



SAFETY AND SHIPPING REVIEW 2020

An annual review of trends and developments
in shipping losses and safety

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The **Golden Ray** rests on its side near the Port of Brunswick in Georgia, USA (page 26)

Photo: US Coast Guard



The **Grande America**, sank on March 12, 2019 after its cargo of vehicles and containers caught fire in the Bay of Biscay (page 26)

Photo: Farid Mernissi - Own work, CC BY-SA 4.0, Wikimedia Commons



The UK-flagged **Stena Impero** tanker was detained by Iranian forces for two months before eventually being released (page 42)

Photo: By Fars News Agency, CC BY 4.0, Wikimedia Commons

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SAFETY & SHIPPING REVIEW 2020 IN NUMBERS



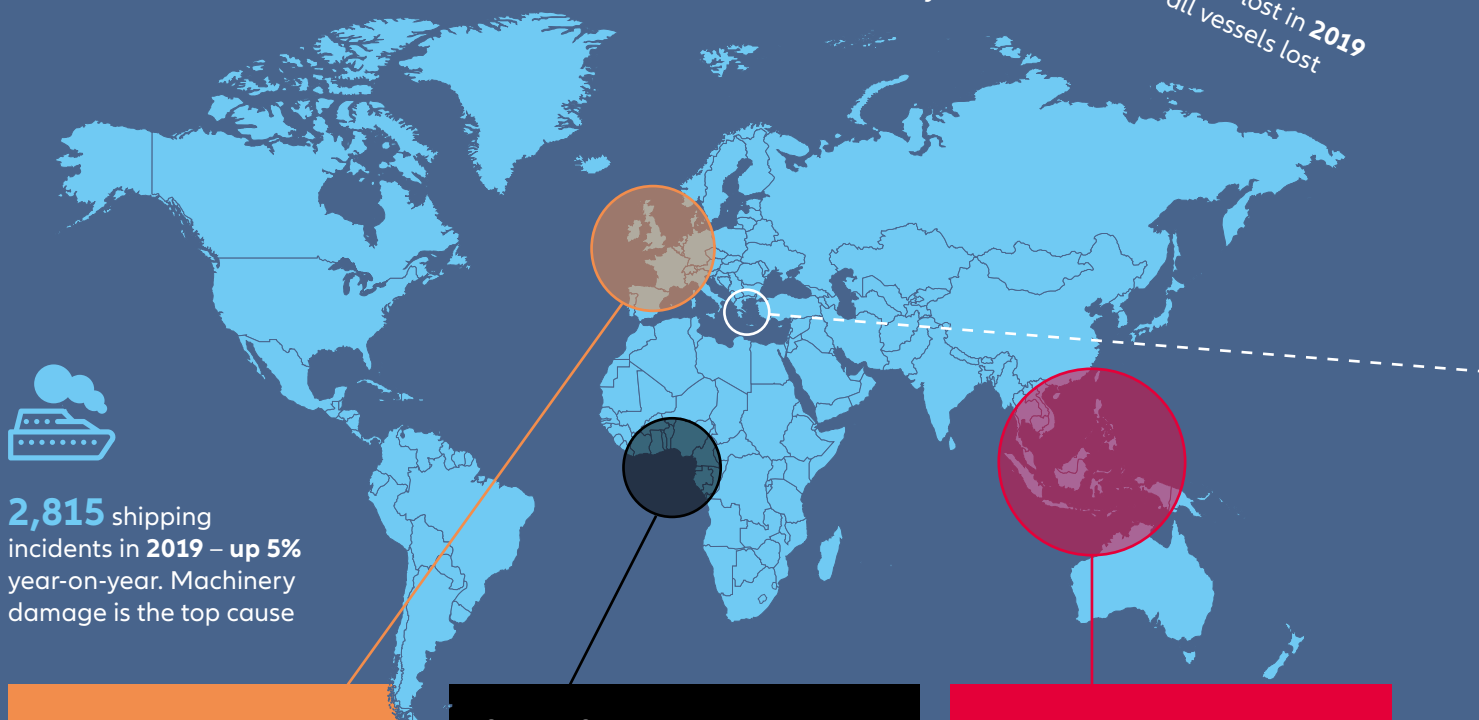
951 total losses over past **10 years**



41 total losses in **2019** – a record low. **70%** decline in **10 years**



15 cargo ships lost in **2019** – **37%** of all vessels lost



2,815 shipping incidents in **2019** – up **5%** year-on-year. Machinery damage is the top cause

605 incidents in **2019** in the **British Isles, North Sea, English Channel** and **Bay of Biscay** region

90% of global kidnappings reported at sea in **2019** in the **Gulf of Guinea**

1 in 3 losses in **2019** occurred in **South China, Indochina, Indonesia** and **Philippines** – the **global hotspot**

EXECUTIVE SUMMARY

Allianz Global Corporate & Specialty's (AGCS) Safety and Shipping Review identifies loss trends and highlights coronavirus-, climate-, security- and technology-related challenges for the maritime sector.

Given the global shipping industry is responsible for transporting as much as 90% of world trade, the safety of its vessels is critical. **The sector saw the number of reported total shipping losses of over 100GT decline again during 2019 to 41** – the lowest total this century and a close to 70% fall over 10 years. Improved ship design and technology, stepped-up regulation and risk management advances such as more robust safety management systems and procedures on vessels are some of the factors behind the long-term improvement in losses.

Shipping losses declined by almost a quarter year-on-year from 53 in 2018, although late reported losses may increase the 2019 total further in future. Bad weather was reported as a factor in one in five losses. The 2019 loss year represents a significant improvement on the rolling 10-year average of 95 – down by over 50%.



1 in 5 losses in 2019
due to bad weather



1,500%
increase in container-carrying
capacity in 50 years



6 incidents involving
the most accident-
prone vessel in 2019
– a Greek Island ferry

The South China, Indochina, Indonesia and Philippines maritime region remains the main loss hotspot, accounting for almost 30% of losses over the past year with 12 vessels. These waters are also the major loss location of the past 10 years, driven by factors including high levels of local and international trade, congested ports and busy shipping lanes, older fleets, exposure to typhoons and ongoing safety problems on some domestic ferry routes. However, the number of losses in this region has declined for the second successive year. The Gulf of Mexico (4) and the West African Coast (3) – neither of which featured in the top 10 loss regions last year – rank as the second and third most frequent loss locations.

Cargo vessels (15) accounted for more than a third of all total losses during 2019 with the majority occurring in South East Asian waters. The number of losses involving ro-ro vessels (3) increased year-on-year. **Foundering is the most frequent**

cause of loss of all vessels, accounting for three in four during 2019. Contributing factors included bad weather, flooding and water ingress, engine trouble and vessels capsizing. Fire/explosion continues to be a significant problem on board vessels, resulting in five total losses during 2019.

While total losses declined significantly over the past year, **the number of reported shipping casualties or incidents actually increased by 5%** to 2,815. There were over 1,000 cases of machinery damage/failure (1,044) – already the top cause of shipping incidents over the past decade – accounting for more than one third of all incidents reported in 2019. Incidents on passenger vessels and ro-ros increased. The British Isles, North Sea, English Channel and Bay of Biscay maritime region replaced the East Mediterranean to become the main incident hotspot for the first time since 2011, accounting for one in five incidents (605).

CORONAVIRUS IMPACTS

The shipping industry has largely proved resilient to the coronavirus outbreak, keeping the life blood of global trade and essential supplies flowing. However, while many of the risks of the sea have been reduced for those vessels waiting at anchorage or in lay-up – the reduction in sailings could be a positive for claims frequency – new challenges have evolved.

One of the biggest issues has been the **inability to change crews** easily because of pandemic restrictions. Relief of crew is essential in ensuring the safety, health and welfare of seafarers. Extended periods on board vessels can result in mentally and physical fatigued crew, which is known to be one of the underlying causes of human error, estimated to be a contributing factor in 75% to 96% of marine incidents.

The **sustained economic downturn will have implications for shipping risks**, as vessels are laid-up and companies take steps to manage costs. Past downturns have shown that crew and maintenance budgets are often among the first areas to be cut. It is important that the industry does not undo its good work of previous years and let safety and risk management standards slip.

Damaged goods and containers is already one of the most frequent causes of insurance claims in the shipping industry, accounting for more than one in five claims, according to AGCS analysis and the pandemic has heightened the risk environment around high-value and temperature-sensitive goods in particular as supply chains have come under pressure, cargo-handling companies have shut down abruptly and ports operated under restrictions.

The coronavirus outbreak has also made it **difficult for vessels to obtain essential spares and consumables, such as oils and lubricants, and carry out maintenance and repairs.** This could have a detrimental effect on the safe operation of engines and machinery, potentially causing damage or breakdown, which in worst-case scenarios can lead to groundings or collisions.

1,000+

reported incidents
on vessels due
to machinery
damage in 2019

The cruise ship industry, which generates more than \$150bn in global economic activity and supports over one million jobs worldwide, effectively went into hibernation as a result of the pandemic. **With the biggest cruise ships worth in excess of a billion dollars, accumulations of risk are a potential issue while restrictions are still in place.** As of April 2020, some 95% of the global cruise fleet was in lay-up, with many vessels anchored in hurricane-exposed areas in North America and typhoon-exposed areas in Asia. Emerging from lay-up poses another challenge. The monthly cost of cruise ship lay-up can be in the millions of dollars and the extent of upkeep and crewing will affect the speed with which a vessel can be brought back into service.

As the price of oil plummeted amid concerns for the coronavirus economy, demand for floating storage hit record levels. **Many tankers have been idling around major oil ports and terminals in the US, Europe and Africa, with potential exposures to extreme weather, piracy and political risks.** Tankers have also been chartered for use as floating storage, which will need to be subject to certain maintenance and contractual requirements.

LOSS TRENDS IN FOCUS

Issues with car carriers and ro-ro vessels remain among the biggest safety issues for the shipping industry. The number of total losses involving ro-ros has increased year-on-year, while reported incidents (188) are up by 20%. These, and similar vessels, can be more exposed to fire and stability issues than others, and can require additional emphasis on risk management. Many can have quick turnarounds in port and a number of accident investigations have revealed that pre-sail away stability checks were either not carried out as required or were based on inaccurate cargo information. In many cases cargo was not fully-secured prior to sailing.

While major losses have trended down, **attritional claims are becoming more of an issue for insurers**, in part due to increasing complexity. Litigation, particularly in the US, can drag on, while any environmental issues can also take time to resolve, adding significantly to claims costs. In addition, the frequency of higher value claims has been rising, as has severity from navigation and machinery issues.

Container ship fires continue to be an issue. Vessels become larger every year – capacity has increased by 1,500% over 50 years – which can impact fire prevention and salvage in the event of an incident. Awareness of this problem has been growing, but is still a major concern and a focus of insurers. Technology could play a role in reducing

the risk of fire on board vessels, including temperature monitoring of cargo, water spray and CO2 fire suppression in cargo holds, more active firefighting on deck, including water curtains, water screens and fixed water monitors and even integrating fire suppression systems in drones.

A National Cargo Bureau (NCB) study found the majority of containers it inspected had **issues with mis-declared or improperly stowed cargo.** Of the 500 containers inspected, more than half failed with one or more deficiencies, including the way cargo was secured, labelled or declared. This is an issue that needs to be addressed by the whole supply chain. Too much cargo is being loaded that is not properly documented and appropriately stowed, increasing the threat of fires and risking lives. In response, a number of major container ship operators are taking steps to tackle the issue, including more stringent cargo verification and inspections and higher penalties and fines for infringements. Technology and machine learning is also increasingly being deployed to help better review cargo manifests and identify issues. However, this is a problem that will only get worse if action doesn't continue, as vessels become bigger and the range of goods transported continues to grow. Chemicals and batteries are increasingly shipped in containers, and these pose a serious fire risk if they are mis-declared or wrongly stowed.

CLIMATE CHALLENGES

From January 1, 2020, allowable sulphur levels in marine fuel oil were slashed under the **International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI**, more widely-known as IMO 2020, as the shipping industry looks to play its part in a more sustainable environment. However, compliance with the new sulphur cap is not straightforward, with a range of options available – each with its own cost implications, compliance challenges and risks.

The sulphur cap creates uncertainty for risks of bunkering, machinery breakdown and the use of scrubbers, which are used to remove harmful materials from industrial exhaust gases before they are released into the environment. Insurers are concerned that teething problems with scrubbers could lead to a surge in machinery damage claims, with technical and operational issues already having resulted in a number of losses. Scrubber waste is corrosive and there have been reports of incidents where this corrosion has caused wastewater to flood engine rooms, ballast tanks and cargo holds. Further losses related to scrubbers and bunker fuels are likely to materialize in the months and years ahead.

Targets to cut emissions will shape risk for the shipping industry for years to come. **The International Maritime Organization proposals to halve CO2 emissions by 2050 is a challenging target to achieve, and one that will require the industry to radically change fuels, engine technology and even the design of vessels.** In addition to the technical challenges, decarbonization will have regulatory, operational and reputational (corporate social responsibility) implications for shipping companies. Investors are increasingly shunning carbon-intensive industries, while regulators and investors are insisting on more transparent reporting of climate change risks and exposures. However, there is the risk that all the progress on addressing climate change could now stall with the focus on the coronavirus pandemic. This must not be allowed to happen.

The impact of more unpredictable weather is already manifesting in claims activity. Record water levels on the Mississippi river in 2019 resulted in damage to vessels and shore side infrastructure, as well as causing major disruption for supply chains. Such events are likely to have a greater impact on trade and claims in future.

SECURITY PROBLEMS

Political risk has become a pressing topic for the shipping industry, with trade wars, regional conflicts, civil unrest and piracy all impacting. Shipping is a global commodity and can be used as a pawn in disputes due to its impact on the economy. Shipping companies should prepare for an increase in disruption to supply chains and their operations in future.

