



Australian Government

Australian Transport Safety Bureau

Fisherman and Safety Awareness at Sea



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Fisherman and Safety Awareness at Sea

When fishing in waters off the Australian coast, fishermen will encounter large trading ships. These ships take a wide variety of cargoes to and from Australian ports, and they play a critical role in the economy of the country. Unfortunately, sometimes ships and fishing vessels collide.

The Australian Transport Safety Bureau (ATSB) has investigated 21 of these collisions since 1990 to see why they occurred, and what can be done to reduce the likelihood of a collision happening in the future. In two collisions investigated by the ATSB, the skippers of the fishing vessels were trapped in their wheelhouses and drowned when the vessels sank. The investigations have revealed that in almost all the collisions, there were similar factors present which contributed to the accident and precautions had not been taken that may have saved a life or, at least aided the search for survivors.

While the investigations have shown that the ships did not always do the right thing in the period of time leading up to the collision, on several occasions, the fishing vessels' crews also contributed to the collision by not fulfilling their obligations.

As far as fishing vessels are concerned, the recurring factors present in almost every collision include:

1. An adequate lookout was not maintained;
2. The watchkeepers all had a poor knowledge of the international collision regulations (COLREGS), and what to do to avoid a collision;
3. The crew didn't understand that, under the COLREGS, a fishing vessel is only a fishing vessel when it is actually engaged in fishing;
4. The watchkeepers misinterpreted the information presented on the radar and didn't understand the limitations of radar;

5. The fishing vessel did not have a radar reflector, which made it hard for the ship's radar to detect it;
6. The skipper, frequently the only certified person on board, was fatigued;
7. There were problems with the stowage of and access to emergency beacons, lifejackets and distress signals; and
8. The fishing vessel crew didn't appreciate the ways that large ships operate; such as size limitations, ability to turn, limitations of the equipment and the number of people on the navigation bridge.

The first three factors above are covered in the International Regulations for Preventing Collisions at Sea, 1972 (as amended), more commonly known as the COLREGS. The COLREGS apply to all vessels when they are underway. Importantly, that means that fishing vessels have to follow the COLREGS when they are actually engaged in fishing and might have their attention somewhere else. At sea, whether on the biggest ship, or a boat fishing three miles off the coast, everyone must follow the 'rules of the road'.

This safety bulletin is going to briefly look at some of the recurring factors that contributed to the collisions in the hope that fishermen will become aware of the problems and take some action to reduce the likelihood of a collision.

Inadequate lookout

A lookout should be kept by visual and aural means, and by radar. The fact that a collision occurred indicates that the lookout on the ship or the fishing vessel, or both, was, for whatever reason, ineffective. In a few cases, it is probable that no lookout was being kept at all.

The COLREGS are quite clear when it comes to keeping a proper lookout. The obligation to

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keep a good lookout when at sea is covered by Rule 5 and states:

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

The key words in this rule are 'every vessel' and 'at all times'.

The number of crew typically employed on fishing vessels is between two and five, which means it can be difficult to fish and maintain a proper lookout as required by the COLREGS. If this is the case, then the way things are done on board should be revised to make sure that a proper lookout is maintained at all times.

When fishing, always be aware that a ship might be approaching your position. Take the time to stop what you're doing every ten minutes or so, and physically look around the vessel. A large ship, which may be traveling at up to 20 knots (>600 metres/minute), will travel over three miles in that ten minutes, which is about the distance to the visible horizon at sea level. The earlier a ship is seen, the more time there is to take action to make sure a collision doesn't occur.

Ensure that the VHF radio is monitoring Channel 16, and have the volume turned up so you can hear it inside and outside the wheelhouse. If a ship is going to call you, they will use Channel 16. However, remember that some foreign crews may not call or answer a VHF call at all. If they do use the VHF, you may experience language problems which could lead to misunderstandings with dire consequences.

Everyone on the fishing vessel must do all they can to ensure that a proper lookout is being kept on board. This applies when the vessel is enroute to and from the fishing grounds, working in the fishing grounds and while at anchor.

Know the 'rules of the road'

The skipper of a fishing vessel is often the only person on board who has training in, and knowledge of, the COLREGS. There are times when someone else on the vessel has to keep a navigational watch, and this person needs to know some of the more important rules that are contained in the COLREGS.

