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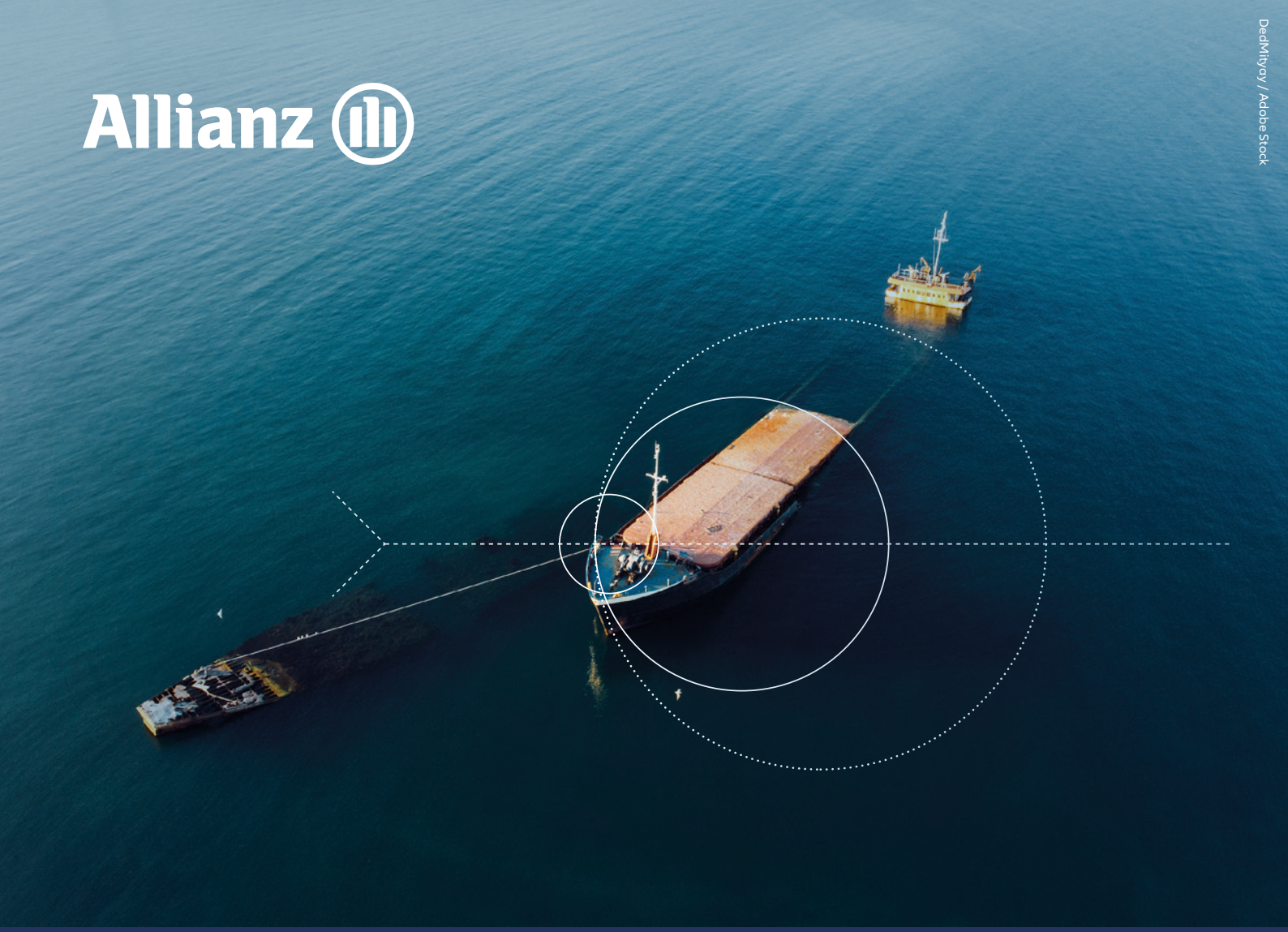

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ALLIANZ COMMERCIAL

Safety and Shipping Review 2024

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

> Annual shipping losses have declined by 70% over the past decade, demonstrating the significant improvements made in maritime safety. However, the speed and extent of the way the industry's risk profile is changing is unprecedented in modern times.
>
> Conflicts such as Gaza and Ukraine are reshaping global shipping, impacting crew and vessel safety, supply chains and infrastructure, and even the environment. Piracy is on the rise, with a worrying re-emergence off the Horn of Africa. The ongoing disruption caused by drought in the Panama Canal shows how the changing climate is affecting shipping. Meanwhile, the trend for larger ships, and the changing nature of their cargoes, continues to pose safety questions, all at a time when shipping is having to undertake its most significant challenge, decarbonization.
>
> **Rich Soja, Global Head of Marine, Allianz Commercial**

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Executive summary

Allianz Commercial's annual Safety and Shipping Review identifies loss trends and highlights risk challenges for the maritime sector.

Loss developments ↘ page 9

Given as much as 90% of international trade is transported across oceans, maritime safety is critical, and the shipping industry has made significant improvements in recent years. During the 1990s, the global fleet lost 200+ vessels a year. This total had halved by 10 years ago and is now down to a record low, as of the end of 2023.

The review shows just 26 total losses of vessels (over 100 gross tonnage [GT]) during 2023, compared with 41 a year earlier, down by more than a third. Annual shipping losses have declined by 70% over the past decade (89 in 2014). South China, Indochina, Indonesia and the Philippines is the main loss hotspot globally, both over the past year and decade, accounting for almost of third of all losses at sea in 2023 (8). A huge volume of imports and exports flows through the region, resulting in high levels of shipping traffic, which is reflected in the number of incidents.

The past decade has seen 729 total losses reported around the world. Three regions, South China, Indochina, Indonesia and the Philippines (184), East Mediterranean and Black Sea (115), and Japan, Korea and North China (62) account for almost 50% of global loss activity over this time.

Cargo ships accounted for over 60% of vessels lost during 2023 (16). Foundered (sunk) was the main cause of total loss across all vessel types (13), accounting for 50%. Wrecked/stranded ranks second (4), with fire/explosion third (3). Fire activity onboard vessels declined during 2023. However, there have still been 55 total losses caused by fires in the past five years, and there were over 200 fire incidents reported during 2023 alone (205) – the second highest total for a decade after 2022.

The number of reported shipping casualties or incidents also declined during 2023 (2,951 compared to 3,036), albeit only by 3%. The British Isles region saw the highest number of reported incidents (695). Machinery damage or failure accounted for over half of all shipping incidents globally (1,587).

The British Isles is also the new top location for the most shipping incidents over the past decade (5,279), replacing the East Mediterranean and Black Sea, and accounting for 19% of the 27,821 reported incidents over the past decade. Globally, most incidents are caused by machinery damage or failure (11,506), followed by collision with other vessels (3,014), wrecked/stranded (2,808) and contact with port infrastructure (1,916).

Trends: Outlook ↘ page 16

Recent incidents in the wake of the conflict in Gaza have demonstrated the increasing vulnerability of global shipping to proxy wars and disputes, with more than 100 ships targeted in the Red Sea alone by Houthi militants in response to the conflict. Disruption has persisted longer than expected and is likely to remain for the foreseeable future. Ultimately, shipping has become a ripe target. It opens avenues for terrorists or militia groups to gain recognition and hit global markets.

One of the biggest concerns resulting from the attacks is the safety and wellbeing of seafarers. Hundreds of crew have been affected in the Red Sea alone, the latest crisis to impact shipping routes in recent years following the Covid-19 pandemic and war in Ukraine. The maritime industry is already grappling with a workforce and skills shortage. There is a great concern that the crises of recent years will impact its ability to attract talent at a time when it must meet growing demands from decarbonization and an increasing reliance on technology.

The war in Ukraine and the attacks in the Red Sea have also revealed the increasing threat to commercial shipping posed by drones, which are relatively cheap and easy to make, and difficult to defend against without a large naval presence. Looking to the future, more technologically driven attacks against shipping and ports are a distinct possibility. Reports of vessels experiencing GPS interference and jamming are increasing, particularly in hotspots such as the Strait of Hormuz, the Mediterranean and the Black Sea. Vessels' Automatic Identification Systems (AIS) can also be spoofed and are open to cyber-attack.

Attacks against shipping in Middle East waters have also severely impacted Suez Canal transits and trade. Coming so soon after the ongoing disruption caused by drought in the Panama Canal, this amounts to a double strike on shipping, causing yet more issues for global supply chains, which have been impacted by many events in recent years, including extreme weather and climate incidents, container ship fires and groundings, the pandemic, and the Baltimore bridge collapse. Both routes are critical for the transport of manufactured goods and energy between Asia, Europe, and the US East Coast. Whichever alternative routes vessels take, they face lengthy diversions and increased costs, while businesses face delays and higher costs from the longer transit times as a result.

Supply chains and companies are so much more interconnected than in the past. An unexpected event can have a domino effect globally. Shippers around the world should consider diversification of their supply chains and, in some cases, nearshoring and onshoring. Many businesses will need to update their approaches to cargo risk management and business continuity planning.

Rerouting and longer voyages can also impact the risk landscape and the environment. Storms and rough seas could be more challenging for smaller vessels used to plying coastal waters, while the infrastructure may not be available to support an incident involving the largest vessels, such as a suitable port of refuge or a sophisticated salvage operation. Environmental gains achieved through 'slow steaming' could be lost as rerouted vessels increase speeds to cover longer distances. The longer distances caused by rerouting container ships from the Suez Canal to the Cape of Good Hope result in an estimated 70% increase in greenhouse gas emissions for a round trip from Singapore to Northern Europe. Shipping diversions from the Red Sea were already cited as being the primary contributor to a 14% surge in the carbon emissions of the EU shipping sector during the first two months of 2024.

The past year has also seen maritime piracy rise amid the wider security concerns in the Red Sea. There were 120 reported incidents against ships globally in 2023, up on 2022. A big concern is the re-emergence of piracy off the Horn of Africa, with a number of vessels having been attacked. Shipping is vulnerable to extortion and pirates may be emboldened by what is happening in the Red Sea. Current activity may be opportunistic, but we may also be in for a period of renewed hijackings.

The gradual tightening of international sanctions on Russian oil and gas exports over the past three years since its invasion of Ukraine has resulted in the emergence of a sizable 'shadow fleet' of tankers, mostly older vessels that operate outside international regulation and often without proper insurance. This situation presents serious environmental and safety risks, particularly in key chokepoints where oil is shipped. Estimates put the size of the dark fleet at between 600 to 1,400 vessels, roughly a fifth of the overall global crude oil tanker fleet. Iran and Venezuela have used such tankers too.

Much of the shadow fleet is likely poorly maintained and may not have undergone appropriate inspections. Shadow tankers also participate in the dangerous practice of ship-to-ship transfers in the open ocean, as well as turning off AIS transponders to obscure their identity. Such vessels have been involved in at least 50 incidents to date, including fires, engine failures, collisions, loss of steerage, and oil spills.

Ultimately, the Red Sea crisis shows just how important critical waterways like the Suez Canal are to the world economy, and how vulnerable they can be to disruption. It has also put the spotlight on other parts of the world where shipping routes may be exposed to geopolitical events, such as in the South China Sea, where territorial disputes exist. Political rivalries and conflicts are increasingly being played out on the seas and disputes over territories is not an issue that is likely to go away anytime soon. Shipping companies should always be prepared for any potential sources of disruption to their operations and supply chains.

Trends: Cargo ↘ page 29

In addition to the problems that attacks against shipping in the Red Sea and the Middle East, and the drought in the Panama Canal, have caused for cargo and supply chains, theft of cargo is also on the rise, with a change in the goods being targeted, driven by current economic conditions, and increasingly sophisticated tactics used by criminals.

