, the only aid able to provide the exact

depth of water under the keel, rather than what there should be. Take nothing for granted the nearest danger might be lurking just below!

5. Too many people in the wheelhouse or bridge can be extremely disruptive, particularly when different languages are spoken. Keep the number of people and amount of noise in these spaces to a minimum, and make sure that everyone remains aware of what is going on.

6. When heading into the sun, it can be extremely difficult to see navigational marks (or to be aware of their absence). Having sunglasses available in the wheelhouse or on the bridge is a wise precaution.

7. Everyone should be encouraged to voice their concerns if they see something that doesnt look quite right or is potentially dangerous.

CASE 3
High Speed or Not GIVE WAY!

Narrative

A high-speed ferry was proceeding in open water on a course of 290° at 27 knots. A tanker was steaming 020° at 12 knots. It was daylight, the visibility was good and the sea was slight.

The ferry detected the tanker by radar at 14 miles range, and her ARPA indicated that a close quarters situation was developing. The tanker monitored the ferrys approach from 8 miles range and her ARPA indicated that she would pass close ahead of the ferry.

Although concerned, and recognising that his was the give-way vessel, the tankers OOW maintained course and speed, relying on his interpretation from the radar that the tanker would pass ahead. The ferry, on the other hand, reduced speed to increase her CPA. The tanker eventually passed ahead of the ferry at a range of 4 cables.

The Lessons

1. Although anxious about the developing situation, the tankers OOW maintained course and speed. The Collision Regulations make it clear that if there is any doubt, a risk of collision shall be deemed to exist. The tanker was the giveway vessel in a simple crossing situation, and should have taken early and substantial avoiding action to give the ferry a wide berth.

2. Although high-speed craft are generally more manoeuvrable than traditional vessels, the Collision Regulations make it clear that they carry no special privileges or obligations with respect to collision avoidance, and do not relieve a give-way vessel of her obligation of acting early to ensure her intentions are clear.

3. The ferrys actions prevented what would otherwise have been an unnecessarily close encounter.

CASE 4
Serious Injury to Passenger Returning to Vehicle

Narrative

A female coach passenger was seriously injured on one of the car decks of a ro-ro passenger ferry discharging passengers and vehicles.

All the coaches were parked on the starboard side of vehicle deck 3. At the appropriate time, announcements were made asking coach passengers to use the *blue* (starboard) stairway to return to their respective coaches. However, a female passenger, together with her male companion and two children, mistakenly used the *turquoise* (port side) stairway. The port side in the area they entered the deck contained articulated trucks.

As the four people walked aft on the designated walkway on the port side, the trucks began to move towards the stern doors. When they reached the end of the walkway, a truck beside them, which was on the move, started to swing towards the stern ramp. As it did so, its back end swung close to the bulkhead and crushed the female passenger against it.

Seeing this, the driver of the truck behind sounded his vehicles horn, which halted the truck in front and alerted the ships personnel.

After being freed, the injured passenger was airlifted to hospital, suffering from severe crush injuries.

The Lessons

The vehicle deck of a ro-ro ferry is potentially an extremely dangerous area, especially at the time cars and articulated trucks are on the move. There is often much noise and congestion, with everyone in a hurry. This has resulted in several accidents, where passengers or crew have been killed or injured.

1. An investigation of the accident revealed that insufficient ships personnel were on the vehicle deck to monitor passenger movements.

Passengers on ro-ro ferries are rarely experienced seafarers, and cannot be expected to behave as such. They will not, therefore, be aware of the dangers; particularly at the time of discharge. They may well be preoccupied with their own concerns as they gather their belongings and prepare for the next leg of their journey. For some, this will be the first time they have sailed across the channel, so they may find themselves somewhat confused or disoriented about what to do and where to go. Put another way, they need help!

Passenger safety must remain the number one priority. Sufficient personnel, therefore, should be stationed on vehicle decks to monitor passengers movements and to provide assistance and direction as they return to their vehicles.

2. Whenever colour coding is employed to distinguish important areas, it is vital that distinctive colours are used. Even in areas of poor lighting, colours can be chosen that make the difference clear. It isnt difficult to see how things went so tragically wrong for these four passengers.

CASE 5
Be Prepared for Steering Failure and Safe Navigation!

Narrative

A dry cargo vessel of 1,700gt was leaving port with the master and chief engineer on the bridge. She was in confined waters and being steered by autopilot.

Contact breakers in the steering relay system welded together, resulting in a failure of the system to transmit helm orders from the bridge to the steering gear. At that point, the master left the bridge to replace the contact breakers, leaving the chief engineer alone to deal with a situation for which he had not been trained. The vessel grounded shortly afterwards.

Fortunately, the bottom was soft, and a subsequent underwater inspection by divers revealed no damage to the hull.

The Lessons

1. The steering system failure resulted in a loss of control, with a consequently high risk of grounding. However, instead of being in a position to deal effectively with the resulting situation, the master left the bridge, thereby heightening the risk further.

An appropriate allocation of responsibilities, and an appreciation of what to do when things go wrong, is essential for dealing with an unplanned emergency.

The master would have been better placed to deal with the situation had he remained on the bridge, leaving either the chief engineer, or someone else, to deal with the steering problem.

2. Regular drills to simulate the failure of critical equipment, and the remedial action to take, can ensure that you are prepared for such a contingency and have the appropriate spares to address it.

CASE 6
Talk-Back System Failure

Narrative

A 26,433gt cross-channel passenger ferry was swinging out of her berth in the narrowest part of a French harbour. It was high water and there was no wind.

The second officer, at the stern of the ferry, was keeping the bridge informed of the closing distance to the quay wall and lower revetment with the vessel talk-back system.

Realising the vessel was in danger of impacting the sloping face of the revetment, the second officer attempted to warn those on the bridge of the impending danger. However, an intermittent failure of the talk-back system meant that his warnings were unheard. The ferry made contact with the revetment.

The vessel was able to unberth and proceed to its intended UK port without delay. None of the passengers onboard was aware there had been an incident.

Later investigation revealed significant rudder damage had been sustained during the impact. The vessel was dry docked for rudder repairs and was out of service for 2 weeks.

The Lessons

1. All members of the crew involved in the operation of swinging a vessel in the close confines of a harbour should maintain an understanding of the vessels progress.

2. Communication equipment should be tested before use, and a back-up system made readily available in case of failure. Had UHF radios been available, an extra few seconds of warning could have been relayed to those on the bridge, and this accident might have been prevented.

3. Equipment such as the docking radar, beam transits, and up-to-date harbour sounding plans are there to assist with docking and leaving a berth. Bridge teams are advised to use them.

4. A pre-departure briefing to all concerned, of the hazards in the vicinity of the vessel, will do much to ensure this sort of accident is avoided.

5. Only enough power to swing the vessel against the wind and tide should be required to provide gentle progress during restricted manoeuvring. This will prevent excessive thrust being needed to halt progress, and limit the extent of damage, should contact be made.

CASE 7
Fire Around Oil-Soaked Lagging

Narrative

During a test on the quick closing valve of a thermal oil-filled economiser on a ro-ro passenger ferry, the valve spindle became detached from the valve lid. This defect meant that it was impossible to fully drain the economiser to repair the valve. Using a gauge line from the economisers flow meter, most of the oil was drained from the system. A small but unknown quantity remained in the unit.

When next in port, this quick closing valve was dismantled for repair. However, some of the remaining oil escaped on to the insulation of the main engines exhaust trunkings. Care was taken to clean as much of the oil as possible, the repair was completed and the economiser returned to service.

Shortly after the vessel next left port, an automatic fire alarm sounded, indicating a fire in the uptakes and funnel casing. Engine room staff responded, and confirmed there was a fire around the lagged exhausts. The emergency alarm was sounded, fire-fighting parties were prepared and engine room fans stopped. Meanwhile, the fire was tackled by the engine room staff using portable extinguishers and fire hoses.

Passengers were informed of the problem, and later updated, over the PA system.

The fire-fighting efforts were successful, and the fire was declared extinguished about 20 minutes later.

The vessel was able to continue and complete its voyage but, owing to damage to the electrical and control systems, at reduced speed.

Ships staff concluded the fire had been caused by hot exhaust trunkings igniting thermal oil (which had soaked into the lagging) when the main engines increased power as the vessel left port.

The Lessons

1. Even small quantities of oil can, if ignited, result in a significant fire, capable of causing substantial damage.

2. Prompt action to fight the fire, probably prevented it spreading and causing more serious damage.

3. The design of the economiser system would have been greatly improved by having a separate drain valve, which could totally empty the system for maintenance.

CASE 8
Ferry Grounds After Cutting Corner

Narrative

A ferry was given permission by port control to leave her berth and begin swinging. The bridge team consisted of the master, who had control of the vessel at the starboard console; the chief officer, who was at the VHF radio and talk-back system to the mooring stations; a helmsman, who was at the centre console and a lookout, who was at the port console. It was dark.

After letting go, the ferry began her swing to head out of the port. An inbound vessel in the approach channel was instructed to wait for the ferry to leave. The inbound vessel made contact with the ferry and asked for a green-to-green pass outside the harbour entrance, which was agreed. On completion of the swing, the engine combinators and helm were transferred to the central console, where the master took station. The vessel was placed on a heading midway between the pierheads, and the speed was increased to about 6 knots. At a distance of about 1.5 cables from the port side pierhead, a greater distance than normal, the master ordered port 10° to effect the green-to-green pass with the inbound vessel. He was aware of an unlit buoy outside the harbour entrance, and anticipated that the inbound vessel might, therefore, not approach the far edge of the channel.