Political rivalries are increasingly being played out on the seas, affecting some of the world's busiest transit routes. Tensions between the US and Iran have led to a growing number of attacks against vessels in the Gulf of Oman and off the coast of Yemen. There is already only a small window of error when navigating a choke-point like the Strait of Hormuz and such security challenges put more pressure on crews and a financial burden on shippers. In addition to physical damage from attacks targeting vessels, there is the potential knock-on effect of a heightened risk of collisions and groundings. The South China Sea, where China and the US are vying for influence in Asia Pacific, is fast becoming another hotspot.

Heightened political risk globally raises the threshold for unrest, with other implications for shipping, such as the ability to secure crews and access ports safely.

Piracy remains a major risk for shipping. In 2019, there were still 162 incidents of piracy and armed robbery against ships worldwide, albeit down from 201 in 2018, according to the

International Maritime Bureau. The Gulf of Guinea accounted for 90% of global kidnappings reported at sea in 2019 with the number of crew taken increasing by more than 50%. Such activity continued through the first few months of 2020. Latin America has also seen a rise in piracy and armed robbery. Given the heightened political and economic uncertainty in the world today, piracy is a threat that is likely to remain, if not increase.

TECHNOLOGY DEVELOPMENTS

Vessels are becoming more connected to shore-based systems, meaning the **cyber threat is ever-evolving – from crippling ports and terminals to spoofing attacks on ships.** The coronavirus outbreak is impacting too, with reports of companies having faced a 400% increase in attempted cyber-attacks since the pandemic began. Ship-owners are also increasingly concerned about the prospect of conflicts. As modern vessels become increasingly dependent on computer and software, and with heightened geopolitical risks, the threat of cyber to the shipping industry is significant.

The way in which vessels and crew are interacting with technology has become a significant factor in collisions and groundings.

Last year, the US Navy said it was to replace touch screens with manual controls in 2020 after an investigation into an incident involving one of its vessels in 2017 which resulted in fatalities.

When used appropriately technology can improve shipping safety and better training and utilization of data can result in more successful integration. In particular, the industry needs to start learning from successful journeys, not just accidents. Such insights can be used to develop new technology, inform training and improve crew and safety culture.

Increased use of industrial control systems (ICS) to monitor and maintain engines could lead to a significant reduction in machinery breakdown incidents in future. Over the years, the shipping industry has moved from time-based maintenance to condition-based maintenance, and with digitalization, it will shift towards predictive or preventative maintenance.

In time, the move to preventative maintenance could improve the reliability of engines and ultimately improve safety. At present, human error is a big factor in machinery breakdown losses. Even a well-trained crew can make mistakes which can result in damage, so real-time onshore monitoring, by owners in consultation with manufacturers, and preventative maintenance could reduce such incidences.



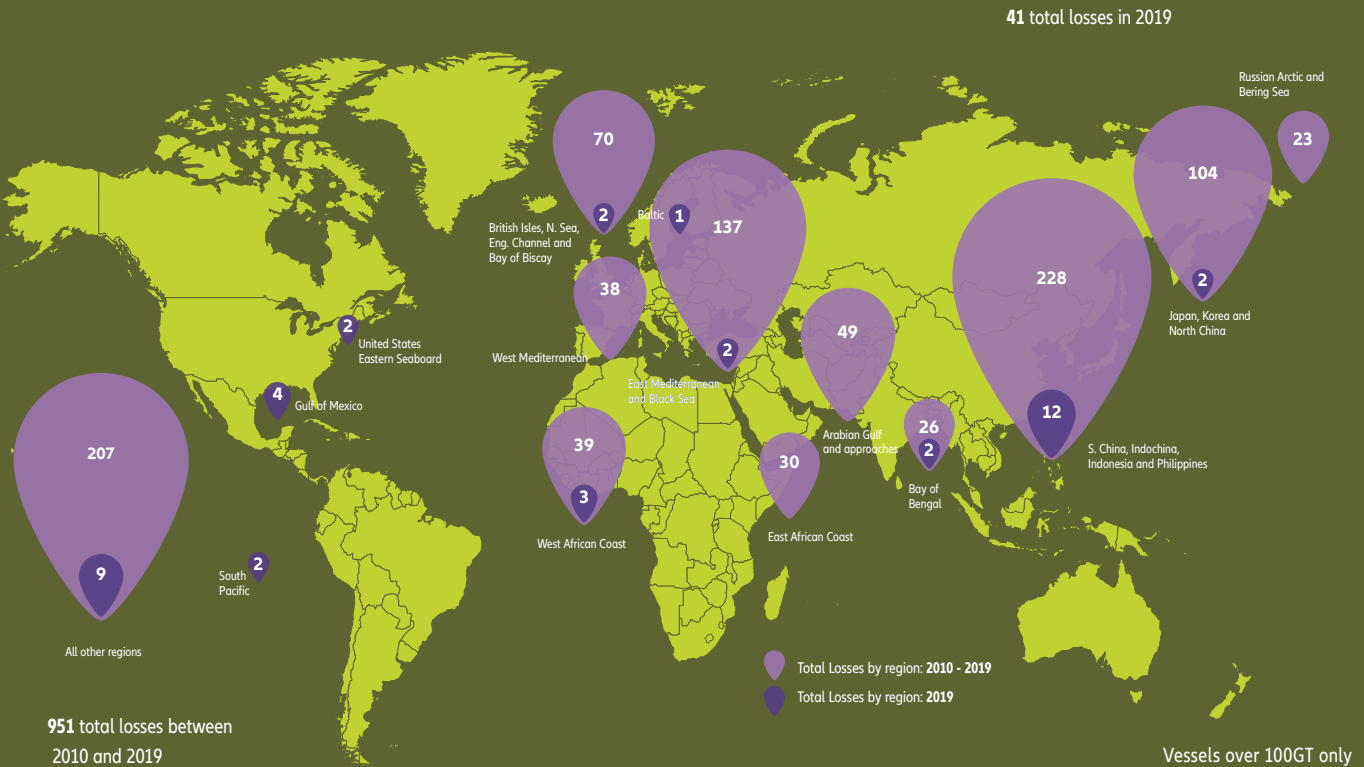
\$150bn

annual contribution to the global economy from the cruise ship industry

LOSSES IN FOCUS

The analysis over the following pages covers both total losses and casualties/incidents. See page 50 for further details

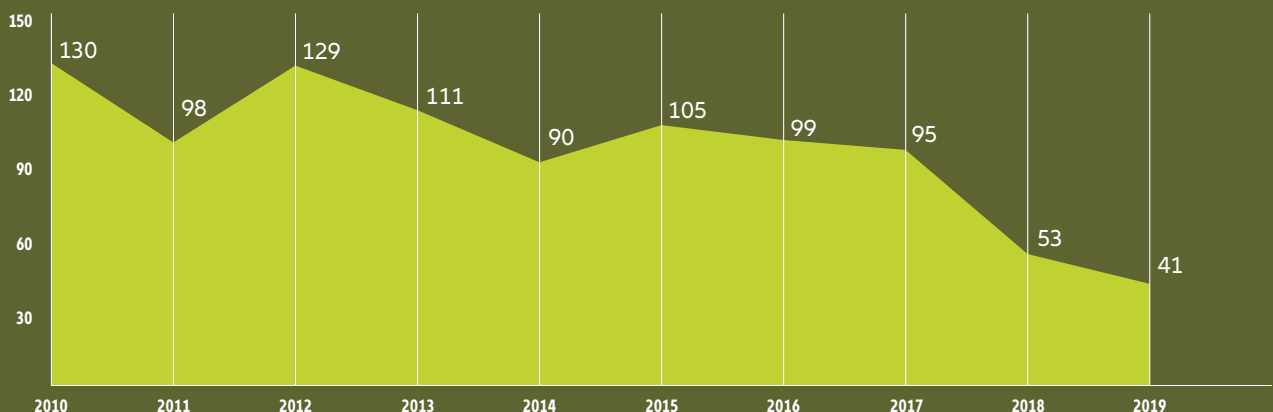
TOTAL LOSSES BY TOP 10 REGIONS 2010-2019 AND 2019



Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

TOTAL LOSSES BY YEAR 68% DECLINE OVER A DECADE

Annual shipping losses are now at their lowest total of the 21st Century, having fallen from 130 in 2010 to 41 by the end of 2019.



Vessels over 100GT only

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

2019: The database shows 41 total losses of vessels over 100GT at the end of 2019 around the world. This compares with 53 during 2018 – a decline of 23% or almost a quarter. South China, Indochina, Indonesia and Philippines remains the main loss hotspot, accounting for almost 30% of losses with 12 vessels. However, the number of losses in this region declined for the second successive year. The Gulf of Mexico (4) and the West African Coast (3) – neither of which featured in the top 10 loss regions last year – rank second and third.

2010 to 2019: The 2019 loss year (41) represents a significant improvement on the rolling 10-year loss average (95) – down 57%. South China, Indochina, Indonesia and Philippines (228 total losses) remains the top hotspot since the turn of the century. This is driven by a number of factors including high levels of local and international trade, congested ports and busy shipping lanes, older fleets, exposure to typhoons, as well as ongoing safety problems on some domestic ferry routes.

Together, the top 10 maritime regions account for three in four (78%) of all losses over the past decade, with the top three regions accounting for almost half (49%).

2019 REVIEW

TOTAL LOSSES BY TOP 10 REGIONS FROM JANUARY 1, 2019 TO DECEMBER 31, 2019

Region	Loss Total	Year-on-year change
S. China, Indochina, Indonesia and Philippines	12	↓ 3
Gulf of Mexico	4	↑ 4
West African Coast	3	↑ 1
Bay of Bengal	2	=
British Isles, N. Sea, Eng. Channel and Bay of Biscay	2	↓ 2
East Mediterranean and Black Sea	2	↓ 5
Japan, Korea and North China	2	↓ 1
South Pacific	2	=
United States Eastern Seaboard	2	↑ 1
Baltic	1	↑ 1
Other	9	
Total	41	↓ 12

Vessels over 100GT only

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

2010 – 2019 REVIEW

TOTAL LOSSES BY TOP 10 REGIONS FROM JANUARY 1, 2010 TO DECEMBER 31, 2019

Region	Total Loss
S. China, Indochina, Indonesia and Philippines	228
East Mediterranean and Black Sea	137
Japan, Korea and North China	104
British Isles, N. Sea, Eng. Channel and Bay of Biscay	70
Arabian Gulf and approaches	49
West African Coast	39
West Mediterranean	38
East African Coast	30
Bay of Bengal	26
Russian Arctic and Bering Sea	23
Other	207
Total	951

Vessels over 100GT only

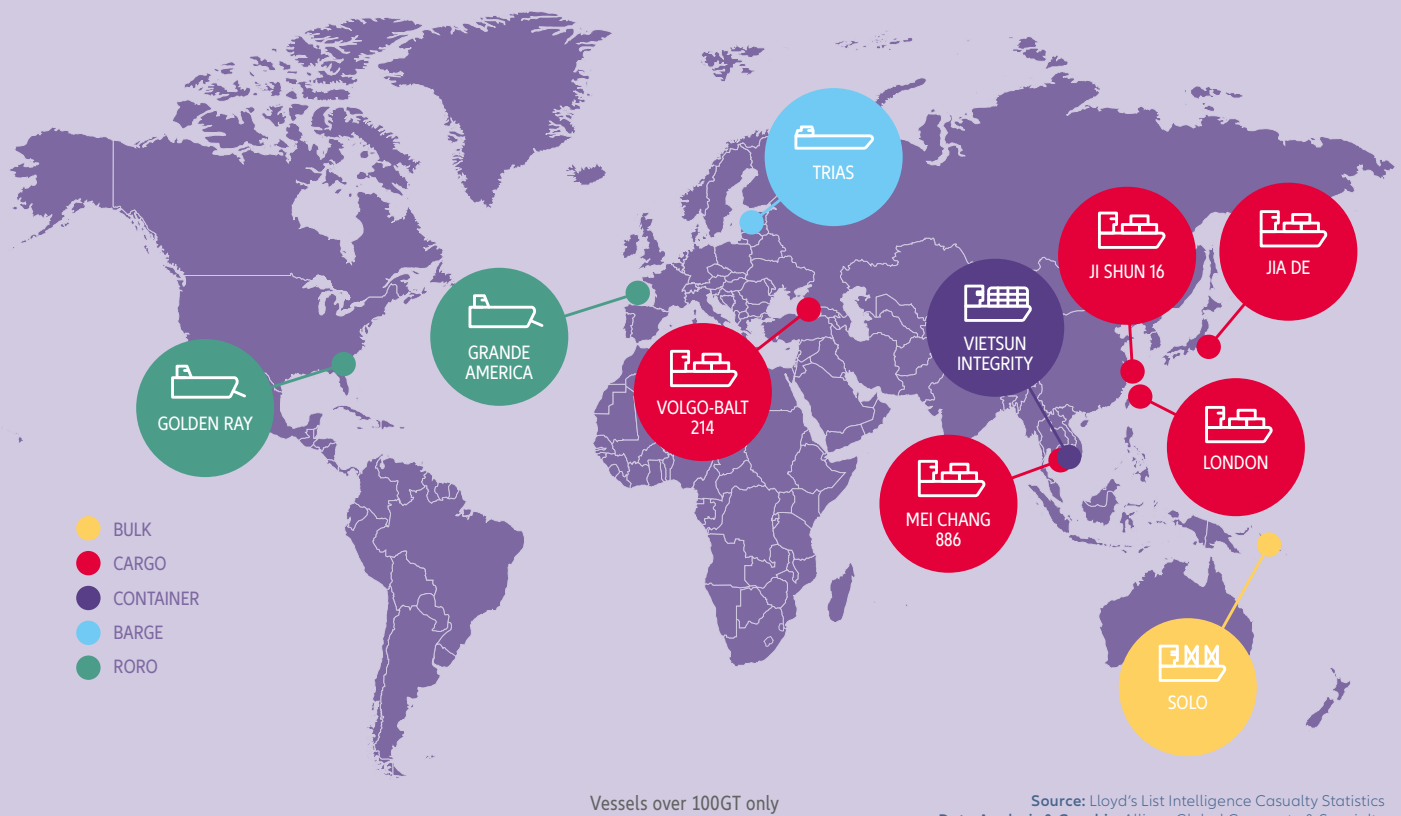
Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

NOTE: All figures are based on reported total losses as of March 6, 2020. 2019's total losses may increase slightly in future as, based on previous years' experience, developments in losses lead to a number of total losses being confirmed after year-end. The average variance over the past nine years has been an increase of one total loss per year. However, in some years this can increase, with up to several additional losses being notified for one year.

