Collision avoidance – safeguarding the lives and livelihoods of fishermen

Collisions between merchant vessels and fishing vessels have caused multiple and tragic loss of life. What are the causes and what can be done to prevent such accidents?

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Introduction

In Gard, we put emphasis on integrating sustainability in our core business activities. As stated in our GARD%20sustanability%20report%202021.pdf , we aim to protect the lives and livelihoods of seafarers and make the oceans cleaner and safer. Our efforts will continue. We do not purport to have all the answers but believe that more could be done together to prevent such tragic accidents going forward.

Worrying facts

In the period from 2015 to 2020, the Association has registered 49 collisions with fishing vessels involving our insureds' vessels. In this period, at least 54 fishermen have lost their lives and a further 15 have been injured as a result of these collisions. The human loss and suffering from these incidents is unacceptable and, together with other stakeholders, conscious efforts must be made to bring these numbers closer to zero. This article summarizes what we have found in our investigation of these collisions and our recommendations for preventing such tragic accidents.

The Collision Regulations and fishing vessels

The requirement to keep a proper look-out is a mutual obligation for all vessels at sea. This requirement is not only to keep a lookout by sight and hearing but also by other available means, e.g., radar, AIS, VHF. The Collision Regulations (Colregs) also require that all vessels determine if risk of collision with other vessels exists, including by radar equipment if fitted and operational. The "traditional" technique of taking a series of compass bearings of approaching vessels should not be forgotten.

Although power-driven vessels and sailing vessels must keep out of the way of vessels 'engaged in fishing', fishing vessels must, so far as possible keep out of the way of a vessel not under command or a vessel restricted in her ability to manoeuvre. A vessel certified as a fishing vessel is only a 'restricted' vessel when engaged in fishing.

Vessels are only considered to be engaged in fishing when fishing with nets, lines, or trawls or other fishing apparatus which restrict manoeuvrability, but this does not include a vessel fishing with trolling lines or other fishing apparatus which does not restrict manoeuvrability. The collision regulations also require the stand on vessel to take action to avoid a collision by her manoeuvre alone as soon as it becomes apparent to her that the give way vessel is not taking appropriate avoiding action.

Investigation findings

Whilst investigations have shown that in the period of time leading up to the collision, both vessels did not always maintain an effective lookout (visual and by radar), investigations have also revealed that in several incidents the following recurring factors onboard fishing vessels have contributed to the collision:

• The skipper of the fishing vessel often was the only certified person on board and was fatigued.

• In some cases, the number of crew on the fishing boats was two or three, which for a sustained 24-hour operation is insufficient to fish and, at the same time, maintain a proper lookout. In some cases, there was no lookout at all.

• Fishing vessels were not engaged in fishing but en-route between fishing grounds at the material time.

• Fishing vessels were drifting in recognised shipping lanes, with no lookout maintained and all crew members in bed.

• The person keeping watch on board the fishing vessel had no training, did not understand the obligations placed on a fishing vessel by the Collision Regulations and did not understand how to use the radar and the limitations of the same.

• The fishing vessels exhibited lights which did not meet the requirements of the COLREGs, making their status and movements harder to assess.

• Several fishing vessels were often found in close proximity to each other, making safe passing more difficult.

• The fishing vessels sometimes made confusing VHF calls prior to the collision, calling other vessels without using their name.

• The fishing vessels made unexpected last-minute manoeuvres, making safe passing more difficult. In some cases, the manoeuvres appeared motivated by protecting the fishing gear and resulted in dangerous situation with other traffic.

Key challenges for merchant vessels

Our six-year data show that collisions involve many commercial vessel types; bulk carriers, tankers, car carriers, container ships and although there are certain hot spots, collisions have occurred world-wide. What is very clear is that in the event of a collision even though all seafarers onboard the vessels involved are affected in some way, the seafarers more at risk of personal injury and loss of life are those on the fishing vessel given the, often, immense difference in size between commercial vessels and fishing vessels. Thus, it is even more important for merchant vessels to take care to avoid these collisions to safeguard the lives and livelihoods of those aboard the smaller vessels.

Some of the key challenges facing merchant ships and crews include:

Vessel manoeuvrability in high traffic density area

If we look at AIS mapping, the largest concentration of fishing vessels (Type B AIS) is in the South and East China Seas, Persian Gulf, southern approaches to the Bosporus Straits and the North Sea area. Navigators on all types of vessels need to ensure that they maintain discipline in adherence to the Collision Regulations and be aware of the difficulties in passing fishing which are often poorly lit, are often working in areas of high fishing vessel traffic density and are prone to unexpected manoeuvres. Often the situation will call for a reduction in speed in areas of high traffic density, to allow navigators more time to assess the situation. Keeping the main engine available for immediate manoeuvre may be appropriate prior to entering an area of high fishing traffic. This will allow the bridge team to make timely assessment and reduce speed when necessary.