The chief officer, now standing on the starboard bridge wing, saw that the starboard side of the ferry was on the correct side of a clearing bearing, and said nothing to the master. He remained there to ensure that the stern cleared the starboard side pierhead during the turn to port. He then noticed the ferry take a slight heel to starboard. Seeing that the wheel was only at 10° to port, which would not cause the ship to heel, he suspected the ship was grounding, so moved to the centre console immediately to inform the master. He confirmed to the master that the ferry had stopped making way.

The master took over the engine and helm controls on the port console, while the chief officer warned the inbound vessel and port control of the grounding. The master applied astern pitch and the ferry went astern and freed herself from the ground. Tank gauge readouts, and manual soundings of spaces, revealed no ingress of water. The passengers were kept informed of the situation, and the ferry was berthed 20 minutes later.

A subsequent divers inspection revealed only superficial damage in the forward area.

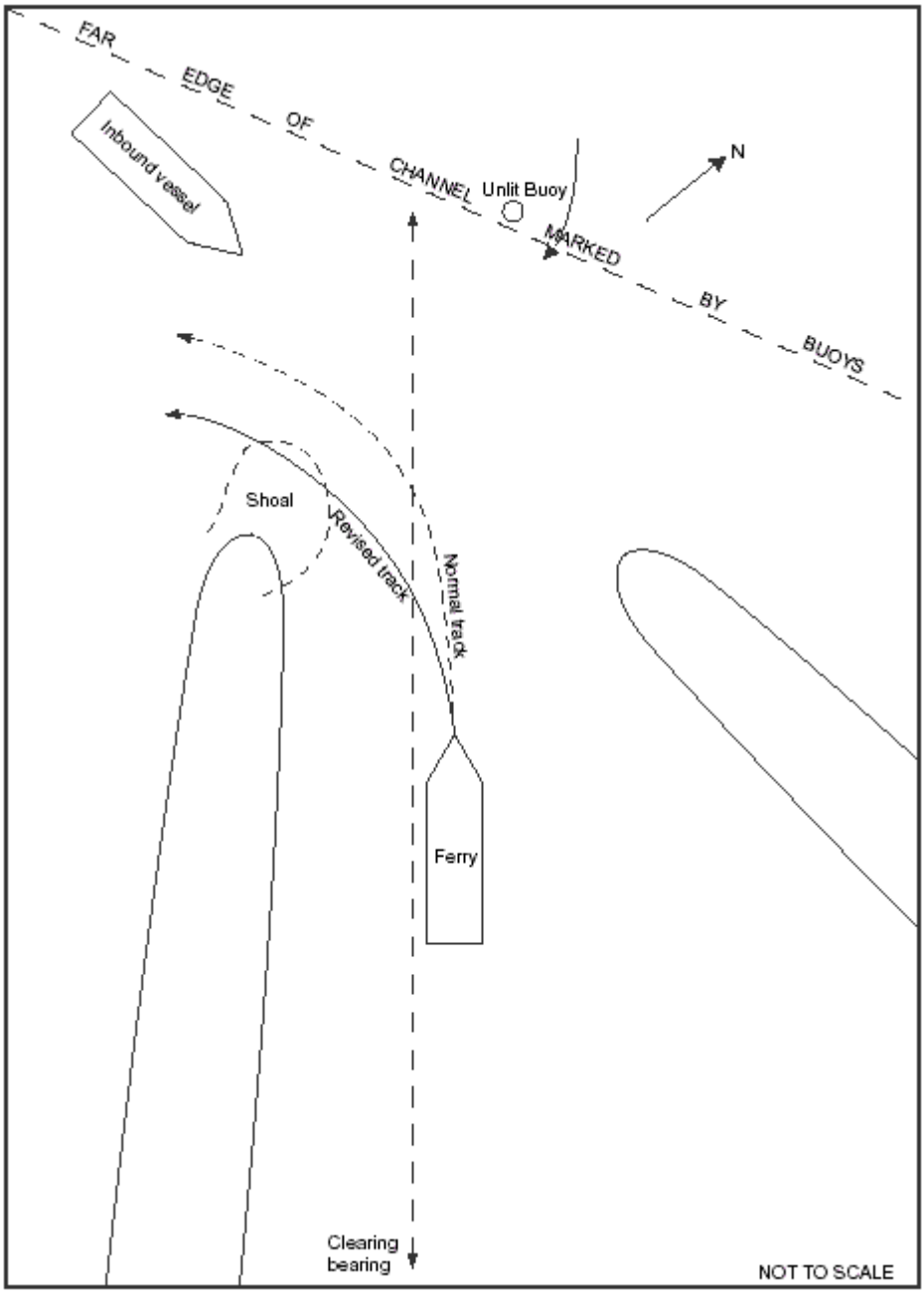
The Lessons

1. The ferry masters decision to start the port turn further from the pierhead than normal, contributed directly to the grounding. Although he agreed to a greento- green passing with the inbound vessel, he did not have to do so. Instead, he could have insisted on a red-to-red passing in a position sufficiently clear of the harbour entrance so as to enable him to complete his turn in the normal way.

However, green-to-green passing was not uncommon and would not normally have affected the masters ability to turn safely. What was different this time was his uncertainty that the incoming vessel would keep to the far edge of the channel so as to give him sufficient sea room for the turn. This uncertainty arose from the fact that a buoy was unlit outside the harbour entrance.

2. Although the chief officer was monitoring the ferrys track to ensure the turn was started sufficiently north of a particular clearing bearing, no check was made of the close proximity of the ferry to the westerly pierhead during the course of the turn. Had the danger of passing closer to the pierhead than normal been identified during a planning review, arrangements could have been put in place to ensure that the ferry remained in safe water.

This incident highlights the danger of not reassessing a planned procedure in view of changed circumstances, and is particularly relevant to vessels operating on regular short sea routes.



CASE 9
When is a Vessel Constrained by her Draught?

Narrative

A bulk carrier of 250m in length left her berth on the west coast of Scotland. She was loaded with 83,727 tonnes of granite aggregate, giving her a maximum draught of 13.78m. She was displaying a cylinder on her signal mast, indicating that she was constrained by her draught in accordance with Rule 28 of the Collision Regulations.

After dropping the pilot, she headed south in the Lynn of Morvern in daylight, good visibility, a south-easterly force 4 wind and a slight sea. The Lynn of Morvern is about 1.7 miles wide at its narrowest point between Bernera Island and Morvern Peninsular, and water depths of over 50 metres are maintained across the loch.

She began to increase to her full manoeuvring speed of about 12 knots **(see chart extract)**.

Meanwhile, a fishing vessel was hauling a string of 80 creels in position 56° 31.45'N and 005° 36.62'W. Her skipper and one crew member were on board and, although busy on deck, both could see the bulk carrier approaching. The fishing vessel was showing a signal of two cones with their points together, indicating that she was a fishing vessel engaged in fishing in accordance with the Collision Regulations.

The bulk carriers bridge team had noticed a stationary fishing vessel virtually ahead at about 2 miles range. The master planned to leave the fishing vessel a safe distance to port, and continued to increase speed.

As the range between the two vessels decreased, the bridge team saw a large number of fishing buoys in the water ahead, which appeared to span the width of the loch. The master looked to find a safe passage through them, and chose what he believed to be the only gap wide enough for his vessel. Unfortunately this was close to the stationary fishing vessel but, since he had little or no choice, he altered course to head for it.

The bulk carrier passed the fishing vessel at a distance of between 100 and 150 metres on the bulk carriers port side.

The Lessons

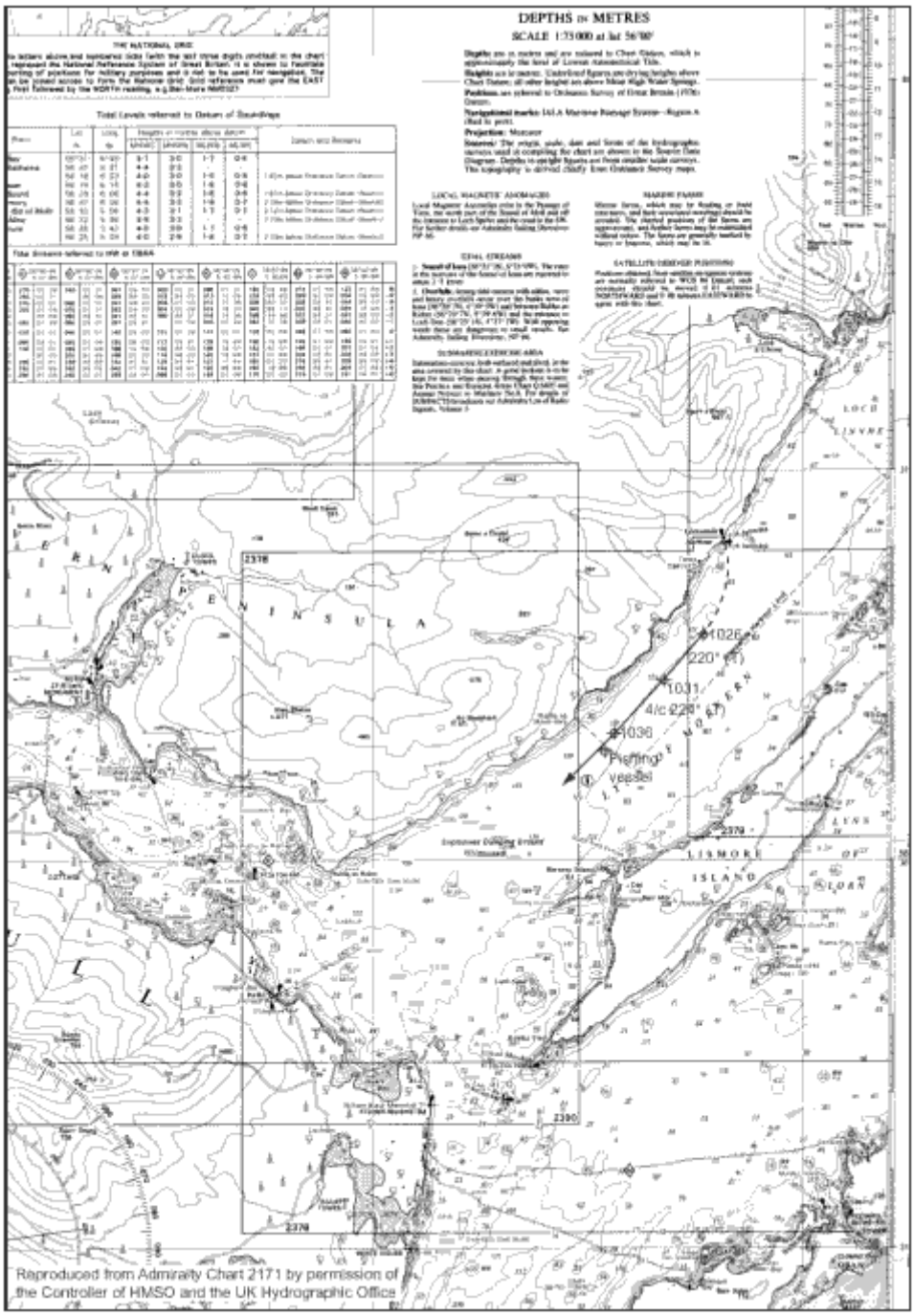
1. The Collision Regulations define a vessel constrained by her draught as:

a power-driven vessel which, because of her draught in relation to the available depth and width of navigable water, is severely restricted in her ability to deviate from the course she is following.

The MAIB believes the bulk carrier was not *severely restricted in her ability to deviate from her course* in the vicinity of the incident and she should not, therefore, have been exhibiting a cylinder at her masthead. Using signals such as this one, when it is not fully justified to do so, undermines their use in circumstances when the vessels safety may depend on it.

2. Many fishing buoys are invariably encountered where this incident took place. The bulk carrier passed through the area frequently, so her master knew to expect them. With this in mind, although the buoys can span the width of the loch, the master should have given himself more room, by choosing a route in the centre of the loch where he would have been

well clear of the fishing vessel. As it was, he decided to pass between the fishing vessel and the nearest coast, while maintaining full manoeuvring speed. This left him few manoeuvring options had he encountered something unexpected.



3. The bulk carrier considered herself constrained by her draught. Part (d) (ii) of Rule 18 of the Collision Regulations states: A vessel constrained by her draught shall navigate with particular caution having full regard to her special condition. In continuing to increase her speed to 12 knots while approaching the fishing vessel and buoys, and choosing the track that she did, the bulk carrier did not navigate with particular caution.

4. In a fairly restricted area, where large vessels transit frequently, fishing vessels should be aware that their net and creel markers can cause substantial interference to normal navigation.

The skipper involved in this case thought the merchant vessel had plenty of room to keep well clear. However, the masters point of view was very different because although he had only one vessel to avoid, numerous buoys were impeding his passage.

5. In considering the rights and wrongs of this case, one should bear in mind that the fishing vessel was in the process of hauling a string of creels, was not in the centre of the loch and was, effectively, anchored to the seabed. She could do little herself, therefore, to ease the merchant vessels problems, even if the merchant vessel had been constrained.

In extreme circumstances, she would have been forced to cut her gear in order to take last-minute action. It is understandable, therefore, that the fishermen viewed the approaching large vessel with a certain amount of trepidation. Seeing such a large vessel pass within 150 metres, while making 12 knots, must have been a very frightening experience indeed for both skipper and crew.

6. Any power-driven vessel which must giveway to a fishing vessel engaged in fishing, should take early and substantial action to reassure the fishing vessel that it has both seen her and intends to keep clear.

CASE 10
Grounding

Narrative

Just after sunrise on a fine, clear summers morning, a 4,500gt cargo ship was transiting restricted waters on the west coast of Scotland. The ship routinely operated between Scandinavia and Ireland, and she was following her normal route. Speed was 12 knots, and course was 117° in automatic steering. The OOW was using a parallel index on the radar display to monitor the ships position, and there was also a lookout on the bridge.

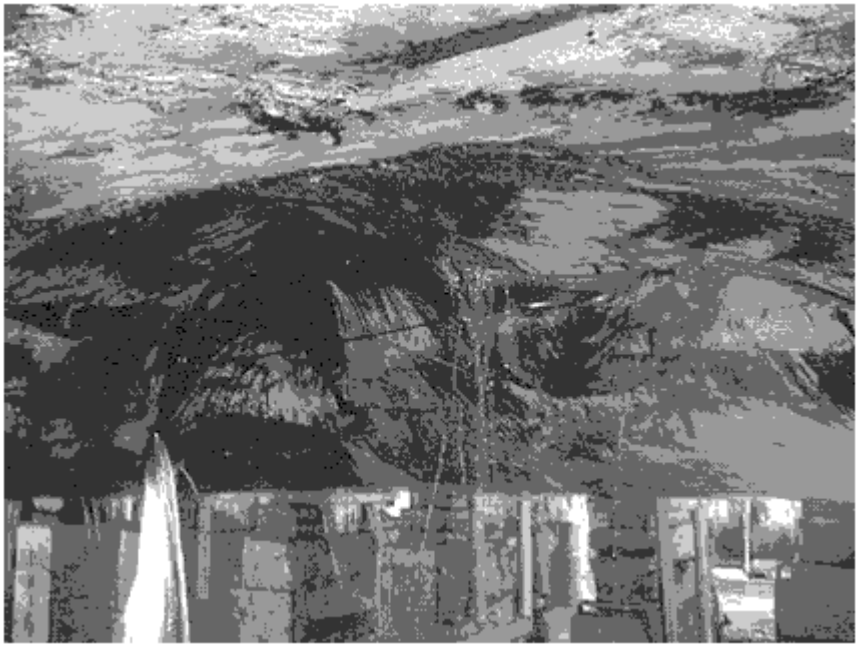
Several minutes before a planned alteration of course, the lookout left the bridge to conduct rounds of the engine room, and to check the cargo. While he was checking the cargo, course was not altered as intended, and the ship grounded on a heading of 117°.

The master, woken by the sudden noise and movement, went straight to the bridge, to find the OOW holding the steering joystick with the steering switched to manual control; the engine pitch was set ahead.

The ship was refloated 4 days later, having suffered substantial bottom damage.

The OOWs actions immediately before the grounding, could not be accurately determined but, as a result of the accident, the ships owners removed all computers sited on the bridges of all its ships.

Bottom damage to vessel



Bottom damage to vessel

The Lessons

1. Restricted waters do not allow the same freedom of movement normally expected when coasting, and the time and sea room in which to take action to prevent error, or mechanical breakdown resulting in grounding, can be minimal. Consequently, any passage through restricted waters must be carefully considered, not only with regard to the tracks selected, but also in terms of both manning and the precautions required. Comprehensive passage planning is, therefore, essential, and time invested in this task before a passage is time well spent.

2. Most OOWs should be capable of following a planned track in restricted waters, particularly if they are familiar with the area. However, when there is little margin for error, or to take action following a breakdown, or to avoid other shipping, the difficulty of the task increases considerably. This can put an inordinate amount of responsibility on a sole OOW. The ultimate responsibility for the safety of every ship lies with her master, and when in restricted waters it is usually beneficial for masters to be on the bridge, or at least close at hand, in order to monitor the OOW, and to provide support and assistance if required. *It is far better to be around to prevent an accident, than to be woken up by one.*

3. The assessment of whether waters are open, coastal or restricted should be based on the proximity of dangers, and the sea room available in which to manoeuvre. It should not be based on either a masters familiarity with them or his experience. Dont let familiarity lead to complacency.

4. As technology marches on, the number of potential distractions for an OOW seems to be increasing. In addition to computers, most ships also now have a mobile or satellite telephone system on the bridge, which OOWs are expected to operate. Some OOWs also take their own mobile telephones on watch with them. The use of such equipment for ships business might not cause a problem in open water, providing the OOW manages his time efficiently and is supported by an additional lookout. However, its use in restricted waters, or when in close proximity to other shipping, is a recipe for disaster. The first responsibility of an OOW is the

safety of the ship the completion of a form, or a phone call home, can wait until the watch is over.

The decision taken by the ships owners, to remove the computers from the bridges of all their vessels, is seen as a positive step. They are commended for taking such a decision so quickly.

5. Fortunately, although not a regular occurrence, problems do occasionally arise when changing from automatic to manual steering. Dont be caught out. When manual steering is required, change over in good time and test the system. If you leave it until the course alteration, the beach ahead could get uncomfortably close if things dont go as planned!

CASE 11
Stand-by Vessel in Collision with a Rig

Narrative

An oil-rig support vessel in automatic steering slowly closed a rig complex. The port main propulsion unit was running, and the starboard one was stopped. This was normal procedure during the night in calm conditions.

In preparation for the days work, the vessel was then stopped just outside the 500m zone, and the duty engineer was ordered to start the starboard propulsion unit. Meanwhile, the bridge watchkeeper decided to increase his distance from the nearest rig by turning the port propulsion unit control to astern thrust and increasing the propeller rpm. He did not, however, disengage the automatic steering, which over-rode the propulsion unit manual control. The vessel, therefore, started to move ahead along the course selected, towards one of the nearby rigs. To counter this unexpected movement, and thinking that the azimuth propulsion unit was pointing aft, the bridge watchkeeper then increased the propeller speed further.