Unfortunately, sometimes a ship may not take the action it is required to take under the COLREGS. A fishing vessel, being smaller than a ship, will almost always come off worse after a collision. Therefore, the crew of a fishing vessel alone must be prepared to take action to prevent a collision.

If you don't know what the COLREGS are, or what they contain, ask the skipper if he has a copy of them for you to look at. If there isn't a copy on board, then your state marine authority will be able to provide you with a copy, or you can download a copy of Marine Orders Part 30, Prevention of Collisions, (which contains the entire COLREGS) from the Australian Maritime Safety Authority's (AMSA) web site – (www.amsa.gov.au/shipping_safety/Marine_Orders/Documents/MO30.pdf). The Marine Order can also be purchased from Canprint Info Services, tel: 1300 889 873.

If a watchkeeper on a fishing vessel has any doubt about what actions to take if a ship is near by, he or she should call the skipper. The skipper should take the time to assess the situation and then take early and substantial action (like a large alteration of course and/or speed) to avoid any possible collision, or a close passing of the two vessels.

When is a fishing vessel not a fishing vessel

The COLREGS do not refer to fishing vessels as such, nor do they define what a fishing vessel is. The COLREGS refer to a 'vessel engaged in fishing'. A 'vessel engaged in fishing' is defined in Rule 3 as:

any vessel fishing with nets, lines, trawls or other fishing apparatus which restrict manoeuvrability, but does not include a vessel fishing with trolling lines or other

fishing apparatus which do not restrict manoeuvrability.

Therefore, a fishing vessel operating off the Australian coast is only 'a vessel engaged in fishing' under the 'rules of the road' when its fishing gear restricts its ability to manoeuvre out of the path of another vessel. Only then can it show the navigation lights and shapes for a vessel engaged in fishing.

Under the COLREGS, power driven vessels and sailing vessels must keep out of the way of vessels 'engaged in fishing', however, fishing vessels must, so far as possible, keep out of the way of a vessel not under command or a vessel restricted in its ability to manoeuvre. The definitions of these terms are in the rules.

A common problem with fishing vessels is that their crews tend to switch on their navigation and fishing lights, and exhibit the associated shapes, when they leave port and don't turn them off until they return. Under the COLREGS, fishing vessels are not entitled to do this, and should have only their navigation lights on, unless actually 'engaged in fishing'.

Deck working lights are also a problem. These bright floodlights prevent a ship from being able to see what navigation lights a fishing vessel is exhibiting (red, green etc) and what action, if any, the fishing vessel is taking. While the flood lights increase the distance at which a fishing vessel can be seen, they make it more difficult for the ship, or any other vessel, to be sure about your heading. These lights can be misinterpreted when left on when they are not needed.

Radar

All too often, people on fishing vessels and ships place too much reliance on the radar and forget that it is only an aid to navigation. The information it presents to us should not be relied on too much.

Good use of the radar

Do not rely on scanty information. A quick look at the display and some assumptions about what you are seeing on the radar can lead to an incorrect feeling of security.

Be aware of the capabilities and limitations of your equipment. Use functions like guard zones and watch alarms to their full effect to complement your VISUAL lookout.

Use long range scanning and change the range of the radar regularly, so you get an early warning of approaching ships and then continue to monitor ships until past and clear.

The radar's bearing marker (if fitted) can give you an early idea about possible risk of collision. If there is no change in the bearing of a radar target, then the vessels are in danger of having a collision, and action to avoid a collision needs to be considered immediately.

Ships radar

Some fishermen have heard about the ARPA (Automatic Radar Plotting Aid) computers that are fitted to the radars on large ships. One of the unfortunate side effects of this increase in information and accuracy on large ships is that the officers on watch may be lulled into a false sense of security and may feel safer going closer to other vessels because they feel that the computer has calculated that it is safe to do so.

The limitation of radar

Radar technology has developed to the extent where radars are reliable aids for both navigation and collision avoidance. Remember that radar does have limitations and it is important to understand what these limitations are. Radars are not 'all seeing eyes'.



The display of an echo is dependent on the following four factors:

1. The correct setting up of the radar display.
2. The siting of the vessel's radar antenna.
3. The target. The echo response received from a target depends upon the following four factors:

Size – Targets presenting a large surface area to the radar signal will be detected more easily and at a longer range. Small targets of limited surface area, which are not very high, may not be detected, if at all, until much closer to the source radar.

