inmarsat
RESEARCH PROGRAMME

2022

THE FUTURE OF MARITIME SAFETY REPORT

THE FUTURE OF MARITIME SAFETY REPORT 2022

CONTENTS

FOREWORD

BENCHMARKING SAFETY CULTURE IN MARITIME

PETER BROADHURST

SENIOR VICE PRESIDENT OF SAFETY & SECURITY, INMARSAT MARITIME

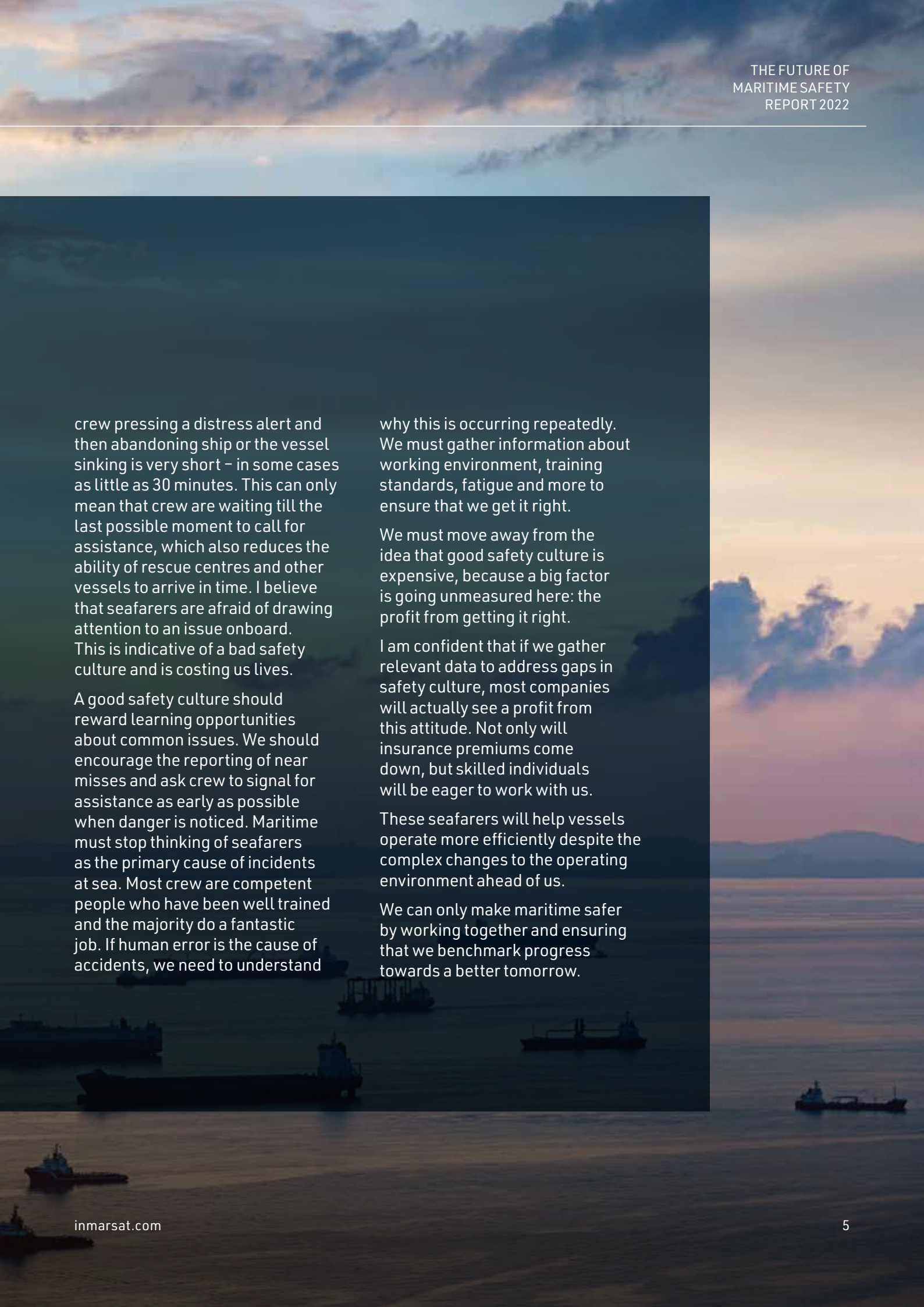
Maritime is working hard to improve its safety record, but there is much work to be done. As data from the second annual Inmarsat Future of Safety Report shows, vessel distress calls have decreased in 2021 – in line with fewer total vessel losses. Having these numbers is incredibly important since it allows us to track trends and to ensure that we are moving in the right direction. And it will prevent us from losing focus on making safety improvements that deliver results.

I believe that data is the key not only for tracking trends, but also to address gaps in our approach to safety. Although maritime talks a lot about ship safety as a priority, when it comes to action, this topic is regularly side-lined in the face of operational and financial concerns. The tendency to deprioritise safety is a cultural issue that has become embedded in our sector, but must be addressed with urgency.

The most important problem is transparency about the true state of maritime safety. At the moment, we have very incomplete and inconsistent data, with different companies measuring the same factors in varying ways. This makes it hard to accurately benchmark both, the current landscape and also to measure progress. Furthermore, we do not have sufficient data on topics such as deaths at sea, non-visible injuries to crew – and of course, perhaps the most important factor: near misses.

Anonymised data holds the potential to demonstrate trends that can be benchmarked to track progress, without creating liability or blame. It will allow us to know for a fact that something is an issue, rather than relying on conjecture or gut-instinct.

I want to be clear that the intention in gathering this data is not to name and shame anyone – that would cultivate a culture of fear. This is already an issue that is costing lives. Marine Accident Investigation data shows us that the time between



crew pressing a distress alert and then abandoning ship or the vessel sinking is very short – in some cases as little as 30 minutes. This can only mean that crew are waiting till the last possible moment to call for assistance, which also reduces the ability of rescue centres and other vessels to arrive in time. I believe that seafarers are afraid of drawing attention to an issue onboard. This is indicative of a bad safety culture and is costing us lives.

A good safety culture should reward learning opportunities about common issues. We should encourage the reporting of near misses and ask crew to signal for assistance as early as possible when danger is noticed. Maritime must stop thinking of seafarers as the primary cause of incidents at sea. Most crew are competent people who have been well trained and the majority do a fantastic job. If human error is the cause of accidents, we need to understand why this is occurring repeatedly. We must gather information about working environment, training standards, fatigue and more to ensure that we get it right.

We must move away from the idea that good safety culture is expensive, because a big factor is going unmeasured here: the profit from getting it right.

I am confident that if we gather relevant data to address gaps in safety culture, most companies will actually see a profit from this attitude. Not only will insurance premiums come down, but skilled individuals will be eager to work with us.

These seafarers will help vessels operate more efficiently despite the complex changes to the operating environment ahead of us.

We can only make maritime safer by working together and ensuring that we benchmark progress towards a better tomorrow.

REPORT INTRODUCTION

Despite the challenges posed by COVID-19 and global supply chain disruption, total vessel losses across the industry have continued to steadily decrease, following a downward trend of 57% over the past decade. The Allianz Global Corporate and Speciality (AGCS) Safety and Shipping Review 2022 shows a drop from 65 total vessel losses in 2020 to 54 in 2021, suggesting the industry's continued focus on regulation, improved ship design and technology and risk management advances are increasing overall trends in safety.

That said, while total vessel losses may be decreasing, data gathered by Inmarsat indicates a significant spike in Global Maritime Distress and Safety System (GMDSS) calls, rising abruptly from 597 in pre-COVID 2018 to 761 in 2019 and 834 in 2020, before a potential drop and re-stabilisation in 2021 with 749 incidents reported.

It is likely that COVID-19 played a role in this spike in vessel incidents as continued issues with crew change, rapid turnaround in ports, and fatigue onboard would certainly have affected ship safety and the ability of seafarers to carry out their duties. Given issues accessing seafarer training during the height of the pandemic (from end-2019-2021), it is also possible to link COVID-19 to shortages of trained personnel, limited or inadequate representation of oversight onboard, and significantly extended contracts of seafarers - all of which could have negatively impacted the safety of vessel operations.

As parts of the world began to stabilise from the effects of the pandemic in 2021, shipping too saw a stabilisation of GMDSS numbers, suggesting that many challenges caused by COVID-19 to crews and ships were lessening. It could also suggest that crews and owners have adapted to operating in this 'new normal' and can better anticipate and prepare for future safety issues.

This drop and potential stabilisation of distress calls in 2021 should not immediately lead us to the conclusion that shipping is doing enough to address safety issues - particularly given the changing landscape. The maritime industry continues to weather the storm of COVID-19, but also faces new challenges from ongoing global geopolitical conflict and the technological and green transformations that are on the horizon.

We saw from the Allianz 2021 report that while total losses were down in recent years, ship casualties spiked, with machinery damage accounting for more than one-in-three incidents globally, followed by collision and fires, with the latter increasing by almost 10%. Many of these recurring safety incidents are well-known issues. Shipping must and can do more to reduce preventable safety incidents.

The Future of Maritime Safety Report provides insights into safety trends from GMDSS data gathered between 2019-2021 and reveals patterns at a local and global level. Better understanding these patterns can help us to take proactive steps to prevent such incidents going forward and help guide us to a safer future.

The Inmarsat GMDSS data shows the top three sectors with the highest distress calls as tankers, fishing vessels and bulk carriers, with the lowest incidents arising in passenger ships. This data should help us focus our attention and tackle known safety issues in these sectors.

OPINION

INNOVATE NOW FOR A SAFER TOMORROW

JOHN DODD

DIRECTOR, MARITIME SAFETY SERVICES, INMARSAT

The GMDSS is a magnificent system, providing lifesaving communications through VHF, MF, HF and satellite communications. This has without a doubt saved countless lives and vessels since its inception on 1st February 1999. However, as with all systems and services, it can be fine tuned and modernised to improve search and rescue capabilities and ultimately, save even more lives.

Take for example the shore side fire, ambulance and police services, which use a range of communications mediums including RF, satellite, voice, data and autonomy, but most importantly, provide communications that are compatible amongst all emergency services. The key for emergency and distress messages is interoperability and a service based approach.

A SOLAS vessel has many systems at its disposal when in a distress situation, however these are segmented; a distress can be sent to many different Rescue Co-ordination Centres (RCC) via different mediums, creating additional difficulties in the timely coordination of a SAR event.

As vessels do not rely on one single piece of GMDSS communications, improvements must come from the shore side RCC's. Work on this has already begun, with the Inmarsat RescueNET system, provided free to RCC's. It not only offers contemporary GMDSS services, but also coordination capabilities between ship-to-shore, shore-to-ship and shore-to-shore to provide a more harmonised and effective approach to SAR communications.

New technologies offer further promise. With the rapid development of unmanned vessels, drones, IoT and AI, the maritime industry and Inmarsat are collaboratively researching how best these can work together to provide forward thinking maritime safety solutions.