MAJOR LOSSES: 2019

LARGEST SHIPS LOST

10 LARGEST VESSELS LOST FROM JANUARY 1, 2019 TO DECEMBER 31, 2019
(showing approximate location of loss and type of vessel)



The number of total losses has reduced by more than 50% in the last two years which is a commendable achievement - a result of years of sustained efforts in the areas of regulation, training and technological advancement, among others. However, what has been achieved can be easily lost if standards are not maintained. While total losses have reduced significantly, the total number of incidents has actually increased year-on-year.

"Large container ship fires continue to be an issue while the rise in number and severity of claims on ro-ro vessels is fast becoming another concern. It will require all stakeholders to come together to address this issue."

Ulrich Kadow
Global Head of Marine
Allianz Global Corporate & Specialty

LARGEST SHIPS LOST

GOLDEN RAY

September 8, 2019: Capsized in St. Simons Sound near the Port of Brunswick in Georgia, USA.

71,178 GT RORO

GRANDE AMERICA

March 10, 2019: Fire started in a container and spread through vessel in the Bay of Biscay region.

56,642GT RORO

SOLO

February 5, 2019: Ran aground near Rennell Island in the Solomon Islands.

38,779GT BULK

VIETSUN INTEGRITY

October 18, 2019: Vessel malfunction led to it sinking in the Long Tau River, near Ho Chi Minh City, Vietnam.

6,704GT CONTAINER

TRIAS

December 31, 2019: Vessel drifted ashore, after tow lines broke and allided with tug **Raduga Europe**. Vessel then towed to Riga shipyard.

4,774GT BARGE

MEI CHANG 886

July 4 2019: Vessel sank after it ran aground in a storm in the Gulf of Tonkin off the coast of Northern Vietnam and South China.

2,991GT CARGO

VOLGO-BALT 214

January 7, 2019: Vessel sank north of Sansun, Turkey.

2,516GT CARGO

JI SHUN 16

September 6, 2019: Vessel reportedly sank north east of Zhoushan in East China Sea.

2,376GT CARGO

LONDON

January 2, 2019: Vessel capsized north east of Pengjia Islet, Taiwan, and sunk.

2,216GT CARGO

JIA DE

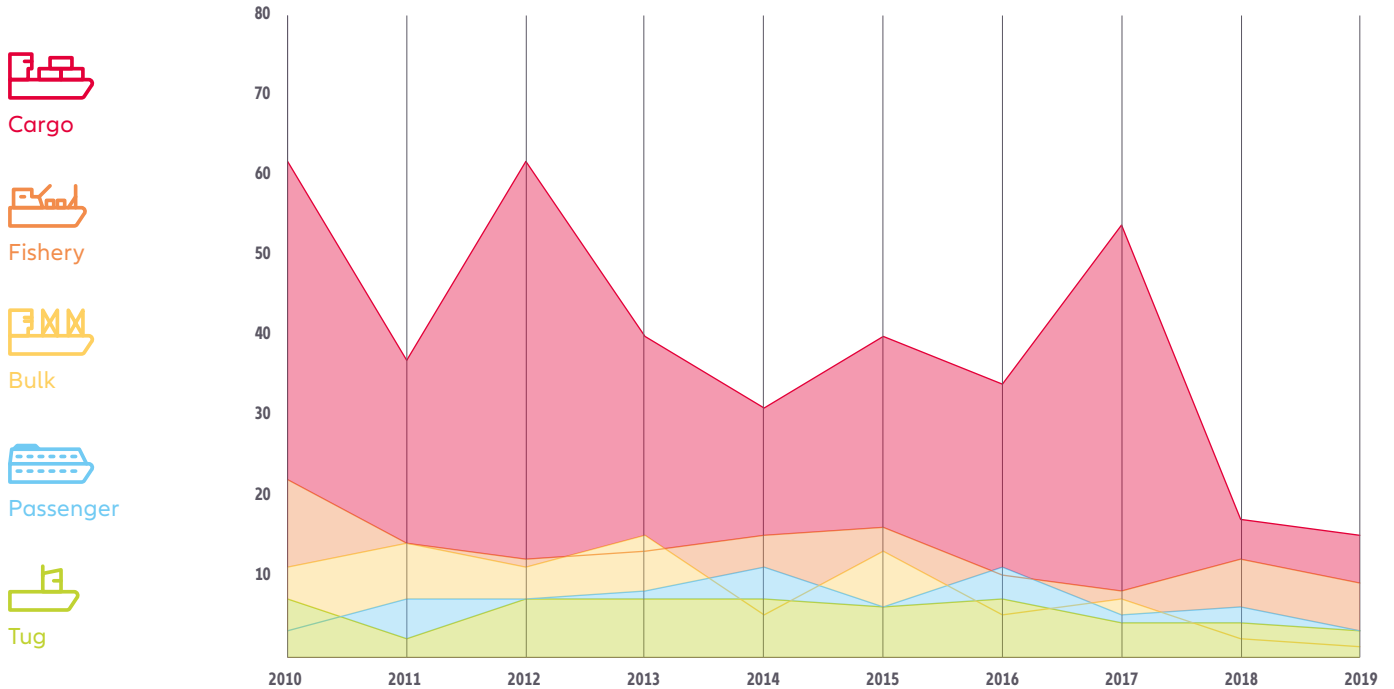
October 12, 2019: Vessel sank in Tokyo Bay after strong winds.

1,925GT CARGO

TOTAL LOSSES BY TYPE OF VESSEL 2010 - 2019

Cargo vessels account for over 40% of total losses over the past decade.

TOP 5 VESSEL TYPES LOST



2010 to 2019: Cargo, fishing, bulk, passenger and tug are the vessel types that have seen the most total losses over the past decade, accounting for 75% of all reported losses.

TOTAL LOSSES BY TYPE OF VESSEL: 2010-2019

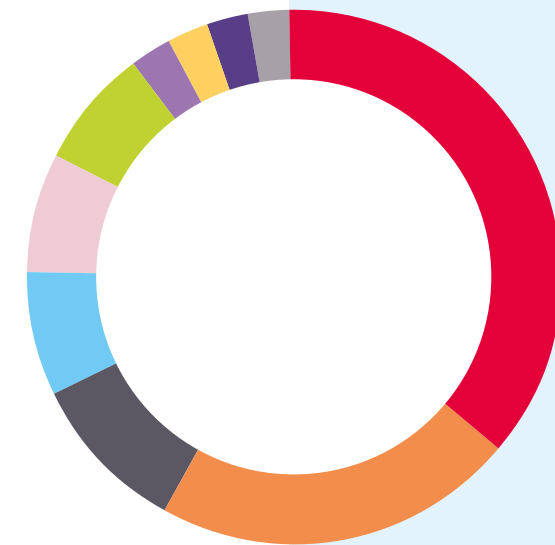
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
Cargo	62	37	62	40	31	40	34	54	17	15	392
Fishery	22	14	12	13	15	16	10	8	12	9	131
Bulk	11	14	11	15	5	13	5	7	2	1	84
Passenger	3	7	7	8	11	6	11	5	6	3	67
Tug	7	2	7	7	7	6	7	4	4	3	54
Chemical/Product	6	4	8	10	2	3	7	4	1		45
Container	5	3	7	4	4	5	5	3	2	1	39
Ro-ro	1	3	6	2	5	6	9		1	3	36
Supply/Offshore	2	2	3	2	3	3	2	2	1		20
Tanker	4	4	1		1			2	3		15
Dredger	2	2	1		1	1	1	3	2		13
Barge	1			3	1		3	1	2	1	12
LPG	1	1	1				1	1			5
Unknown				1		2	1			1	5
Other	3	5	3	6	4	4	3	1		4	33
Total	130	98	129	111	90	105	99	95	53	41	951

Vessels over 100GT only

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

2019: Cargo vessels accounted for more than a third (37%) of all total losses during 2019. Foundering was the most frequent cause of loss and most cargo vessels were lost in South East Asian waters.

The number of ro-ro losses increased year-on-year. (see page 26).



Vessels over 100GT only

2019 REVIEW

TOTAL LOSSES BY TYPE OF VESSEL JANUARY 1, 2019 TO DECEMBER 31, 2019

Cargo	15
Fishery	9
Other	4
Passenger	3
Ro-ro	3
Tug	3
Barge	1
Bulk	1
Container	1
Unknown	1
Total	41

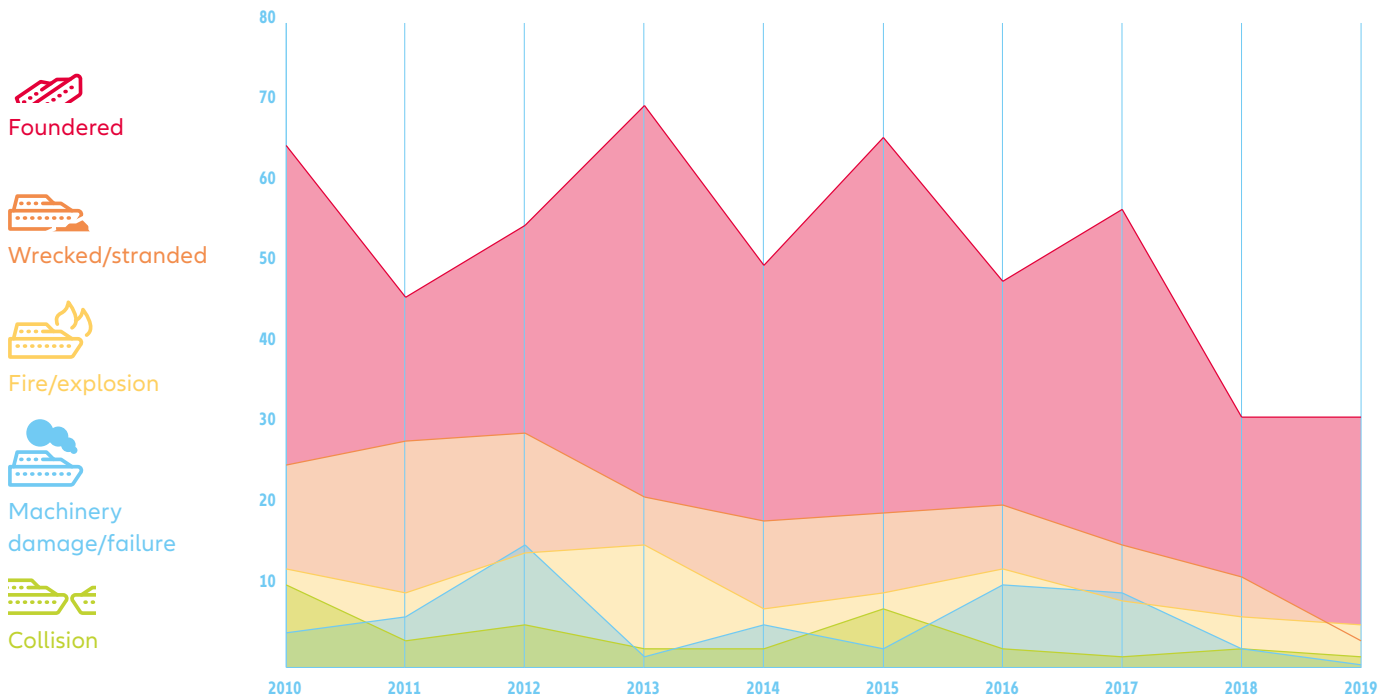
Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

Bad weather was reported as being a factor in the vessel loss in one in five cases.

TOTAL LOSSES BY CAUSE 2010 - 2019

Foundered (sunk/submerged), wrecked/stranded and fire/explosion are the top three causes of total losses over the past decade, accounting for 85% of all losses.

TOP 5 CAUSES OF LOSS



ALL CAUSES OF TOTAL LOSS: 2010 - 2019

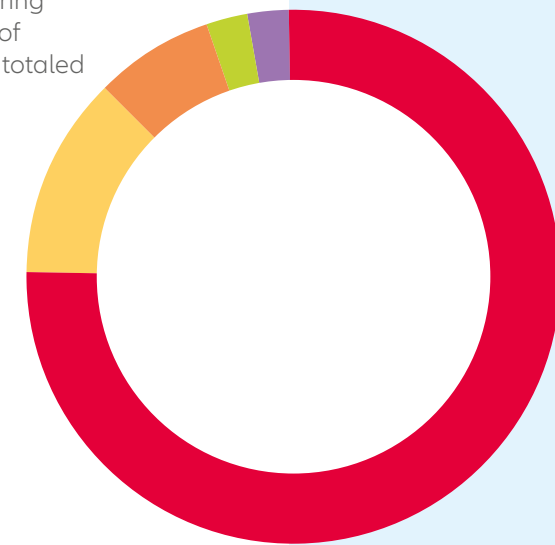
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
Foundered (sunk)	65	46	55	70	50	66	48	57	31	31	519
Wrecked/stranded (grounded)	25	28	29	21	18	19	20	15	11	3	189
Fire/explosion	12	9	14	15	7	9	12	8	6	5	97
Machinery damage/failure	4	6	15	1	5	2	10	9	2		54
Collision (involving vessels)	10	3	5	2	2	7	2	1	2	1	35
Hull damage (holed, cracks etc.)	5	3	7	1	5	2	4	5	1	1	34
Miscellaneous	6	2	2	1	2		1				14
Contact (e.g harbor wall)			2		1						3
Piracy	2	1									3
Missing/overdue	1						2				3
Total	130	98	129	111	90	105	99	95	53	41	951

Vessels over 100GT only

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

2019: Foundered (sunk/submerged) was overwhelmingly the main cause of total losses reported during 2019, accounting for three in four losses (75%). Contributing factors included bad weather, flooding and water ingress, engine trouble and vessels capsizing.