Shortly after, the vessel collided with a leg of the rig, causing minor damage to both.

The Lessons

1. On a ship with conventional propulsion and steering equipment, the main engine will operate astern when selected, regardless of whether or not the automatic pilot is engaged. Increasingly, however, different types of propulsion and steering systems are fitted, which do not operate in the same way. If OOWs are not fully familiar with the characteristics of a particular propulsion system in use, they cannot be expected to use it effectively.

2. There is no doubt that automatic pilots are an extremely beneficial aid, particularly to a lone watchkeeper. Their usefulness, however, can quickly turn to tragedy if OOWs dont know how to use them properly, forget they are in use, or use them in inappropriate situations. It is not an automatic pilots fault if the course set leads to a collision or grounding; it is simply obeying the last order!

3. Indicators on the bridge showing the status of the equipment in use including rudder angle indicators, gyro repeaters, telegraph repeaters, engine speed, automatic pilot engaged lights, and gauges showing the direction of thrust of azimuth main propulsion units, are there to help the master or OOW when manoeuvring. Depending on the bridge layout, these indicators might not always be easy to see, but must nevertheless always be used to ensure the equipment is available and responding as intended. After moving the rudder or engines, always check the indicators to make sure all is well. Its far better to find out that the helm has gone the wrong way, or the engine has been put ahead rather than astern, by checking the bridge indicators. The alternative is to wait until the ship is seen to turn, or move in the wrong direction by then it might be too late to do anything about it!

CASE 12
Coaster Encounter

Narrative

Two fishing vessels were engaged in pair trawling off the west coast of England. Both were showing the correct shapes for vessels engaged in trawling and displaying the letter T in accordance with the Collision Regulations. The weather conditions were very good.

Their respective skippers, and another crewman, manned both wheelhouses. Both vessels were towing at a speed of 2.2 knots at a distance of 2 cables apart on an easterly course.

They first detected a coaster when she was 5 miles away, and determined that a very close quarters situation was going to develop. She was on a north-easterly course and making a speed of 12 knots. Being the stand-on vessels under the Collision Regulations, the fishing vessels maintained course and speed, constantly monitoring the approaching coaster. As the distance reduced, it became apparent that the coaster was taking no avoiding action. One of the skippers then tried contacting her by VHF radio (channel 16), but despite several attempts, received no reply.

When the distance reduced further, and still the coaster had taken no action, in order to avoid a collision the skipper of the vessel nearest to the coaster initially altered course hard over to port. When this did not have the desired effect, he cut free the starboard gear to come round more rapidly. The coaster passed within a distance of less than 0.5 cable.

The incident was reported to the coastguard immediately.

The Lessons

1. The MAIB receives regular incident reports from the coastguard of near-misses between coastal vessels and vessels engaged in fishing. However tempting it may be to get close to fishing vessels while engaged in fishing, for whatever reason, whether intending minimum deviation from track, or just sheer curiosity, a fishing vessel engaged in fishing is the stand-on vessel under the Collision Regulations.

They should be given a wide berth at all times, especially in coastal areas where vessels tend to fish in a fleet. Most fishing vessels have a variety of gear, which usually extends into the seaway by at least half a mile. In addition to this, their course and speed can be unpredictable, particularly when engaged in hauling and shooting their gear.

2. Some of the incidents reported to the MAIB claim that no watchkeeper has been present on the bridge of the merchant vessel, or the watchkeeper and in most cases this means only one person was not paying attention. Of course, we dont know whether this was the case in this incident. What we do know, however, is that watchkeepers must keep a good lookout at all times, especially in coastal areas, and they must not leave the bridge for any reason whatsoever.

3. Once again, we are reminded of the importance of a dedicated lookout. There are many opportunities for the officer of the watch to become distracted from lookout duty, but filling in logbooks, checking the position on the chart etc should not, and must not, detract from this most important of tasks.

CASE 13
Sun-drenched Coaster?

Narrative

A gill-netter was fishing 7 to 8 miles from the coast, in good weather, when she had a close encounter with a coaster.

While in the process of hauling her gear, the skipper of the fishing vessel saw the coaster about 5 miles away. When the distance decreased to 1.5 miles, the skipper realised the coaster was on a collision course. He tried contacting her by VHF radio channel 16, but received no reply.

When the distance between the two vessels had reduced to less than 0.5 mile, the gill-netters crew stopped hauling.

The coasters master hadnt seen the gill-netter until that time. This was due, in part, to the glare from the sun. He assumed, from his interpretation of the situation, that both vessels would pass each other at a safe distance, so made no attempt to alter course or reduce speed.

Immediately the gill-netters skipper realised a collision was imminent, he instructed the gear to be cut and came hard over and full ahead on the main engine. His reaction probably saved his boat and his crew; the vessels passed at a distance of less than 30 metres.

The Lessons

1. The immediate cause of the incident was the coasters master failing to keep a proper lookout. He didnt make a full appraisal of the situation and, when he finally saw the fishing vessel, assumed he would pass clear, so wouldnt need to take any avoiding action. Readers are reminded to use all available means to maintain a proper lookout this includes radar and other navigational aids.

2. The master was probably busying himself with a multitude of other tasks while on watch. These were preventing him from keeping a proper lookout. The importance of a dedicated lookout cannot be over emphasised.

3. If the glare from the sun is impairing your vision, then why not keep a pair of sunglasses handy on the bridge? Or, better still, have sunscreens fitted to the bridge windows.

Part 2 Fishing Vessels

I am sure that you do not cut corners on safety, and that you ensure your fishing vessel is a safe place on which to live and work. However, some people are not so safety conscious, and the result is that fishermen are killed needlessly. This section contains accounts of accidents from which we can all learn.

Hauling and lifting equipment, untested, overloaded, and carelessly maintained, will ripen the conditions for an accident. Three fishermen have been killed recently, killed because they were standing in the way of failing equipment. Respect for new regulations on the testing, inspection and maintenance of the equipment will help to reduce these failures. The responsibility for avoiding accidents lies firmly with the owner and skipper. You need to be rigorous in your risk assessment of where your crew work. In this way, should the equipment fail, you and your crew will not be injured, because you will all be working in a designated safe area.

Yet more collisions! Distraction from keeping a continuous visual and radar lookout is a reoccurring factor. Watchkeepers have to leave the wheelhouse on occasion; other tasks divert the watchkeepers attention. The dazzle of the sun and the confusion of shore lighting can affect a lookouts awareness of what is going on around him. The remedies are obvious. Use sunglasses when appropriate, use radar and keep looking.

I am delighted to report that, when working on deck, more and more fishermen are habitually wearing lifejackets. Fishermens lives are being saved because of it. However, lifejackets can become worn and gas cylinders loosen in their release units. Regular and effective checks of your lifejacket are essential. Page 31 gives sound advice on how to do this.

And finally, for any fishermen who have skipped Part 1 of this Digest, please look at case numbers 12 and 13, which will be of interest to you.

CASE 14
Check Your Lifejacket

Narrative

A steel fishing vessel was trawling off the Western Isles in force 6 wind, rough seas, and darkness when her port net became snagged on a seabed obstruction. Attempts were made to free it but, in the process, the winch stopped. Less than five minutes later, the vessel capsized and sank.

This article focuses on the lifejackets being worn by her crew inflatable working lifejackets, which met EN 396 criteria.

Soon after the winch stopped, the vessel started to list heavily to port, prompting the six-man crew to muster on the starboard side of the wheelhouse. The three deckhands who had been working on deck were, in accordance with company policy, already wearing inflatable lifejackets. Both the skipper and the engineer donned theirs while the mate, who had been working in the wheelhouse with the skipper, realised his was stowed below. He had insufficient time to collect it, so was forced to abandon ship without one. Such was the speed of events.

Before abandoning the sinking vessel, the five crew wearing lifejackets tried to inflate them manually by pulling the release toggles, rather than waiting for automatic inflation on taking to the water. Only one of the five lifejackets inflated.

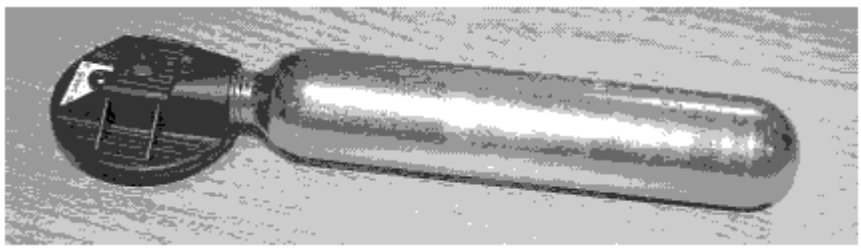
Three of the crew managed to board the starboard liferaft, but it flipped over when the vessel capsized. They all ended up in the water and, while attempting to board the upturned raft, one of the men disappeared. After boarding it, they tried to locate their colleague, but without success. The missing man was one of those whose lifejacket had failed to inflate. He was never seen again.

While on the upturned raft, one man successfully inflated his lifejacket by blowing into the oral tube. The liferaft was eventually righted, the five survivors boarded it and all were later rescued, unhurt.

The accident raised immediate concerns about the effectiveness of at least one type of lifejacket being used at sea, so tests were carried out without delay.

The tests revealed that the lifejackets which had failed to inflate, had probably done so because the gas cylinders had become detached from the Hammar release units.

So that the lessons learned from this accident could be brought to the attention of as many seafarers as possible, the MAIB issued a Safety Bulletin immediately, to promulgate the advice listed below. Readers of the Safety Digest were also alerted to the safety issues highlighted by this article, in the Noticeboard of Safety Digest 3 of 2002.