There are a wealth of potential benefits being explored for SAR. Live, automated monitoring of a vessels health, location and situation can help warn RCCs of sudden changes in list, fire alarms or engine failures and prompt a quick and effective response before incidents cause loss of life or severe damage to vessels. Meanwhile, automatic deployment and tracking of man overboard incidents with drone technology can alert RCCs in real-time to ensure the faster deployment of SAR assets.

Such solutions can create significant benefits to SAR activities and make our industry an even safer place for seafarers.

DISTRESS CALLS BY VESSEL TYPE

The UNCTAD Review of Maritime Transport 2021 states that the global commercial shipping fleet grew approximately 3% between 2020 and 2021, to 99,800 ships of 100 gross tons and above, equivalent to 2,134,639,907 dwt of capacity. As the COVID-19 pandemic affected labour and production, this growth in new vessels has tended to be primarily concentrated on bulk carriers, oil tankers and containerships entering the market.

TANKERS

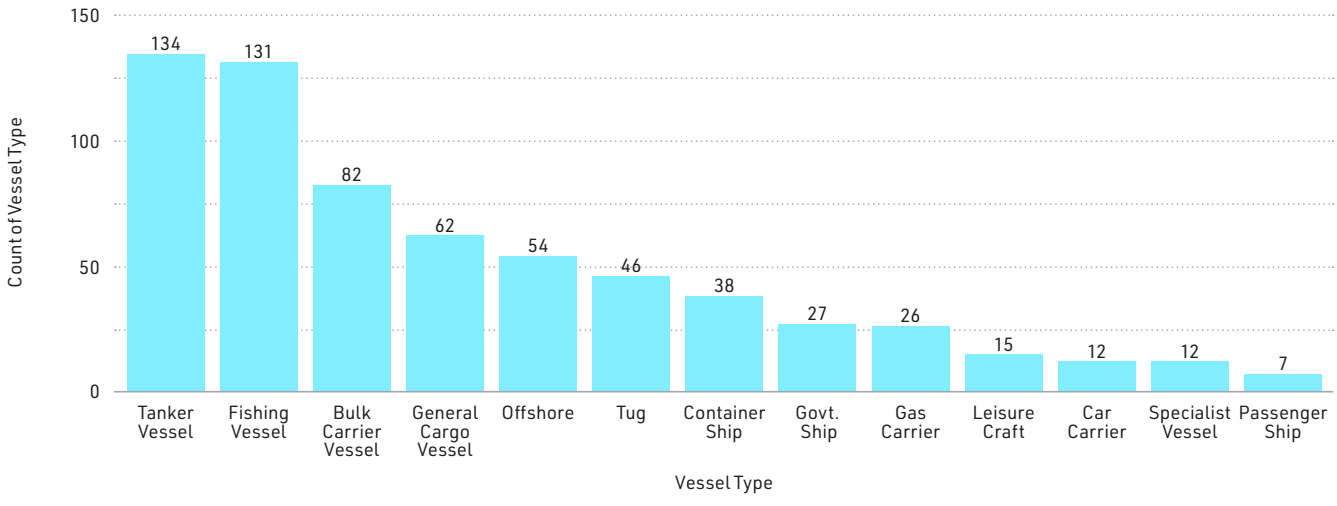
Despite tankers having a reputation for rigorous safety procedures and high standards of crew training, these vessels once again have the highest overall number of distress calls, with 461 recorded incidents between 2018-2021. Inmarsat GMDSS data shows that vessel distress incidents have risen steadily from 80 distress calls in 2018, to 126 in 2019, 121 in 2020, and a peak of 134 in 2021. This steady overall increase could potentially correspond to an increase in vessel numbers, with 2021 seeing an increase of 2.96% in overall global fleet numbers for tankers (per the UNCTAD Review of Maritime Transport 2021).

Vessel incidents have tended to be located along the coastline, with the Gulf of Guinea, the South China Sea, the Gulf of Oman and the western Indian Coastline in the Arabian Sea acting as particular hotspots between 2018-2020. Although the western Indian coastline saw a drop in distress calls in 2020, this returned to higher numbers in 2021.

The remainder have continued to see high numbers of incidents, likely exacerbated by political tensions and piracy. For example, in July 2021 the Liberian-flagged Mercer Street was attacked by an explosive drone while off the coast of Oman and attributed to rising tensions between Israel and Iran.

Piracy may also be a factor. The International Chamber of Commerce's (ICC)-International Maritime Bureau (IMB)'s annual piracy report for 2021 indicates that piracy rates, which rose starkly during the pandemic, dropped to 132 piracy incidents against ships worldwide - their lowest recorded levels since 1994. However, this sits alongside a 50% rise in incidents in the Singapore Straits suggesting that while

GRAPH: VESSEL TYPES AND NUMBER OF DISTRESS SIGNALS RECORDED IN 2021



overall piracy rates may be dropping, some regions still pose a safety and security threat to crews and their vessels.

Furthermore, fatigue and the crew change crisis are also likely to have played a significant role in the rise in overall vessel incidents. For example, the National Transportation Safety Board (NTSB) Marine Accident Brief outlines the incident of the tanker Atina striking an oil and gas production platform in the Gulf of Mexico in October 2020. In its investigation the NTSB attributes the incident to the master experiencing fatigue. The individual was in charge of operations despite having had no sleep for over two days. The report also noted an improper handover between masters.

Ongoing concerns regarding overwork and fatigue within the industry, particularly exacerbated during the pandemic, could gain traction in the future due to a significant shortfall in well-trained crew (as highlighted in the International Chamber of Shipping (ICS)/ BIMCO Seafarer Workforce Report 2021). The shortfall suggests that these are conditions that may well repeat without a larger intervention in terms of training, recruitment, and retention within the industry. Insurers for the maritime industry view the skills and worker shortage as a significant factor that is likely to affect liability in the future across the maritime industry (as in the latest AGCS report).

OPINION

COMMUNICATION AND COLLABORATION ESSENTIAL TO TACKLE PIRACY

Bilateral agreements, greater international cooperation and, above all, open and honest communication will further help in the fight against piracy

CYRUS MODY

DEPUTY DIRECTOR, INTERNATIONAL MARITIME BUREAU

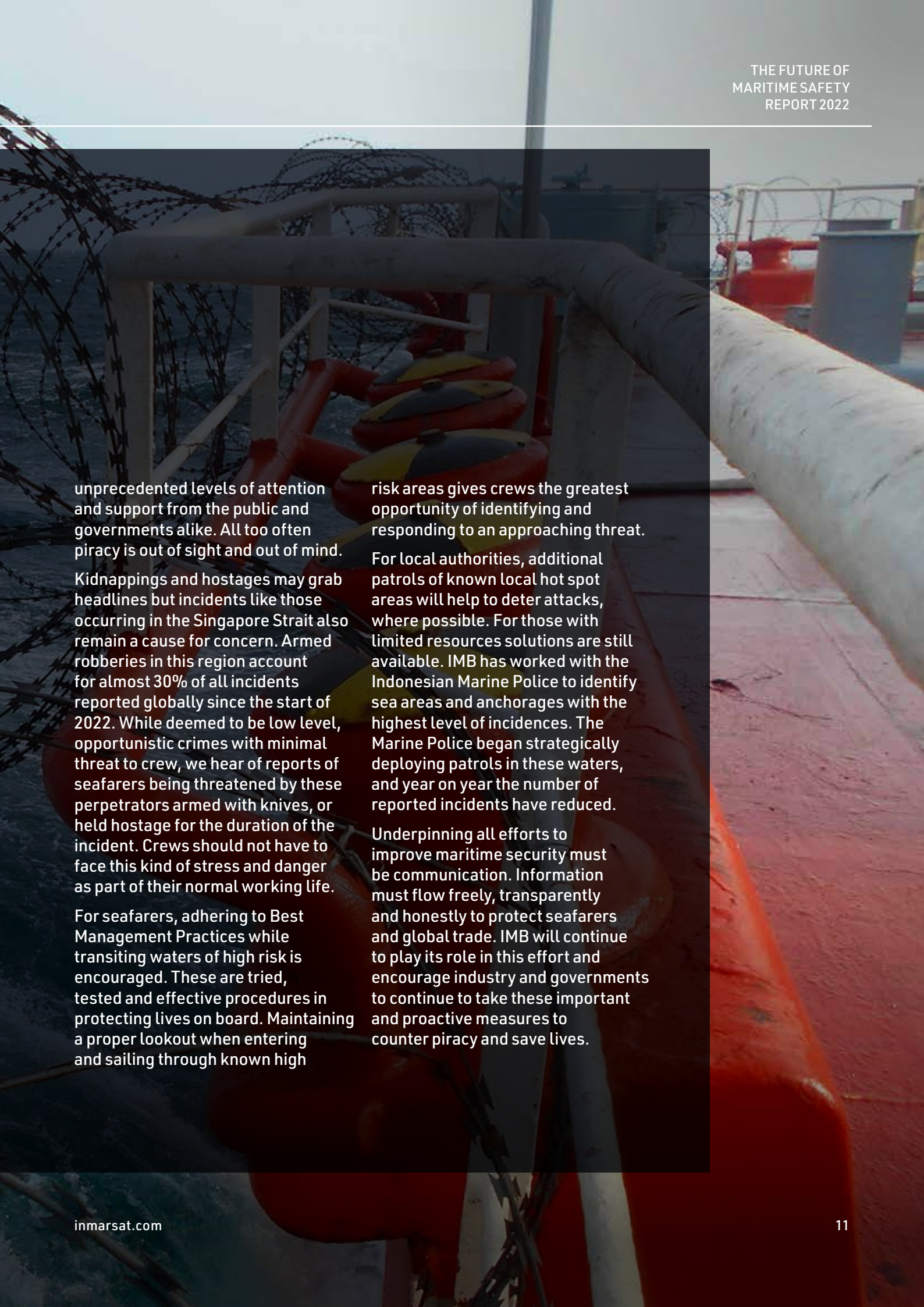
We have a duty to protect our seafaring workforce, who play a pivotal role in moving trade which the global population relies on, from the threat of piracy. Doing so requires constant vigilance and a concerted effort from the international maritime community, working with agencies and governments from around the globe.

We have seen a welcome reduction in incidents being reported from the Gulf of Guinea region but this has been hard won. Steps to improve security in the area have come from the maritime industry, the international community but more importantly from the region itself, stepping up and taking ownership to address the problem. This includes a more robust physical security presence in the area to deter piracy attacks.

In the first quarter of 2022 there have been zero crew kidnappings in the GoG, compared to 40 in the same period the previous year. Efforts by regional and international agencies have led to this drastic reduction, but activities must be sustained. Collaboration with local authorities is crucial. Crews have sent timely and effective communication to alert local reporting centres, including the International Maritime Bureau's (IMB) 24x7 Piracy Reporting Centre (PRC), who have then been able to provide precise details to regional response centres, including international naval ships, to render assistance.

For many countries, particularly those with large stretches of coastline, the costs of maintaining a constant coast guard, or naval presence is difficult to justify or sustain.