Fire/explosion continues to be a significant problem on board vessels, resulting in five total losses during 2019. In addition, the number of reported fire incidents overall totaled 197, up 13% year-on-year.



Vessels over 100GT only

2019 REVIEW

CAUSES OF TOTAL LOSS JANUARY 1, 2019 TO DECEMBER 31, 2019

● Foundered (sunk)	31
● Fire/explosion	5
● Wrecked/stranded (grounded)	3
● Collision (involving vessels)	1
● Hull damage (holed, cracks etc.)	1
Total	41

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

TOTAL LOSSES IN ALL REGIONS: 2019

This map shows the approximate locations of all **41** reported total losses during 2019.



Regional loss rankings		Losses	% Share
1	South China, Indochina, Indonesia and Philippines	12	29%
2	Gulf of Mexico	4	10%
3	West African Coast	3	7%
	Bay of Bengal	2	5%
	British Isles, North Sea, English Channel and Bay of Biscay	2	5%
4	East Mediterranean and Black Sea	2	5%
	Japan, Korea and North China	2	5%
	South Pacific	2	5%
	United States Eastern Seaboard	2	5%
	Baltic	1	2%
	Canadian Arctic and Alaska	1	2%
	East African Coast	1	2%
	Iceland and Northern Norway	1	2%
5	North American West Coast	1	2%
	North Atlantic	1	2%
	North Pacific	1	2%
	Russian Arctic and Bering Sea	1	2%
	South Atlantic and East Coast South America	1	2%
	West Indies	1	2%

Vessels over 100GT only

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

2019: While the number of total losses has declined significantly over the past year, the number of reported shipping casualties or incidents actually increased from 2,688 to 2,815 in 2019, up 5%.

The British Isles, N.Sea, Eng. Channel and Bay of Biscay maritime region replaced the East Mediterranean to become the top incident hotspot for the first time since 2011, accounting for one in five incidents.

The number of incidents on both passenger vessels and ro-ros increased year-on-year.

WHAT IS THE MAJOR CAUSE OF SHIPPING INCIDENTS?

It is machinery damage/failure, with over 1,000 reported incidents on vessels over 100GT during 2019 (1,044). This accounts for more than one third of all incidents in total (see page 49).

2019 REVIEW

ALL CASUALTIES INCLUDING TOTAL LOSSES: 2019 TOP 10 REGIONS

Region	Casualty Total	Year-on-year change
British Isles, N. Sea, Eng. Channel and Bay of Biscay	605	↑ 113
East Mediterranean and Black Sea	472	↓ 63
S. China, Indochina, Indonesia and Philippines	255	↑ 21
Great Lakes	195	↑ 1
West Mediterranean	151	↑ 48
Baltic	143	↓ 19
North American West Coast	120	↑ 18
Newfoundland	114	↑ 23
Iceland and Northern Norway	109	↑ 5
Japan, Korea and North China	103	↓ 12
Other	548	
Total	2,815	↑ 127

Including **41** total losses
Vessels over 100GT only

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

2010 - 2019 REVIEW

ALL CASUALTIES INCLUDING TOTAL LOSSES: 2010 - 2019 TOP 10 REGIONS

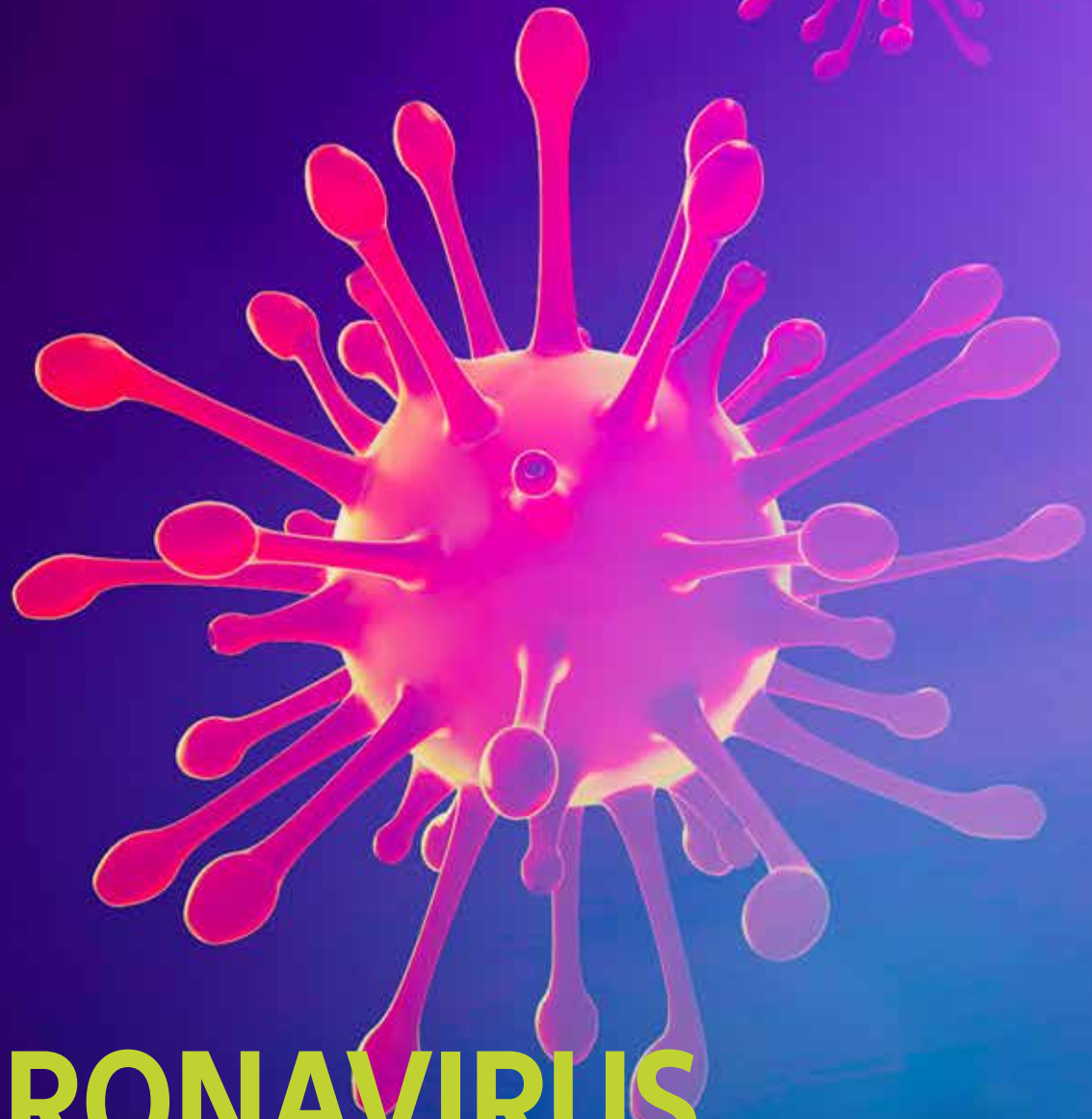
Region	Total
East Mediterranean and Black Sea	4,687
British Isles, N. Sea, Eng. Channel and Bay of Biscay	4,266
S. China, Indochina, Indonesia and Philippines	2,423
Baltic	1,617
Japan, Korea and North China	1,474
Great Lakes	1,393
Iceland and Northern Norway	1,078
West Mediterranean	1,001
North American West Coast	936
West African Coast	799
Other	6,397
Total	26,071

Including **951** total losses
Vessels over 100GT only

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

2010-2019: The East Mediterranean and Black Sea region remains the location of the most shipping incidents over the past decade (4,687), accounting for 18%.

Of the 26,000+ reported incidents over the past decade, more than a third (35%) were caused by machinery damage or failure – over twice as many as the next highest cause, collision.



10 CORONAVIRUS CHALLENGES

SHIPPING TRADES THROUGH BUT UNPRECEDENTED RISKS LIE AHEAD

The shipping industry has largely proved resilient to the coronavirus outbreak, keeping the life blood of global trade and essential supplies flowing. A sharp economic downturn and difficult operating conditions, however, present a unique set of challenges.

The knock-on effects of the pandemic and economic fallout could have far-reaching implications, including potential consequences of costcutting, crew fatigue, lay-ups, regulation, disruption to maintenance, port inspections and emergency response capabilities.”

Operationally, the sector appears to have responded well to the initial impact of the pandemic, including disruption to crew changes, shore-side services and the risk of outbreaks on board vessels.

“The shipping industry has largely continued to operate around the world, despite disruptions at ports and to crew changes, facilitating the movement of essential supplies and medicines that are needed to keep a country running and to deal with the global public health crisis,” says **Baptiste Ossena, Global Product Leader Hull Insurance at AGCS.**

“Although the number of vessel losses is at a record low, coronavirus has struck at a difficult time for the maritime industry as it implements IMO 2020 (reduction of sulphur emissions), navigates issues such as climate change, political risks and piracy, and deals with ongoing problems such as fires on board large ships. Now the sector also faces the task of operating in a very different world, with the uncertain public health and economic implications of the pandemic. While risks from perils of the sea are reduced for vessels waiting at anchorage or in lay-up, new challenges have evolved which were not present in historical situations involving global economic slowdowns.”

1

Crew welfare could lead to increase in human error

One of the biggest immediate issues for shipping companies during the pandemic has been the inability to change crews, which is essential to ensure safety, crew health and welfare, according to **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**.

Many of the 100,000 crew members that leave their ships each and every month have been unable to do so during the pandemic. Port, border and travel restrictions have led crew members to extend their service on board ships, unable to return to homes and family. Most major ports have imposed restrictions on vessels and crew — some 120 countries implemented restrictions, while 92 prohibited crew changes entirely, according to data from Inchcape Shipping Services¹.

Extended periods of working onboard a vessel can lead to crew fatigue, which is known to be one of the underlying causes of human error, estimated to be a contributing factor in 75% to 96% of marine incidents, says Kinsey.

“Adjustments in work and rest hours offer effective means of fatigue management while incentives in cash or kind will also have a positive impact on crew wellbeing,” says **Captain Nitin Chopra, Senior Marine Risk Consultant at AGCS**. “Hiring from the pool of locally available seafarers may be an option in some cases that can be further facilitated by cooperation among the crew management companies.”

Where crew are able to leave and join vessels, ship-owners will need to ensure they take steps to avoid introducing or spreading the virus onboard. The International Maritime Organization has issued recommended protocols for crew joining or leaving a ship, ensuring safe ship crew changes and travel during the coronavirus outbreak.

2

Impact for marine insurance claims

While it is too early to estimate the final total of insured losses, it is thought the biggest impact of pandemic-related insurance claims for marine will be felt by the cruise ship and protection and indemnity sectors, through ship-owners' liability to passengers and crew and disruption to operations. Cruise ship operators may hold specialist business interruption policies, although such cover will typically exclude pandemics and infectious diseases, unless specific extensions have been intentionally purchased.

The cargo insurance sector is also likely to see claims as lockdown measures cause delays to goods held in storage or in transit. High-value, perishable or temperature-sensitive cargo is particularly at risk of damage or reduced value, as the outbreak disrupts supply chains.

Lockdown measures and reduced staffing levels at warehouses and facilities may also increase the risk of theft and fire and damage due to extended storage.

Initially, hull insurance has been largely unaffected by the pandemic, although there is the potential for some loss of hire claims.

“Longer term, however, the knock-on effects of the pandemic and economic fallout could have far-reaching implications, including potential consequences of cost-cutting, crew fatigue, lay-ups, regulation, disruption to maintenance, port inspections and emergency response capabilities,” says **Majid Beladraoui, Senior Business Analyst Hull Insurance at AGCS**.

3

Economic fallout threatens to unwind years of safety gains

One of the biggest impacts of coronavirus on the shipping industry is likely to be the economic fallout of lockdowns and containment measures, which are disrupting production and supply chains, and damaging consumer and business confidence.

As the world emerged from the first wave of coronavirus, the future for trade looked bleak. The International Monetary Fund² says global GDP growth will fall to -3% in 2020, while the World Trade Organization (WTO) expects world trade to fall by between 13% and 32% in 2020. A partial recovery is expected in 2021, although this is dependent on the duration of the outbreak and the effectiveness of policy responses.

The pandemic has already started to affect maritime trade, which had already been slowing, weighed down by trade tensions and weakening economic growth. The **WTO Goods Trade Barometer** showed a sharp contraction in the second quarter of 2020, falling to its lowest value on record. The biggest falls were in automotive products and container shipping, reflecting weak demand for goods as well as supply-side constraints.

The first half of 2020 could see a 25% fall in shipping traffic, with a 10% drop for the year overall, according to maritime analyst, Sea-Intelligence. Many of the world's largest ports have reported reductions in volumes while AP Moller - Maersk³, the world's largest container shipping company, says container volumes are expected to be as much as 25% lower in the second quarter of 2020.

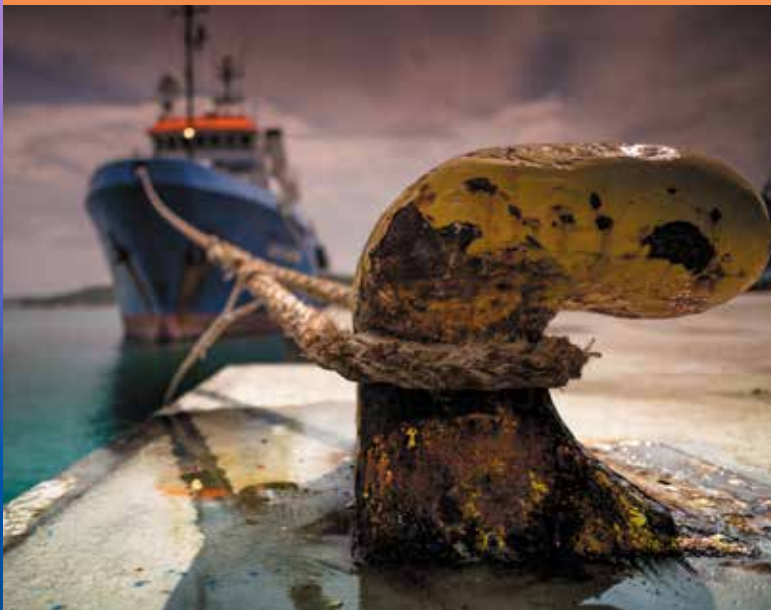
"A sustained economic downturn will have implications for shipping risks, as cruise ships and other vessels are laid-up and as shipping companies take steps to manage costs," says **Elisabeth Pinquier, Regional Head of Marine, Mediterranean at AGCS.**

Revenues generated by German shipping companies declined by 30% to 40% in March and April 2020, according to the German Ship-owners Association (VDR)⁴, which warned that the existence of substantial segments of the German merchant fleet are endangered.