Allianz Commercial has seen an uptick in cargo theft incidents in recent years, particularly in transportation and logistics. In North America, the number of theft claims has increased for the past six years in a row, with a 20% increase year-on-year in 2022. The final total for 2023 is likely to surpass 2022. It is a problem that is also affecting parts of Europe, including Germany, Italy and Spain.

The current economic environment, and cost of living crisis, means there is a much greater incentive to steal. While theft of high value cargo has increased, more and more goods are becoming attractive to criminals that were not before, such as food and household goods.

At the same time criminals are using more organized methods to gain access to cargo, often employing technology. For example, thieves exploit cyber security weaknesses to impersonate a trusted supplier or gain access to systems to facilitate theft or divert shipments. Criminals may also use jammers to interfere with cargo GPS tracking devices and mobile telephone signals, making it harder to recover stolen goods.

Trends: Hull ↘ page 32

The tragic collapse of Baltimore's Francis Scott Key Bridge in the US after it was hit by the container ship **Dali** made headlines around the world. While such incidents of this magnitude are thankfully rare – there were just 35 major bridge collapses worldwide involving ships or barges between 1960 and 2015 – the fact that ships are getting bigger can make a number of different events more complicated when accidents do occur.

Larger vessels require careful consideration when navigating in restricted waters, especially when it comes to stopping distance. Ultimately, larger vessels on the seas are not resulting in a higher frequency of accidents but when something does go wrong, the scale of the damage is likely to be much more severe because of their size and the fact that surrounding civil infrastructure did not anticipate such behemoths. Back in the 1970s, when the Francis Scott Key Bridge was built, container ships would have been less than half the size of the **Dali**, which is the length of three football fields, but is still nowhere near as large as some of the biggest vessels now transporting goods around the world.

The Baltimore bridge incident has also put the potential risks from power blackouts into the safety spotlight. Loss of propulsion is not an uncommon occurrence. According to analysis of incident reports, more than 400 cargo ships have reported losing power over the past three years in US waters. About a quarter of these incidents occurred near a port, bridge, or other infrastructure. Given the size and complexity of today's vessels, a problem with engines or fuel can quickly turn into a major disaster.

Fire remains a major cause of loss for large vessels and last year saw several major fires involving Ro-ro vessels and car carriers, the latest in a long list of recent incidents. Ro-ros can be more exposed to fire and stability issues than other vessels, due to the nature of their cargo and their design.

The incidents in 2023 have coincided with the ongoing debate about the fire risks of transporting electric vehicles (EVs) powered by lithium-ion batteries. Several Ro-ro ferry and car carrier operators have taken a cautious approach to transporting EVs while insurers have highlighted additional risks associated with lithium-ion batteries, as well as the need to upgrade firefighting capabilities of Ro-ros accordingly. The transportation of consumer goods, such as e-scooters, that contain lithium-ion batteries is still not as good as it needs to be.

Employees need to be trained in recognizing possibly damaged, or suspect batteries. In addition, all parties (suppliers, shippers, third party transporters, carriers, vessel crews and port and terminal workforces) must also be trained and drilled in the protocols that their employer should develop in case of an incident or the discovery of a suspect battery. As industry and regulatory standards continue to evolve and be implemented, and technical solutions that could reduce the impact of any fire emerge, there is a benefit in supply chain transporters being proactive in this way, even though it may not yet be required by the various governing regulations. The cost of training will be infinitesimal compared to the cost of any major incident involving lithium-ion batteries.

Decarbonization and sustainability ↘ page 39

While shipping has been making progress towards decarbonization, ambitious new industry targets and regulatory developments signal the need for greater urgency and innovation, not to mention investment. Targets include a 40% reduction in CO_2 emissions by 2030, and to cut total annual greenhouse gas (GHG) emissions from international shipping by at least 20% by 2030 and by at least 70% by 2040. Another goal would see green technologies, fuels and/or energy sources represent at least 5%, but preferably 10%, of the energy used by shipping by 2030.

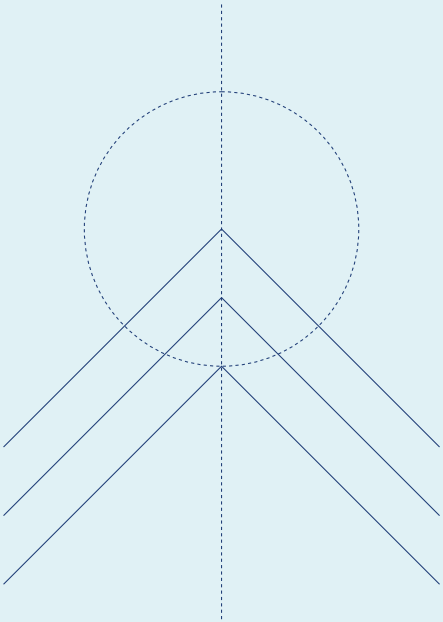
Reaching the revised GHG reduction targets will require a mix of strategies, including measures to improve energy efficiency, the adoption of alternative fuels, innovative ship design and methods of propulsion. Insurers like Allianz are supporting the industry as it experiments with biofuels, ammonia, methanol, and green hydrogen, as well as electric vessels and wind assisted propulsion systems, such as wing sails, rotors, and foils. However, decarbonization will present various challenges for an industry juggling new technologies alongside existing ways of working. For example, the industry will need to develop infrastructure to support vessels using alternative fuels, such as bunkering and maintenance, while at the same time phasing out fossil fuels. There are also potential safety issues with terminal operators and vessels' crews handling alternative fuels that can be toxic or highly explosive.

Increasing shipyard capacity will also be key as the demand for green ships accelerates. Such capacity is currently constrained with long waiting times and high building prices. Over 3,500 ships must be built or refitted annually until 2050, yet the global shipbuilding industry built 2,700 vessels a year at its peak in 2010, while the number of shipyards more than halved between 2007 and 2022. At the same time capacity constraints on shipyards could have a knock-on effect for repairs and maintenance, with damaged vessels or those with machinery issues potentially facing long delays.

In future, alternative fuels could also present new challenges for salvors and wreck removal that should be considered in vessel design. If a large container ship or tanker powered by LNG or ammonia runs aground or capsizes, it would not be easy for salvors to remove fuel and refloat the vessel due to the risk of fire and explosion.

Meanwhile, the number of vessels sailing in Arctic waters continues to rise with growing commercial interest in the region, and climate change. The number of unique ships entering the Arctic Polar Code area from 2013 to 2023 increased by 37%, around 500 ships. The challenging Arctic environment brings a higher risk to vessels, crews, and the environment, however. Conditions in Polar waters are harsh, with the threat of sea ice and hazardous weather conditions, while the region's remoteness means limited access to infrastructure if a vessel runs into problems. A cruise ship that ran aground in Greenland in September 2023 could not be towed free for three days.

The use of non-ice-class tankers in Arctic waters, given there is currently insufficient number of icebreakers to meet growing demand, is a concern. In the past, there have been incidents where vessels have become stuck in the ice. If it were to happen to a non-ice-class vessel, it would not only mean its probable loss and a risk to the safety of the crew, but also a potential environmental disaster. To reduce the risk of incidents, the Polar Code for ships operating in Polar waters was introduced in January 2017. This will likely need adapting further as Arctic shipping increases.



Losses in focus

The analysis over the following pages covers both total losses and casualties/incidents.
See page 46 for further details

Total losses by top 10 regions

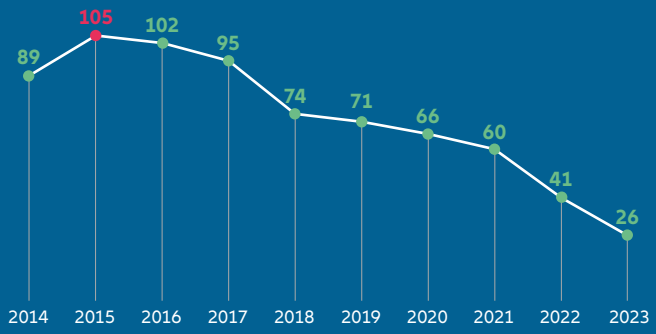
2014-2023 and 2023. Vessels over 100GT only

26
Total losses in 2023

729
Total losses between 2014 and 2023

Total losses by year

Vessels over 100GT only



70%
decline over the past decade

The shipping industry has made significant improvements when it comes to maritime safety in recent years. During the 1990s the global fleet was losing 200+ vessels a year. This total had halved by 10 years ago and is now down to a record low of 26 as of the end of 2023.

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Commercial

2023 review

Total losses by top 10 regions. From January 1, 2023 to December 31, 2023. Vessels over 100GT only

Region	Loss	Annual change
S.China, Indochina, Indonesia and Philippines	8	-2
East Mediterranean and Black Sea	6	+2
British Isles, N.Sea, Eng. Channel and Bay of Biscay	3	-
Japan, Korea and North China	3	+3
Baltic	2	-
Iceland and Northern Norway	1	-
Indian Ocean	1	+1
North American West Coast	1	+1
S.Atlantic and East Coast S.America	1	+1
Total	**26**	**-15**

The database shows 26 total losses of vessels over 100GT at the end of 2023, compared with 41 a year earlier and 89, 10 years previously. South China, Indochina, Indonesia and Philippines is the main loss hotspot, both over the past year and the past decade, accounting for almost a third of losses last year. The East Mediterranean and Black Sea regions ranks as the second top loss location, with activity up year-on-year.

2014 – 2023 review

Total losses by top 10 regions. From January 1, 2014 to December 31, 2023. Vessels over 100GT only

Region	Loss
S.China, Indochina, Indonesia and Philippines	184
East Mediterranean and Black Sea	115
Japan, Korea and North China	62
British Isles, N.Sea, Eng. Channel and Bay of Biscay	54
Arabian Gulf and approaches	38
West Mediterranean	29
West African Coast	26
S.Atlantic and East Coast S.America	23
Bay of Bengal	22
West Indies	18
Other	158
Total	**729**

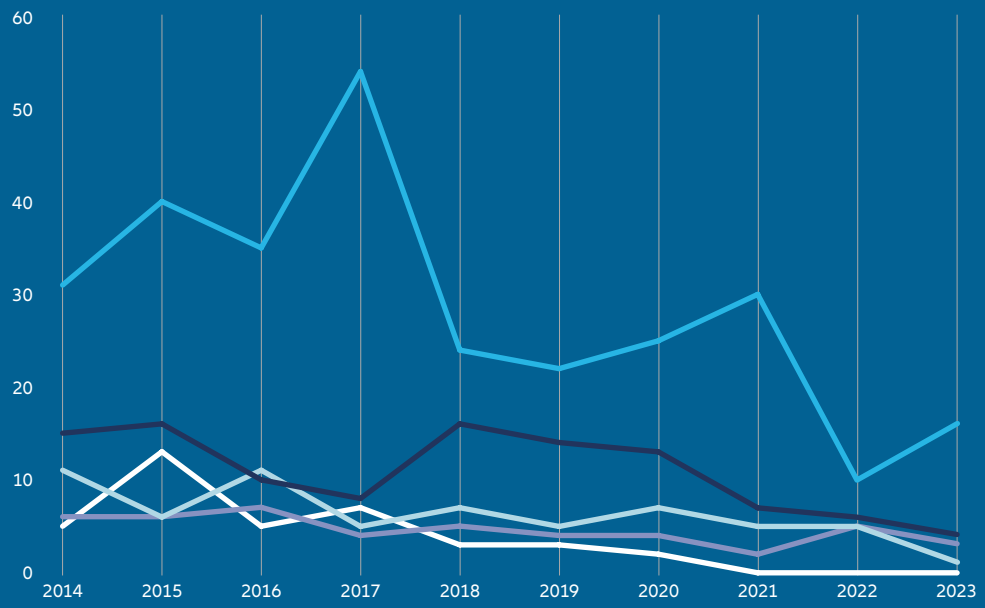
The past 10 years have seen 729 reported total losses, with the 2023 loss year (26) representing a significant improvement on the annual loss average over this period (73). This is even more impressive given the fact that there are over 100,000 ships in the global fleet (100GT+) compared with around 80,000 ships 30 years ago.