In these cases, bilateral agreements between sovereign coastal nations aid to combat this crime. The quashing of piracy off Somalia highlights the effectiveness of these bilateral agreements. However, it also demonstrates that such agreements are often only forged under exceptional circumstances when piracy activity draws



unprecedented levels of attention and support from the public and governments alike. All too often piracy is out of sight and out of mind.

Kidnappings and hostages may grab headlines but incidents like those occurring in the Singapore Strait also remain a cause for concern. Armed robberies in this region account for almost 30% of all incidents reported globally since the start of 2022. While deemed to be low level, opportunistic crimes with minimal threat to crew, we hear of reports of seafarers being threatened by these perpetrators armed with knives, or held hostage for the duration of the incident. Crews should not have to face this kind of stress and danger as part of their normal working life.

For seafarers, adhering to Best Management Practices while transiting waters of high risk is encouraged. These are tried, tested and effective procedures in protecting lives on board. Maintaining a proper lookout when entering and sailing through known high risk areas gives crews the greatest opportunity of identifying and responding to an approaching threat.

For local authorities, additional patrols of known local hot spot areas will help to deter attacks, where possible. For those with limited resources solutions are still available. IMB has worked with the Indonesian Marine Police to identify sea areas and anchorages with the highest level of incidences. The Marine Police began strategically deploying patrols in these waters, and year on year the number of reported incidents have reduced.

Underpinning all efforts to improve maritime security must be communication. Information must flow freely, transparently and honestly to protect seafarers and global trade. IMB will continue to play its role in this effort and encourage industry and governments to continue to take these important and proactive measures to counter piracy and save lives.

DISTRESS CALLS BY VESSEL TYPE

FISHING VESSELS

Fishers continue to face ongoing safety risks, with fishing vessels showing the second highest overall numbers of distress calls between 2018-2021 with a total of 453 incidents. Inmarsat GMDSS data indicates a small but significant rise in distress calls from fishing vessels. While 2018 had 92 incidents, 2019 showed 117, 2020 had 113, and 2021 climbed to 131 incidents. The majority of these vessel incidents are located along the western coastline of Morocco and Portugal, with incidents occurring year round. This suggests that vessel incidents are unlikely to be confined to specific periods of extreme weather, and are likely the consequence of ongoing safety concerns within the industry.

As previously noted in the 2021 Inmarsat Future of Safety Report, although Morocco is a comparatively smaller flag that does not fall in the top ten either by vessel numbers or by tonnage, it accounts for the highest number of distress calls between 2018-2021. At 231 overall distress calls, it ranks alongside the world's largest flag, Panama, during this period. This is likely due to the high number of fishing vessels that flag with Morocco, and explains the significant number of incidents continuing to occur along its coast.

Continued high incidents of distress calls onboard fishing vessels support the continued need for ratification of the 2012 Cape Town Agreement, which will bring in mandatory international safety requirements for fishing vessels of 24 metres in length and over. These will include provisions to address stability and associated seaworthiness, machinery and electrical installations, life-saving appliances, communications equipment and fire protection, and fishing vessel construction. It may also prove to be useful for addressing illegal, unreported and unregulated (IUU) fishing and forced labour, as well as reducing pollution from fishing vessels, including marine debris.

Although 16 countries have already become contracting states to the Cape Town Agreement, the threshold for member states and vessel tonnage has not been met. Over 50 countries have committed to ratifying the Torremolinos Declaration to ratify the Agreement by its 10th anniversary in October 2022, but progress on this front remains slow.

MAP: INMARSAT GMDSS DATA INDICATING FISHING VESSEL DISTRESS INCIDENTS IN 2021

BULK CARRIERS

Bulk carriers have the third highest numbers of distress calls, numbering 220 across 2018-2021. While incidents involving bulk carriers remained largely consistent across 2018-2020—with 42 incidents in 2018, 46 incidents in 2019, and 50 incidents in 2020—2021 showed a significant spike with 82 incidents taking place. While the overall global fleet number of bulk carriers did increase by 3.76% between 2020-2021 (per the UNCTAD Review of Maritime Transport 2021 report), this does not correspond with the abrupt rise of 64% in incident numbers.

Data analysis of the period of 2018-2021 suggests that while incidents involving bulk carriers do take place globally, there is a concentration of incidents along the coastlines of China and the Republic of Korea, and between Singapore and Malaysia. This is likely due to the fact that China, the Republic of Korea, and Singapore are significantly large ship-owning economies that utilise bulk carriers, which may lead to a concentration of incidents within these regions - a point also noted in Inmarsat's The Future of Maritime Safety 2020 report.

As outlined in INTERCARGO's Bulk Carrier Casualty Report 2012-2021, cargo liquefaction remains the greatest contributor to loss of life onboard, while groundings have led to the largest loss of vessels.

Along with general cargo vessels and containerships, bulk carriers were in particular demand during COVID-19, leading to rapid turnaround times and potential issues with adequate checking and securing of cargo.

The AGCS Safety and Shipping Review 2022 has suggested that safety issues may have risen due to bulk carriers and tankers being repurposed to transport containers to meet increased demand during the supply chain crisis. This change in use will likely have a significant impact on safety for the vessel itself as well as crew onboard. The report states, "The use of non-container vessels to carry containers raises questions around stability, firefighting capabilities and securing cargo."

Extreme weather events also continue to pose a significant challenge to bulk vessel safety. For example, on 11 August 2021, the Crimson Polaris was swept away by strong winds while at anchor in the port of Hachinohe and ran aground, before breaking up the following day.

MAP: INMARSAT GMDSS DATA OF DISTRESS INCIDENTS INVOLVING BULK CARRIERS FROM 2018-2021

OPINION

EMBED SAFETY IN THE RUSH TO DIGITALISATION

Change is good but we must assess the safety implications of new technologies

OLIVIER DELTEIL

SEARCH AND RESCUE PROJECT MANAGER AT THE GENERAL DIRECTORATE OF MARITIME AFFAIRS, FISHERY AND AQUACULTURE, FRANCE

In maritime, we are witnessing a rush towards digitalisation. Progress is indeed positive and will bring many benefits but we must move ahead carefully, step by step, to make sure we avoid inadvertent risks to safety or security.

While currently only in the leisure sector, we are seeing the rise of mobile apps that send out safety alerts that may circumvent Maritime Rescue Coordination Centres (MRCC) as they are not connected to domestic legacy systems. Currently, this is not an issue for merchant shipping but we know of one developer that is looking to target MRCCs in the future.

It is essential these new applications are coherent with GMDSS standards to maintain a strong level of maritime awareness with programs such as COSPAS-SARSAT and with recognised mobile satellite providers.

As we move towards greater digitalisation, space is clearly being seen as the next frontier for innovation and is becoming increasingly crowded for both State and commercial entities. Competition is leading to a greater need to maintain and protect their satellite capacity.

For vital safety communication services like GMDSS, it is also important that competition and progress does not leave less developed states unable to access the benefits of the latest services available.

While unlikely, considering today's geopolitical tensions, namely the conflict between Russia and Ukraine, we must also consider risks around attacks on satellite systems and services. Such an attack on an essential life-saving service like GMDSS could have serious consequences and is something we should be preparing for and increasing resilience if need be.

Blind trust in digitalisation is something to be avoided. A measured approach is always required and we can learn from lessons in other industries. The adoption of 5G onshore is undoubtedly great progress but the aviation sector has already raised real concerns around interference

with critical navigation systems on board aircraft.

The US aviation regulator, the FAA, warned in early January 2022 that 5G interference could lead to problems on multiple systems on Boeing's 787 Dreamliner, which could make it difficult to slow the plane down when landing or veer off the runway. It is essential, in my opinion, that ports and governments and shipping must analyse and proactively counter any such risks of interference to navigation systems for vessels approaching shore.

The roll out of 5G is progressing differently around the world. In the EU, such networks look set to operate on lower frequencies than in the US, while in France, we are creating "buffer zones" around airports. We should consider similar measures for ports or busy navigational routes where ships come close to shore.

We should not stall important technological developments that will bring benefits to our industry but we must ensure we analyse and mitigate its risks to maintain safety and protect the lives of our seafarers.

OPINION

DATA INTEGRITY IS ESSENTIAL FOR SAFE SHIPPING

The rise in extreme weather events underscores the need for quality data and its importance in saving lives

TROND SKI
NAVAREA COORDINATOR, NORWEGIAN COASTAL ADMINISTRATION, CHAIR OF THE IMO EGC COORDINATING PANEL

At the Norwegian Coastal Administration we operate and develop digital and maritime services to ensure a safer and more efficient navigation for vessels along the coast and ports. Our goal is to make the Norwegian coast and sea areas the safest in the world. Data is vitally important, and underpins the role I hold in Maritime Safety Information.

Analysing this safety data shows us some clear trends that are putting vessels at greater risk.

One such trend is the rise we have seen in climate change driven extreme weather incidents. Our changing climate is also causing shifts in operations in the Arctic.

We continue to see a decline in sea ice which opens new areas for ships, in particular fishing vessels and cruise ships. The latter are extending their sailing seasons as a result of less sea ice, but this does not necessarily mean safer operations.

These, often large, cruise ships with lots of passengers on board are sailing at times of the year when vessels would traditionally not

have been able to. This can increase the likelihood of them encountering more extreme weather, particularly as in the Northern atmosphere weather can change very quickly.

We have seen some incidents in recent years, such as the Viking Sky, demonstrating this scenario. If a vessel gets into an emergency, many of these remote areas don't have rescue resources available that you would typically have in more centralised areas.

This is where you really see the importance of having trusted information from authorised and certified Maritime Safety Information providers.

We started to expand the service into the Arctic in 2010 to ensure reliable safety alerts can be issued in time to prevent incidents. When the weather changes rapidly, having reliable sources provide weather warnings is very important, particularly when sailing in unfamiliar waters without an innate understanding of what kind of effect the weather can have in small local areas.

RELIABLE INFORMATION

We are witnessing the ongoing modernisation and digitalisation of shipping and it is important that we adopt and take advantage of the benefits new technology brings into the trusted safety services we use. Today, thanks to the internet, there is boundless information available, but it is really important to look closely at the new systems you are bringing on board and that the data behind it is coming from a trusted source that you can base your proactive safety decisions on. This is especially the case when it comes to Maritime Safety Information.

New technology brings positive change, but in using more digital services, maintaining the integrity of that service is key. You can open yourself up to a lot of different information providers that have not been authorised or certified by the International Maritime Organization.

As we move into using new technology and greater digitalisation lets do so while still retaining the regime we have established to maintain the integrity of the service. Our safety depends on it.

DISTRESS CALLS BY VESSEL TYPE

GENERAL CARGO

This sector has seen a consistently small but steady rise in vessel distress calls between 2018-2021. GMDSS data gathered by Inmarsat shows 218 recorded distress calls for general cargo vessels during this time period. These calls have steadily risen, moving from 39 incidents in 2018, to 52 in 2019, to 65 in 2020 and a small drop to 62 in 2021. While orders for general cargo vessels within the global fleet have increased by 6% between 2020-2021, and total numbers of active general cargo vessels in the world fleet rose by 3.71% in 2020, total vessel numbers have since declined to 3.60% in 2021.