Bridge manning

Fishing traffic in certain parts of the world can remain high throughout the vessel's transit through the area. The geographical expanse of high-density of fishing traffic would mean that navigation watchkeeping can be extremely stressful for the bridge team. For this purpose, additional bridge manning in congested areas, e.g., by calling the Master to the bridge, can assist with decision making and the management of workloads. Ensuring that the bridge is adequality manned in areas of high traffic density will allow for vessels to be steered in "hand steering" mode so that navigators can take prompt avoiding action in case of last-minute unexpected manoeuvres by fishing vessels.

Navigators should also remember to use the whistle as required by the Collision Regulations to indicate that they are altering course or if they fail to understand the intentions or actions of the fishing vessel.

Limitations of electronic aids to collision avoidance

Today's merchant mariners are provided with technology that their predecessors would have envied and there are several ways of timely detection of a fishing vessel or for that matter a cluster of them. However, there are also limitations to the equipment that must be taken into account.

The echo received using radar from a fishing vessel depends upon the size, shape, composition and aspect of the fishing vessel as well as the prevailing weather conditions. Small targets of limited surface area, which are not very high, may not be detected, if at all, until much closer. Fishing vessels of metal construction give a better radar response than wooden fishing vessels. Small vessels, particularly of wooden or other non-metallic construction, can have many separate metal reflectors (metal masts, booms, engine and other metallic reflectors) which can result in either an enhanced echo or the return echoes cancelling each other out. Similarly, the echo can be affected by skipping or bouncing off the sea surface resulting in signals that may subtract from each other as described above.

Fishing vessels fitted with Type B AIS can assist navigators in early detection. Furthermore, given that fishing vessels can now deploy AIS for marking their fishing nets or fishing zones, navigators can be alerted of their presence given that they are able to use the AIS overlay function on their radar.

Weather conditions can also affect fishing vessel detection on radar. Echoes from “waves” and “rain showers” themselves form targets, which when reflected and picked up by the radar, form ‘sea clutter’ and “rain clutter”. Small fishing vessels are more likely to be lost in clutter than are large vessels. Furthermore, rain, fog, high humidity and air temperature that is lower than the sea temperature can also reduce the radar detection range.

Navigators should ensure that both radars are set up to obtain the best possible radar return and effectively used for collision avoidance. Finally, an awareness of the limitations of radar equipment helps to ensure that a good visual lookout is always maintained. If visibility allows, visual lookouts can be the most effective means of assessing a situation and for collision avoidance.

Fatigue

Fatigue may be described as a reduction in physical and/or mental capability due to physical or emotional exertion and can affect physical abilities such as reaction time, coordination and decision-making. The performance of crew members suffering from chronic fatigue is not only affected, but they 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. Sleep is a basic human need and lack of sleep leads to fatigue.

In addition to awareness of their own possible fatigue, navigators should keep in mind the possibility that the crew on fishing vessels may be fatigued and approach with additional caution.

Actions after contact can save lives

In some of these collisions with fishing vessels, the watch keepers on board the ship at the time of the incident have reported that they genuinely were unaware that a collision had occurred, informing investigators and the ship’s master that only a close quarter’s passing had occurred. Consequently, they did not take any action to render assistance which can have tragic consequences.

It is recommended that even if the watchkeeper thinks that it was a close quarter situation, it is expected of them to ensure no damage was sustained to the fishing vessel. In case of a contact, the merchant vessel must offer assist with search and rescue.

Concluding observations

The purpose of this update isto highlight the tragic consequences of collisions with fishing vessels. Many of such collisions can be avoided with deeper understanding of the limitations of the navigation equipment and the watchkeepers that operate this equipment. While the role of the bridge team will always be pivotal in safe navigation of the vessel, the vessel operators and managers also play a significant part in ensuring that the bridge team is well resourced.

Members are encouraged to provide their navigators with guidance on best practices to adopt in dealing with navigating in areas of high density of fishing vessel traffic.

Training is a proactive approach to safety. It requires the identification, analysis and mitigation of hazards before they can affect the safe operation of the vessel.

Finally, Gard is interested to learn more about how the risk of collision between merchant vessels and fishing vessels may be reduced so that the risk of losing more lives at sea is mitigated. If readers of this Insight article have any comments or suggestions in this regard, please do not hesitate to contact us.