The South China region is the global loss hotspot and it is likely to remain so with growing economic development and simmering geopolitical risks. A huge volume of imports and exports flow through the region, resulting in high levels of shipping traffic on the region's sea lanes and in ports, which is reflected in the number of incidents. Together, the top three maritime regions account for almost 50% of loss activity over the past decade.

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Commercial

Total losses by type of vessel 2014 – 2023

From January 1, 2014 to December 31, 2023. Vessels over 100GT only



Cargo, fishing and passenger vessels account for over

60%

of ships lost over the past decade

Top five vessel types lost

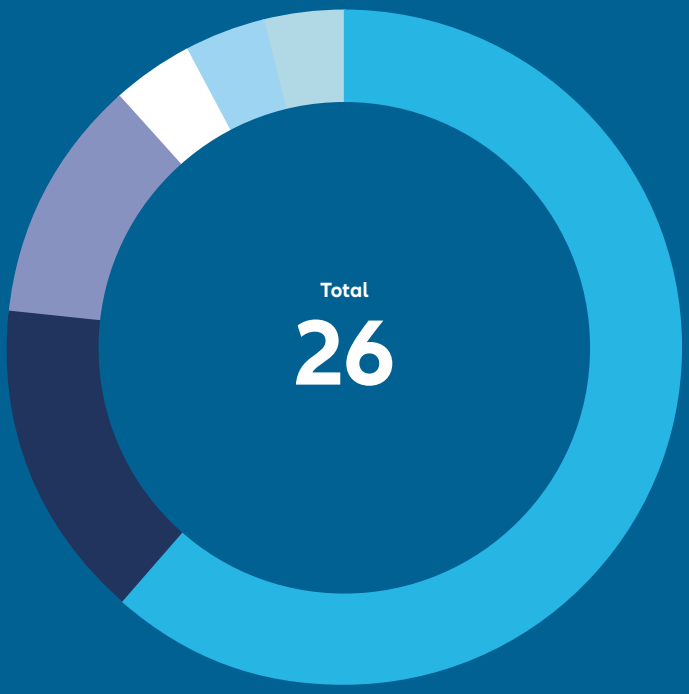
- Cargo
- Fishery
- Passenger
- Tug
- Bulk

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Cargo	31	40	35	54	25	22	26	31	11	16	**291**
Fishery	15	16	10	8	16	14	13	7	6	4	**109**
Passenger	11	6	11	5	7	5	7	5	5	1	**63**
Tug	6	6	7	4	5	4	4	2	6	3	**47**
Bulk	5	13	5	7	3	3	2	0	0	0	**38**
Ro-ro	5	6	10	0	3	6	1	1	4	0	**36**
Chemical/Product	2	3	7	4	3	2	2	2	3	1	**29**
Container	4	5	5	3	2	1	1	1	1	1	**24**
Supply/Offshore	3	3	2	2	2	1	1	3	0	0	**17**
Dredger	1	1	1	3	2	1	2	1	2	0	**14**
Tanker	1	0	0	2	3	0	2	2	2	0	**12**
Barge	1	0	3	1	2	0	0	2	0	0	**9**
LPG/LNP	0	0	1	1	0	2	0	0	0	0	**4**
Other	4	4	4	1	1	7	5	3	1	0	**30**
Unknown	0	2	1	0	0	3	0	0	0	0	**6**
Total	**89**	**105**	**102**	**95**	**74**	**71**	**66**	**60**	**41**	**26**	**729**

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Commercial

Total losses by type of vessel 2023

January 1, 2023 to December 31, 2023. Vessels over 100GT only



Cargo	16
Fishery	4
Tug	3
Chemical/Product	1
Container	1
Passenger	1

Cargo ships accounted for over 60% of vessels reported lost in 2023. Foundered was the most frequent cause of cargo ship losses accounting for half (8). Fishing boats rank second overall with four total losses, followed by tugs (3).

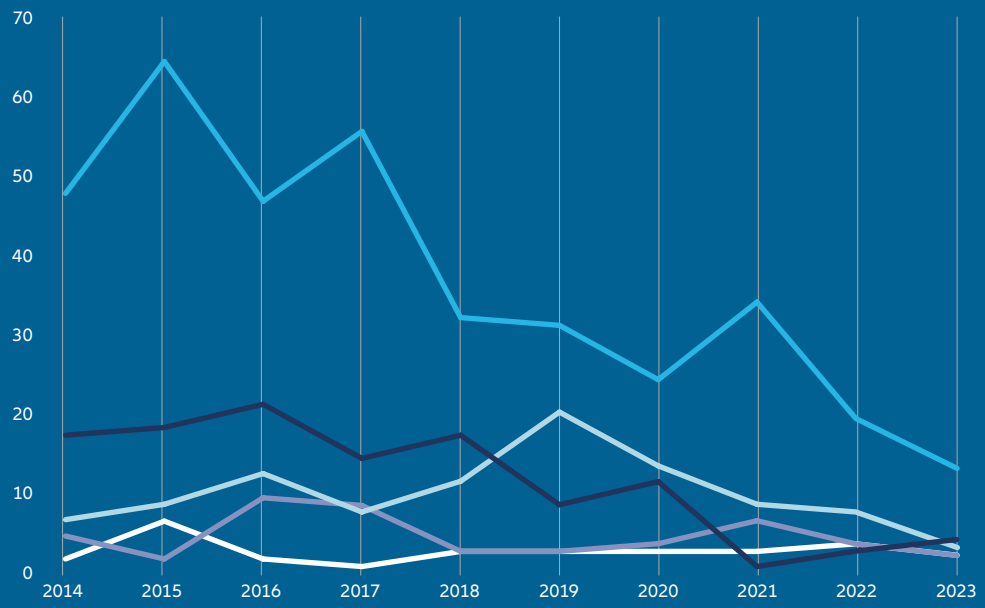
The average age of a vessel involved in a total loss over the past 10 years is

29

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Commercial

Total losses by cause 2014 – 2023

From January 1, 2014 to December 31, 2023. Vessels over 100GT only



Foundered (sunk) (52%), wrecked/ stranded (grounded) (17%) and fire/ explosion (14%) are the top three causes of total losses over the past decade, accounting for almost

85%

Top five causes

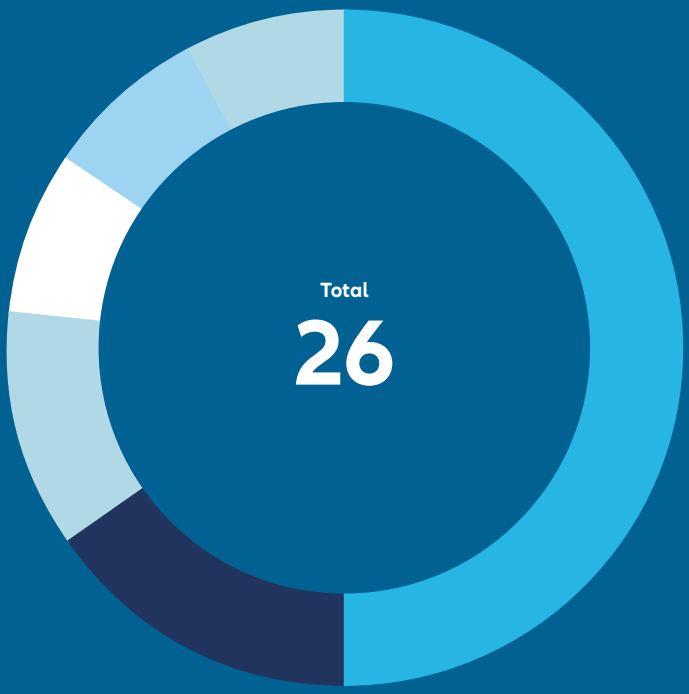
- Foundered (sunk)
- Wrecked/stranded (grounded)
- Fire/explosion
- Machinery damage/failure
- Collision (involving vessels)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Foundered (sunk)	49	66	48	57	34	32	26	35	21	13	**381**
Wrecked/stranded (grounded)	18	19	22	15	18	8	12	2	3	4	**121**
Fire/explosion	7	9	13	8	12	21	14	9	8	3	**104**
Machinery damage/ failure	5	2	10	9	3	3	4	7	4	2	**49**
Collision (involving vessels)	2	7	2	1	3	3	3	3	4	2	**30**
Hull damage (holed, cracks etc.)	5	2	4	5	2	1	1	1	1	2	**24**
Contact (e.g. harbor *wall)*	1	0	0	0	2	1	0	0	0	0	**4**
Missing/overdue	0	0	2	0	0	1	0	0	0	0	**3**
Miscellaneous	2	0	1	0	0	1	6	3	0	0	**13**
Total	**89**	**105**	**102**	**95**	**74**	**71**	**66**	**60**	**41**	**26**	**729**

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Commercial

Total losses by cause 2023

From January 1, 2023 to December 31, 2023. Vessels over 100GT only



Foundered (sunk)	13
Wrecked/stranded (grounded)	4
Fire/explosion	3
Collision (involving vessels)	2
Hull damage (holed, cracks, etc.)	2
Machinery damage/failure	2

Foundered (sunk) was the main cause of total losses reported during 2023, accounting for 50%. Wrecked/stranded ranks second (15%), with fire/explosion ranking third (12%). Fire activity declined during 2023 but there have still been 55 total losses of vessels caused by fires in the past five years alone.

Extreme weather was reported as being a factor in

at least 8

losses during 2023

2 vessel collision incidents

resulted in total losses during 2023

Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Commercial

All casualties/incidents (including total losses)

2023 review

From January 1, 2023 to December 31, 2023. Vessels over 100GT only

Top 10 regions	Loss	Annual change
British Isles, N.Sea, Eng. Channel and Bay of Biscay	695	+17
East Mediterranean and Black Sea	635	+53
S.China, Indochina, Indonesia and Philippines	239	-4
Great Lakes	155	-32
North American West Coast	146	-3
Baltic	142	+24
Iceland and Northern Norway	127	-11
West Mediterranean	127	-64
Japan, Korea and North China	97	+9
Newfoundland	90	-17
Other	498	
Total	2,951	-85

The number of reported shipping casualties or incidents also declined during 2023 (2,951 compared to 3,036), albeit only by 3%. The British Isles region saw the highest number of reported incidents (695). Machinery damage/failure accounted for over half of all incidents globally (1,587). There were over 200 reported fire incidents during 2023 alone (205) – the second highest total for a decade, behind 2022, making this the fourth top cause of incidents.

2014 – 2023 review

From January 1, 2014 to December 31, 2023. Vessels over 100GT only

Top 10 regions	Loss
British Isles, N.Sea, Eng. Channel and Bay of Biscay	5,279
East Mediterranean and Black Sea	5,114
S.China, Indochina, Indonesia and Philippines	2,580
Great Lakes	1,555
Baltic	1,406
West Mediterranean	1,263
North American West Coast	1,240
Japan, Korea and North China	1,171
Iceland and Northern Norway	1,143
Newfoundland	908
Other	6,162
Total	27,821

The British Isles is the new top location for the most shipping incidents over the past decade (5,279), replacing the East Mediterranean and Black Sea, and accounting for 19% of the 27,821 reported incidents over the past decade. Globally, most incidents have been caused by machinery damage or failure (11,506), followed by collision with other vessels (3,014), wrecked/stranded (2,808) and contact with port infrastructure (1,916).