The UNCTAD Review of Maritime Transport 2021 has attributed this to the impact of COVID-19 on commissioning and delivery of vessels. It is possible to suggest that the pandemic-induced economic downturn is likely to have a further effect on vessel commissioning, with older vessels continuing to be sold and used going forward, particularly as the industry awaits further information on future fuels and new technologies for decarbonisation.

OFFSHORE

Offshore vessels accounted for 175 overall vessel distress calls recorded by Inmarsat during 2018-2021. This sector has seen a general rise in distress call numbers, beginning with 23 incidents in 2018, 40 incidents in 2019, 58 incidents in 2020, and 54 incidents in 2021. These remain located in close proximity to oil fields, such as off the coast of Rio de Janeiro, in the gulf of Mexico, the Gulf of Guinea, the Persian Gulf, and the North Sea in particular.

While piracy remains a major concern for the offshore sector, particularly in the regions mentioned above, extreme weather conditions are also a growing factor. For example, the Seacor Power was flipped during hurricane winds on 13 April 2021 in the Gulf of Mexico, leading to significant loss of life and property.

Additionally, the UK's National Union of Rail, Maritime and Transport Workers (RMT) has flagged up concerns regarding ongoing commercial pressure within the offshore industry resulting in a disregard for safety standards and best practice, highlighted in the case of the collision of the Platform Supply Vessel, the Ben Navis, which struck an oil rig on 17 November 2021 in the North Sea. The incident took place due to a failure to account for wind and current, both of which were pushing the vessel towards the rig, resulting in unsafe conditions.

These concerns also speak to the desire within the offshore sector to bounce back rapidly through hastened turnaround times after having been significantly impacted by COVID-19 between 2019 - 2021. Despite predictions that the sector would see noteworthy recovery in the latter half of 2020, it continued to experience lowered overall operations in 2021, with a further possibility that commercial activity will be impacted in coming years as the maritime industry seeks to transition to future fuels and technologies en route to decarbonisation.

Global energy concerns as a result of sanctions placed against Russia (which limit global oil export) may increase pressure on this sector in the coming year and is an area worthy of investigation.

OPINION

THERESA CROSSLEY
CEO, INTERNATIONAL MARITIME
RESCUE FEDERATION

LESSONS IN RESILIENCE AND RECOVERY FROM COVID-19

The pandemic has accelerated safety in the digital realm but there can be no replacement for practical training and the creation of a blame-free safety culture

The past couple of years have been atypical and the pandemic has taught us a lot about resilience and safety. Above all, it has reminded us to expect the unexpected. While we saw fewer incidents involving leisure craft during COVID-19 peaks, merchant shipping continued to operate, and so too did our search and rescue (SAR) services.

At the International Maritime Rescue Federation (IMRF) we produced guidance for SAR organisations that (regardless of available resources) enabled them to provide a safe and effective rescue service, despite the risks posed by COVID-19.

This time has posed challenges for us all. Restrictions on face-to-face meetings have meant that much seafarer training and other safety checks and processes for ships have migrated online. The maritime industry, like everyone else, will need to keep the best of what we've learned during the pandemic, while looking at how that can enhance the safety culture in all aspects of day-to-day operations.

The use of online tools that have been increasingly tried and tested during COVID-19 will undoubtedly continue. However, there will be a need to return to doing some essential safety training in person, to make up for the loss of practical experience that cannot always be replicated digitally. There is no substitute for that if seafarers are to have all the necessary skills at their disposal to prevent accidents and to handle any emergency situations. Quality training saves lives.

A MARITIME FAMILY

In our sector, we often refer to the search and rescue community as a family. We support one another in the dangerous work we undertake and we share and learn from our mistakes. Industry-wide conferences, like the upcoming World Maritime Rescue Congress in 2023, are an opportunity to share experiences, learn from one another and adopt best practice, rather than always having to reinvent the wheel.

The removal of blame is so important in this process. It is something that shipping and maritime leaders should also aspire to. Creating a safety culture has to come from the top down and be taken seriously at every level, from CEO to cadet. We should learn from industries like the energy sector, where rigorous safety protocols are observed by all, whether based in the office or on an oil rig.

The lessons provided by resources such as the safety digests published by the UK's Marine Accident Investigation Branch are invaluable. Our global maritime industry should be open about sharing such lessons more routinely – I am sure many more incidents and losses of life could be prevented if this was the case.

DISTRESS CALLS BY VESSEL TYPE

TUGS

Accounting for 140 vessel distress calls between 2018-2021, per Inmarsat GMDSS data, tugs have shown a small increase in overall incident numbers. While consistent at 27 incidents through 2018 and 2019, in 2020 these numbers increased to 40 and further to 46 in 2021. Instances are particularly concentrated in the Gulf of Mexico, the Gulf of Guinea and the Persian Gulf.

While piracy is no doubt a significant factor, particularly since slower moving vessels - such as tugboats and tankers - are often targeted in these regions, additional pressures such as extreme weather incidents are likely to have played a significant role in 2021 incidents. For example, there were 86 lives lost when the tug Varaprada and Afcons' Barge P-305 were caught in Cyclone Tauktae in the Arabian Sea during 16-17 May 2021 and sank.

Similarly, seafarer fatigue and a growing culture of overwork is likely to be a significant factor affecting safety onboard. An incident of this nature took place in December 2021 where a tugboat collided with an LNG vessel it was attempting to assist with berthing.

Although this has not been logged in the Inmarsat GMDSS data, official reports indicate that this is one of several incidents impacting safety in the Panama Canal region due to seafarer fatigue, with both Nautilus International and The International Organization of Masters, Mates & Pilots (MM&P) showing marked concern. A possible explanation for these incidents not being reflected in the data is the crew not being alert enough to perform a distress call prior to the incident.

CONTAINER SHIPS

Despite often great industry and public attention on container incidents and rapid growth in the sector, container ships only account for 132 distress calls collected by Inmarsat GMDSS data between 2018-2021. These numbers have remained roughly consistent, with 29 distress calls each in 2018 and 2019, which then rose to 36 incidents in 2020 and 38 incidents in 2021.

The distress calls appear to be largely from vessels along the eastern coastline of the United States of America, and along the Eastern coastline of China in the Yellow and South China Seas, the latter being particularly evident in 2020.

As the number of container ships in the global fleet has risen by 2.48% between 2020-2021 (UNCTAD Review of Maritime Transport 2021), these fairly consistent numbers may indicate that despite rapid turnarounds in port and issues with crew change and fatigue onboard, safety regulations have continued to be upheld - as far as is possible.

While container ships have been particularly spotlit, due to mass media coverage of incidents such as the Ever Given blocking the Suez Canal between 23-28 March 2021 and its sister vessel Ever Forward running aground in Chesapeake Bay in the US on 13 March 2021, Inmarsat's GMDSS data largely indicates little change in overall distress patterns.

Despite this consistency in numbers, however, container ships have been in greater focus due to their role in the global supply chain and overall shortage of containers, particularly during the pandemic. In their Safety and Shipping Review 2022, AGCS stated that fires continue to be a significant issue for the sector. This is considered to be a contributing factor in the loss of the Singapore flagged X-Press Pearl whose cargo was leaking nitric acid, which led to an onboard fire on 20 May 2021. The ship eventually sank off the coast of Sri Lanka on 2 June 2021.

Container ships have long been struggling to address issues arising from misdeclared cargo, particularly in the case

of batteries and hazardous substances. While increased firefighting training, regulation, and loading systems has been urged, this sits alongside rapidly increasing demand for containerships and limited availability of seafarers trained to address these circumstances. This suggests that without direct intervention, the industry may experience further rises in containership incidents that have begun to slowly increase in the last two years.

GAS CARRIERS

Incident numbers appear to remain relatively low for gas carriers, with a total of 71 vessel distress incidents between 2018-2021. GMDSS data shows just 11 and 13 incidents respectively in 2018 and 2019, which then rise to 21 in 2020 and 26 in 2021. As previously noted in the 2021 Inmarsat The Future of Maritime Safety Report, these low numbers are likely due to stringent regulation and carrier requirements due to the hazardous nature of the cargo.

While incidents still occur - such as the collision of LNG carrier Bilbao Knutsen with the product tanker STI Pimlico off the Port of Huelva in Spain on 30 April 2021 - many of these are attributed to human error.

Although previous incidents have occasionally shown small clusters, particularly in the Gulf of Mexico, incidents in 2021 were largely scattered and do not indicate any particular geographical hot spot.

OPINION

PETER HULT
CEO, VIKAND

IMPROVE CREW WELLBEING AND REAP SAFETY BENEFITS

Adopting a seafarer human sustainability approach will improve wellbeing and create the right conditions for a safer maritime industry

Crew maintenance and crew loss prevention boils down to one thing: crew wellbeing.

You will see a reduction in safety incidents and downtime if you maintain the good physical and mental health of your seafarers. We call this investing in human sustainability.

Yet in our experience, the maritime industry does not typically understand the benefits of seafarer sustainability, or the clear return on investment it can provide. Ask a Chief Financial Officer why they invest in engine maintenance and the answer will be to prevent downtime or the loss of the asset. However, investing in crew maintenance ensures protecting the most important asset of all: our people. Doing so leads to clear business benefits.

Based on actual incident figures from our experience in the maritime medical industry, we have hypothesised what effect greater measures to protect crew wellbeing would have for the industry as a whole. The data suggests that looking after the physical and mental health of crew provides tremendous savings in ship diversion (1/3rd) and serious medical claims (75%). It will ultimately improve productivity and help to retain experienced seafarers, improve on board culture and attract newcomers to the industry.

To achieve such benefits, shipping must adopt a proactive approach. At Vikand we have developed a Seafarer Human Sustainability Declaration for the maritime industry to adopt best practices for, and on behalf of, those working at sea and their loved ones ashore. We believe this framework, based upon UN Sustainable Development goals, can help our industry to thrive and sustain itself.

It includes, among others, the need for companies to provide quality education, nutrition, healthcare, insurance, mental health support, environmental safety, economic security, and freedom from abuse and harassment. Ultimately, to reap the benefits of seafarer human sustainability shipping must make incremental improvements that place crews and their families wellbeing firmly at the core of any business decision.

OPINION

DR GRAHAEME HENDERSON OBE
CHAIR OF TOGETHER IN SAFETY

WORKING TOGETHER IN SAFETY

These are not accidents, but repeatable incidents that could and should have been prevented

The safety performance in our industry has plateaued in recent years and at an unacceptable level. Seafarers are being killed and seriously injured, there is asset damage and environmental impact, which is costing the industry both financially and reputationally. We must ask ourselves why are the number of incidents not falling? In fact, this is hardly surprising as the shipping industry continues with the same approach to safety, which can only result in so much progress.

One of the key areas to address is the type of safety incidents themselves. Let's be clear, these are not accidents, but repeatable incidents that could and should have been prevented. In analysing the data, it is evident that there is a pattern of the same incident types recurring time and time again.