A reduction in trade and shipping will have implications for safety and claims. Efforts to cut costs could impact marine insurance claims longer term, although a reduction in sailings could be a positive for claim frequency.

"Ship-owners will face additional cost pressures from a downturn in trade and will no doubt put efficiency measures in place," says **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS.** "We know from past downturns that crew and maintenance budgets are among the first areas that are cut. But it is important that safety and maintenance standards are not impacted by the downturn.

"The next few years will likely be a difficult time for the shipping industry. However, we hope the industry will not undo all the good work of previous years and let safety and risk management standards slip."



¹ Inchcape Shipping Services, Coronavirus Port / Country Implications

² International Monetary Fund, Exceptional Times, Exceptional Action, April 15, 2020

³ Bloomberg, World's Biggest Container Shipper Warns of 25% Slump in Volumes, May 13, 2020

⁴ Port of Hamburg, Pandemic fallout: German maritime shipping headed for deep crisis, May 19, 2020

4

Cargo damage and delay likely as supply chains come under strain

The coronavirus pandemic has brought about sudden changes for cargo transportation, impacting shippers, air freight and transport companies around the world. Although cargo transportation is widely recognized as an essential activity, a number of cargo handling companies shut down operations during the outbreak while ports have been operating under restrictions.

Cargo stored in high-risk areas without appropriate security controls or protective safeguards runs the risk of large losses from fire or extreme weather events, while delays may also result in cargo damage to perishable or temperature-sensitive goods. Damaged goods and containers is one of the most frequent causes of insurance industry claims in the shipping industry, accounting for more than one in five claims, according to AGCS analysis.

The pandemic has heightened the risk environment around high-value and temperature-sensitive goods in particular, according to Khanna.

“Companies should do all that they possibly can to implement robust planning of cargo shipments and ensure they have back-up plans in place because of the last minute shutdowns we are seeing around the world. Loss prevention measures to consider also include using ‘Internet of Things’ technology to obtain real-time location information in case of delay or deviation and reviewing requirements for perishable cargos,” says Khanna.



5

Disruption to maintenance raises machinery damage concerns

Ship-owners run the risk of delays and machinery breakdown as the pandemic hinders essential maintenance and servicing. Disruption in supply of spare parts and essential consumables like lube-oil and hydraulic oils can delay scheduled maintenance or result in crews using alternative grades or brands. At the same time, travel restrictions may affect the ability of specialist engineers to access ships to make repairs.

“The current situation is making it difficult for vessels to obtain essential spares and consumables, and carry out maintenance and repairs. This could have a detrimental effect on the safe operation of engines and machinery and potentially cause damage or breakdown, which in turn can lead to groundings or collisions,” warns Khanna.

“When changing the grade or type of lube-oil, technical advice should be sought from the equipment manufacturer and the changeover procedures well-planned and documented. Where recommended maintenance is not carried out at prescribed intervals, close monitoring of operational parameters will be required.”

Machinery damage or breakdown is already the most common cause of shipping incidents over the past decade, accounting for more than a third (9,081) out of 26,071 incidents analyzed between January 2010 and December 2019.

6

Bunker analysis delays increase risk of engine damage

With the introduction of the cap on sulphur emissions under IMO 2020, many vessels have switched to using blended low-sulphur fuels, which require analysis prior to use in order to avoid engine damage and machinery breakdown. However, with coronavirus restrictions it may not be possible to dispatch fuel oil samples for analysis by shore-based laboratories.

"Analysis of bunker fuel samples before use is essential to ensure quality of fuel and to avoid damage to engines," says Khanna. "However, analysis is taking longer during the pandemic and some operators may need to consume fuel before knowing the results of analysis, which will increase the risk of machinery damage."

Procedures laid out in the technical manager's manuals provide detailed methodology for dealing with this situation and a comprehensive risk assessment will help mitigate the hazards and consequences arising from use of bunkers without analysis. Onboard testing kits are useful for carrying out preliminary checks while pre-bunker analysis reports can help to address concerns regarding bunker specifications meeting the International Organization for Standardization quality criteria. Where feasible, supply and use of distillate fuels can also be considered.

7

Disruption to surveys, port inspections and emergency response could endanger safety

"Lockdown measures and physical distancing rules can cause delays in surveys and servicing of vessels and emergency equipment," says **Nicolas Thoreau, Senior Marine Hull Underwriter, Mediterrean region at AGCS.**

For example, classification societies may not be able to carry out statutory surveys and inspections at some ports while ship yards could experience delays due to a shortage of workers or the implementation of social distancing measures.

"Where statutory surveys and port inspections are reduced or delayed this could lead to unsafe practices or equipment going undetected. Port inspections are essential for weeding out vessels that operate under sub-par conditions," says Khanna.

Incident response services could also be affected by coronavirus measures, with worrying consequences for a major incident, such as a fire, collision or grounding, especially in an environmentally-sensitive area.

"In the case of a major incident, it remains to be seen how well emergency rescue and support services respond if operating under coronavirus restrictions," says Khanna. "Fires, collisions and groundings are dependent on external support for the safety of the vessel and its crew, as well as the protection of the environment. Delays in emergency response could mean a situation is allowed to get out of control very quickly."





8

Cruise ship industry faces new reality with increased liability

The cruise industry, which generates more than \$150bn in global economic activity and supports over one million jobs worldwide⁵, effectively went into hibernation as a result of the pandemic. Before the outbreak, the industry had enjoyed impressive growth, with some **32 million passengers**⁶ forecast to sail on cruise ships worldwide in 2020, up from 30 million in 2019. However, large coronavirus outbreaks on board a number of cruise ships, travel restrictions, port closures and a 'no-sail order' from the US Centers for Disease Control (CDC) in March 14 put the industry on hold.

Cruise operators face an uncertain future with vessels laid-up and questions over how they can operate during the pandemic. However many cruise lines are reporting strong demand for cruises in late 2020 and into next year and some are hoping to resume operations this summer, albeit with new **safety measures** and new routes.

"The cruise ship industry will survive the coronavirus crisis. But when it does return, it will be operating in a very different world," says **Chris Turberville, Head of Marine Hull And Liabilities, UK at AGCS**. "The problem of infectious diseases is not about to go away and vessels will need to operate with much more stringent levels of protections for outbreaks than in the past."

In this new environment, cruise operators will face uncertain liabilities. A number of cruise lines face coronavirus-related legal action from **crew**, passengers and investors, while the owners of the **Ruby Princess** faced a criminal investigation after disembarked passengers were linked to an outbreak in Sydney, Australia.

9

Laid-up cruise liners present sizable risk accumulation

With the biggest cruise ships worth in excess of a billion dollars, accumulations of risk are a potential issue while coronavirus restrictions are still in place. As of April 2020, some 95% of the global cruise fleet was in lay-up, with almost half in and around the Americas, according to Lloyd's List Intelligence⁷. Satellite imagery shows large clusters of vessels in the seas around Florida and the Caribbean, raising concerns about accumulations of risk for ship-owners and insurers alike, given the arrival of the Atlantic hurricane season. Similarly, at the end of May 2020, more than 20 cruise ships, including those from the biggest operators, were at anchor in Manila Bay in the Philippines, ahead of the start of what is typically the most active period of the Pacific typhoon season.

Emerging from lay-up poses another challenge for cruise operators. The monthly cost of cruise ship lay-up can be between \$1mn and \$3mn, but the extent of upkeep and crewing will affect the speed with which a vessel can be brought back into service.

"Until the cruise industry resumes sailings, it will need to carefully balance costs and expenditure with the upkeep of vessels. Operators will need to maintain vessels so that when they emerge from lay-up they are in reasonable condition and with quality crew. This will be a real test for the industry," says Turberville.

10

Floating oil storage boom brings potential exposures

As the price of oil plummeted amid growing concerns for the coronavirus economy, demand for floating storage hit record levels, causing tanker rates to hit new highs. In mid-May, 2020, there was more than 200 million barrels of oil and products on floating storage in tankers, around 5% of global-carrying capacity, according to data from S&P Global Platts⁸. Many tankers are idling around major oil ports and terminals in the US, Europe and Africa, with potential exposures to extreme weather, piracy and political risks. Tankers are also being chartered for use as floating storage, which will need to be subject to certain maintenance and contractual requirements.

Oil products stored for long periods are also at risk of degradation and cargo loss. The quality of refined products can degrade over time or spoil with bacterial contamination, while some products are known to evaporate, resulting in cargo shortfalls.



⁵ Cruise Lines International Association, Update On Cruise Industry Response To Covid-19, April 21, 2020

⁶ Cruise Lines International Association, 2020 State Of The Cruise Industry Outlook

⁷ Seatrade Cruise News, Where Are All The Cruise Ships Now? April 17, 2020

⁸ S&P Global Platts, Oil On Floating Storage Soars To Record Highs, But Peak Still Some Way Off, May 14, 2020

LOSS TRENDS

CARGO, CONTAINER SHIPS AND RO-RO VESSELS DRIVE LARGE LOSSES

Although large shipping losses declined by more than 40% in 2018 and by over 20% in 2019 to their lowest level this century, foundering of cargo ships, container ship fires and incidents involving ro-ro vessels continue to be among the leading causes of loss activity. At the same time, the number of shipping incidents overall is up, as is the number of claims from navigation and machinery issues. Meanwhile, environmental issues can significantly lengthen the “tail” of a loss.

On September 8, 2019, the **Golden Ray**, a two-year old 200-meter-long car carrier, partially capsized while heading out of the Port of Brunswick, Georgia, in the US. The vessel, which was carrying 4,200 new cars at the time, grounded in an environmentally-sensitive area and was subject to a complex and costly salvage and wreck removal operation that was still ongoing in May, 2020.

“Issues with car carriers and ro-ro vessels, as well as container ship fires, remain among the biggest safety issues for the shipping industry,” says **Volker Dierks, Head of Marine Underwriting, Central and Eastern Europe at AGCS**. “Vessels continue to become larger every year, which can have an impact on fire prevention and salvage in the event of an incident. Awareness of this problem has been growing, but this is still a major concern and a focus of underwriting,”

Earlier in the year on March 12, the ro-ro cargo ship, the **Grande America**, sank after its cargo of vehicles and containers caught fire and incidents have continued through 2020. In June, a blaze on the car carrier **Höegh Xiamen** lasted for eight days before it was extinguished, while ro-ro passenger ferry **Cruise Bonaria** also suffered a fire.

“Ro-ro vessels can be more exposed to fire and stability issues than other vessels, and require additional emphasis on risk management,” adds **Justus Heinrich, Head of Marine Hull Underwriting, Germany at AGCS**. “We look deeply into the risk management of operators and have worked with a number of companies operating ro-ro vessels to agree a robust risk management program.”

Many ro-ros and similar vessels can have quick turnarounds in port, according to **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**. A number of accident investigations concerning these vessels have revealed that pre-sail away stability checks were either not carried out as required or were based on inaccurate cargo information. In many cases cargo was not fully-secured prior to sailing.

“These vessels depend upon the shipper to provide accurate weights of the cargo loaded. Discrepancies could mean the difference in sufficient or insufficient stability for the vessel,” says Khanna. “However, it’s the master’s responsibility to ensure the vessel has enough stability prior to departing port. Too many times commercial considerations have endangered the vessel and its crew and it is vital that this is addressed both on shore and on board.”



The **Golden Ray** salvage operation has been complex and costly.

Photo: Shutterstock

While major losses have trended down, attritional losses are becoming more of a pressing issue for insurers – as evidenced by a 5% year-on-year increase in the number of casualties/incidents (see page 17) – in part due to the increased complexity of claims.

“A claim can take on a life of its own,” says **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**. “Litigation, particularly in the US, can drag on for a long time, while any environmental issues can have a long tail and add significantly to the overall cost of a claim. Big claims happen, and that is why we have insurance. But it’s the little losses that eat your lunch. That is why insurers need to address the issue of loss control.”

With regards to environmental issues, the salvage of the **Golden Ray** is a perfect example – 80 piles needed to be driven into the seabed around the vessel to hold the environmental protection barrier (EPB) in place. The construction of the EPB had to be completed before the actual cutting-up of the vessel could proceed.

“Subsequently, the salvage operation extended into the 2020 hurricane season,” says Kinsey.

Similarly, the grounding of the **Kea Trader** on a reef off New Caledonia in the South Pacific in July 2017, which resulted in debris and oil spilling onto the reef and into the ocean¹, also shows how environmental concerns can greatly complicate and increase the cost of a salvage. French authorities did not declare the emergency response over until two years later².

While total losses have seen a positive trend, the frequency of higher value claims has been rising, as has claims severity, explains Dierks: “The market continues to see a developing loss trend for claims due to navigation and machinery issues. At the same time, insurance premiums have not kept pace.”

“Big claims happen, and that is why we have insurance. But it’s the little losses that eat your lunch.”

15

Number of total losses involving cargo ships in 2019

188

Incidents involving ro-ro vessels in 2019, up 20%+ year-on-year

¹ Transport Malta, Marine Safety Investigation Report, Kea Trader

² Radio New Zealand, Kea Trader Emergency Response Lifted In New Caledonia, November 21, 2019

CONTAINER SHIP FIRES: TIME TO MODERNIZE FIRE PREVENTION REGULATION

The frequency and severity of container ship fires is at an all-time high. There were 40 cargo-related fires in 2019¹, or one every 10 days on average. However, many smaller fires and near misses are going unreported, meaning the actual number is likely to be much higher.