Source: Lloyd's List Intelligence Casualty Statistics

Data Analysis & Graphic: Allianz Commercial

Note: All figures are based on reported total losses for the year-end 2023 as of March 31, 2024. 2023's total losses may increase in future as, based on previous years' experience, developments in losses sometimes lead to a number of total losses being confirmed after year-end, particularly in the case of constructive total losses or because of late reporting, such as during the Covid-19 pandemic or the war in Ukraine.

Trends: Outlook

The shipping industry is increasingly subject to growing volatility and uncertainties from war and geopolitical events, climate change risks, such as drought in the Panama Canal, and the resurgence of piracy.

The effects on the safety and wellbeing of crew, the new risks posed by technology including the prospect of more cyber-attacks, GPS interference, and drone strikes, the threat the rise of the 'shadow fleet' poses to vessels and the environment, and the multifaceted impacts of rerouting are among the major consequences.

Navigating troubled waters – global shipping caught in proxy war

Recent incidents in the wake of the conflict in Gaza have demonstrated the increasing vulnerability of global shipping to proxy wars and disputes.

The latest spate of attacks in the Red Sea began on November 19 with the hijacking of the car carrier **Galaxy Leader** and its 25 crew members and have been followed by almost weekly incidents, mostly drone and missile attacks. Between November 19, 2023, and the beginning of May 2024, more than 100 ships in the Red Sea have been targeted by Houthi militants in response to the conflict.

In one of the most damaging incidents, the crew of the Belize-flagged, British-registered cargo ship **Rubymar** abandoned the vessel after it was struck by two missiles and started to take on water off Yemen. The stricken vessel, which was transporting fertilizer, eventually sank in early March 2024, making it the first total loss of a commercial vessel since the Houthi attacks on merchant shipping that have followed the war in Gaza began.

Days after the loss of the **Rubymar**, the first fatal attack on commercial shipping by the Houthis occurred. On March 6, a missile hit the Greek-owned, Barbados-flagged cargo vessel **True Confidence**, which was enroute from China to Jeddah and Aqaba with a cargo of trucks and steel products, resulting in the deaths of three crew. The damaged vessel was abandoned off the coast of Yemen's Port of Aden.

*"Tragically, incidents such as what happened to the **True Confidence** demonstrate only too well the significant threat that sailing through hotspots such as the Red Sea now poses. Seafarers are now on the front line, putting their lives at risk daily,"* says **Régis Broudin, Global Head of Marine Claims, Allianz Commercial.**

Disruption to shipping in the region has persisted longer than expected and has even spread wider following the seizure of the container ship **MSC Aries** by Iranian special forces in the Strait of Hormuz on April 13, 2024, says **Captain Rahul Khanna, Global Head of Marine Risk Consulting, Allianz Commercial:** *"While we have seen sporadic attacks in the past, the conflict in Gaza has opened the floodgates. Even if a political solution is reached, we may see attacks continue as there is clearly now an opportunity for those wishing to disrupt or destroy shipping in the Red Sea and beyond."*

Captain Nitin Chopra, Senior Marine Risk Consultant, Allianz Commercial, also believes the threat to shipping around the Suez Canal, the Red Sea and the wider region is likely to remain for the foreseeable future: *"Unstable regimes, regional disputes, and rivalries make for a dynamic situation around some of the world's busiest shipping routes.*

"The Red Sea crisis shows just how important critical waterways like the Suez Canal are to the world economy, and how vulnerable they can be to disruption. This is a worrying development that could have repercussions and consequences for other parts of the world where shipping routes are exposed to geopolitical events, as we have seen with the ship seizure in the Strait of Hormuz," says Chopra.

The hijacking of the **MSC Aries** was thought to be an apparent retaliation for an attack on the Iranian consulate in Syria earlier in April 2024 and came just days after Iran's Revolutionary Guard had threatened to close the Strait of Hormuz. Any potential closure of the strait could prove even more significant than the disruption in the Red Sea, given it is the world's most important chokepoint for oil shipping. The Houthi military group has also warned it would target any ships heading to Israeli ports if they are within its range.

The attacks in the Red Sea and its surrounding waters are not the first time the safety of vessels in the region has been impacted. There have been isolated attacks against shipping by the Iran-backed Houthis rebels in the past, including a bomb attack against US destroyer **USS Cole** on October 12, 2000, which killed 17 sailors, and injured nearly 40 other crew members. Eight oil tankers were attacked in the region in May and June 2019 alone, while in July 2019 the UK-flagged **Stena Impero** tanker was detained by Iranian forces for two months before eventually being released.

"Ultimately, shipping, and international trade is a ripe target for those wishing to wage a proxy war. It opens avenues for terrorists or proxy militia groups to get recognition and hit global markets. While the Houthis have access to sophisticated military capabilities, recent events show how even smaller groups could potentially disrupt shipping using relatively cheap drones or explosive devices to target critical trade routes," says Chopra.

Attacks and abandonments put crew welfare firmly in the spotlight

One of the biggest concerns with the attacks on shipping in the Red Sea and the wider Middle East region is the safety and wellbeing of seafarers, who are the innocent victims of the proxy war on shipping.

"The situation is unprecedented for seafarers, who are under increasing pressure and stress. Crews sailing in these waters are entitled to compensation and life insurance – and basic pay for many of those working in the Red Sea and the Gulf of Aden to its southeast has already doubled following recent bargaining agreements – but it remains a tough decision to voyage through the Red Sea and surrounding waters at this time," says **Captain Nitin Chopra, Senior Marine Risk Consultant, Allianz Commercial.**

Hundreds of crew have been affected by attacks on vessels in the Red Sea alone. The 25 crew of the **Galaxy Leader** were held for over three months after the vessel was hijacked and held in Yemen by Houthi rebels in November 2023. There were also 25 crew aboard the **MSC Aries** container ship when it was seized in the Strait of Hormuz in April 2024. Indeed, since 2009, a total of 2,628 crew have been taken hostage by pirates, according to EUNAVFOR[1].

"The Covid-19 pandemic was hard on crews, with many experiencing stress and fatigue having spent months at sea on extended contracts and unable to see family," says **Wayne Steel, Senior Marine Risk Consultant, Allianz Commercial.** *"Now they must worry about war and their own safety. In a world grappling with a shortage of maritime workforce, I fear this will impact the industry's ability to attract talent and lead to future skills shortages."*

At the same time, the number of vessels abandoned showed a worrying increase in 2023, heaping further distress on crews that are already feeling the effects of the Covid-19 pandemic, the war in Ukraine and the Red Sea attacks.

During 2023, a total of 132 abandonments were reported to the International Transport Workers Federation (ITF)[2], an increase of almost 11% on 2022, stranding at least 1,676 seafarers. Under the Maritime Labour Convention 2006, a seafarer is deemed to have been abandoned if the shipowner fails to cover the cost of a seafarer's repatriation or has left them without the necessary maintenance and support. In 2023, abandoned seafarers were owed at least $12mn in wages.

Rerouting global shipping

Container shipping companies have been avoiding the Red Sea and rerouting vessels around the Cape of Good Hope in order to avoid Houthi attacks on vessels.

Note: These times assume an average vessel speed of 16 knots. Routes shown are illustrative.

Source: Flexport

"Abandoning ships and seafarers damages the reputation of the industry at a time when it must attract new talent to meet the growing demands on skills from decarbonization and an increasing reliance on technology," says **Captain Rahul Khanna, Global Head of Marine Risk Consulting, Allianz Commercial.** *"The shipping industry needs to offer attractive careers to the next generation of seafarers, but this is not helped by the situation in the Red Sea and issues like crew abandonment."*

ImageBank4U / Adobe Stock

Warfare is changing, as are the weapons that can cause damage to ships

Drones and cyber: shipping faces worrying threat from new tech

The war in Ukraine and Houthi attacks in the Red Sea have revealed the threat to commercial shipping posed by drones, which are relatively cheap and easy to make, and difficult to defend against.

Houthi militants have used a wide range of weapons and attack methods against shipping in the Red Sea and the neighboring Gulf of Aden, which are joined by the Bab al-Mandeb strait, a chokepoint between the Horn of Africa and the Middle East. These have included anti-ship missiles and large aerial drones, including so-called 'loitering munitions' that circle an area before targeting the vessel.

The war in Ukraine, for example has seen the development and successful deployment of drones and unmanned vessels to attack Russian warships in the Black Sea. In February 2024, the US said it had destroyed an unmanned underwater vessel (UUV)[3], and one unmanned surface vessel (USV) in Iranian-backed Houthi-controlled areas of Yemen. This was the first observed Houthi employment of a UUV since attacks began.

"Such weapons are relatively cheap and easy to produce, are becoming more precise, and can find their way into the hands of non-state actors, such as proxy groups or terrorists," says **Captain Rahul Khanna, Global Head of Marine Risk Consulting, Allianz Commercial.** *"Warfare is changing, as are the weapons that can cause damage to ships. We have seen an increase in the use of drones and unmanned aerial vehicles, which are difficult to stop without a large naval presence."*

"It is very difficult for individual vessels to protect themselves from drone attacks," adds **Captain Nitin Chopra, Senior Marine Risk Consultant, Allianz Commercial.** *"Armed guards were part of the solution against Somali pirates in the past, but there is little that commercial shipping can do against attacks by guided missiles and drones. Owners can invest in counter-drone technology or consider safer alternative routes, but such options often come at a cost and may not always be practical."*

Looking to the future, technologically driven attacks against shipping, ports and navigation systems are a distinct possibility. One hour before the start of its invasion of Ukraine in 2022, Russia launched a cyber-attack on communications company Viasat, disrupting internet access for customers in Europe, according to The UK's National Cyber Security Centre (NCSC)[4].

Recent years have also seen reports of instances of vessels experiencing GPS interference and jamming, which can result in lost or inaccurate GPS signals affecting bridge navigation. Last year, the US Transportation Command said GPS interference had been reported worldwide, although the Strait of Hormuz had experienced a notable uptick[5]. It also warned that vessels' Automatic Identification Systems (AIS) can be spoofed, while AIS devices could be open to cyber-attack. In April 2024 reports of GPS jamming surged in both the Mediterranean and the Black Sea regions.

"The potential to exploit vulnerabilities in cyber security will not have escaped bad actors. The blocking of the Suez Canal by the container ship ***Ever Given*** *in 2021, for example, highlighted the potential to cause widespread disruption to global trade via an attack on a large vessel – either a physical one or a cyber-attack,"* says Chopra. *"The use of information systems and data on board vessels is increasing. This is a new challenge for shipping and makes them more vulnerable to cyber-attacks as they digitize their operations."*

Testing times for marine war insurance

Marine war insurance coverages have been thrown into the spotlight with conflicts spilling over into the Black Sea and Red Sea. War cover is typically purchased alongside or separately to hull insurance, covering war and terrorism perils normally excluded from marine policies. Cargo war risk premiums are typically included within the "all risks" premium without a separate rate.

When a defined high-risk area is listed as a war breach zone, insurers can issue seven-day cancellation notices on existing war insurance policies, excluding the zone from future war insurance coverage. However, individual insurers may be willing to extend war cover to vessels traveling to the excluded region, typically subject to an additional insurance premium.

On the hull side, the additional premium is calculated as a percentage rate of the whole value of the vessel's hull – normally for a seven-day call in the breach zone, reflecting the enhanced exposure. Additional premiums for cargo war risks are charged on the rate applied to the full value of the cargo shipped. The cost of insuring a seven-day voyage through the Red Sea had doubled from around 0.5% of the value of a ship before the attacks to 1%, according to Reuters (as of March 4, 2024)[6].