When we talk about safety and safety incidents, we are actually talking about seafarer lives, and the devastating impact on their families and children. During my career, I have witnessed some terrible incidents and we must be clear, that the impact does not last a day or a month or a year, but a lifetime and more.

To stop these unnecessary incidents, we must see safety as the solid foundation that supports every activity in the company. It is often said that if you get the safety right, you get everything right. That is why, in my work in some of the world's largest and most challenging oil and gas companies, we were able to improve the business performance through safety. The reason is that the same leadership attributes required for a great safety performance, also delivers a great business performance too. Safety shows care for people and their wellbeing, with the result that your people are motivated to do a great job every day.

This same thinking was used to develop the Together in Safety programme, which is the world shipping industry safety coalition.

Together in Safety is made up of leaders and experts, comprising all of the major shipping industry groups, including the International Chamber of Shipping, BIMCO, OCIMF, Intertanko, Intercargo, Interferry, Cruise Liners International and the World Shipping Council, as well as global shipping companies, and insurance, classification societies and country representatives.

The Together in Safety programme is based around the three key strategic drivers of Leadership, Incident Prevention, and Wellbeing & Care, with Collaboration at the core.

Following a detailed analysis of shipping industry data, we have identified that there are

14 recurring major incident types. If the shipping industry could eradicate just a small number of major incident types, this would have a dramatic impact on improving the safety performance in terms of seafarer fatalities and serious injuries, high-cost asset damage and significant environmental impact. These include navigation, container losses, fires, confined space entry and mooring operations.

Safety data and trends have been analysed with the development of free guidance through proven good practices for shipping companies to follow, to reduce the risk of these incidents recurring. This guidance is free and available now at the website togetherinsafety.info

I know that shipping leaders care about their people and take safety seriously. The issue is that those leaders do not know what more they can do. It is not about more regulation, but instead it is to align the company safety programme with Together in Safety and make safety the core of everything that you do.

Leadership in the company is vital to mobilise the organisation around the transformation, by personally setting the agenda and meeting staff, so they know that safety is important to you. It is about demonstrating care for your people and looking after them as if they are your own family. It is about understanding your safety risks and identifying your major incident types, then using the good practices that are already available to stop these preventable safety incidents from recurring.

The Together in Safety programme will make our industry a safer place and protect the lives of seafarers, and improve business and commercial effectiveness.

DISTRESS CALLS BY VESSEL TYPE

SPECIALIST VESSELS

Inmarsat GMDSS data indicates that 59 incidents of vessel distress took place between 2018 and 2019. This category covers a wide variety of vessel types (please see the vessel grouping information on page 39), but it is notable that the majority of incidents take place largely in coastal regions.

While numbers rose from 11 incidents in 2018 to 24 incidents in 2019, they have since remained consistent at 12 incidents in 2020 and 2021 each. As noted in the previous Future of Safety report, the spike in 2019 could potentially correspond to the rise in incident numbers due to extreme weather conditions that took place between August and November in 2019.

LEISURE VESSELS

47 vessel distress incidents were recorded for leisure vessels between 2018-2021. The majority of these incidents have taken place along the Southern European coastline, with 10 incidents taking place in 2018, 12 in 2019, 10 in 2020, and 15 in 2021.

Per Superyacht Times, six yachts were damaged by fires onboard while 17 further yachts have been involved in collisions in 2021. The significant rise in these numbers, particularly with regard to collisions, may suggest congestion in European ports may be an increasing factor affecting safety in this sector.

CAR CARRIERS

Inmarsat GMDSS data shows 34 vessel distress calls from car carriers, with the numbers rising slowly from 6 in 2018 to reach 12 in 2021. While these numbers are low, AGCS has pointed to concerns regarding fires onboard, largely attributed to lithium ion batteries and electric vehicles (EVs). This issue - believed to have also been a factor onboard the Felicity Ace in 2022 - has led many car carriers to refuse to transport secondhand battery-powered EVs.

Geopolitical conflict is an additional concern, such as in the case of the Helios Ray which suffered explosions onboard while located off the coast of Muscat on 30 April 2021. The incident was attributed to ongoing tensions between Iran and Israel.

Addressing these ongoing safety concerns, particularly that of fire hazards onboard, are a significant priority as the sector is currently experiencing a surge in commercial rates (as of early 2022).

PASSENGER SHIPS

Passenger ships have the lowest overall vessel distress numbers, with only 31 incidents recorded by Inmarsat between 2018-2021. Incident numbers have remained consistent, with 8 incidents reported in 2018, 9 in 2019, and 7 in 2020 and 2021 each.

These low numbers may indicate the impact of the pandemic wherein few cruise ships may have seen regular service, and ferries may have operated under strict conditions. Additionally, this sector is public-facing and highly visible, relying on customer loyalty and confidence, which suggests that safety is likely to be a key priority to maintain public trust and keep incident numbers low.

OPINION

RACHEL ARNOLD
CHIEF OFFICER, CRUISE SECTOR

CRUISE CONTROL: MINIMISING RISKS TO CREW AND PASSENGERS

Responsibility for thousands of untrained guests brings a special focus on safety, technology and training in the cruise sector

A unique concern of the cruise industry is that most passengers do not have safety as their focus. A brief muster drill and emergency briefings are realistically not enough to prepare guests for a real emergency. Therefore, crew training and familiarisation is of the utmost importance.

Common consequences of passengers being unaware of onboard risks include poor fire safety, such as smoking on balconies, which may not always be immediately identified by crew members despite their best efforts. All crew should undertake, at a minimum, sea survival and basic firefighting courses at a shoreside facility to provide detailed training for their specific functions. Developing dedicated STCW courses and requirements for hotel crew should be considered.

In general, the standard of equipment onboard has improved, from integrated bridge systems that greatly increase safety of navigation to advanced CCTV technology that allows immediate assessment of any activated smoke detector. Passenger ships are arguably leading the way in terms of investments in new technologies and implementing them in a way that improves safety.

In the wider maritime sector, the use of lithium batteries as an alternative power source is concerning due to the fire risk. Already there have been several incidents and crew are not trained or prepared with the specialist equipment required to deal with such a fire. But the biggest safety issues impacting seafarers remain fatigue, failure of automation systems and cyber-attacks.

The pandemic brought seafarer wellbeing and fatigue into even greater focus. Longer contracts and minimum or no shore leave contribute to fatigue, and a general concern for friends and family back home keeps the mind occupied with non-work issues. But total focus, alertness and clarity of thought is essential to making safe decisions and ensuring the human element does not cause accidents or incidents onboard.

Increased pressure from companies to reduce miles and be fuel efficient could also affect safe voyage planning or the collision avoidance decision-making process. Monitoring systems from shore can be incredibly effective, but if a culture emerges where the captain gets a phone call asking why they deviated two miles from the track, we begin to have a real problem.

Passengers are an added safety factor, but the root cause of most issues is cost cutting, whether that is reducing crewing or extending contracts, saving money on maintenance of critical equipment, or saving fuel by expecting crew to pass closer to land and other ships. There needs to be a severe evaluation of the cost-to-risk ratio. Often in the maritime industry no-one cares until there is a severe casualty, and by then it is too late.

DISTRESS CALLS BY SHIPYARD

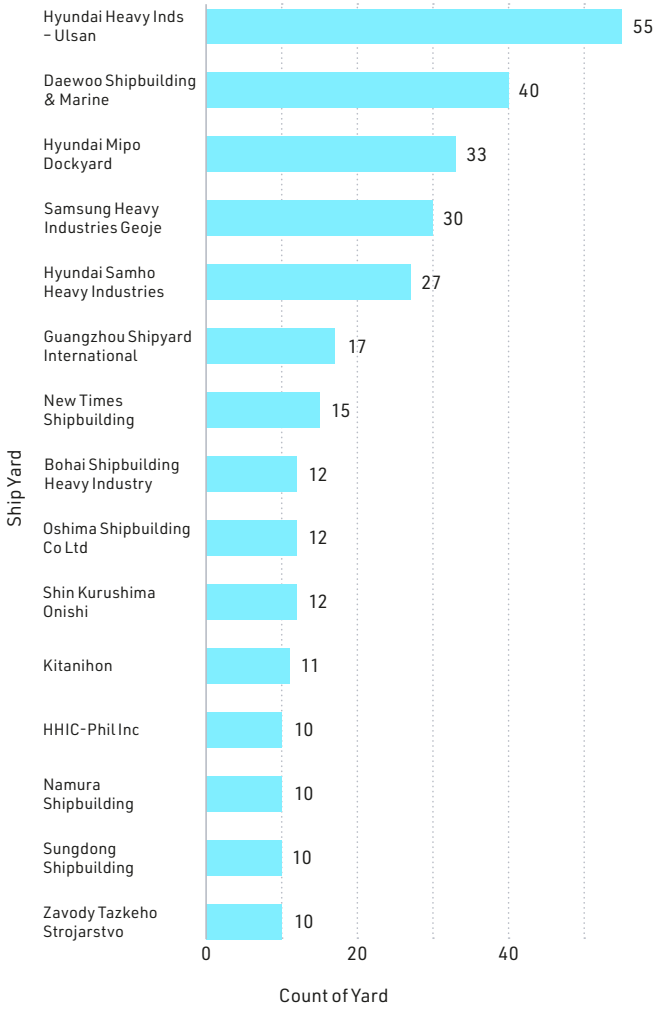
As stated in the Inmarsat Future of Safety Report 2021, the list of shipyards responsible for the construction of vessels issuing the highest number of distress calls continues to correspond with leading global shipyards – and South Korean builders lead the pack. It would, however, be extremely irresponsible to make any causal links between construction at a South Korean yard and distress calls/ incidents as there are many factors that play into the state of a vessel after launch.

Each of the vessels in the global fleet will be working to different standards based on their class, flag and ship manager. Furthermore, factors including routes and region of operation, seafarer operations onboard, weather conditions, regulations and vessel maintenance all have a part to play in the number of distress calls and incidents.