Shape – A smooth shaped object, like the hull of a fishing vessel, gives a poor radar detection response as compared to a rough shaped object, eg a rocky coastal outcrop.

Composition – Metal objects give a better radar response than wood. Fibreglass objects (GRP) do not reflect the radar waves and will not be displayed on a radar screen. Small vessels, particularly those made of wood or other non-metallic materials, can have a large number of separate reflectors (metal masts, booms, engine and other metallic reflectors). None of these are large enough to provide a constant echo. The close proximity of masts, rigging, engine etc, acting as reflectors, can also make the vessel a “multiple” reflector target.

Aspect – A target beam-on to the radar transmission is more likely to give a radar return than a target lying at an angle of 45 degrees, or head-on, to the transmission.

4. The weather conditions at the time of using the radar.

Wind waves form targets, which reflect the radar waves and form ‘sea clutter’. This clutter varies widely with the sea state. Return echoes from rain showers (rain clutter) can have the same effect. Small vessels are more likely to be consistently lost in clutter than are large vessels.

Rain, fog, high humidity and an air temperature lower than the sea temperature will reduce the radar detection range.

Remember that radar is only useful if you assess the information it presents correctly – a fact that is sometimes forgotten on large ships as well as fishing vessels. Watchkeepers should look at the radar frequently and systematically, to make sure they are aware of the latest information being presented to them.

Radar reflectors

These inexpensive pieces of equipment can make a large difference to the type of radar trace a ship sees on its radar screens. When the ship can see a strong radar return of an object, the officer on watch can make effective use of the ship's ARPA. The ARPA will ‘lock’ onto the return and give the officer on watch an indication of the other vessel's course, speed and how close it will approach to the ship (on its present course and speed). However, the accuracy of the heading information decreases with the speed of the target.

To improve the radar detection of small vessels, it is a good idea to fit as high as possible above the water line, as a minimum:

- A metal corner radar reflector mounted ‘in the catch water position’; or
- An octahedral cluster of corner reflectors.

Radar transponders

Radar transponders are devices that, when activated by another vessel's radar, produce a highly visible trace on that vessel's radar screen. These devices are becoming more readily available and owners and skippers of fishing vessels should consider their use.

Fatigue

Fatigue may be described as a reduction in physical and/or mental capability as a result of physical or emotional exertion. This may impair nearly all physical abilities including strength, speed, reaction time, coordination and decision-making.

You may have heard of someone suffering from either acute or chronic fatigue.

Acute fatigue occurs in a matter of hours and is a result of excessive mental or physical activity. This type of fatigue may be redressed by a period of rest or sleep.

Chronic fatigue, however, is experienced when your normal period of rest or sleep is insufficient to restore your working performance to its usual level. Chronic fatigue is deceptive and usually develops over a period of poor quality and/or insufficient sleep. It also takes a longer period of time to recover from.

Individuals suffering from chronic fatigue always perform below their personal best, but are often unaware that their performance has been significantly degraded. In the worst cases, chronic fatigue can cause an individual to spontaneously fall asleep while at work, often momentarily while sitting or standing in what is known as a 'micro-sleep'.

Fatigue has been a major factor in many marine accidents and has been present in many of the collisions between ships and fishing vessels. Sleep is a basic human need and lack of sleep leads to fatigue.

When at sea, fishermen work long hours and the work is usually hard physically. Opportunities for good quality sleep may be limited, particularly if the fishing vessel is away from port for an extended period of time.

Fatigue is not only a factor that is present in the collisions between ships and fishing vessels. Recent studies carried out by the International Labour Organization (ILO) indicate that fatigue is a major cause in many of the accidents that occur on board fishing vessels in the normal day-to-day operations. If fatigue can be reduced amongst fishing vessel crews, it will go a long way to make fishing vessels a safer place to work.

When on board a fishing vessel, take the time to look at how you are working and keep check on how tired you are. Keep an eye on the rest of the crew too. Any one of them could be suffering from fatigue and not realise it. Being

aware of fatigue, and how to manage it, is very important for watchkeepers, no matter what size vessel they're on.