The unprecedented reporting of container ship fires in 2019 continued into 2020 with the incident on board the 10,062 teu **Cosco Pacific** in January 2020. Fortunately, the fire was contained, but other vessels have not been so lucky. The **Yantian Express**, **APL Vancouver** and **Maersk Honam** all suffered major fires in the past three years.

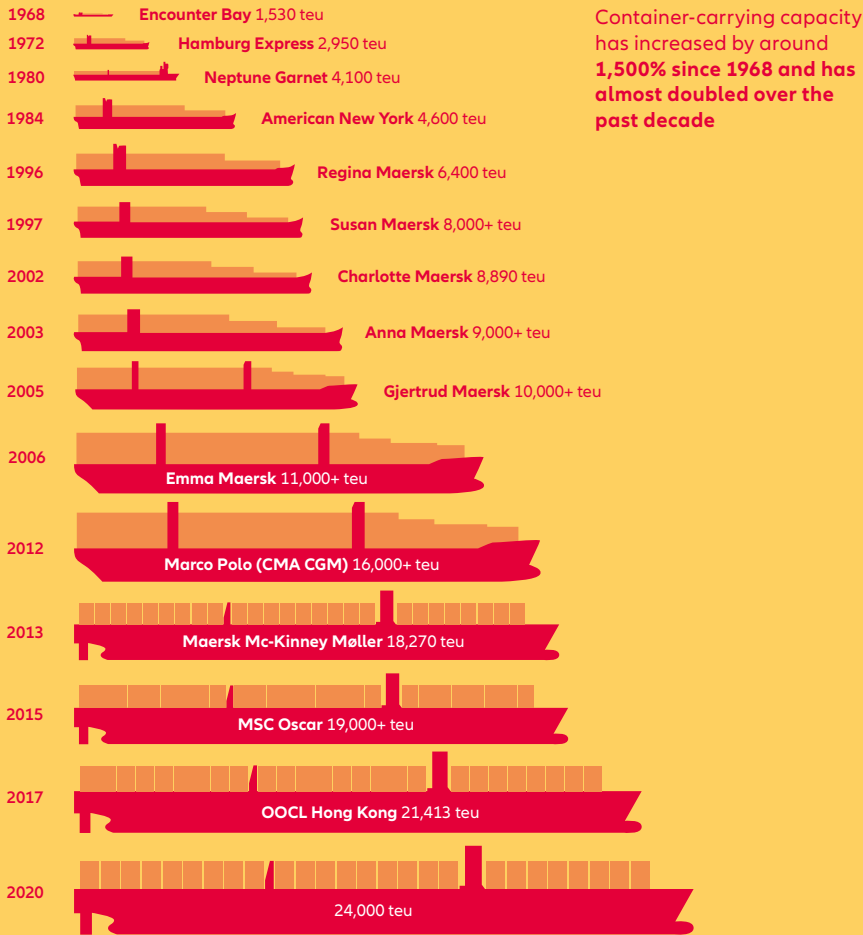
The size of container ships has increased exponentially over the past 50 years. Vessels have almost tripled in size, while capacity has increased from around 1,500 teu in 1970 to more than 24,000 teu today. In contrast, crew numbers have decreased by around a quarter while the average number of firefighting hoses has only increased from one to two¹.

According to **Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**, current regulations have not kept pace with the growth of the vessels, or the challenge of fighting larger and more dangerous fires. Regulatory modernization is urgently needed to ensure container vessels are sustainable and safe, says Khanna.

Khanna has been part of an industry working group organized by the International Union of Marine Insurance (IUMI) calling for a regulatory review of technical requirements for fire detection and fire response. In February 2020, IUMI and co-sponsors, including the German and Bahamian flag states, the Baltic and International Maritime Council (BIMCO) and CESA, which represents the shipbuilding industry in Europe, submitted a paper to the International Maritime Organization's (IMO) Maritime Safety Committee proposing amendments to the **International Convention for the Safety of Life at Sea (SOLAS)**. The proposals include provisions for early fire detection and effective control of fires in containerized cargo stowed below and on deck.

"Should IUMI's proposals be adopted by the IMO it would significantly enhance fire protection in cargo ships and therefore protect vessels, cargo and crew in the future. Failure to adequately address this issue will likely result in a growing number and severity of container ship fires, one of the major causes of large losses and an issue of ongoing concern for the industry," warns Khanna.

50 YEARS OF CONTAINER SHIP GROWTH



Approximate ship capacity data: Container-transportation.com; AGCS
 Source: Allianz Global Corporate & Specialty (AGCS)

Major incidents like the fires on the **Maersk Honam** and **Yantian Express** have shown crew are often not able to respond quickly and safely enough to a fire. Fire and smoke detectors are typically too slow to react, meaning fires are often too advanced to send people to the scene. The flag state incident report into the 2019 fire on the **Yantian Express** found the fire was only detected after two containers were already fully ablaze.

Technology could substantially reduce the risk of fire, including temperature monitoring of cargo, water spray and CO2 fire suppression in cargo holds, as well as more active firefighting on deck, including water curtains, water screens and fixed water monitors.

Development of drone technology could also play a key role in the containment and control of offshore vessel fires in future, with projects involving a fire suppression system that can be integrated within a drone already in the offing, says **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS.**





Dangerous goods like chemicals and batteries are increasingly shipped in containers and can pose a serious fire risk if they are mis-declared or incorrectly stowed.

Photo: Adobe Stock

EXTENT OF MIS-DECLARED CARGO REVEALED

Mis-declared cargo is the root cause of fires on board. Along with the need to improve fire prevention and fighting capabilities, addressing this issue will be critical to reducing the number of incidents.

A fire on board the **Cosco Pacific** container ship in January 2020 was attributed to the combustion of a mis-declared cargo of lithium batteries while coconut charcoal, mis-declared as coconut pellets, was identified as the likely cause of last year's fire on board the container ship **Yantian Express**. Dangerous goods must be appropriately handled and stowed, which is not possible when the contents of containers are mis-declared.

A study by the **National Cargo Bureau (NCB)**² found the majority of containers it inspected had issues with mis-declared or improperly stowed cargo. Of the 500 containers inspected, 55% failed with one or more deficiencies (69% of import containers containing dangerous goods failed and 38% of export containers with dangerous goods failed), including the way cargo was secured, labelled or declared.

The sample illustrates the extent and magnitude of the problem of mis-declared cargo, according to **Andrew Kinsey, Senior Marine Risk Consultant at AGCS**.

"The NCB analysis of cargo inspections makes for a somber reading to say the least. In fact the findings are frankly shocking. We know cargo mis-declaration is a problem, now we have empirical data that shows the true extent of the situation," says Kinsey.

"This is an issue that needs to be addressed by the whole supply chain. The industry needs to ensure that vessels are safely loaded, and the NCB data shows that this is currently not the case. There is too much cargo being loaded that is not properly documented and appropriately stowed, and this is causing fires and risking lives."

The shipping industry is waking up to the problem of mis-declared cargo and a number of major container ship operators are taking steps to tackle the issue, including more stringent cargo verification and inspections and higher penalties and fines for infringements. Technology and machine learning is also increasingly being deployed to help better review cargo manifests and identify mis-declared or undeclared dangerous goods.

"This is a problem that will only get worse if we don't act. Container vessels are getting bigger and the range of goods being transported continues to grow. Dangerous goods like chemicals and batteries are increasingly shipped in containers, and these pose a serious fire risk if they are mis-declared and wrongly stowed," says Kinsey.

¹ UK Government Marine Accident Investigation Branch, Explosion And Fire On Chemical tanker Stolt Groenland

² National Cargo Bureau, NCB Container Inspection Initiative

VIKING SKY: LESSONS FROM A CLOSE CALL

Last year's engine failure incident involving the cruise ship demonstrates how such events could quickly turn into a major disaster, particularly if they occur in remote waters such as the Arctic, where a growing number of such vessels are expected to operate in future.

In March 2019, the **Viking Sky** cruise ship suffered engine failure with 1,373 people on board when sailing from Tromsø to Stavanger in Norway when it hit bad weather. The vessel, which narrowly avoided grounding, was left without power or propulsion and had to rely on rescue helicopters to evacuate passengers as sea conditions did not allow for the use of lifeboats or tugs.

An incident report from the Norwegian Accident Investigation Board¹ published in November 2019 found the engine-shutdown was caused by the loss of lubrication combined with the pitching and rolling of the ship. The preliminary investigation revealed the lube oil in the vessel's engines was at 28% to 40%, far less than the 68% to 70% recommended by the engine manufacturer.

"The incident with the **Viking Sky** clearly shows how a problem with engines or fuel could quickly turn into a major disaster," says **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**. "This incident is a reminder of the importance to have the right amount of fuel and lubrication oil on board and that it is not impacted by the running of the vessel in heavy weather. Otherwise the consequences can be dire, including grounding, sinking or foundering."

The incident is also a wake-up call for cruise ships operating in polar waters, raising questions for emergency response capabilities. Had such an incident happened in the Arctic, a rapid rescue response would most likely not have been possible. Traffic in such waters has increased in recent years. In 2016 and 2017, the **Crystal Serenity** cruise ship made a 32-day trip through the Northwest Passage from Seward, Alaska to New York. Cruise Northern Norway and Svalbard, an industry marketing association, says that 150,000 cruise passengers travelled to northern Norwegian waters in 2018 and made 487,000 port visits (an average of three port visits per person), up 16% from 2017².

Increasing traffic in the Arctic and Antarctic has led to the implementation of the International Maritime Organization's Polar Code in 2017, which sets standards for ship design, equipment, operation and training, as well as search and rescue, for vessels sailing in polar waters. Some commentators have called for the Code to be extended to wider Arctic waters and vessels. In April 2020, the Emergency Prevention, Preparedness and Response (EPPR) Working Group of the Arctic Council released a Guideline for Arctic Marine Risk Assessment which contains best practice methods and data sources for conducting regional and area-wide risk assessments concerned with ship traffic and operations in the Arctic.

¹ Accident Investigation Board Norway, Interim Report November 12, 2019 Into The Loss Of Propulsion And Near Grounding of Viking Sky, March 23, 2019

² The Barents Observer, The Viking Sky Incident - A Wake-Up Call For The Arctic Cruise Industry, March 26, 2019

INCIDENTS IN ARCTIC CIRCLE WATERS

There have been 512 shipping incidents reported in Arctic Circle waters over the past decade. The harsh operating environment means machinery damage/failure is the most frequent cause, accounting for almost half of this total (248).

ALL CAUSES OF CASUALTIES/INCIDENTS: 2010-2019

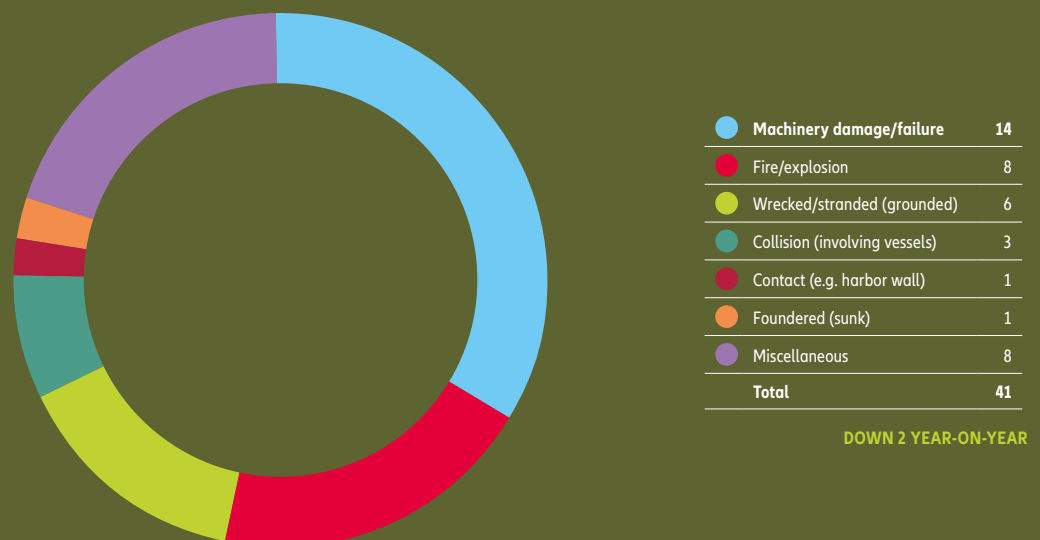
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
Machinery damage/failure	16	12	13	20	27	45	32	46	23	14	248
Wrecked/stranded (grounded)	9	9	8	10	14	6	11	9	7	6	89
Fire/explosion	6	6	1	4	2	4	1	3	6	8	41
Collision (involving vessels)	10	4	4	2		3	2	4	2	3	34
Contact (e.g. harbor wall)	4	1	3	6	4	5	1	1		1	26
Hull damage (holed, cracks etc.)	2	2	1	2	1	1	2	2			13
Foundered (sunk)		3	1	1	2		1		1	1	10
Labor dispute							1				1
Miscellaneous	4	2	6	5	5	6	4	6	4	8	50
Total	51	39	37	50	55	70	55	71	43	41	512

Including 14 total losses
Vessels over 100GT only

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

2019 REVIEW

CAUSES OF CASUALTIES/INCIDENTS 2019



Including 2 total losses
Vessels over 100GT only

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

Analysis shows there were 41 reported shipping incidents in Arctic Circle waters in 2019 - almost the same as a year earlier. There were two total losses compared with none in 2018.



INCIDENT REPORTING: ROOM FOR IMPROVEMENT

One of the most crucial ways of improving safety and avoiding accidents is to learn from past incidents, and this means timely and accurate flag states accident investigation reports. However, the production of reports is currently inconsistent.



Analysis of losses involving bulk carriers shows many investigation reports can take a long time to be submitted.

Photo: Adobe Stock

Under the **International Convention for the Safety of Life at Sea (SOLAS)** and the **International Convention for the Prevention of Pollution from Ships (MARPOL)**, flag states are required to conduct casualty investigations and supply the International Maritime Organization (IMO) with any relevant findings. However, of 48 bulk carrier losses analyzed between 2009 and 2018 (in which 188 lives were lost), almost half (23) had not resulted in an investigation report as of January 2019, according to Intercargo¹, which represents dry cargo shipowners. The average reporting time for the reports that were submitted was 34 months, which, Intercargo says is “excessively long”.