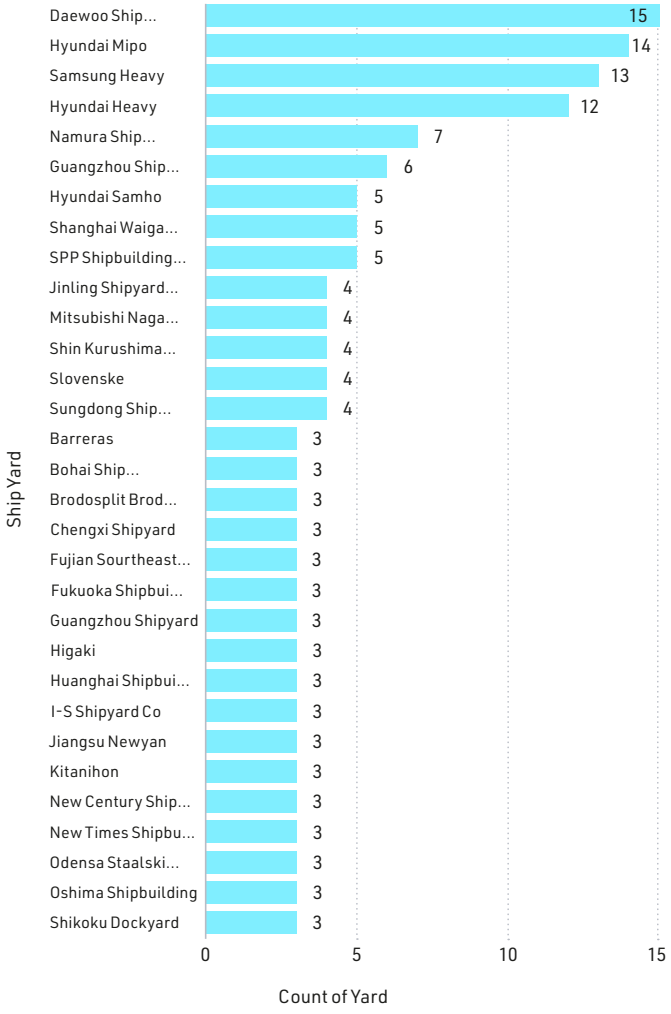
While GMDSS calls for the period of 2018-2021 shows Hyundai Heavy Industries in Ulsan (HHI-Ulsan) in the lead, followed by Daewoo Shipbuilding, Hyundai Mipo Dockyard, Samsung Heavy Industries Geoje, data for just 2021 also features the Namura shipyard in Japan as well as Guangzhou Shipyard in China. This data largely indicates the prominence of the shipbuilding industry in Korea, Japan, and China as these shipyards produce vessels for multiple sectors in the global shipping industry.

Per Danish Ship Finance's Shipping Market Review - November 2021, approximately 88% of new orders in 2021 have been won by either

GRAPH: VESSEL DISTRESS DATA BETWEEN 2019-2021 BY SHIPYARD



GRAPH: VESSEL DISTRESS DATA FOR 2021 BY SHIPYARD



Chinese or South Korean shipyards, with South Korean yards securing nearly all gas carrier orders in 2021. Additionally, demand for bulk carriers and container ships has resulted in a (possibly temporary) increase in the number of first-tier yards, particularly among those located in China and Japan.

Additionally, the OECD notes that the global recessions of 2008 and 2016 had a significant impact on shipyards. Clarksons Research has indicated that there were a flurry of closures in the wake of the 2008 recession, which reduced the total global number of shipyards down from 934 in 2009 to 358 by July 2017. Recent years have also shown an additional trend of consolidation of shipyards. In 2021, there are 275 active yards globally, of which 71 are classified as first-tier, accounting for around 85% of the global order book and 60% of global yard capacity.

However, consolidation remains a complex process. Two of South Korea's biggest yards (HHI and DSME) had a potential merger blocked by competition authorities in the EU who believe this would have created a dominant position for the new merged company and reduced competition in the worldwide market for the construction of large liquefied natural gas (LNG) carriers.

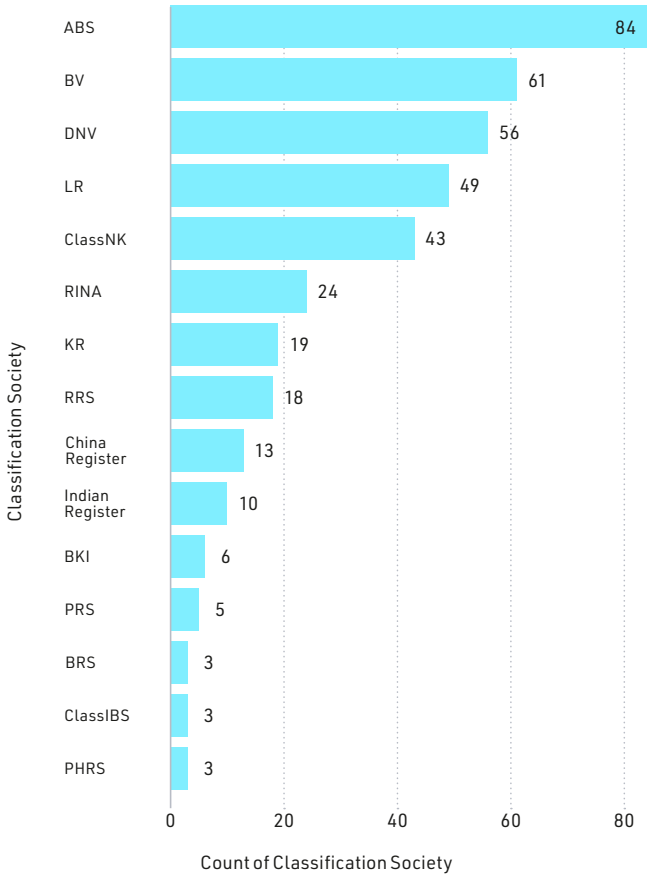
DISTRESS CALLS BY CLASS SOCIETY

Much like information on vessel shipyards, it is difficult to ascertain any true link between the classification society of a vessel and the reason for a distress call. Operations onboard, region and route of operation, weather conditions, and the human factor, can all impact the safe operation of a ship.

The period from 2018-2021 shows that the American Bureau of Shipping (ABS) leads with 248 GMDSS calls reported, DNV follows with 234 calls, Bureau Veritas (BV) with 212 calls, Lloyd's Register (LR) has 179 calls, and Nippon Kaiji Kyoukai (NKK) with 142 calls. It is unsurprising that these large classification societies lead in overall GMDSS distress call numbers due to the sheer volume of vessels they class.

Although ABS currently has the lowest number of active vessels among these class societies with 6,925 active vessels (as compared with DNV's 8,158, NKK's 7,937, BV's 7,730 and LR's 7,706), it is worth noting that class societies often specialise in particular sectors. With ABS known as a society with many tankers on its books, and with higher overall tanker incidents globally due to geopolitical conflict, piracy, extreme weather conditions, and human element factors, the fact that this class society saw more incidents overall is understandable.

GRAPH: RECORD OF VESSEL DISTRESS CALLS BY CLASS SOCIETY FOR 2021



OPINION

EMBRACE CURRENT TECHNOLOGY SOLUTIONS TO IMPROVE SAFETY

Maritime should utilise existing technology to improve current systems and adapt its own processes to maintain safety as we move to a more digitally connected and autonomous future

CHRISTOPHER JANUS

BRANCH CHIEF, MARITIME SAFETY WATCH, NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY, USA

In today's world we can be at risk of information overload; something that is not ideal for any of us but becomes a critical problem in the safety sphere. We are seeing the number of satellites and communication devices being placed into orbit increase globally. This requires greater coordination on our side and the need for us to provide guidance to those authorities that broadcast information on the ideal amount we, and ultimately, seafarers need.

Having two pages of information for some alerts is far from ideal, particularly for ships in hazardous areas where alerts may be received one or two minutes apart. What is needed is to be able to provide that information in a useful way so seafarers can understand the hazardous areas and take the appropriate action to navigate safely.

Just as we use map applications on our mobile phone devices to be able to get the latest information on accidents or congestion on our routes, the ability to visualise navigational warnings on an electronic chart will provide a similar benefit. This will make them easier to understand and digest quickly, helping seafarers

react faster to potential hazards. This new navigational warning standard, S-124, is already in development by the International Hydrographic Organization (IHO) as part of its S-100 Universal Hydrographic Data Model and should be available from 2026.

We do not need to wait for new technology to arise to improve our safety systems, there are plenty of existing technologies that maritime can adopt now. For example, the National Geospatial-Intelligence Agency (NGA)'s 24/7 Maritime Safety Watch desk receives around 1,000 messages per day.

Traditionally we manually monitor, organise, validate and issue warning broadcasts from those messages, typically 30 to 40 a day. This process takes time – and time isn't something seafarers have to spare if heading towards a potentially hazardous situation.

To create a simpler, faster tool, NGA has created a Source Maritime Automated Processing System that uses autonomous natural language processing and basic machine learning. This system helps us categorise the information in as much as half the time it would typically take. It highlights what is important for the watch officer to evaluate immediately, what is actionable and what isn't. It will even draft a navigation warning for the watch officer with positions and geographical information that we can use as the basis of our navigational warning.

This kind of automated system could be considered more widely by our industry as we head towards implementing new S-124 navigation warnings for electronic charts and effectively processing even more information.

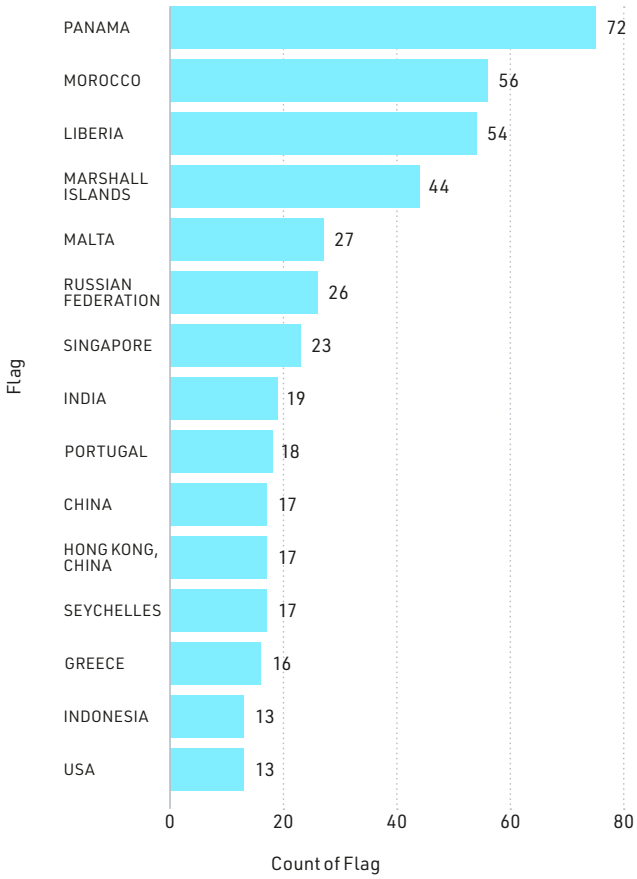
As we move forward into adopting even more autonomous systems on board vessels and ultimately towards Maritime Autonomous Surface Ships (MASS), we need to think how this will change the needs for navigational warnings. Last year, NGA sent a navigational warning to notify seafarers of the autonomous vessel Mahi 2's Atlantic crossing, the first such navigational warning for an autonomous vessel.

It raises questions around how such vessels will interact with navigation warnings, what information we provide, how we structure it and how frequently it is sent. This will all need to be balanced with the needs of traditional vessels.

Technological change is to be embraced and it is down to us as an industry to capitalise on its benefits and adapt our ways of working to ensure safety for all.

DISTRESS CALLS BY FLAG STATE

GRAPH: RECORD OF VESSEL DISTRESS CALLS BY FLAG STATE FOR 2021



As previously stated, Panama and Morocco account for the highest number of overall distress signals received by Inmarsat GMDSS data between 2018-2021, both at 231, followed by the Marshall Islands and Liberia at 140 and 135 respectively. In 2021, Panama recorded the highest number of distress incidents (72), followed by Morocco (56), Liberia (54), and the Marshall Islands (44).