If you feel tired, rest is the only way to beat fatigue. If you are standing a navigation watch and you're feeling tired, inform the skipper so that he can put someone else on watch, or at least take some action to stop this from becoming a problem later. This is difficult when there is limited crew on board, but in all cases, those on the vessel must manage their fatigue.

Safety equipment

In recent years, several fishing vessels operating off the Australian coast have sunk, taking the safety gear on board with them. In some of these accidents, the crew survived and were rescued after an extensive search and rescue operation. In one of the accidents, the two crew were adrift in a liferaft for 14 days before they were rescued. This was because they did not have the time to get their EPIRB (Emergency Position Indicating Radio Beacon) from its bracket inside the wheelhouse before the vessel sank. Unfortunately, in some other accidents, the crew did not survive, despite the search operations initiated by authorities. In an accident where three fishermen men died, the fishing vessel was salvaged and the two EPIRBs it had on board were still in their brackets, inside the wheelhouse. In several of the fatal accidents, the lifejackets were also found inside the wheelhouse, still stowed in their locker.

Consider stowing your lifejackets, distress signals, the EPIRB and maybe a portable VHF radio in a grab bag. By doing this, the bag can be put on or near the working deck when the crew are working there. That way, the safety gear is there on the deck with you if you need it in an emergency, and not inside the wheelhouse, where you may not be able to get to it. The grab bag also makes it easy to take all the gear home with you, or lock it safely in the wheelhouse, when you get back to your berth.

The owner or skipper of the fishing vessel might want to consider buying a 406 MHz

EPIRB. These digital EPIRBs are float free and, provided their bracket/cradle is mounted correctly and clear of obstructions, the EPIRB will self activate and float to the surface, if the fishing vessel sinks. These EPIRBs are one of the best search and rescue tools available today because they take the 'search' out of 'search and rescue'.

You must always be thinking about what to do if the unthinkable happens to your vessel and it sinks. Having all this safety gear on a vessel is not much good if you need it and it has sunk with the fishing vessel, leaving you in the water fighting for your life.

What's happening on board the ship

The ships operating around the Australian coast are usually large and cumbersome. They have a large turning circle and require a considerable distance to stop. In many cases, the draught of the ship also makes it difficult for it to manoeuvre (particularly in the shipping routes in the Great Barrier Reef). In addition, the bridge of a ship is high above the water, and in certain weather and sea conditions, a small fishing vessel can be difficult to see. This applies both visually and by radar.

Usually, there is only one person on the navigating bridge during the day time, although there are usually two at night. The crews on fishing vessels should appreciate that although keeping a lookout is of paramount importance, sometimes they are distracted and don't perform this duty as well as they should.

There are several times each day when the watch on the bridge of a ship will change. These times, around midnight and 4 o'clock in the morning, are when many collisions happen. If you are in close proximity to a ship at these times, be aware that there is more activity on the bridge of the ship and that activity might be distracting to the officers either on watch or taking over the watch.

Ships manoeuvring to pick up, or drop off, a harbour pilot may not take actions that a fishing vessel crew might expect. The same

applies for ships entering or leaving an anchorage or port. Fishing vessel crews must be keeping a proper lookout when their vessel is near these areas and be prepared to take some action to avoid a collision, or a close quarters situation.

If you are in doubt as to some actions of the ship, use your VHF radio to make contact with the ship on Channel 16 and ask what their intentions are. It is always better to know what's happening than to incorrectly guess what's happening. Even if the ship doesn't respond, the fact that the officer on watch has heard a VHF transmission might increase their level of awareness and lookout.

Conclusion

Most people believe accidents are things that happen to other people. However, experience suggests that accidents of all types can happen to anyone. The best people often have the worst accidents.

A few minutes failure to keep a proper lookout can result in the death of one of your friends or yourself, and tragedy for the family left behind.

Being a fisherman is dangerous. A worldwide comparison between fatality statistics in the fishing industry and other general occupations shows that fishing is one of the world's most dangerous occupations. A sustained effort is needed by everyone in the industry to improve the safety and health of all fishermen.

Every fisherman has a responsibility to ensure that their working environment is safe. Ultimately, it is up to the men and women who work on fishing vessels to think about what they can do to ensure that they return home to their family and friends safely at the end of a fishing trip.

Taking notice of the points discussed in this safety bulletin will help fishermen go some way to making the fishing industry a safer place to work.