"Marine war insurance is an important 'sleep easy' cover for ship owners and charterers, but it becomes even more important at times of conflict and heightened geopolitical risk," explains **Justus Heinrich, Global Product Leader Marine Hull at Allianz Commercial,** which offers this type of insurance, although it is not a major provider.

The situation in the Red Sea is unusual in that it is not a declared war, which would see insurers trigger cancelation clauses and for vessels to avoid transiting the affected area. Instead, insurers have been able to re-instate cover on a case-by-case basis, charging additional premium to cover vessels transiting the Red Sea.

> The situation is very dynamic

To date, insurance exposures in the Red Sea have been manageable, given the actions of shipping companies to avoid the region, and the US-led multinational naval coalition to help safeguard shipping from Houthi attacks. Houthi militias are targeting vessels linked to Israel, the US and UK, and although other vessels have been attacked, this has helped define the risk for underwriters.

However, the situation is very dynamic, and, as the **True Confidence** incident demonstrates, can change quickly, depending on security and commercial pressures, says Heinrich.

"As insurers, we must remain a reliable partner for our shipping industry clients, who are unable to escape challenges like those in the Red Sea. The insurance product has demonstrated that it can be relied upon, but going forward, if insurers commit to covering a risk, we must also ensure we understand it and are comfortable with it," says Heinrich.

"The insurance industry has been shown to be a reliable partner in a time of conflict. But it can't carry every economic and political risk as there comes a point when insurers have to adjust premiums and risk appetite. For shipping customers, it becomes an economic and commercial decision to pay the additional premiums for 'hot risk' areas, or rerouting."

Rerouting brings supply chain, trade, risk, inflation and environmental challenges

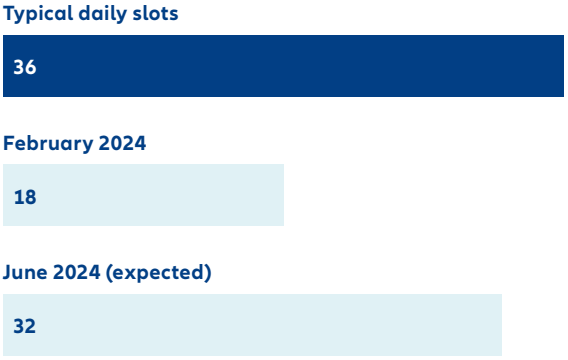
Attacks against shipping in the Red Sea and Middle East waters, together with the drought in the Panama Canal, have amounted to a "double strike" for shipping, causing yet more disruption for global supply chains, as well as significantly adding to the distances vessels must sail.

Just as they appeared to have stabilized after the pandemic and the shocks of the blocking of the Suez Canal by the large container ship **Ever Given** in 2021 and the war in Ukraine, two of the world's busiest shipping routes have been impacted by overlapping, yet unrelated, events.

Over the past year drought conditions have severely cut capacity in the Panama Canal, which accounts for an estimated 5% of global seaborne trade, and 40% of US container traffic[7]. A lack of rain and the El Niño climate phenomenon contributed to the second driest year in the canal's 110-year history. Low water levels meant that transits through the canal in February 2024 were half the pre-drought levels[8]. Some good news came when the Panama Canal Authority announced it would be increasing the number of daily slots available to traverse the waterway from 24 to 32 by June 1, 2024[9], still below the 36 typically allowed but giving hope that the canal can recover from the drought that has choked vessel traffic and cost shippers millions of dollars sooner than previously anticipated.

At the same time, attacks against shipping in the Red Sea by Houthi rebels severely impacted transits through the Suez Canal, a key transit route for vessels between Asia, Europe, and the US East Coast. In 2023, approximately 22% of global seaborne container trade passed through the canal[10] carrying goods including natural gas, oil, cars, raw materials and many manufactured products and industry components to and from the Indian Ocean, the Mediterranean Sea and the Atlantic Ocean. The disruptions in the Panama Canal had seen some Asia traffic reroute via the Suez Canal, but since the attacks in the Red Sea, some have switched to rail and road transport services as an alternative.

Drought conditions have severely cut capacity in the Panama Canal



At the start of 2024, transits in the Panama canal were down by more than

49%

At the start of 2024 transits in the Suez and Panama canals were down by more than 42% and 49% respectively, compared to their peaks, according to UNCTAD[11]. In the case of the Suez Canal, 586 container vessels had been rerouted around the Cape of Good Hope by the first half of February 2024, container tonnage crossing the canal fell by 82%, and the number of specialized car-carrying ships using the Red Sea dropped by more than half in December 2023 compared with a year earlier[12]. Rerouting via the Cape of Good Hope, however, adds at least 3,000 nautical miles (over 5,500km) and around 10 days sailing time to each trip[13].

"Simultaneous disruption to two of the world's most important shipping routes – the Suez and Panama Canals – amounts to a double strike on shipping and global seaborne trade," says **Captain Nitin Chopra, Senior Marine Risk Consultant, Allianz Commercial.** *"Both routes are critical for the transport of manufactured goods and energy between Asia, Europe, and the US East Coast. Whichever route vessels take, they face lengthy diversions and increased costs. And let's not forget, prior to these situations, the war in Ukraine had already prompted many shipping companies and cargo interests to seek alternative routes."*

The rerouting of vessels via the Cape of Good Hope has had a knock-on effect on global supply chains. Businesses that source goods and components from factories in China and South-East Asia have faced delays and higher costs from longer transit times. As of April 2024, shipping volume around the Cape of Good Hope had soared by 193% compared to the volume usually registered in the pre-conflict period, according to **Allianz Trade**.

According to the British Chambers of Commerce (BCC)[14], more than half of UK exporters (55%) and manufacturers (53%) say they have been impacted by disruption to shipping in the Red Sea. Some reported rises of 300% for container hire, and logistical delays, adding up to three to four weeks to delivery times, creating cashflow difficulties, and component shortages on production lines.

Such experiences have thrown the shipping industry and the issue of supply chain resilience into the public consciousness, says **Captain Rahul Khanna, Global Head of Marine Risk Consulting, Allianz Commercial.** Given 90% of international trade is transported across oceans, in an age of interconnection, problems in one spot can quickly be felt more widely.

At the start of 2024, transits in the Suez canal were down by more than

42%

586

Container vessels had been rerouted around the Cape of Good Hope by the first half of February 2024 adding

10 days

sailing time to each trip

"Supply chains have been disrupted by a series of events in recent years, from extreme weather and climate incidents, container ship fires and groundings, through to the pandemic and conflicts in Ukraine and the Middle East, and now the Baltimore bridge collapse. These unrelated events have come together in a short space of time to test the resilience of supply chains, many of which have been shown to be vulnerable to disruption.

"How should the shipping industry and its customers address this challenge? In today's environment it is even more important to have a 'Plan B' – to have alternative options. Supply chains and companies are so much more interconnected than they were in the past. An unexpected event can have a domino effect globally. Shippers around the world should consider diversification of their supply chains and in some cases nearshoring and onshoring might be an option."

Increased transparency is also part of the solution.

"While we can track vessels and monitor accumulation of hull exposure, cargo remains much more uncertain, especially containerized cargo. A cargo journey is often very fragmented and will typically involve moving between different modes of transport. While the global risk environment for shipping has changed significantly in recent years, the average shipper still knows very little about the location of their cargo, which makes it very difficult for them to put effective contingency plans in place to minimize disruption, and to manage accumulations," says Khanna.

"With heightened supply chain volatility from geopolitical risks, climate change, as well as other threats such as cyber-attacks, ultimately businesses will need to update their approach to cargo risk management and business continuity planning. Insurers like Allianz continue to support customers with loss prevention advice and insights," says **Régis Broudin, Global Head of Marine Claims, Allianz Commercial.**

The Red Sea crisis shows how vulnerable critical waterways like the Suez Canal can be to disruption

AliAsgher / Adobe Stock

The risks of rerouting and the impact on capacity and trade

Although rerouting around the Cape of Good Hope is unlikely to have a significant impact on maintenance and machinery breakdown losses as vessels will still likely spend the same amount of time at sea, albeit on fewer, longer, transits, the increased costs – some estimates put the cost of additional fuel for rounding the Cape of Good Hope at $1mn[15] – could tempt some shipowners to make financial cuts in this area.

Rerouting also requires a shift in the shipping industry supply chain, if large numbers of vessels switch to alternative routes around the Cape of Good Hope for a prolonged period. Container lines tend to ply the same established trade routes, but rerouting requires alternative bunkering, supply, repair, and maintenance facilities, which could change the risk environment, suggests **Wayne Steel, Senior Marine Risk Consultant, Allianz Commercial.**

"When change and uncertainty come into play it can result in increased risk," says Steel. *"Rerouting requires a significant change in the supply chain, trade route and conditions for vessels that normally follow a rigid schedule and process. Storms and rough seas on these routes could also be challenging for smaller vessels used to plying coastal waters, especially where crews may not be sufficiently trained and equipped for such conditions."*

In addition, the infrastructure may not be available to support any incident involving some of the largest vessels at sea, such as suitable ports of refuge or salvage operations.

Longer transit times from diverting shipping around the Cape of Good Hope could have a knock-on effect on capacity, with the global container fleet making fewer, longer voyages, and a potential shortage of containers. Demand for shipping capacity has eased since the post-pandemic squeeze on shipping capacity, but prolonged disruption in the Red Sea and the wider region, as well as in the Panama Canal, could give rise to future pressures, adds **Captain Nitin Chopra, Senior Marine Risk Consultant, Allianz Commercial.** The Red Sea crisis has already resulted in more older vessels being kept in service.

Additional nautical miles sailed when rounding the Cape of Good Hope compared to using the Suez Canal

3,000+

> Rerouting requires a significant change in the supply chain, trade route and conditions for vessels that normally follow a rigid schedule and process

The double whammy of delays and disruption in the Panama and Suez Canals, which is driving up the cost of transporting goods, could also filter through to inflation. According to analysis from **Allianz Trade,** a prolonged period of disruption in the Red Sea – which accounts for 30% of global container traffic and 40% of trade between Asia and Europe – could cause global GDP growth to slow by -0.4% and inflation to increase by +0.5%.

"There is concern that prolonged disruption to supply chains could affect inflation, as was seen with the Covid-19 lockdown, the grounding of the ***Ever Given*** *and the war in Ukraine. Rerouting of vessels increases costs and freight rates, while supply chain disruption can lead to delays in obtaining spare parts and increased costs for ship repairs. The unstable geopolitical environment combined with the drought in the Panama Canal could have a similar impact,"* says Broudin.

Environmental impact

Rerouting is also having an impact on the environment. The disruption in the Red Sea, combined with factors linked to the Panama Canal and the Black Sea in the wake of the war in Ukraine, could erode the environmental gains achieved through 'slow steaming', as rerouted vessels increase speeds to cover longer distances.

The longer distances caused by rerouting container ships from the Suez Canal to the Cape of Good Hope result in an estimated 70% increase in greenhouse gas emissions for a round trip from Singapore to Northern Europe, according to UNCTAD[16]. Shipping diversions from the Red Sea are already cited as being a primary cause of a 14% surge in the carbon emissions of the EU shipping sector during the first two months of 2024[17].

Climate change already poses a particular challenge for cargo risks and insurance, says **Justus Heinrich, Global Product Leader Marine Hull, Allianz Commercial.** Drought conditions also reduced navigability on the Amazon in 2023, causing the oil tanker **Minerva Rita** to run aground in December. Recent years have also seen disruption to shipping on the Rhine in Germany and the Mississippi river in the US due to low water levels.