These high numbers can be attributed to Panama's flag registry hosting the world's largest active fleet of 7,575 vessels across a wide variety of sectors, followed by Liberia's registry which hosts 3,647 active vessels, and the Marshall Islands which comprises 3,767 active vessels in 2021.

A large number of fishing vessels are registered to Morocco's flag state which currently comprises 330 active vessels overall. Given the consistently high overall numbers of incidents between 2018-2021, there is clear evidence of a need for regulatory interventions into fishing vessel safety in the region. However, Morocco is not currently a signatory to the Cape Town Agreement on fishing vessel safety, nor is it one of the 50 states that have promised to ratify it by October 2022.

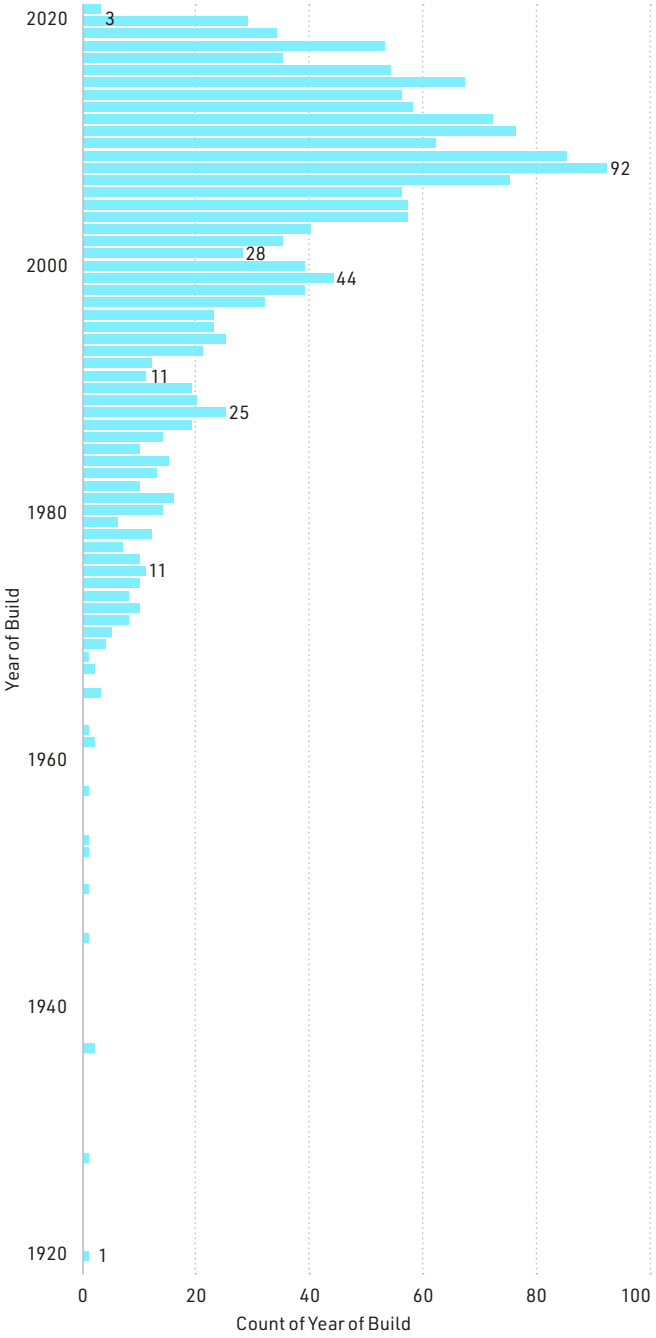
Although 2018-2019 recorded Morocco as having the highest number of vessel distress calls, 2020-2021 showed Panama in the lead. While the overall distress numbers have remained largely consistent for both flag registries, it is possible to suggest that the pandemic may have restricted operations for fishing vessels operating during periods of national lockdown.

DISTRESS CALLS BY YEAR OF BUILD

The UNCTAD Review of Maritime Transport 2021 notes that approximately 55% of active bulk carriers in 2021 are 1-9 years old, while 24% are between 10-14 years, suggesting the majority of the bulk fleet is relatively young. By contrast, 49% of container ships comprising the world merchant fleet in 2021 are between 10-20 years in age. However, this pales in comparison with the general cargo sector, where 59% of ships were 20 years or older in 2021. Oil tankers show a fairly even distribution of age across the active fleet, with 52% ranging between 0-14 years. Consistently growing demand for container and bulk cargoes may provide an explanation for the large numbers of these types of ships on order. Limited physical and labour resources as a result of the pandemic may create further pressure for these vessel types in the near future.

Although GMDSS data shows that vessels of about 30 years tend to have a higher level of distress calls, age does not necessarily correlate with more safety incidents - after all, some older vessels may be expertly maintained and operated, while younger vessels may experience

GRAPH: RECORD OF VESSEL DISTRESS CALLS BETWEEN 2018-2021 CATEGORISED BY VESSEL YEAR OF BUILD



teething issues. That said, wear and tear on older vessels is understandable, as are mechanical breakdowns. It is also worth noting that older vessels often operate more closely to shore, in areas more likely to experience piracy attacks and where more extreme weather occurs.

As noted in Inmarsat's 2021 Future of Maritime Safety Report, the economic downturn in 2008 and subsequent maritime recession in 2016 not only affected shipyards but also the maintenance and upkeep of vessels during this process. While not all GMDSS distress data can be attributed to mechanical issues onboard or vessel upkeep, there is an evident rise in distress calls for vessels commissioned after this period, indicating the long term effects of financial austerity on vessel safety - whether this pertains to newbuilds constructed at financially affected shipyards in this period or ship owners and operators reducing hull and machinery maintenance onboard to minimise costs.

It is possible to suggest that the combination of the current financial downturn in certain sectors, exacerbated by the pandemic, as well as market uncertainty about leading decarbonisation systems for the industry, may result in vessels potentially being retired earlier than previous industry average. A growing focus on Environmental, Social, and Governance (ESG) factors and consumer demand for greener operations may additionally affect market conditions for older vessels, leading to a significantly younger global fleet in certain regions and sectors (particularly public-facing sectors such as cruise, and cargo sectors where companies like IKEA and Amazon may institute policies around green operations).

OPINION

MENTAL STATE MEANS MORE THAN SEA STATE IN SHIP SAFETY

Physical demands on ship crew may be onerous, but psychological aspects pose the greatest risk to the safety of seafarers and the vessels they operate

YRHEN BERNARD SABANAL BALINIS

ORDINARY SEAFARER

I have worked on both bulk carriers and general cargo vessels, which have slightly different risks. For bulk carriers, the common denominator was risk at safe mooring. Bulk carriers in cargo operation operate around the clock, unlike general cargo vessels that often have off-hours for shoreside crew to rest.

For general cargo vessels, the risk is in the handling of cranes. I worked on a two-crane, 139-metre long vessel and it took intense effort to ballast and deballast during cargo operations.

But when we think about safety, it must not be limited to physical factors. We have to strive for psychological safety too. Gender harassment, political difference, sexual orientation, tokenism or ageism among personnel can also lead to an unsafe ship.

The pandemic highlighted existing but neglected problems. Seafarers have long been aware that rest hours are not properly implemented, but it is only now that a large number of people are talking about it. Gender harassment and bullying are also being discussed

openly. But some problems became worse during the pandemic. For example, vessels that previously had a limited supply of provisions were forced to make do with none at all. This adds up. Crew that are socially isolated, malnourished and sleep deprived will underperform, causing an unsafe workplace.

Seafarers' mental health has been receiving severe battering with all the chaos of the world, especially during the pandemic. This has been aggravated by the lack of shore leave. This issue is easing gradually as countries open their borders to facilitate crew change and shore leave. However, extreme workloads and especially paperwork have remained, if not increased, due to stringent health requirements required by ports, agents and others.

This pandemic has served as a springboard for digitalisation to speed up in maritime. For a post-COVID recovery, shipping companies, port states, regulators and other stakeholders must work to prioritise their most valuable asset – their seafarers, both young and experienced.

There are several steps the industry could take to resolve these issues. The first is a review of the Maritime Labour Convention 2006 to see if it still applies in today's world, and, if so, to ensure stricter implementation. We need a policy framework to minimise the abuse of seafarers from the top of the company's management down to the culture onboard individual vessels.

A policy review should include looking at the minimum crewing requirements of flag states. These are being abused by ship owners and crew administrators, with some crew members pushed into doing the jobs of three people. Gender and crew empowerment training could also help quash abuse.

The shipping industry is catching up with digitalisation in other sectors. In tandem to this is the need for increased training for all maritime professionals, seafarers or otherwise. Trials of autonomous ships and alternative fuels are starting and we have to equip all seafarers and shoreside teams with the necessary skills to operate and troubleshoot.

Decarbonisation and digitalisation both pose safety concerns, but these can be remedied by training and increasing seafarers' exposure to these technologies.

CONCLUSION

It is clear that despite a decline in total losses in the maritime industry over the past decade, shipping can and must do more to proactively address the safety issues clearly reflected in distress call data outlined in this report.

A drastic rise in distress calls in the last three years from pre-COVID levels is a clear indicator that the industry has not emerged from the pandemic unscathed. While crews and shipowners may have shown great resilience and learnt to operate in the 'new normal', GMDSS data suggests that issues such as seafarer fatigue, restricted access to dry dock and undergo vessel repairs, and reduced safety inspections, to name a few major impacts, have likely contributed to more safety incidents occurring.

As shipping continues to navigate various COVID outbreaks and lockdown measures around the world, combined with current geopolitical occurrences, we could see further peaks in ship incidents. Seafarer shortages and competition from land-based sectors may also impact appropriate crewing levels.

The rise seen in distress calls as seen in this analysis correlates with Allianz's reported rises in ship casualty incidents in 2021, with the top three incidents found to be machinery/damage failure, collisions and fire/explosions.