Gas cylinder must be screwed into release unit back plate like this

The Lessons

The owners policy regarding the wearing of lifejackets on deck is commendable; indeed, it might well have saved one fishermans life in this case. Mariners must remember, however, that when worn constantly, lifejackets are subjected to heavy use. Day in, day out, the fabric of a lifejacket rubs against the gas cylinder and this can, eventually, cause the cylinder to unscrew from the release unit if it has not been fully tightened.

1. Fishermen and mariners who routinely wear inflatable lifejackets should ensure that the gas cylinders are firmly tightened into the release units. Owners of lifejackets fitted with Hammar release units are particularly urged to make this check, and should also carry out the safety checks listed in the booklet issued with every lifejacket:

- ***Check that the single point indicator is green.***
- ***Check that the expiry date has not been reached.***
- ***Check that the red handle is attached.***
- ***Check that the gas cylinder is firmly tightened by holding it through the jacket fabric.***

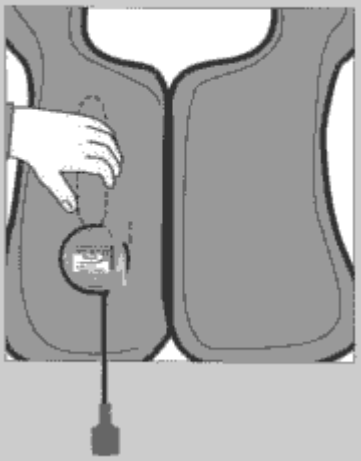
Any deficiencies should be dealt with as soon as practicable and before the vessel next goes to sea.

4. Set aside a few minutes to read MGN 155(F), published by the MCA. It is available free of charge and contains useful guidance on inflatable lifejackets and other buoyancy equipment for fishermen at work. IT MAY SAVE YOUR LIFE.

5. The notice placed by Hammar, in various marine publications, to advise users of the problems highlighted by this case, is reproduced below. It contains important advice, please read it.

WARNING AND REMINDER!

PLEASE CHECK YOUR LIFEJACKET – YOUR LIFE MAY DEPEND ON IT!



We remind you of the necessity to follow the instructions attached to every lifejacket equipped with the Hammar Standard/Automatic as well as the Hammar Manual Lifejacket inflator.

Check that the gas cylinder is firmly tightened by holding it through the lifejacket fabric.

Comment: If the gas cylinder is unscrewed to the point that the piercing needle can not reach the cylinder head, neither the automatic nor the manual function will be activated and the lifejacket will not inflate unless you use the oral tube!

Question: Who should check the lifejackets?

Answer: Everyone wearing a lifejacket with a Hammar Standard inflator!

Question: How often do I need to check the cylinder tightness?

Answer: We recommend checking to be part of the donning procedure.

As usual we recommend you to service your lifejacket regularly at a professional and qualified service station, at least on a yearly basis. The lifejacket is a friend that may one day help to save your life.

If you have any questions we recommend you to ask your nearest service facility, dealer or C.M. Hammar directly at info@cmhammar.com and we will be pleased to answer your questions.

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CASE 15
Incorrect Use of Trawl Blocks Leads to Fatal Accident

Narrative

While fishing off the east coast of England, a crew member from a 15.8m stern trawler was killed after being crushed by a trawl wire. The following is an account of how snatch blocks, if operated incorrectly, can lead to tragedy.

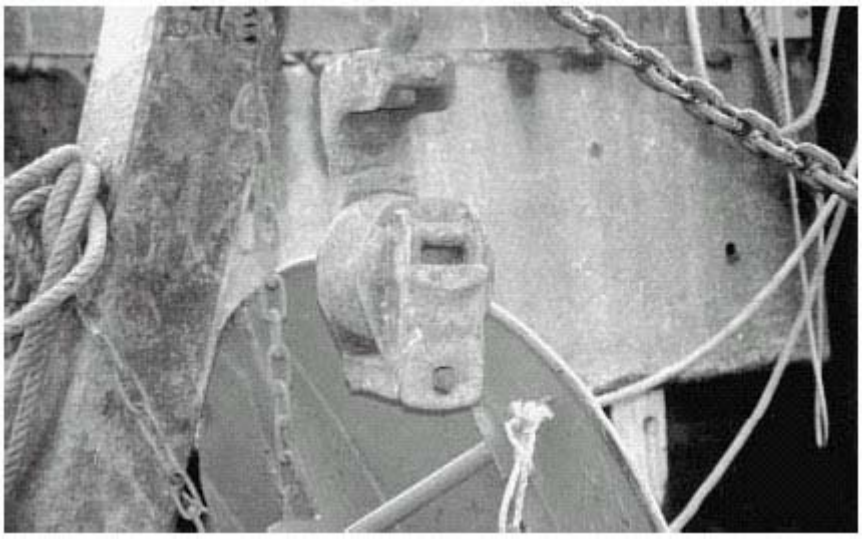
Two members of the four-man crew were aft at their stations while the gear was being hauled. A third was operating the winch and the skipper was in the wheelhouse.

The snatch blocks being used on the aft gantry to lead the trawl wires over the stern, were being used in the open condition. Because of the general condition of the blocks, and the lack of any locking pins, they were unable to be used in the correct manner anyway.

When the trawl doors were heaved clear of the water, the winchman stopped the winch and the deckhands began dogging-up the doors. The crew member on the starboard side began passing the dog chain between the trawl door and the securing brackets, but the trawl wire suddenly came free from the snatch block and caught him across the right-hand side of his body, crushing him against the aft gunwale. The wire was under huge tension, since it supported both the weight of the trawl door and the weight of the trawl itself.

The skipper hastily attempted to release the crew member by reversing the winch, but the crew member was dragged over the side of the vessel.

After being immersed momentarily, the crew member reappeared on the sea surface approximately 3 to 4 metres from the vessel. One of the deckhands quickly threw him a lifebuoy, but he was unable to grasp it. He soon lost consciousness and was seen floating on the surface face-down.



Starboard snatch block

The skipper eventually managed to manoeuvre his vessel alongside the casualty and, with the aid of the other two crewmen, passed a rope around his body. This enabled them to haul the crew member back on board where, despite several attempts, he couldnt be revived.

The Lessons

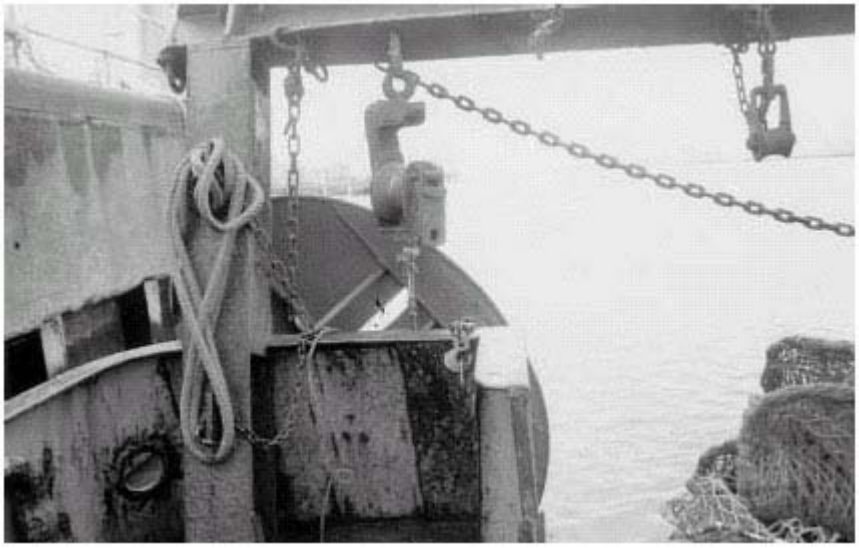
1. Snatch blocks must always be operated in the correct manner, with the cheek plate closed. Although at times it may be convenient and time saving to operate them in the open position, this accident proves the consequences of doing so can sometimes be fatal.

2. A rigorous routine of regularly inspecting and maintaining all lifting equipment on board will, in the long run, pay dividends.

New regulations relating to health and safety aspects of lifting operations and lifting equipment are to be introduced shortly. These regulations will place an obligation on an employer to ensure that the work equipment, including lifting gear, is safe for workers to use. It seems likely that there will be a requirement for lifting equipment on fishing vessels to be inspected and, where considered appropriate, tested. All other equipment, including hauling gear, will be required to be inspected.

3. In this case, the skipper acted quickly in attempting to release the crew member. Unfortunately, his efforts were in vain.

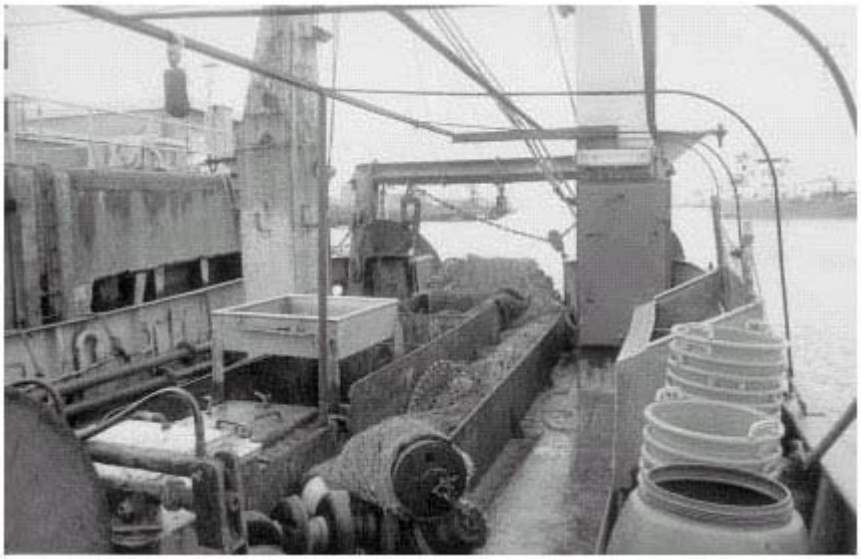
In light of this accident, and as a result of suggestions by both the industry and the MAIB, a review of the current Sea Fish risk assessment document, being used by many fishermen, is to take place. All fishermen are encouraged to actively take part in the risk assessment process on board their particular vessel. Unless you understand what its all about, and its purpose, it will be of little value. It is hoped that simplifying the document, and making it more user-friendly, will encourage its use.