"Climate change is having a big impact on cargo risks, and we need to find ways of understanding and mitigating the risk to ensure sustainability of cover. For example, cargo accumulation is a big challenge as extreme weather can lead to very large losses," says Heinrich.

"More than ever global corporations need to monitor how their risk landscape will be affected due to climate change and the need for climate resilience services will only grow in the future," says Khanna.

Kara / Adobe Stock

Rerouting from the Red Sea is also having an impact on the environment

Somalia piracy threat re-emerges amid Red Sea crisis

The past year has seen a rise in maritime piracy. There were 120 reported incidents (including armed robbery) against ships in 2023, up from 115 in 2022. Of these, 105 vessels were boarded and four hijacked, according to the ICC International Maritime Bureau (IMB)[18]. Worryingly, the number of crew taken hostage increased from 41 to 73, while the number kidnapped rose from two to 14.

Despite a fall in reported incidents since a peak in 2020, Africa's Gulf of Guinea remained a hot spot in 2023, accounting for three out of four reported vessel hijackings, along with all 14 crew kidnappings and 75% of crew hostages. The Singapore Strait also remains an area of concern due to the high number of successful incidents (37), as does South America, with incidents reported from vessels at anchorage in Peru (14), Brazil, and Colombia.

The big concern, however, is the re-emergence of piracy off the Horn of Africa amid wider security concerns in the neighboring Red Sea. In December 2023, the Maltese-flagged bulk carrier **Ruen** was hijacked in the Indian Ocean around 700 nautical miles east of Bosaso, Somalia. A further three vessels were attacked in January 2024, demonstrating the continued capabilities of Somali pirates, while in March 2024, the Bangladesh-flagged bulk carrier **Abdullah** was boarded and hijacked around 600 nautical miles off Somalia. The vessel was eventually released the next month, reportedly after a ransom had been paid, sparking fears that this could lead to further attacks.

The **Ruen** incident was the first reported successful hijacking by Somali pirates since 2017. Between 2005 and 2011, Somali pirates seized 149 ships and over 3,700 crew for ransoms totaling in excess of an estimated $300mn and caused a $18bn yearly loss to the world economy in cost of trade – according to the World Bank[19]. Around this time, Somalia was engaged in a civil war, effectively becoming a failed state that offered many havens for hijacked vessels.

The situation then improved with the introduction of armed guards on vessels and international efforts to increase stability in the region, explains **Captain Rahul Khanna, Global Head of Marine Risk Consulting, Allianz Commercial.**

"But now on the back of the attacks in the Red Sea, the re-emergence of Somali-based piracy activity is definitely cause for concern. It could just be opportunistic, but we must be prepared for the prospect that we will see a period of renewed hijackings and piracy attacks at sea," says Khanna.

Number of piracy incidents against ships

Number of crew taken hostage

Shipping is vulnerable to extortion, **Captain Nitin Chopra, Senior Marine Risk Consultant at Allianz Commercial** adds: *"Pirates may be emboldened by what is going on in the Red Sea. With attention focused elsewhere, it opens up the possibility for them to restart their attacks around the Horn of Africa and hijack vessels. It can take months or even years to get the crew and vessels returned."*

As was the case when Somali piracy was at its peak, many of the pirates operate from 'mother boats' (sometimes hijacked vessels themselves), seeking targets in remote locations – some distance out to sea – which are less likely to be patrolled by international forces. The pirates then make an exploratory approach to assess whether armed guards are on board.

Following the successful attempts to reduce the number of piracy incidents in the region to almost zero, in January 2023 the high-risk area (HRA) classification for the region was removed. However, the Voluntary Reporting Area (VRA) administered by the United Kingdom Maritime Trade Operations (UKMTO) has not changed. Ships entering the VRA are encouraged to report to the UKMTO and register with the Maritime Security Centre for the Horn of Africa in accordance with Best Management Practices to Deter Piracy and Enhance Maritime Security in the Red Sea, Gulf of Aden, Indian Ocean, and Arabian Sea.

War in Ukraine: 'shadow fleet' poses risk to vessels and environment

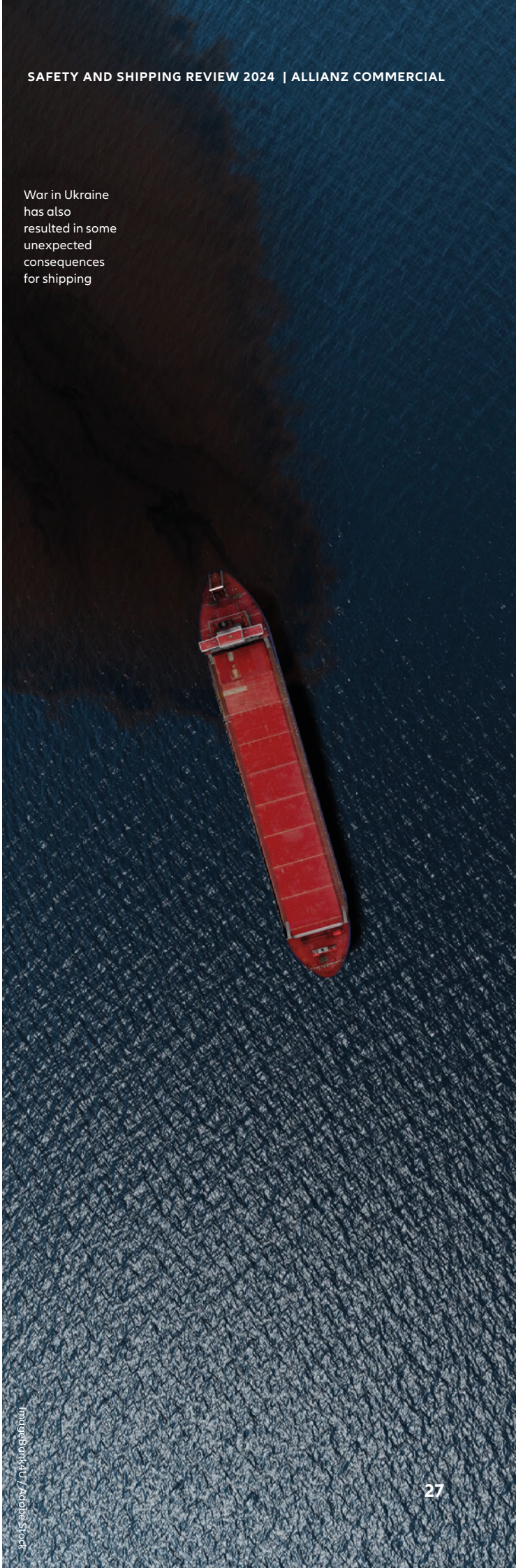
A gradual tightening of international sanctions on Russian oil and gas exports over the past two years since its invasion of Ukraine has resulted in the emergence of a sizable 'shadow fleet' of tankers, mostly older vessels that operate outside international regulation and often without proper insurance. This situation presents serious environmental and safety risks in key chokepoints where oil is shipped.

Following the invasion of Ukraine in February 2022, G7 countries placed embargoes on the import by sea of almost all Russian crude oil imports. The G7+ coalition of countries then implemented a price cap on Russian oil in late 2022, which also prohibits coalition shipping companies, insurers, and banks from providing services for oil sold above the cap. In a bid to evade the price cap, Russia has since established a fleet of 'shadow' vessels to sell its oil in the grey market.

Russia is not the only country to operate a shadow fleet. In a similar vein, Iran and Venezuela have used shadow tankers to circumvent sanctions and maintain oil exports. Estimates put the size of the dark fleet at between 600[20] to 1,400[21] vessels, roughly a fifth of the overall global crude oil tanker fleet.

Shadow fleet vessels pose a danger to other vessels and the marine environment, while potentially evading liability under relevant liability and compensation treaties. They are mostly older ships, many operating past their traditional lifespans, with ownership unclear. It is likely they are poorly maintained and may not have undergone appropriate surveys or inspections. Shadow tankers also participate in the dangerous practice of ship-to-ship transfers in the open ocean, as well as turning off Automatic Identification System (AIS) transponders to obscure the identity of vessels.

Shadow fleet vessels have been involved in at least 50 incidents to date, including fires, engine failures, collisions, loss of steerage, and oil spills, according to the Atlantic Council and other reports. In March 2024, a shadow fleet tanker carrying Russian oil, the **Andromeda Star** was involved in a collision near Denmark. In October 2023, the 26-year-old Cameroon-flagged **Turba** — also transporting contraband Russian oil — was found adrift off the coast of Indonesia. Just months previously, the shadow tanker **Pablo** caught fire and exploded off the coast of Malaysia, killing three crew. The cost of dealing with these incidents often falls on governments or other vessels' insurers if one is involved in an incident.



War in Ukraine has also resulted in some unexpected consequences for shipping

image: Bankiu / Adobe Stock

"Shadow tankers pose a significant threat to other vessels and the environment," says **Captain Nitin Chopra, Senior Marine Risk Consultant at Allianz Commercial.** *"Despite efforts to crack down on these vessels, the number of tankers is actually increasing, and we have seen a number of groundings and collision incidents.*

"As long as there are sanctions on countries like Russia and Iran, the shadow fleet looks here to stay. Given the age of the vessels in the shadow fleet, safety is a big concern. Often these vessels are at the end of their operational lives and are used in a high-risk business."

The International Maritime Organization (IMO) recently called on flag states to crack down on the illicit activities of shadow tankers and enforce regulations on ship-to-ship operations. The IMO also asked port states to subject potential shadow vessels to enhanced inspections.

However, countering the illicit trade in Russian and Iranian oil is proving difficult, as smuggling networks employ more sophisticated methods and there is continued demand for discounted oil in Asia. However, Western governments are likely to step up efforts to enforce sanctions and tighten the net on shadow fleets. In November 2023, the US Treasury sent notices to ship management companies in about 30 countries requesting information on 100 vessels it suspected of violating sanctions on Russian oil[22]. In December 2023, the G7+ coalition announced[23] it would require service providers to obtain pre-voyage attestations from their counterparties per voyage, rather than on an annual basis. The changes also require supply chain participants with access to itemized ancillary costs, such as insurance and freight, to share these upon request with entities further down the supply chain.

Shipping and insurance are increasingly used as a corrective instrument in geopolitical interests, says **Justus Heinrich, Global Product Leader Marine Hull at Allianz Commercial:** *"Demands on the insurance industry to ensure sanctions are adhered to are increasing, creating challenging reputational and legal exposures for insurers."*

Territorial disputes in the South China Sea

The Red Sea crisis shows just how important critical waterways like the Suez Canal are to the world economy, and how vulnerable they can be to disruption. It has also put the spotlight on other parts of the world where shipping routes are exposed to geopolitical events, such as in the South China Sea, where territorial disputes exist.

The South China Sea is a key commercial shipping route connecting Asia with Europe and Africa – it is estimated that around $3trn worth of trade passes through here every year[24]. Examples of disagreements over territories include the Paracel and Spratly Islands, which possess rich natural resources and fishing. Meanwhile, tensions between the US and China remain, particularly over Taiwan.

Over the past decade, China has incrementally built up military bases in the South China Sea and populated the waters with navy and coast guard boats. In turn, that's led to incidents at sea with vessels from other countries who also lay claim to territories, such as the Philippines. During March 2024, there were at least two incidents involving Chinese coast guard ships targeting Philippine vessels with water cannons as the latter tried to deliver supplies to a military outpost.