“A key benefit of analyzing losses is the lessons learned. But to do so we need to get to the root cause of incidents, and this is the responsibility of flag states to produce an investigation report. Unfortunately, too often these reports are missing or delayed by years, and the detail of reports varies greatly. This is an area that can, and needs to, improve,” says **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**.

The IMO’s Secretary General committed in February 2020 to improve the number of accident investigation reports that are submitted to the IMO.

¹ The Intercargo Bulk Carrier Casualty Report 2018

CLIMATE

IMO 2020: THE POTENTIAL RISKS OF MEETING NEW SULPHUR RULES

From January 1, 2020, allowable sulphur levels in marine fuel oil were slashed under the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI, more widely-known as IMO 2020, as the shipping industry plays its part in achieving a more sustainable environment. However, compliance with the new sulphur cap is far from straightforward, with a range of options available – each with its own cost implications, compliance challenges and risks.

IMO 2020 is one of the most important topics for ship-owners today, according to **Justus Heinrich, Head of Marine Hull Underwriting at AGCS in Germany**. “The implementation of IMO 2020 has gone smoother than some predicted, however, the cap on sulphur creates uncertainty for risks of bunkering, machinery breakdown and the use of scrubbers. This is an issue that we have on our radar and are raising with companies.”

Alternative fuels

One of the most straightforward options to comply with IMO 2020 – which cuts sulphur levels to 0.50% m/m from 3.50% m/m – is to use a fuel that is naturally low in sulphur, such as liquefied natural gas (LNG), biofuel or marine distillate. An increasing number of new vessels are opting for such fuels, although most existing ships are expected to use “blended” low sulphur fuel, where a refinery combines non-compliant fuel oil with low-sulphur oil to achieve a compliant fuel oil.

Ship owners will need to balance the pros and cons of each fuel type. Distillate fuels, for example, are a lower risk option – they do not produce cat fines that can block filters and damage engines – but they are more expensive. Bio-fuels have a lower flash point than heavy fuel oil while low-sulphur fuels could affect the performance of machinery because sulphur acts as a lubricant.

There is no “magic bullet” for IMO 2020, according to **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**. “Each option has its own challenges and each vessel has its unique operating system, which all impacts machinery and costs.”

Low sulphur fuels present an added regulatory risk for ship owners. The carriage of non-compliant fuel oil was banned from March 1, 2020, except for vessels with exhaust gas cleaning systems. The United Arab Emirates¹ banned container ship **MSC Joanna** from operating in its waters after it was found to be carrying high sulphur fuel oil after the IMO deadline passed. Singapore² revealed it detained two ships in the first quarter of 2020 for exceeding the cap, although 96% of ships calling at the Port of Singapore were found to be using compliant fuel.

Though compliant, blended low sulphur fuels may not be compatible and typically carry an increased risk of cat fines which can damage engines. Fuels from different ports and refineries currently have varying properties, which could result in damage to engines and essential equipment. Bunker quality disputes have already arisen from the use of incorrect fuel mixes.

“The aims of IMO 2020 are understandable, but the current regulations are far from perfect. IMO has not defined which specific fuels shippers should use to comply, so vessels are using blended fuel and not distillate. If you want cleaner emissions then use cleaner fuel. If you want to reduce what comes out the stack then put cleaner fuel in the tank,” says Kinsey.

Scrubbers

The main alternative to using compliant fuel is to fit exhaust gas cleaning systems, also known as scrubbers, which remove sulphur oxides from the ship’s engine and boiler exhaust gases. There are two types of scrubber, open-loop and closed-loop.

Open-loop scrubbers return washwater to the sea while residues in washwater from closed-loop scrubbers must be discharged onshore. Discharge from open-loop scrubbers, however, must meet strict criteria and a growing number of ports and countries restrict or prohibit the discharge of washwater from open-loop scrubbers within their waters.

Insurers are also concerned that teething problems with scrubbers could lead to a surge in machinery damage claims under hull and machinery policies – machinery damage is already the top cause of shipping incidents over the past decade. Technical and operational issues with scrubbers have already led to a small number of claims. Scrubber waste is corrosive and there have been incidents where this corrosion has caused wastewater to flood engine rooms, ballast tanks and cargo holds.

With the rush to fit exhaust systems ahead of the IMO 2020 deadline, there have also been incidents resulting from design flaws and quality of workmanship, including issues with manufacture, testing and installation of scrubbers. The quality of scrubbers also varies between manufacturers and yards, while there is no data on the performance of scrubbers over their life cycle.

“We have seen a number of incidents related to scrubbers and the use of low sulphur fuel. It is early days and we are monitoring claims to identify any emerging issues,” says **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**.

“As a relatively new technology, understandably there have been a number of issues with scrubbers, including incidents of flooding of machinery and engine rooms. A growing number of countries have also banned open loop scrubbers, which puts some ship-owners in a difficult position. They now face the choice of having to replace scrubbers or use compliant fuel.”

Losses related to scrubbers and bunker fuels are likely to materialise in the months and years ahead, says Khanna.

“If incidents involving scrubbers and low sulphur fuel persist then insurers might have to consider machinery deductibles or additional premiums. Issues with bunker fuel, in particular, could lead to expensive claims in the future if engines are damaged by incorrect quality of fuel oil,” says Heinrich.

“With the rush to fit exhaust systems ahead of the IMO 2020 deadline, there have also been incidents resulting from design flaws and quality of workmanship, including issues with manufacture, testing and installation of scrubbers.”

¹ Offshore Energy, UAE Bans MSC-Operated Boxship For Violating Carriage Ban, March 16, 2020

² Marine Log, IMO 2020: Singapore detains two ships, but says most comply, April 27, 2020



A number of major shipping companies, such as Maersk and CMA CGM, have pledged to become carbon-neutral by 2050.

Photo: Adobe Stock

IMO DE-CARBONIZATION TARGETS: THE SHIPPING INDUSTRY'S BIGGEST CHALLENGE YET?

In the coming decades the shipping industry will need to undergo a radical transformation if it is to meet challenging targets to cut greenhouse gas emissions. Investments in green technology will need to begin immediately, with due consideration for the risk and safety implications.

With around 90% of world trade currently transported by sea, the maritime industry is a significant contributor to greenhouse gases. The global shipping fleet is estimated to account for 2.2% of global CO₂ emissions¹ and without action, emissions from international shipping could grow between 50% and 250% by 2050, mainly due to the growth of the world maritime trade, according to the International Maritime Organization (IMO).

In April 2018, the IMO adopted Resolution MEPC.304(72), its initial strategy to reduce global shipping industry greenhouse gas emissions by at least 50% (from 2008 levels) by 2050. Meeting the target could require \$1trn to \$1.4trn of investment in cleaner fuels and technology between 2030 and 2050, or an annual average investment of \$40bn to \$60bn over the next 20 years, according to a study². If the shipping industry was to fully decarbonize, it would require a further \$400bn investment, or a total of \$1.4trn to \$1.9trn, by 2050.

The IMO has made progress in implementing the strategy, and has already put forward plans to strengthen the existing energy efficiency mandatory requirements for some categories of new ships. It has bought forward targets from 2025 to 2022 for several ship types – including container ships, general cargo ships and LNG carriers. The reduction rate for container ships, for example, is set at 50% for vessels of 200,000 dwt and above, from 2022, instead of 30% from 2025.

Targets to cut emissions will shape risk for the shipping industry for years to come, according to **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS.**

“IMO 2020, which aims to cut sulphur oxide emissions by 80%, has crossed a significant milestone, but the bigger objective is to tackle climate change and drastically reduce emissions of greenhouse gases. In the past the shipping industry has been criticized for not going far enough, and quickly enough, to address its carbon emissions, but the IMO proposals to halve CO₂ emissions by 2050 should be taken seriously,” says Khanna.

De-carbonization is, however, very different from reducing sulphur emissions, which can be achieved through relatively simple measures, such as changing fuel or technical solutions like scrubbers, explains Khanna. “A 50% cut in greenhouse gas emissions is a much more challenging target to achieve, and one that will require the shipping industry to radically change fuels, engine technology and even the design of vessels. There is no single easy solution to this pressing issue.”

Each form of energy and propulsion has a different carbon footprint over its life-cycle. For example, vessels could reduce their emissions by switching to electric power, but batteries are carbon-intensive to produce, and the electric power will need to come from renewable sources. A growing number of vessels are powered by LNG, but this too has a carbon footprint and would not be enough on its own to achieve a 50% cut in emissions.

In addition to the technical challenge, de-carbonization will have regulatory, operational and reputational (corporate social responsibility) implications for shipping companies. Investors are increasingly shunning carbon-intensive industries, while regulators and investors are insisting on more transparent reporting of climate change risks and exposures. Within shipping, the **Poseidon Principles** have been established to provide a framework to integrate climate change considerations into lending decisions and ship financing, promoting de-carbonization of shipping.

“If the shipping industry is to meet the target of cutting carbon emissions by 50% it will need to start today. It is not possible to achieve these ambitious targets with today’s technology and vessels but it is encouraging to see that there is already a lot of work going on within the shipping industry to come up with solutions,” says Khanna.

“However, there is the risk that all the progress on addressing climate change could now stall with the focus on the coronavirus pandemic. There is a danger the shipping industry could lose momentum in its efforts to tackle greenhouse gases and lose sight of the emission-cutting targets and this must not be allowed to happen.”

¹ International Maritime Organization, Greenhouse Gas Emissions

² UCL Energy Institute, De-carbonisation Of Shipping Will Take Place On Land As Well As At Sea, January 20, 2020

CLIMATE CHANGE MANIFESTS IN MARINE CLAIMS

Record water levels on the Mississippi river in 2019 resulted in damage to vessels and shore side infrastructure, as well as causing major disruption for supply chains. As weather becomes more unpredictable with climate change, such events are likely to have a greater impact on trade and marine insurance claims.

The Mississippi River and its tributaries form one of the most important commercial waterways in North America, and a river system that is critical to the transport of agricultural and manufactured goods across the country (for example, 60% of all export-bound US corn and soybeans are shipped along the river to terminals on the Gulf Coast)¹. However, 2019 saw year-long disruption on the Mississippi River from high water levels, floods, fog and ice jams.

Record rainfall² in the midwest caused unprecedented volumes of water to flow into the river system in early 2019 – the volume was 64% greater than the 10-year average. The Mississippi River recorded its longest flood stage in its history, easily surpassing the 1927 flood record of 152 days. The high water levels and flooding closed locks and made large parts of the river unnavigable, forcing many shippers to move grain to ports by rail or by truck or accept lower prices in the domestic market, missing export opportunities.

According to **Andrew Kinsey, Senior Marine Risk Consultant at AGCS**, disruption on the Mississippi River in 2019 is just the latest example of how the influence of climate change can now be seen in marine claims. The 2019 floods caused at least \$6.2bn³ in damage, according to the National Oceanic and Atmospheric Administration (NOAA). It was one of 14 separate billion dollar weather and climate disaster events to hit the US in 2019.

“Last year was a historic year for water levels on the Mississippi River, causing delays on the river and congestion at locks. The Mississippi River and Ohio River floods in 2019 impacted the entire river system and supply chain, from barges delayed upstream through to the bulkers waiting for cargo at New Orleans,” says Kinsey.

“We continue to see loss of life and a large financial impact from weather-related claims, in part a consequence of climate change. For example, the impact of fog and high water events on the Mississippi River caused the foundering of vessels, as well as damage to shore side infrastructure and warehouses.”

¹ Reuters, Armada Of Barges Cleared For Mississippi River Shipments After Floods, June 21, 2019

² The Mississippi River Delta, 5 Reasons Why 2019's Mississippi River Flood Is The Most Unprecedented Of Our Time, June 27, 2019

³ National Oceanic and Atmospheric Administration, National Climate Report, released, January 15, 2020



2019 saw year-long disruption on the Mississippi River from high water levels, floods, fog and ice jams

Photo: Adobe Stock

SECURITY

RISING GEOPOLITICAL TENSIONS THREATEN GLOBAL SHIPPING

Political risk has become a pressing topic for the shipping industry, with trade wars, regional conflicts, civil unrest and piracy all impacting. Shipping companies should prepare for an increase in disruption to supply chains and their operations.

Geopolitical risks have been rising around the globe. Civil unrest, including violent protests, erupted in Hong Kong, Chile and India, to name just a few (47 countries witnessed a surge in civil unrest in 2019, according to a Verisk study)¹. At the same time, trade disputes weighed heavily on global trade, contributing to a slowdown in the economy in 2019, even prior to the coronavirus outbreak.

Political rivalries are increasingly being played out on the seas, affecting some of the world's busiest transit routes. Tensions between the US and Iran, for example, have led to a growing number of attacks against vessels in the Gulf of Oman and off the coast of Yemen in the Strait of Hormuz. Six oil tankers were attacked in the region in May 2019 alone, with further attacks in June against the **Front Altair** and the **Kokuka Courageous**, which sustained significant damage in the Gulf of Oman. In July 2019, the UK-flagged **Stena Impero** tanker was detained by Iranian forces for two months before eventually being released.

"Marine war insurance premiums have risen in the Middle East where exposures have increased significantly with rising political tensions in the region," says **Volker Dierks, Head of Marine Underwriting, Central and Eastern Europe at AGCS**. "The industry has been hit with a number of claims in the Gulf of Oman and Straits of Hormuz, with damage to vessels from rocket attacks, mines and torpedoes."

In April 2020, the Saudi government revealed Houthi rebels in Yemen had used a remote-controlled boat packed with explosives in a failed attack on an oil tanker 90 miles off Yemen's southern coast. The Iranian-backed Houthis have used a number of methods to attack tanker traffic and naval vessels in the Red Sea and Arabian Sea, including sea mines, anti-ship missiles and explosive boats.

"With no clear long-term solution in sight, and as we have seen repeatedly in the region, risk to vessels in the Middle East can increase dramatically at short notice," says **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**.