Aft deck starboard

4. And finally, recovering a man overboard is not easy. The person is likely to be very cold, completely exhausted, and his waterlogged clothing will be weighing him down, making recovery that much more difficult.

If faced with a similar situation to this skipper, would you know what to do? Just in case the answer is no, carry out regular manoverboard drills. In other words, be prepared. Your life, and the lives of your crew may just depend on it.



Aft deck

CASE 16
Skipper Killed by Lifting Gear Failure While Alongside

Narrative

A 24.44m Jersey registered beam trawler was lying alongside, repairing her nets in Plymouth and about to discharge her catch. The starboard derrick had been topped with a net hoisted for repair.

The eye of the topping lift block failed, causing the derrick and its load to crash down on to the fish quay where the skipper was standing. He was killed and two female bystanders were injured, one seriously.

A detailed examination of the block found that it failed because of progressive cracking emanating from an inherent defect at the crown of the eye. During the manufacturing process, a hole was drilled into the crown (to allow machine finishing) and subsequently filled with weld. This weld seal was compromised and corrosion penetrated, beginning the process of progressive cracking.

Further examination also revealed that there had been an attempt to weld repair the inner bearing surface of the eye of the block. The quality of this repair was poor, with porosity and entrapped weld defects being evident.

Other blocks were discovered with similar defects.

The Lessons

1. Skippers and owners are recommended to check all lifting equipment for evidence of welding and, if any is found, arrange to have it replaced.

2. Owners/operators of vessels should institute a system of maintenance for lifting equipment on their vessels. This system should include both in-service checks and regular thorough examinations by a competent person (eg insurance engineer, specialist lifting equipment company etc). If such checks, or thorough examinations, reveal that an item of lifting gear has gone beyond laid down discard criteria (eg in terms of wear, corrosion, broken wires, evident deformation or cracking), the only safe option is to scrap that item and provide a new one to the correct capacity.

3. Marine engineers should not make weld repairs or any significant heating to lifting equipment. Such work should only be carried out by the equipment manufacturers, when it would be in accordance to their specifications and subject to specialist thorough examination.

CASE 17
The Tragic Outcome of Overloading

Narrative

A small fishing vessel was trawling for mussels in what was described as ideal weather for mussel fishing, with light winds and a calm sea. A substantial catch of mussels had been caught the previous day and had been left stacked on deck overnight.

Late morning, the last catch of the day was tipped on to the mussel bench and processing began. Two crewmen were next to the bench cleaning and raking the mussels into bags. The skipper was tying and stacking the bags slightly further forward. The bags were stacked 1 to 1.5m above the deck.

Ten minutes later, the vessel started to list to starboard, and the stern quarter gunwale very quickly became submerged. The crew realised the vessel was about to roll over, but before any corrective action could be carried out, they were scrambling for their lives. The vessel capsized and rolled completely upside down, throwing the men into the water.

One of the crew remained conscious throughout the ordeal and, once he had surfaced and kicked off his boots, looked quickly for his two colleagues. He saw a lifebuoy and swam to it. Shortly after, he found the skipper, unconscious in the water, so held his head above water and shouted for help. There was no sign of the third crewman.

A nearby fishing vessel came to their assistance. The crew of the rescue fishing vessel alerted the coastguard while proceeding towards the casualties, who were then recovered from the water. The skipper of the rescue fishing vessel revived the unconscious man, before continuing to search for the missing crewman. Once additional help had arrived, the rescue fishing vessel headed for a nearby pier to land the casualties at an awaiting ambulance.

Divers later recovered the third crewman from the seabed. He was rushed to hospital, but never regained consciousness.

The capsized fishing vessel was salvaged by her insurers and examined by MAIB inspectors, who also conducted an inclining experiment to determine her stability characteristics. It was discovered that the vessels manual bilge pump had been removed for repair, and had never been replaced. A rag and bung were used to seal the inboard end of the overboard discharge pipe. The bilge alarm had not been tested on the day of the accident, and was not heard at any time during it. The vessel had also been modified significantly in the past, with no estimate of the likely effects this would have on stability or loadcarrying capacity. Three lifejackets were found tightly packed into an under-bunk locker, making their retrieval extremely difficult **(see figure)**. An overall poor approach to safety was evident onboard.

It was concluded that the capsize was caused by the effect of undetected flooding, probably via the manual bilge discharge pipe, in combination with the heavy load of mussel bags on deck.

An example of mussel bag loading onboard the vessel

Stowage of lifejacket as found under cabin bunk

The Lessons

1. Be aware of the dangers of top weight. Stacking bags of mussels 1 to 1.5m high on deck will raise a vessels centre of gravity. Put heavy loads low down in the fish hold or, better still, unload the catch regularly.

2. Any modifications made to your vessel will affect its stability. The cumulative effect of additions, over time, can be significant. Seek professional advice to establish loading limits for your vessel its seaworthiness depends on it.

3. Check the bilge alarm daily before each voyage. Early warning is essential if flooding is to be overcome. If the alarm is integrated with an automatic bilge pump, make certain this is working too.

4. Ensure safety equipment is in date and stowed correctly. In the event of an accident it may be the difference between life and death possibly yours!

5. Conduct a risk assessment for your vessel. Taking the time to reflect on the risks involved with its various operations will eventually lead to a safer ship. Remember a *safe* ship is a *productive* ship.

6. This is yet another case of lifejackets not being readily available in an emergency. Surely it is worth investing in lifejackets or flotation devices which can be worn at all times. Be prepared!

CASE 18
Cooks Crash Diet

Narrative

Once clear of the harbour, the skipper of a 36m purse-seiner set a course of 010° with a speed of about 9 knots. He plotted on both ARPA radar sets a number of echoes, some within 0.5 mile of his vessel, but none of them, that he noticed visually or on radar, were ahead of him within 5 to 6 miles.

It was dark, the wind was moderate, and the visibility was good.

The crew stowed the gear away on deck and retired to the mess room. About a mile into the passage, the cook relieved the skipper in the wheelhouse so that the skipper could join his colleagues in the rest room for a bite to eat. Several minutes later, a loud crash was heard. The skipper hurriedly returned to the wheelhouse. The vessel had collided with a 21m twin-rig trawler heading in a south-southwesterly direction. Neither the skipper, nor the watchkeeper of the trawler, had detected the purse-seiner by sight or by radar.

The trawler suffered damage to her shelter deck and gunwale area. The purse-seiner escaped with just minor scrape marks to her paintwork. Fortunately, nobody was hurt.

The Lessons

1. Busy traffic areas around the approaches to ports make special demands on even the most experienced watchkeeper, and special caution should be exercised at all times. This means keeping a careful and continual radar watch, as well as maintaining a proper visual lookout. It should be borne in mind that vessels on reciprocal courses, which would have an end-on aspect, can give inferior radar return signals. In such circumstances, it is essential for the watchkeeper to suppress the displayed heading line at regular intervals to aid detection.

2. If the watchkeeper has to leave the bridge for whatever reason or length of time, he should ensure an effective watch and lookout is maintained in his absence.

3. Shore background lights can make it difficult to distinguish the navigation lights of another vessel, especially when that vessels relative bearing is not changing, which happens when both vessels are on a collision course. In such circumstances, it is essential that an efficient radar watch, in addition to a visual watch, is maintained. In this case, there is some doubt as to whether the trawler was exhibiting her navigation lights, making her detection all the more difficult.

Part 3 Leisure Craft

Leisure is defined as:

- Time away from work
- Freedom from occupation
- Free time
- Convenient opportunity
- Free from necessary business.

It is therefore very easy to mistakenly assume that leisure craft operators are free from obligation, and may act simply at their own convenience.

The Rules of the Road make no differentiation between commercial and leisure craft; they apply to all. Additionally, leisure craft operators who run their vessels on a commercial basis need to comply with occupational health and safety requirements.

Where commercial and leisure craft necessarily occupy the same stretch of water, each has an obligation to do so safely. This is best achieved by each respecting, and allowing for, the operational limitations of the other. Even leisure craft passengers are not exempt; while they are truly free from occupation and necessary business, even *they* have a moral responsibility to behave appropriately.

A little consideration for others will ensure that leisure remains a pleasure for everyone!

CASE 19
Open Sailing Boat Causes Ferry to Crash Stop

Narrative

A high-speed catamaran ferry left her berth for her regular passage to Stranraer. As she passed Beacon A **(see diagram)** in the approach channel, she increased her speed to about 35 knots, in accordance with her agreed passage plan. As the vessel continued outbound, two sailing boats were detected, one crossing from starboard and the other from port. The one to starboard altered course to indicate she would not cross the channel, but the one to port a small open Squib class boat showed no indication that she had seen the ferry.

The sailing boat was shaping to cross the main channel between Beacons D and C. As the ferry approached Beacon B, she sounded five short blasts with her whistle. This was repeated about 20 seconds later, with no apparent reaction from the sailing boat.

The ferrys master then took all way off his vessel in a crash stop. The sailing boat passed across the channel 300 metres ahead of the ferry. The master sounded five short blasts again and, this time, the sailing boats skipper acknowledged them with a wave.