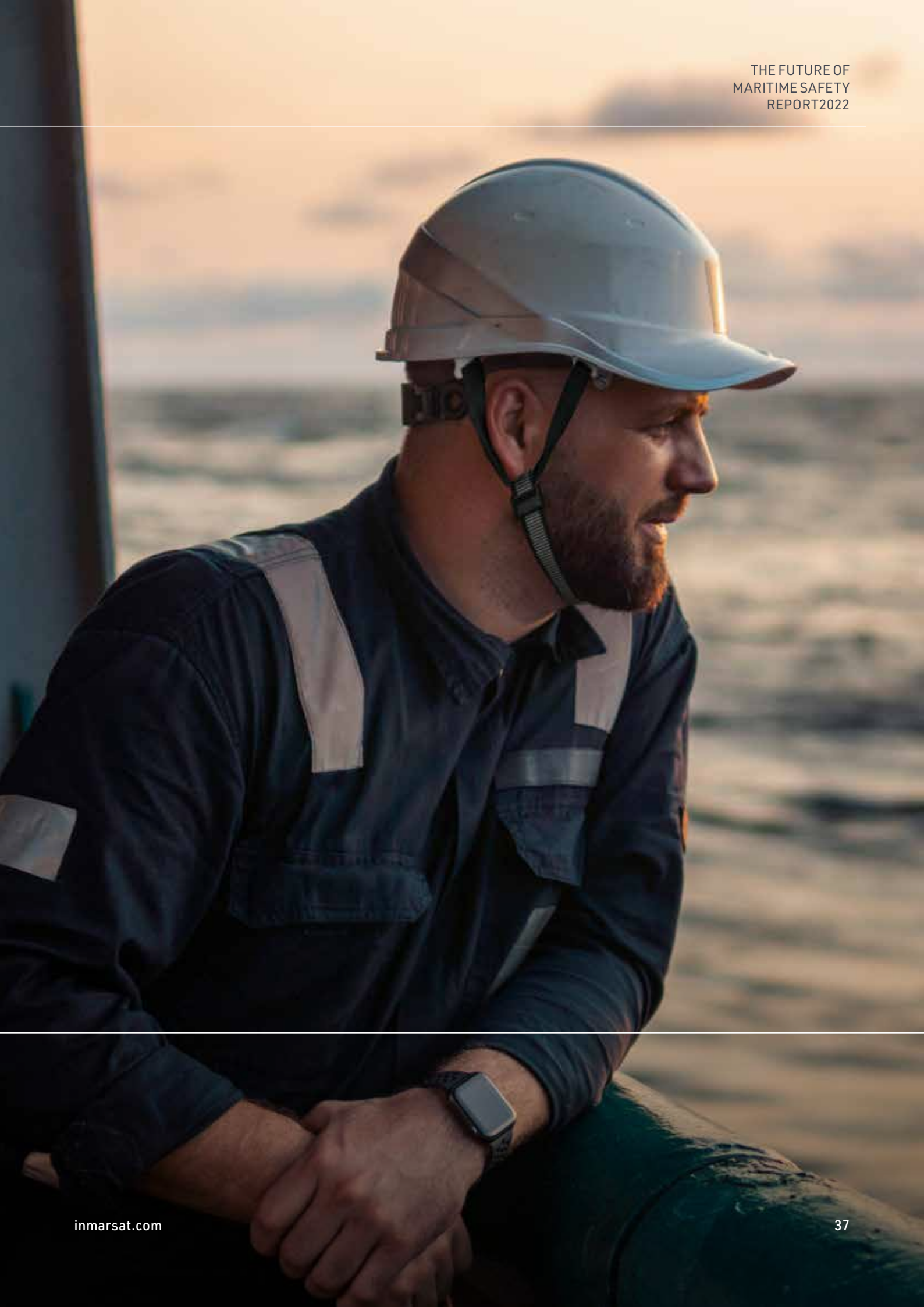
These types of safety incidents are not new and should serve as a wake up call to industry to take a more proactive approach to analyse the underlying causes and take decisive action to prevent them. A proactive approach will reduce the risk of injury, loss of life, risk to cargo and vessel damage. Placing a priority on resolving common, preventable safety incidents in shipping will also provide a business benefit by helping prevent costly delays. A reduction to vessel downtime will positively impact the wider shipping industry and its role in global trade at a time when supply chains continue to falter.

As Dr Grahaeme Henderson OBE, Chair of Together in Safety, says in this report, many of the solutions already exist for shipping to follow in the form of good practices that will help reduce the risk of common incidents recurring. Ultimately, the trends outlined in this report should serve as signposts to guide the way to a safer industry.

We are heading into a time of massive transformation. The introduction of greener fuels and emerging technologies will pose many safety challenges, as will potential shortages of qualified seafarers and a move to more autonomous systems.

Maritime should foster innovation that can better protect vessels and crew. However, in doing so it should not overlook current technological solutions that can improve onboard safety including digital twins, remote monitoring, artificial intelligence and greater use of lessons that big data can offer. All such innovations can help improve operations and raise safety on board, as long as they are introduced responsibly and crew provided with adequate training.

It is vital that shipping puts safety at the core of its operations and uses every solution available to prevent incidents and save lives.



METHODOLGY

The 2022 Future of Maritime Safety Report was compiled by Intent Communications Ltd for Inmarsat. The analysis examines vessel distress signal data gathered by Inmarsat between 2018 and 2021 to assess safety issues of concern to the maritime industry. The report expands on information made available in the 2021 Future of Maritime Safety Report which analysed incidents reported to Inmarsat between 2018-2020.

The report categorises this data based on grouped vessel types (see page 39 for further information on these categories) and analyses them primarily with regard to type of vessel, incident numbers and location. Additional context is provided through an analysis of class societies, seasonal periods of high incidence and corresponding weather patterns, and manufacturing yard.

Opinions were solicited from relevant industry representatives and seafarers with regard to particular sectors, ensuring that this report not only offers its readers comprehensive data analysis, but also indicates how this information sits alongside current understandings of the maritime Industry.

DATA GATHERING FOR ANALYSIS

Under the Safety of Life at Sea (SOLAS) convention, cargo ships of 300GRT and upwards and all passenger ships on international voyages must be equipped with satellite and radio equipment that conforms to international standards. Being a provider of such communication services, Inmarsat gathers and stores GMDSS data from its terminals for regular record keeping and liaises with authorities such as the International Mobile Satellite Organization (IMSO), the International Maritime Organization (IMO) and others.

Upon commissioning this report, Inmarsat began by processing its own recorded data for the four year period running between January 2018 and December 2021. Following this, the data was then matched against internal Inmarsat vessel grading information, processed to remove duplication points and was then verified against the IHS Markit vessel database and Clarkson World Fleet Register.

The final data set therefore contained information that included the year of the distress call, location information (such as ocean region, latitude and longitude), the IMO number (where available), the vessel's name, the vessel's flag state, the vessel's classification society and the type of vessel (when matched against both Inmarsat and available vessel data classification).

This information was then used to map trends and patterns and draw conclusions where possible. It is of note that in the process of processing the GMDSS data, Inmarsat has removed duplicate calls from the same vessels to present a cleaner data set as in some cases, there would have been multiple GMDSS alerts per incident.

VESSEL GROUPING METHODS

Data provided by Inmarsat saw a range of self-declared vessel types. In order to draw meaningful conclusions across the range of data provided by Inmarsat, Intent Communications organised the vessel types into overarching categories. These include tankers, fishing vessels, general cargo, bulk carriers, offshore vessels, tugs, container ships, gas carriers, leisure crafts, car carriers, specialist vessels and passenger ships.

In certain cases, vessels declared themselves as using flags that are not recognised within the IMO database. Upon approval from Inmarsat, these vessels were removed from data analysis.

Many cases involved undeclared vessel types, wherein the vessel had either not provided their IMO number, offered no further information to Inmarsat during the distress signalling, did not match relevant databases and offered minimal data for corroboration. Given this lack of information, these vessel types could not be used to seek significant statistical data or contribute to further analysis.

This grouping was provided to Inmarsat for approval, after which it was laid out in Microsoft's Power BI data visualisation tool for further analysis by Intent Communications. This analysis was then collated and edited to form the report.

This report was then submitted to Inmarsat and approved prior to print.

VESSEL INDEX

TUG
Anchor Handling Tug Supply
Articulated Pusher Tug
Anchor Handling Supply Vessel
Tug
Anchor Handling Vessel
Pilot Vessel
Tugboat
Empurrador (Tug)
Mini Abastecedor

FISHING VESSEL
Fish Factory Ship
Fishing Vessel
Fishing
Auxiliary Fishing
Fishery Research Vessel
Fish Carrier
Whaler
Trawler
Freezer Trawler

BULK CARRIER VESSELS
Open Hatch Cargo Ship
Bulk Carrier
Ore Carrier
Bulk
Bulk Carrier, Self Discharging
General Dry Cargo (Bulk Carrier)

GENERAL CARGO VESSEL
General Cargo Ship
Palletised Cargo Ship
Navire De Charge
Aggregates Carrier
Cargo
Deck Cargo Ship
Passenger/Cargo Vessel

TANKER VESSELS
Crude Oil Tanker
Bunkering Tanker (Oil)
Crude/Oil Products Tanker
Chemical/Products Tanker
Shuttle Tanker
Products Tanker
Asphalt/Bitumen Tanker
Replenishment Tanker
Molten Sulphur Tanker
Products Tanker

GAS CARRIERS
LNG Tanker
LPG Tanker
Gas Processing Vessel

CONTAINER SHIP
Container Ship (Fully Cellular)

SPECIALIST VESSEL
Refrigerated Cargo Ship
Livestock Carrier
Cable Repair Ship
Trailing Suction Hopper Dredger
Hopper, Motor
Logistics Vessel
Cement Carrier
Hospital Vessel
Heavy Load Carrier
Logistics Vessel (Naval Ro-Ro Cargo)
Grab Dredger
Stone Carrier
Wood Chips Carrier
Pipe Carrier
Salvage Ship
Crane Vessel, Non Propelled
Cutter Suction Dredger
Log Tipping Ship
Standby Safety/Guard
Shopping Complex
Salt Carrier

CAR CARRIER
General Cargo Ship (With Ro-Ro Facility)
Ro-Ro Cargo Ship
Vehicle Carrier
Ro-Ro Freight/ Passenger
Ro-Ro
Passenger/Car Ferry
Passenger/Ro-Ro Ship (Vehicles)
Vehicles Carrier

OFFSHORE
Offshore Support Vessel
Landing Ship (Dock Type)
Drilling Ring, Jack Up
Drilling Rig, Semi Submersible
Diving Support Vessel
Utility Vessel
Supply Tender
Offshore/Tug Supply Ship
Production Platform, Semi Submersible
Crew/Supply Vessel
Platform Supply Ship
Offshore Construction Vessel, Jack Up
Well Stimulation Vessel
FPSO, Oil
Landing Craft
Work/Repair Vessel
General Cargo Offshore Safety Vessel
Drilling Ship
Support Platform, Jack Up
Well Stimulation Vessel
FSO, Oil

GOVERNMENT SHIP
Fishery Patrol Vessel
Patrol Vessel
Research Survey Vessel
Search and Rescue Vessel
Government
Patrol
Military
Fragata
Research Ships
Lighthouse Tender
Coast Guard Ship
Corvet
IPV
FPV
Offshore Patrol Vessel

PASSENGER SHIP
Training Ship
Passenger Ferry
Sailing Cruise
Westerly Oceanlord 41
Sail Training Ship
Recreo
Cruise Ship
Schooner
Sailing Boat
Passenger Vessel
Sailing Vessel
Cruise
Passenger Vessel
Passenger/Cruise

LEISURE CRAFT
Explorer Yacht
Sail Yacht
Yacht
Commercial Racing Yacht
Motor Yacht
Sailing Yacht

UNREGISTERED
Empty Cells
Ship
Unk
Commercial
Other Commercial Vessel
Blanks

CONTACT

For further information and questions, please contact the Inmarsat Maritime Safety Services team:

Maritime.Safety@inmarsat.com

inmarsat.com