“Shipping will increasingly be drawn into geopolitical disputes”

The escalation of tension between Iran and the US demonstrates how a political situation can change quickly and threaten international trade, explains **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**.

“There is already only a small window of error when navigating a choke-point like the Strait of Hormuz, so when you throw in the additional security challenge, it adds additional pressure on crews and a financial burden to shippers. In addition to physical damage from attacks targeting vessels, there is the knock on effect of a heightened risk of collisions and groundings. When tensions run high there is an even narrower margin of error,” says Kinsey.

The South China Sea, where China and the US are vying for influence in Asia Pacific, is fast becoming the next hotspot, as territorial claims are pursued over the strategically important Parcel and Spratly Islands by a number of South Asian countries. Against the backdrop of a US/China trade dispute, the US navy continues to patrol international waters in the South China Sea to maintain free movement of navigation.

“The South China Sea is an area where geopolitical rivalries play out at a local level. This is not an issue that is likely to go away – there is an ongoing shift in geopolitical power going on in the background,” says Kinsey.

Shipping companies should prepare for an increase in disruption to supply chains and their operations, Kinsey adds.

“Shipping is a global commodity and can be used as a pawn in disputes due to its impact on the economy. If you disrupt supply chains there can be a direct impact on global markets. Shipping will increasingly be drawn into geopolitical disputes,” says Kinsey.

“Heightened political risk globally raises the threshold for unrest, with implications for shipping, such as the ability to secure crews and access ports safely. If there is unrest onshore it could spill out into territorial waters, as was seen with Somalian piracy.”

GULF OF GUINEA SEES PIRACY ACTIVITY SOAR AGAIN

The region has re-emerged as the global piracy hotspot, accounting for 90% of global kidnappings reported at sea in 2019, following an alarming increase over the past year.

In April 2020, the Portugal-flagged container ship **Tommi Ritscher** became the latest vessel attacked by pirates in the Gulf of Guinea. While at the Cotonou Anchorage, Benin, the 4,785 teu Singapore-owned vessel was boarded by pirates and eight crew were kidnapped. The incident followed the kidnapping of nine crew from the tanker **Alpine Penelope** in the same area in February 2020.

The Gulf of Guinea accounted for 90% of global kidnappings reported at sea in 2019 with the number of crew taken increasing by more than 50% to 121, according to the International Chamber of Commerce's International Maritime Bureau (IMB)¹.

"Piracy remains an ongoing issue. We thought we had a handle on it but it has manifested yet again," says **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**. "Hijackings by Somalian pirates may have reduced for now, but incidents have been

increasing in West Africa and parts of Asia, where we see a worrying pattern of violent attacks against crew, as well as kidnappings."

Piracy remains a major risk for shipping. In 2019, there were still 162 incidents of piracy and armed robbery against ships worldwide, down from 201 in 2018. This is despite the recent success in tackling Somali pirates. Somalia reported zero piracy incidents in 2019, a trend that continued through the beginning of 2020. However, Somali pirates continue to possess the capacity to carry out attacks in the Somali basin and wider Indian Ocean.

Following an active 2019, there has been no let-up in piracy in 2020. There were 47 attacks reported to the **IMB** in the first three months of the year, up from 38 in the same period last year, mostly targeting tankers, as well as container ships and bulk carriers. Again, the Gulf of Guinea accounted for the highest number of attacks (21) although there were also (five) vessels



Razor wires on board a ship used as anti-piracy measures. Piracy is likely to remain a threat for the foreseeable future, if not increase

Photo: Adobe Stock

boarded in the Singapore Strait and several incidents of armed robbery in Latin America.

Latin America has also seen a rise in pirate attacks and armed robbery. In April 2020, the US Coast Guard advised vessels transiting the Gulf of Mexico to exercise caution after four attacks in the first two weeks involving crew injuries and theft. A previous attack was reported in November of 2019.

In February 2020, armed men boarded the tanker **San Ramon** anchored off eastern Venezuela, leading to the murder of the captain and the loss of a crew member overboard. The attack marks the return of armed robbery in Venezuela after a near year-long hiatus – there were 36 robberies and attempted robberies between January 2016 and April 2019, many of which involved tankers, according to the Center for International Maritime Security.²

Given heightened political and economic uncertainty in the world today, piracy is a threat that is likely to remain for the foreseeable future, if not increase, according to Khanna.

“Piracy has proved to be an easy business model, especially in parts of the world where governments are dysfunctional or where there is little rule of law. There is a strong connection between piracy and unstable governments, which provides opportunities for pirates to carry out attacks where the state is not strong enough to properly police its coastal waters.”

“Piracy is typically local in nature but it can have a global geopolitical impact,” says **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS.**

1 International Maritime Bureau Piracy Reporting Centre

2 Center For International Maritime Security, Why The Sudden Drop In Armed Robbery Of Ships Off Venezuela, April 1, 2020

TECHNOLOGY

SHORE-BASED INFRASTRUCTURE AND PROSPECT OF CONFLICTS TOP CYBER CONCERNS

Vessels are becoming more connected to shore-based systems, meaning the cyber threat is ever-evolving – from crippling ports and terminals to spoofing attacks on ships.

The shipping community has grown more alert to cyber risk over the past couple of years, in particular in the wake of the 2017 **NotPetya** malware attack that crippled ports, terminals and cargo handling operations. Since then a number of ports and shipping companies have been hit by ransomware attacks, including the Mediterranean Shipping Company (MSC), which suffered a network outage in April 2020 from a malware attack.

Cyber-attacks on maritime and offshore energy companies have soared during the coronavirus outbreak

Photo: Adobe Stock

“Events have shown that shore-based facilities – such as port infrastructure, terminals and shipping company IT systems – are particularly exposed to cyber risks. Shipping companies are alert to cyber exposures and are increasingly interested in specialist insurance cover, especially for onshore operations. When it comes to cyber exposures for vessels, some ship-owners are more relaxed because they believe ships have less connectivity and higher levels of redundancy,” says **Volker Dierks, Head of Marine Underwriting, Central and Eastern Europe at AGCS.**

“However, modern shipping is increasingly connected to shore-based infrastructure through shipboard systems, including those used for navigation, monitoring engines and cargo management. Such systems could be hacked or infected with malware so it makes sense to protect them with risk mitigation measures including cyber insurance.”

In February 2019, the US Coast Guard revealed a large commercial vessel bound for New York suffered a malware attack that degraded functionality after targeting the on board network. Recent years have also seen a growing number of GPS spoofing incidents, in particular in the Middle East and more recently China. A study by the Centre for Advanced Defense Studies (C4ADS) found hundreds of vessels around Shanghai were spoofed against over a period of months.

One area where ship-owners are growing increasingly concerned about cyber is in the context of conflict, according to Dierks. “War is not only fought with physical weapons. As modern vessels become increasingly dependent on computer and software, and with heightened geopolitical risks, the threat of cyber to the shipping industry is significant.

As cyber risk has evolved, so has marine insurance. Insurers have been clarifying cyber coverage in traditional marine insurance policies as well as developing specialist insurance. Allianz, for example, now offers additional hull and machinery cover specifically for cyber risks.

“The gap between cyber and marine insurance has been narrowing. There is a high level of interest and a willingness to discuss and appreciate what insurers have to offer, especially as vessels become more connected to shore-based systems, says **Justus Heinrich, Head of Marine Hull Underwriting, Germany at AGCS.**

The coronavirus outbreak is impacting the cyber risk landscape too, with reports of maritime and offshore energy companies having faced a 400% increase in attempted cyber-attacks since the pandemic began.

“Recent years have seen a growing number of spoofing incidents, particularly in the Middle East and China.”

The US Navy has said it is to replace touch screens with manual controls after an investigation into the fatal collision in 2017 involving the USS John S McCain

Photo: U.S. Navy, Mass Communication Specialist 2nd Class Joshua Fulton, Wikimedia Commons



TRAINING AND DATA KEY TO REAPING BENEFITS FROM TECHNOLOGY INTO SHIPPING

The way in which ships and crew are interacting with technology has become a significant factor in collisions and groundings. Training and data are the best way to integrate technology, which when used appropriately can improve shipping safety.

UK-registered container ship **ANL Wyong** and the Italian registered gas carrier **King Arthur** collided during fog off Gibraltar in August 2018. The collision was due to an over-reliance on, and mis-interpretation of, automatic identification system (AIS) data, according to an investigation by the UK's Marine Accident Investigation Branch (MAIB)¹. In another incident investigated by the **MAIB**, the ro-ro passenger ferry **Red Falcon** collided with a private yacht and grounded in Cowes Harbour, England, in February 2020 after the master became "cognitively overloaded" and "fixated" upon the information displayed on his electronic chart.²

Last year, the US Navy said it was to replace touch screens with manual controls in 2020 after an investigation

into the fatal collision in 2017 involving the **USS John S McCain**, which found the complexity of the control system and a lack of training led to the incident. However, rather than retreat from technology, ship owners would be better to focus on training, according to **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**.

"Technology in itself will not make things safer, and it can even make some situations more dangerous. If you want to take advantage of technology you need to support it with training. We need to embrace technology, but at a pace we can absorb it," says Kinsey.

In particular, the industry needs to start learning from successful journeys, not just accidents, according

to Kinsey. "We need to capture and analyze data from successful journeys, not just incident reports. In the past, data was hard to come by, but now we are at a point where we can capture data in real time and evaluate safe operations, and use the insights to develop new technology, inform training and improve crew and safety culture," says Kinsey.

"The industry needs to start learning from successful journeys, not just accidents."

¹ UK MAIB, Collision between container vessel ANL Wyong and gas carrier King Arthur, March 19, 2020

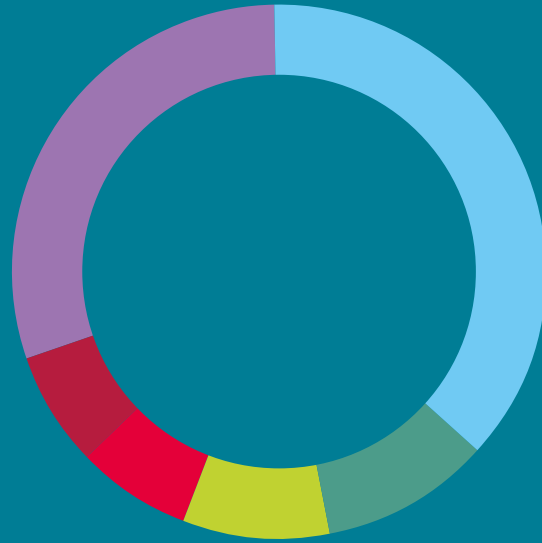
² UK MAIB, Collision between ro-ro passenger ferry Red Falcon and moored yacht Greylag, February 20, 2020

TOP CAUSES OF CASUALTIES/INCIDENTS 2019

● Machinery damage/failure	1,044
● Collision (involving vessels)	289
● Wrecked/stranded (grounded)	252
● Fire/explosion	197
● Contact (e.g. harbor wall)	194
● Other	839

2,815 incidents in total including 41 total losses
Vessels over 100GT only

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty



DATA COULD REDUCE MACHINERY BREAKDOWN INCIDENTS

Increased use of industrial control systems to monitor and maintain engines could lead to a significant reduction in machinery breakdown incidents, one of the biggest causes of marine insurance claims.

Over the years, the shipping industry has moved from time-based maintenance to condition-based maintenance, and with digitalization, it will shift towards predictive or preventative maintenance. This move to onshore monitoring of engines will have a number of implications for risk and data, and could help reduce machinery breakdown losses, according to **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**.

“Over time, the move to preventative maintenance could improve the reliability of engines, reduce machinery breakdown incidents and ultimately improve safety. At present, human error is a big factor in machinery breakdown losses. Even a well-trained crew can make mistakes which lead to damage or breakdown, so real-time onshore monitoring, by owners in consultation with manufacturers, and preventative maintenance could reduce incidence of human error,” says Khanna.

AGCS has been working with major manufacturers to examine how data generated by industrial control systems could be used to reduce risk.

“Machinery damage or breakdown is the number one cause of shipping incidents and is often behind many large losses. Good data on the causes of machinery breakdown is often difficult to obtain, but digitalization and the increasing use of industrial control systems could help insurers and owners alike understand the root cause of incidents involving machinery breakdown,” says Khanna.

DATA AND SOURCES

The primary data source for total loss and casualty statistics is Lloyd's List Intelligence Casualty Statistics (data run on March 6, 2020). Total losses are defined as actual total losses or constructive total losses recorded for vessels over gross tons (GT) or over (excluding, for example, pleasure craft and smaller vessels), as at the time of the analysis.

Some losses may be unreported at this time and, as a result, losses (especially for the most recent period) can be expected to change as late loss reports are made. As a result, this report does not provide a comprehensive analysis of all maritime accidents, due to the large number of minor incidents, which do not result in a "total loss", and to some casualties which may not be reported in this database.

This year's study analyzes reported shipping losses on a January 1 to December 31 basis.

All \$ US unless stated.

ABOUT ALLIANZ GLOBAL CORPORATE & SPECIALTY

Allianz Global Corporate & Specialty (AGCS) is a leading global corporate insurance carrier and a key business unit of Allianz Group. AGCS provides **risk consultancy, Property-Casualty insurance solutions and alternative risk transfer** for a wide spectrum of commercial, corporate and specialty risks across 10 dedicated lines of business.

Our customers are as diverse as business can be, ranging from Fortune Global 500 companies to small businesses, and private individuals. Among them are not only the world's largest consumer brands, tech companies and the global aviation and shipping industry, but also wineries, satellite operators or Hollywood film productions. They all look to AGCS for smart answers to their largest and most complex risks in a dynamic, multinational business environment and trust us to deliver an outstanding **claims experience**.

Worldwide, AGCS operates with its own teams in **32 countries** and through the Allianz Group network and partners in over 200 countries and territories, employing over 4,450 people. As one of the largest Property-Casualty units of Allianz Group, we are backed by strong and stable **financial ratings**. In 2019, AGCS generated a total of €9.1 billion gross premium globally.

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