The Lessons

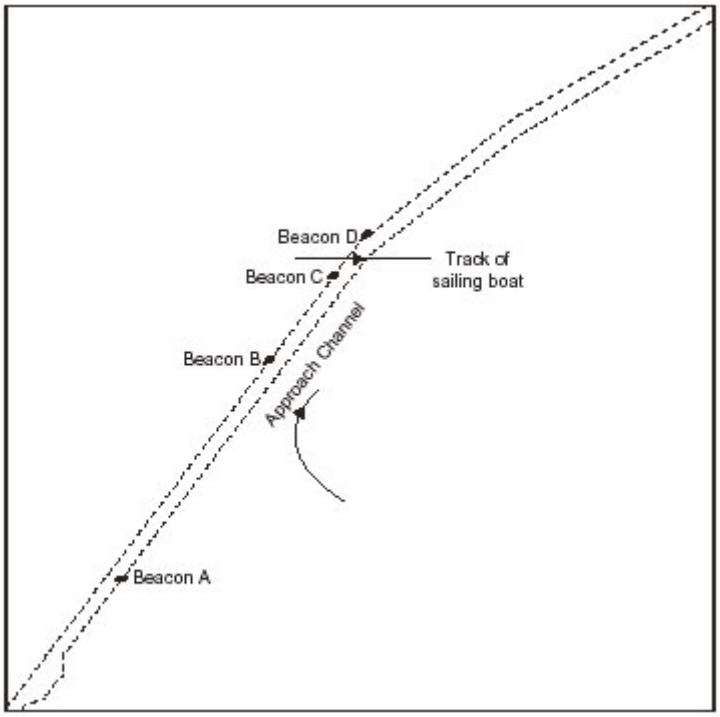
1. A thorough knowledge of the Collision Regulations is an essential requirement for everyone who puts to sea, irrespective of the size of his or her vessel.

2. The much quoted rule a power-driven vessel must give-way to a sailing vessel, does *not* apply in confined waters. In this case, in a narrow channel where the power-driven vessel can safely navigate only within the channel, it obviously does not apply (Rule 9). The sailing boat should not have impeded the ferrys passage.

3. Poor lookout and lack of appreciation are the most frequent causes of collisions. Leisure boat users must appreciate that larger vessels take much longer to alter course or speed, so have to react to a hazardous situation much sooner.

4. Finally, dangerous situations involving high-speed craft develop very quickly. It is especially important that a continuous vigilant lookout is maintained wherever they may be encountered.

In this case, the first sailing boat acted correctly in indicating early that she would not be crossing the channel. The second sailing boat gave no indication that she had seen the ferry, thus causing the ferry to carry out an emergency manoeuvre to avoid a dangerous close quarters situation. Never plan to pass ahead of a larger vessel that may be in confined waters, remembering that large vessels, even in the centre of the Dover Strait, may be constrained by their draught.


Beacon D
Track of
sailing boat
Beacon C
Approach Channel
Beacon B
Beacon A

CASE 20
Speedboats Create Havoc in Small Harbour

Narrative

A 10m fishing vessel was approaching a pier in a small harbour, intending to moor up alongside. She was approaching the jetty at a speed of approximately 4 to 5 knots. The speed limit in the confines of the harbour was 5 knots.

On her approach to the pier, a speedboat hurtled round from the opposite side, at high speed, and turned to starboard. Seconds later, another speedboat came round the pier and turned to port, right into the path of the fishing vessel. To avoid a collision, the skipper of the fishing vessel altered course to port, to increase the passing distance. He was prevented from altering to starboard by the track of the first speedboat.

No sooner had he altered course to port, than the second speedboat altered course to starboard. This forced the fishing vessels skipper to alter more to port and to come full astern on the main engine. In doing so, he struck the pier.

The incident was reported to the local harbour authority.

The Lessons

1. The fishing vessel skipper was observing the 5 knot speed limit, so was able to take emergency action and avert what could have turned into a very tragic accident indeed.

The drivers of the speedboats involved in this accident clearly were enjoying the thrill of a quick James Bond-style spin around the harbour, with little regard for either their own, or anyone elses safety. They were probably regular users of the waters, and had received no complaints about their activities in the past. This accident, however, demonstrates the importance of always observing speed limits. Had the drivers of these speedboats done so, this accident might not have happened.

2. Whenever mooring alongside, approach the jetty or pier at a speed no greater than that which is required to maintain steerage way only. By doing this, if anything goes wrong, or if you are required to initiate an emergency manoeuvre, for whatever reason, time will be on your side.

CASE 21
High Jinx, Low Common Sense

Narrative

A river pleasure cruiser with 110 good-humoured passengers onboard was 212 hours into her summer evening cruise. The atmosphere was one of high spirits and merriment until three passengers decided it would be fun to jump overboard!

A 'man overboard' was called, and the vessel's crew immediately swung into action. Both main engines were stopped, perry buoys were deployed overboard, and a searchlight was used to locate and keep a visual watch on the absconders.

The three passengers were seen swimming across to the riverbank and wading out of the water.

The skipper quickly re-engaged the engines and, using the bow thruster, nosed the vessel's bow in to allow the three passengers to rejoin the vessel. They were severely chastised, and were quickly evicted from the vessel, to allow the remaining passengers to enjoy the rest of their evening.

The Lessons

1. It is never easy to be constantly vigilant where large numbers of carefree, and possibly inebriated, passengers are onboard. They are there to have a good time, and may wish to achieve this - it would seem - at any expense. Even so, prompt action on the part of the crew can - as demonstrated by this incident - make the difference between a silly and yet harmless stunt and death.

2. Rehearsing emergency procedures will pay dividends in the event of an emergency situation. Crew will be properly equipped to react swiftly and efficiently to hopefully secure a happy outcome.

3. It can be difficult to impress on passengers the dangers involved in tomfoolery onboard a vessel, whether it be jumping overboard or letting off fire extinguishers. When dealing with inappropriate behaviour, crew need to be firm in both their approach and their actions to limit the opportunity for thoughtless individuals to create havoc.

CASE 22
Yachtswoman Dragged Under Chain Ferry

Narrative

Poole Harbour is an important yachting centre, with marinas and moorings for more than 5,000 yachts and other pleasure craft. A passenger chain ferry, which spans the mouth of the harbour, operates every 20 minutes from Sandbanks to South Haven Point.

Many recreational craft, including a fleet of 15 XOD-class yachts, were enjoying a particularly balmy spring afternoon.

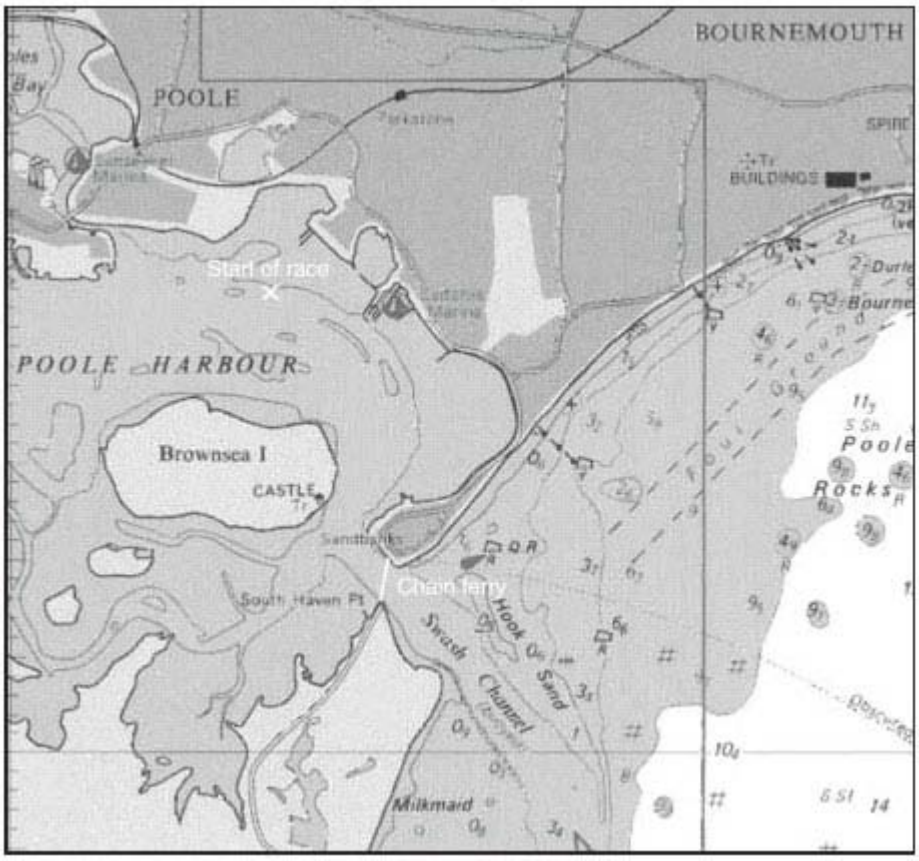
The fleet of yachts had set out on a 10-mile race. As the fleet approached the harbour entrance, they unexpectedly encountered an inward-bound fast ferry, which was late arriving. The fleet moved out of the channel to avoid it.

The ferry passed and, seeing a gap between the leading three yachts and the rest of the fleet, the chain ferrys skipper manoeuvred his vessel away from the Sandbanks slipway. As some of the fleet approached the chain ferry, they lost the wind and their steerage. They were close to the Sandbanks side, and the north-easterly wind had created a lee. The chain ferrys skipper had not realised the lee of Sandbanks would affect the yachts steerage, leaving them no effective alternative means of steerage.