"Political rivalries are increasingly being played out on the seas and disputes over territories is not an issue that is likely to go away anytime soon," says **Captain Nitin Chopra, Senior Marine Risk Consultant, Allianz Commercial.** *"Shipping companies should always be prepared for any potential sources of disruption to their operations and supply chains."*

Such tensions can also have indirect consequences – in 2017 the **USS Fitzgerald** collided with a container ship, while the **USS John S. McCain** hit an oil tanker, when on patrol in this region.

NVB Stocker / Adobe Stock

Trends: Cargo

In addition to the problems and disruptions that attacks against shipping in the Red Sea and the Middle East, together with drought in the Panama Canal, have caused for cargo and supply chains, theft is also on the rise, driven by current economic conditions.

Cargo theft spikes with cost of living

There has been a significant rise in cargo theft in recent years, with a change in the goods being targeted and increasingly sophisticated tactics used by criminals.

Allianz Commercial has seen an uptick in cargo theft incidents in recent years, particularly in transportation and logistics. For example, In North America, the number of theft claims has increased for the past six years in a row, with a 20% increase year-on-year in 2022. The final total for 2023 is likely to surpass 2022.

Overall, US cargo theft in the third quarter of 2023 increased by an unprecedented 59% when compared to the third quarter of 2022, according to CargoNet[25]. Much of the increase was due to ongoing shipment misdirection attacks, in which criminals use stolen identities to divert and steal freight. **Allianz** has seen several such claims. In one case, criminals impersonated a courier to fraudulently pick up part of a shipment of electronics. Another scheme saw thieves change the identity of the carriers.

Theft is becoming a pressing issue for businesses and insurers, leading to sizable losses and supply chain disruption, according to **Captain Rahul Khanna, Global Head of Marine Risk Consulting, Allianz Commercial.** Theft was identified as the risk of most concern for transportation and logistics companies in the most recent **Allianz Risk Barometer,** a new entrant in the top five this year.

"More and more of our clients are concerned about the security of cargo in transit, especially in the Americas, where we see an increased frequency of theft claims. This is an issue of growing concern for the wider cargo market, and not just limited to the Americas, but a problem that is also affecting parts of Europe, including Germany, Italy and Spain," says **Marcel Ackermann, Global Product Leader Cargo, Allianz Commercial.**

Valuable goods that can be easily sold on the grey market are particularly attractive to criminals. Warehouses, distribution centers, truck stops and ports are the most vulnerable locations, while theft typically spikes in the run-up to public holidays and periods of increased consumer demand.

Attractive high value goods, such as mobile phones and other desirable electronic consumer goods, are the typical target of criminals. However, recent years have seen an increase in the theft of lower value consumer goods and food items. Food and household goods were the most targeted goods in the third quarter of 2023.

The targeting of household items and food are a reflection of inflationary pressures driving changes in criminal activity, explains **Régis Broudin, Global Head of Marine Claims, Allianz Commercial.**

"With the current economic environment and cost of living, there is a much greater incentive to steal. While theft of high value cargo has increased, more and more goods are becoming attractive to criminals that were not before," Broudin explains.

Cargo theft tends to rise and fall with economic conditions, according to Khanna: *"When the cost of living goes up or during an economic downturn, criminals start to focus on thefts from trucks and hijackings. And when people become desperate, they will target cheaper goods like food, which are easy to sell on in the grey market. This trend is reflective of the times we live in with increased hardship and the cost of living."*

At the same time criminals are using more sophisticated and organized methods to gain access to cargo, often employing technology. For example, thieves exploit cyber security weaknesses to impersonate a trusted supplier or gain access to systems to facilitate theft or divert shipments. Criminals may also use jammers to interfere with cargo GPS tracking devices and mobile telephone signals, making it harder to recover stolen goods.

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> With the current economic environment and cost of living, there is a much greater incentive to steal. While theft of high value cargo has increased, more and more goods are becoming attractive to criminals that were not before

The consequences of cargo theft for businesses can be grave. Disruptions to supply chains caused by theft prevent shippers delivering products to customers promptly and safely, while a failure to meet contractual obligations can lead to reputational risk and loss of market share. Some businesses at risk of cargo theft may need to step up measures to identify, manage and mitigate security threats using internal processes and external advice where necessary, explains Ackermann.

"A well-run warehouse and transportation operation is the first step towards tackling security hazards, including stringent security processes and procedures, security and loss prevention training and robust hiring practices, as well as measures to reduce the chance of a fraudulent pick-up. Transit security measures and driver training are also key, while surveillance technology can be effective in preventing cargo theft or identifying criminals if a cargo is stolen," says Khanna.

National Transportation Safety Board

The collapse of the Francis Scott Key Bridge led to the suspension of vessel traffic at the Port of Baltimore

Trends: Hull

The tragic collapse of Baltimore's Francis Scott Key Bridge in the US after it was hit by a container ship, the *Dali*, made headlines around the world. While such incidents are thankfully rare, the fact that ships are getting bigger can make a number of different events more complicated when accidents do occur.

Ship size and blackouts in the spotlight after Baltimore bridge collapse

In the early hours of March 26, 2024, the Singapore-flagged container ship, **Dali** had not long left the Port of Baltimore in the US and was heading for Sri Lanka, when it lost power and slammed into one of the supporting pillars of the Francis Scott Key Bridge, resulting in its collapse and the deaths of six construction workers who were on it at the time of the allision.

The collapse of the bridge led to the suspension of vessel traffic at the Port of Baltimore, causing supply chain disruption on the US East Coast, given it is a key discharge port for cars and trucks arriving from factories in Europe and Asia. It is also a significant embarkation point for exports of American coal. Work is ongoing to remove the vessel and debris and restore full access to the port, while investigations to determine the exact cause of the accident are also underway.

Allision incidents of this magnitude are rare. Between 1960 and 2015, there were just 35 major bridge collapses worldwide involving ships or barges with a total loss of life of 342 people[26]. It is important to note that most accidents involving vessels and bridges cause damage that varies from minor to significant but does not necessarily result in collapse of the structure or loss of life.

There were more than 1,900 reported incidents of vessels hitting port infrastructure (also including harbor walls, piers, quays, locks etc.) over the past decade around the world (1,916 between 2014 and the end of 2023), making it the fourth most frequent cause of close to 28,000 shipping incidents reported during this period (accounting for just 7% of all incidents). Less than 200 of these (185) involved container ships, such as the **Dali**.

Total losses of vessels following collisions with other vessels and contact with port infrastructure are also rare. Over the past decade (across all vessel types) there have been just 30 total losses from collision incidents (with other vessels) and just four from contact incidents (with port infrastructure). Collectively these account for less than 5% of the total number of vessels lost overall (729 reported between 2014 and the end of 2023).

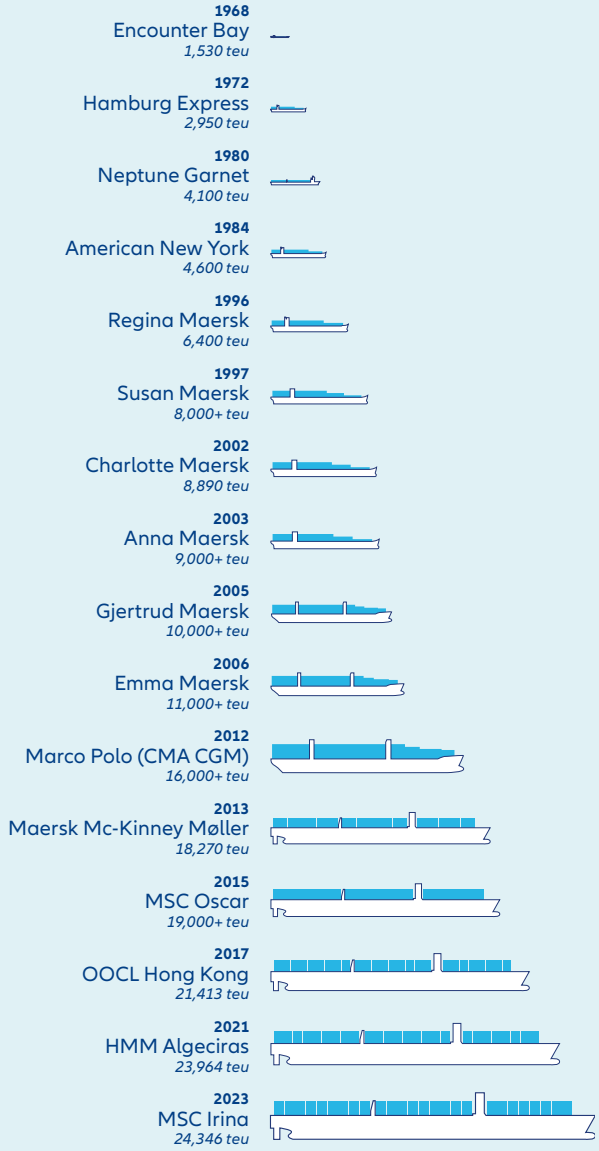
Although the exact cause of what led the **Dali** to lose power at such a critical moment is still to be fully determined, this incident has put the issues of the impact of larger shipping vessels, and the potential risks from power blackouts, back in the safety spotlight.

While the number of serious shipping accidents worldwide has declined over the long-term, incidents involving large vessels – namely container ships and roll-on roll-off (Ro-ro) car carriers – are resulting in disproportionately high losses from events such as fires, container and carrier losses, hazardous cargo, more complex salvage operations and expensive repair costs, and issues with ports of refuge.

The **Dali** can carry around 10,000 containers, although it was carrying less than half this amount when it hit the bridge. While this is not as large as some of the biggest vessels currently transporting goods around the world – for example, the **Ever Given,** which blocked the Suez Canal for a week in March 2021, can carry more than 20,000 containers if full – the **Dali** is still almost 1,000 feet long, the length of three football fields. Back in the 1970s, when the Francis Scott Key Bridge was built, container ships would have been less than half its size, probably even a lot less, explains **Captain Rahul Khanna, Global Head of Marine Risk Consulting, Allianz Commercial.**

"Large ships require careful consideration when navigating in restricted waters, especially when it comes to stopping distance," says Khanna. "Ultimately, larger ships on our seas are not resulting in a higher frequency of accidents but when something does go wrong, the scale of the damage is likely to be much more severe because of their size and the fact that surrounding civil infrastructure did not anticipate such behemoths."

50 years of container ship growth



Increase in size of ships in graphic is not to scale

Approximate ship capacity data: Container-transportation.corn; Allianz Commercial. Source: Allianz Commercial

The Baltimore bridge collapse came almost five years after a notable near miss involving another large vessel losing power. 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 for over 30 minutes before it was restored, relying on rescue helicopters to evacuate passengers as sea conditions did not allow for the use of lifeboats or tugs.

National Transportation Safety Board

National Transportation Safety Board investigators on the Dali

Loss of propulsion is not an uncommon occurrence. According to The Washington Post[27] analysis of US Coast Guard incident records, more than 400 cargo ships longer than 600 feet reported losing propulsion in US waters over the past three years. About a quarter of the incidents occurred near a port, bridge, or other infrastructure, the analysis found.

"Given the size and complexity of today's vessels a problem with engines or fuel can quickly turn into a major disaster," says Khanna.

General Average (GA), the long-standing principle of maritime law that ensures all parties that own goods on a stricken vessel share in any damage or expenditure incurred while preserving property has been declared in the case of the **Dali.** This continues a trend that has seen this complex and specialist legal process, which was once uncommon, become a much more frequent event, given the number of large container ships involved in incidents such as fires, groundings, and container losses in recent years.