Under an obligation to keep out of the way of all traffic, the skipper reversed the chain ferry to allow the leading group to pass to the south of it. However, a strong ebb tide swept the next four XODs into the side of the ferry.

Two of the yacht clubs safety/rescue boats attempted to rescue them but one damaged her propeller, and the crew of the other boat felt that the tide was too strong. Fortunately, RNLI lifeboats were nearby and were able to quickly tow away three of the XODs from the side of the chain ferry. One yacht remained, pinned to the side of the ferry. Its owner, his 72 year old wife, and one other crew member were on board.

The chain ferry



The yacht was buffeted and pounded into the ferry. She was in danger of capsizing. Water was quickly being taken on board, there was a great deal of turbulence and a very strong ebb tide. Within minutes, the boat was drawn under the chain ferry, together with the owners wife.

The lady was swept under the ferry but, less than 2 minutes later, emerged on the other side, conscious and, miraculously, unscathed. She was quickly recovered by one of the RNLI lifeboats.

Meanwhile, the owner and his other crew member clung to the grab lines which hung from the ferrys side. Both men were rescued, unhurt.

The Lessons

The MAIB investigation highlighted a number of contributing factors pertaining to various parties. However, the following lessons focus mainly on those to be learned by yacht club race officers.

1. In a busy harbour, yacht clubs race officers should obtain not only the scheduled shipping movements before the start of the race, but also the latest movements. Arrival and leaving times are often changed at short notice for operational reasons.

2. Effective communication between port control, the race officer, safety/rescue boats and racing craft, is essential. This will ensure that everyone is aware of unexpected situations which may be developing.

3. When planning a racecourse, race officers should consider wind direction and force. Yachts sailing downwind tend to keep together, and can bunch-up in positions of navigational importance. Short start-elapse times between different classes of craft will exacerbate the situation.

4. When different operators or interests are working within a harbour area without comprehensive lines of communication existing between them, accidents happen. All parties should meet regularly, to discuss their different needs and operational limits. Potential problems can then be resolved quickly and easily.

5. Safety/rescue boats should be adequately designed and equipped, and should be manned by properly trained crew.

This incident had a satisfactory outcome and all crew were rescued unhurt, having suffered an extremely harrowing experience. However, a keelhauling is not normally on the agenda these days when one sets out for an exciting afternoon of sailing!

Image from a video recording taken at the time of the accident

APPENDIX A

Date of Accident	Name of Vessel	Type of Vessel	Flag	Size	Type of Accident
15/11/02	Nottingham Princess	Passenger vessel	UK		Contact
05/12/02	Noordhinder	Fishing vessel	Belgium	274	Near-miss
	Bro Axel	Tanker/ comb. carrier	Sweden	11324	Near-miss
21/12/02	Kirsteen Anne 1	Fishing vessel	UK	2.18	Flooding/foundering
25/02/03	Arco Adur	Dredger	UK	3498	Accidents to persons

APPENDIX B
Reports issued in 2002

Arold/Anjola collision between general cargo ship Arold and the general cargo ship Anjola in the River Trent on 25 February 2002
Published 8 October 2002

Aurelia flooding and loss of fishing vessel 78 miles west of St Kilda on 13 August 2001
Published 11 December 2002

Beatrice propulsion failure, and subsequent beaching of the Class V amphibious passenger craft on 31 March 2001, opposite the River Thames Fire Station, Lambeth
Published 1 February 2002

Bramble Bush Bay *(Sandbanks ferry)* collision between chain ferry and four XOD class yachts at the entrance to Poole Harbour on 5 May 2001
Published 25 June 2002

CEC Crusader fatal accident on board CEC Crusader, 1.8 miles north of Foreness Point, on 22 November 2001
Published 15 August 2002

Charisma capsize of the fishing vessel, with the loss of one crew member, Carlingford Lough on 30 January 2002
Published 2 December 2002

Choice grounding, Blyth Sands, River Thames Sea Reach on 9 August 2001
Published 18 October 2002

Commodore Clipper broaching of fast rescue boat while being launched from Commodore Clipper on 18 February 2001
Published 21 June 2002

Constant Faith loss of Constant Faith about 100 miles north-north-east of Peterhead on 30 June 2001
Published 28 June 2002

Crimond II loss of vessel 30 miles north-east of Scarborough on 24 April 2001
Published 18 February 2002

Dutch Navigator shift of cargo containers, involving dangerous goods, on 25 to 26 April 2001
Published 29 November 2002

European Highway accident to lifeboat and fast rescue craft from European Highway, in Zeebrugge on 1 December 2000, four injured
Published 23 January 2002

Finnreel grounding of UK ro-ro vessel Finnreel, off Rauma, Finland on 14 March 2001
Published 13 May 2002

Fishing Vessel Safety Study 1/2002 report on the analysis of fishing vessel accident data 1992 to 2000
Published 31 July 2002

Galateia lifeboat accident on mv Galateia, Seaforth Docks, Liverpool 26 January 2002
Published 25 July 2002

Gemma Fidelis fatal accident on board Gemma Fidelis, 9 miles east of the River Tees on 23 October 2001
Published 19 July 2002

Global Mariner collision and subsequent foundering at Matanzas, Orinoco River, Venezuela on 2 August 2000
Published 8 November 2002

Grand Turk injury sustained during the firing of cannon on sv Grand Turk while alongside at Portsmouth on 24 August 2001
Published 16 April 2002

Gudermes *and* ***Saint Jacques II*** collision between vessels in the Dover Strait on 23 April 2001
Published 8 February 2002

Gulser Ana accident involving the starboard lifeboat, Belfast harbour, on 17 October 2001
Published 20 December 2002

Hampoel *and* ***Atlantic Mermaid*** collision between vessels in the Dover Strait on 7 June 2001
Published 19 March 2002

Lomur grounding of Lomur in the approaches to Scalloway, Shetland Islands 14 June 2001
Published 15 February 2002

Lysfoss grounding of Lysfoss in Sound of Mull, Scotland 7 May 2001
Published 17 July 2002

Marine Explorer failure of lifeboat winch brake on Marine Explorer in Harwich on 14 March 2001, two injured
Published 25 January 2002

Mathilda *and* ***Lady Hamilton of Helford*** nearmiss incident between Mathilda and Lady Hamilton of Helford, 7 miles east-south-east of Lizard Point, Cornwall on 28 June 2001
Published 14 March 2002

Oriana wave damage to the passenger cruise ship, in the North Atlantic Ocean, on 28 September 2000
Published 8 November 2002

Our Nicholas grounding and loss of the crabber Our Nicholas near the entrance to Stornoway Harbour on 24 July 2001
Published 6 August 2002

Our Sarah Jayne/Thelisis collision between vessels in the Thames Estuary 20 June 2001
Published 8 March 2002

P&O Nedlloyd Magellan grounding of Liberian-registered container ship P&O Nedlloyd Magellan in the Western Approach Channel to Southampton Water on 20 February 2001
Published 17 May 2002

P&OSL Canterbury flooding of the forward machinery space of P&OSL Canterbury as she entered Dover Harbour on 17 May 2001
Published 16 April 2002

Pride of Cherbourg *and* ***Briarthorn*** near-miss between vessels in the Eastern Solent on 7 February 2001
Published 4 February 2002

Primrose grounding of Primrose on the Island of Rhum on 15 June 2001
Published 12 April 2002

Randgrid parting of mooring line between the Tetney buoy and the North Sea shuttle tanker Randgrid, resulting in the discharge of 12 tonnes of crude oil into the Humber Estuary on 20 December 2000
Published 8 February 2002

Resplendent grounding of Resplendent in Bluemull Sound Shetland Islands 13 June 2001
Published 13 March 2002

Rosebank accommodation fire on mv Rosebank 7 miles east of Alnmouth, off the Northumberland coast 14 December 2001
Published 23 August 2002

Royal Princess accident causing major injury to an engineer officer, NE traffic lane, Dover Strait TSS, on 4 August 2001
Published 1 November 2002

Sand Heron *and* ***Celtit*** collision between vessels north-east traffic lane, Dover TSS on 30 July 2001
Published 12 April 2002

Sardinia Vera grounding of passenger ro-ro ferry, off Newhaven, on 1 February 2002
Published 16 October 2002

Stena Gothica collision between the ro-ro ferry and the eastern approach jetty at Immingham, on 2 April 2002
Published 11 December 2002

Sundance capsize and foundering of Sundance off Gilkicker Point, East Solent with the loss of one life 10 September 2001
Published 4 July 2002

Vertrauen investigation of the loss of Vertrauen about 75 miles north-east of Peterhead 19 July 2001
Published 23 August 2002

Willy grounding, Cawsand Bay, Plymouth Sound, 1 January 2002
Published 11 October 2002

Safety Digest 1/2002 : Published April 2002

Safety Digest 2/2002 : Published July 2002

Safety Digest 3/2002 : Published December 2002

Annual Report 2001 Published June 2002

A full list of all publications available from the MAIB can be found on our website at www.maib.gov.uk

APPENDIX C
Reports issued in 2003

Kodima cargo shift, abandonment, and grounding in the English Channel on 1 February 2002
Published 21 January 2003

Radiant capsize and foundering about 45 miles north-west of the Isle of Lewis, with the loss of one life, on 10 April 2002
Published 24 January 2003

Osprey fatal accident to a man overboard, in Lochinver Harbour on 20 April 2002
Published 3 February 2003

Tullaghmurry Lass sinking of fishing vessel, with the loss of three lives, in the Irish Sea on 14 February 2002
Published 4 February 2003

Stena Explorer fire on board, entering Holyhead, 20 September 2001
Published 17 February 2003

Pride of Bath investigation of a barbecue fire in the galley, on the River Avon, Bath, 20 July 2002
Published 25 February 2003