GA was declared on the **Ever Given** after the Suez Canal grounding. It was also declared following separate incidents of engine fires on the container ships **NYK Delphinus** and **Northern Jupiter** in 2021. Other GA events include the **Maersk Honam** container ship which caught fire at sea in March 2018 and the **Yantian Express**, which suffered a container fire in 2019. Then, in March 2022, GA was also declared on the **Ever Given's** sister vessel, the **Ever Forward,** which ran aground in Chesapeake Bay on the US Eastern Seaboard, after it had been stuck for 18 days. Ship owner Evergreen said the GA decision came in light of the increasing costs arising from the continued attempts to refloat the vessel.

GA tends to be more complex and costly for large container ships, due to the sheer numbers of cargo interests involved, and the higher costs of salvage associated with these vessels. Incidents involving larger vessels are more likely to involve a complex response and face difficulties finding a suitable port of refuge. They will also typically involve a higher cost of salvage and wreck removal, requiring specialist tugs, cranes, and salvage equipment. All these factors drive up cost, and lead to a higher contribution to GA.

The settlement of a GA can be a lengthy process. It can take years to settle the final claim and the increase in the size of container vessels is ensuring this process is taking longer. Hence if the ship-owner considers the expense to be manageable, they typically prefer not to declare it. However, once expected costs look likely to exceed any "General Average" threshold in any insurance policy, it is more likely to be declared.

What is a general average?

General average is the long-standing principle of maritime law that all parties share in any damage or expenditure incurred while preserving property, for example to save a vessel and its cargo during a storm. Under the terms of general average, which date back to the York-Antwerp Rules of 1890, cargo interests pay a contribution – based on a percentage of their own interests' value – to cover the damages or costs of others involved in a common maritime venture.

Age of electrification adding to fire hazard concerns

There were more than 200 fire incidents (205) reported on board vessels over 100 gross tonnage (GT) during 2023, the second year in a row that this total has been exceeded – after a decade high 211 in 2022.

Last year saw several major fire incidents involving roll-on/roll-off (Ro-ro) vessels and car carriers. In July 2023, a fire on the vehicle carrier **Grande Costa D'Avorio** in the Port of Newark resulted in the death of two firefighters and damage to many of the 1,200 vehicles onboard. A few weeks later, fire broke out on the car carrier **Fremantle Highway** enroute to Egypt from Germany, resulting in the death of one crew member and damaging the vessel and some of the 3,700+ cars onboard the ship.

These two incidents were just the latest in a long list of fires on Ro-ro vessels and car carriers[28]. In February 2022, the **Felicity Ace** caught fire and sank with some 4,000 vehicles onboard. In 2020, a fire caused the total loss of the **Höegh Xiamen** and its cargo of 2,420 vehicles in Florida while in 2019 the **Grande America** sank in the Bay of Biscay carrying 2,100 new and used vehicles.

Ro-ro vessels can be more exposed to fire and stability issues than other vessels, due to the nature of their cargo and their design, according to **Captain Rahul Khanna, Global Head of Marine Risk Consulting, Allianz Commercial.**

"Electrical faults and older vehicles remain a problem," says Khanna. *"A small fire in a car can get out of control quickly, and once it takes hold it can be difficult to manage. The addition of an increasing number of electric vehicles being transported on vessels to the mix has only made the situation more challenging to manage."*

While the causes of the **Grande Costa D'Avorio** and **Fremantle Highway** fires are unknown, they have coincided with the ongoing debate about the fire risks of transporting electric vehicles (EVs) powered by lithium-ion batteries. Several Ro-ro ferry and car carrier operators have taken a cautious approach to transporting EVs while insurers have highlighted additional risks associated with lithium-ion batteries, as well as the need to upgrade firefighting capabilities of Ro-ro vessels accordingly.

Tackling fires on vessels remains a key safety concern for the shipping industry

"The industry has been debating the risks of transporting EVs and lithium-ion batteries for several years, but now the conversation is beginning to turn to technical solutions that could reduce the impact of fire, such as new firefighting mediums," says **Wayne Steel, Senior Marine Risk Consultant, Allianz Commercial.**

In September 2023, research[29] from the International Union of Marine Insurance (IUMI) suggested that EVs are no more dangerous than fires in conventional vehicles, nor are they more frequent. However, IUMI noted that EV batteries do bring the additional potential risk of thermal runaway, which makes fires hard to extinguish, and the risk of reignition is higher for an extended period of time than for conventional vehicles.

The paper concluded that the specific characteristics must be addressed and trained for accordingly. It recommended measures to ensure early fire detection, including the use of thermal imaging cameras and AI powered systems, as well as the installation of drencher systems, CO_2 extinguishing systems and/or high-expansion foam fire extinguishing systems. The jury is still out on what is the most optimal solution to fight these types of fires and a lot of research is still ongoing.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Regulatory action on fire risks for transporting vehicles is also on the horizon. The International Maritime Organization's (IMO) Sub-Committee on Ship Systems and Equipment (SSE) is to undertake work on the "Evaluation of adequacy of fire protection, detection and extinction arrangements in vehicle, special category and Ro-ro spaces in order to reduce the fire risk of ships carrying new energy vehicles" in 2024.

"Lithium-ion battery transportation remains an issue that we are keeping a close eye on, but it is encouraging to see regulatory and technical options emerging as it is in everyone's interests to prevent and mitigate these risks," says Khanna. *"However, the transportation of consumer goods, such as e-scooters, that contain lithium-ion batteries is still not as good as it needs to be."*

One of the most important loss prevention aspects associated with lithium-ion batteries moving in the supply chain is communication, explains **Captain Randall Lund, Senior Marine Risk Consultant, Allianz Commercial.** *"Employees, whether they are in the general area of lithium-ion batteries, or in direct control of the movement of lithium-ion batteries must be trained in recognizing possibly damaged, or suspect batteries. In addition, all parties (suppliers, shippers, third party transporters, carriers, vessel crews and port and terminal workforces) must also be trained and drilled in the protocols that their employer should develop in case of an incident or the discovery of a suspect battery. Engage and share protocols with your local resources, such as your fire brigade or fire departments and develop pre-plans, based on your location and involvement with the various types of lithium-ion batteries, whether it be in transit, or in storage.*

"As industry and regulatory standards continue to evolve and be implemented, there is absolutely a positive effect for any supply chain transporter to be proactive in this manner, even though it may not yet be required by the various governing regulations. The cost of training will be infinitesimal compared to the cost of any major incident involving lithium-ion batteries."

Mis-declared goods is believed to be a factor in many container ship fires

Chris Mirek Freeman / Adobe Stock

Mis-declared cargo and container ship issues continue

Fire is a major cause of loss for large container ships. As container ships have increased in size, the adequacy of firefighting capabilities is still a concern. A fire in a container can quickly take hold and blaze out of control, resulting in the abandoning of the vessel by the crew, which exacerbates the loss situation. As with Ro-ro vessels, the exact cause of many container ship fires is uncertain, although mis-declared hazardous goods, such as chemicals, batteries, and charcoal, are often a contributing factor.

Cargo containing lithium-ion batteries have also caused fires in containers at ports and on vessels. In December last year, the **Genius Star XI** reported a fire in a cargo hold filled with industrial lithium-ion batteries, causing the ship to be diverted to a port of refuge.

"Transportation of lithium-ion batteries, particularly if they have been mis-declared as a cargo is a particular concern on larger vessels," says **Régis Broudin, Global Head of Marine Claims, Allianz Commercial.** *"The larger the vessel, the larger the potential claim. Where you have more than 20,000 containers onboard, a mis-declared cargo can result in a very large loss. This remains an important area of focus for underwriting and loss prevention."*

The insurance industry has long called for improved fire detection and firefighting capabilities on large container ships. The International Maritime Organization (IMO) is currently in the process of reviewing safety regulation with regards to fires on large container ships. The review will build on last year's CARGOSAFE study[30] from the European Maritime Safety Agency, which considered cost effective risk controls for cargo fires.

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Trends: Decarbonization and sustainability

While shipping has been making progress towards decarbonization, ambitious new industry targets and regulatory developments signal the need for greater urgency and innovation.

Greener shipping also presents several challenges for an industry juggling new technologies alongside existing ways of working, including around alternative fuels, infrastructure and shipyard capacity. Meanwhile, the number of vessels sailing in Arctic waters continues to rise with growing commercial interest in the region, and climate change, bringing new risks.

Decarbonization: Charting a course through uncertain waters

The shipping industry reached an important milestone when ambitious new targets to cut greenhouse gas (GHG) emissions was reached by the International Maritime Organization (IMO) last year. The targets will accelerate the industry's shift to alternative fuels and potentially redraw the risk profile of the industry over the next decade.

The new strategy introduces a new target to reach net-zero GHG emissions from international shipping by around 2050, and a commitment to transition to alternative or near-zero GHG fuels by 2030[31].

Targets also include a 40% reduction in CO_2 emissions by 2030, and to cut total annual GHG emissions from international shipping by at least 20% by 2030 and by at least 70% by 2040. Another goal would see green technologies, fuels and/or energy sources represent at least 5%, but preferably 10%, of the energy used by shipping by 2030.

The new IMO GHG strategy is more challenging than the previous 2018 strategy, which set the industry on the path to decarbonization, according to **Captain Rahul Khanna, Global Head of Marine Risk Consulting, Allianz Commercial.** The strategy's target of a 70% reduction in emissions would likely require the average ship to reduce its GHG intensity by around 90% by 2040[32], when increased trade volumes are accounted for.

"While the industry has been making progress towards decarbonization, the IMO's landmark revised strategy clearly signals the need for urgency in transitioning to greener shipping," says Khanna. *"The stakes have been raised. The targets are more challenging, and the industry has very limited time to achieve these goals. It will need to quickly step up levels of investment, innovation, and collaboration."*

To fully decarbonize shipping by 2050 would require some $1.9trn of investment, according to Schroders[33], while cutting emissions by 50% would require between $1trn and $1.4trn of investment, or $50bn to $70bn annually between 2030 and 2050. However, financing for capital intensive industries is tight, and the performance of green bonds[34] and fears about greenwashing has put debt financing for green projects under pressure.

Reaching the revised GHG reduction targets will require a mix of strategies, including measures to improve energy efficiency, the adoption of alternative fuels, innovative ship design and methods of propulsion. Insurers like **Allianz** are supporting the industry as it experiments with biofuels, ammonia, methanol, and green hydrogen, as well as electric vessels and wind assisted propulsion systems, such as wing sails, rotors, and foils. However, innovation will also change risks and bring uncertainty, says **Justus Heinrich, Global Product Leader Marine Hull at Allianz Commercial.**

"We are seeing shipping companies invest increasingly in alternative fuels like methanol and dual fuels. However, the transition to greener ships will take time. Some smaller operators are unsure where to invest. It's still not clear which alternative fuels will win through, yet companies are having to make investment decisions 10 to 15 years ahead," says Heinrich.

The shipping industry must decarbonize the global fleet in a relatively short time frame, and yet there is presently no single clear technical solution. Potentially, the industry is heading for a multi-fuel future. According to a survey by the Global Maritime Forum[35] and McKinsey, 45% of respondents expect their fleet to concurrently run on biodiesel, methane, methanol, and ammonia by 2050.

"We are seeing more vessels entering the market that use alternative fuels, such as methanol and ammonia. The technology continues to mature, and manufacturers are coming up with new solutions, which are coming through in new ship orders and evolutions in technology. The challenge for insurers is that we do not yet know what the impact of alternative fuels will be as we have very little history in marine applications," explains **Wayne Steel, Senior Marine Risk Consultant, Allianz Commercial.**

Innovation will also need to be accompanied by a wave of regulatory developments across a wide range of areas, including safety and environmental, Steel adds.

"It's still not clear which alternative fuels will win through, yet companies are having to make investment decisions 10 to 15 years ahead

"The industry is under pressure to decarbonize at a pace and bring in new technology quickly. We will see a lot of immature technology brought in at the same time and in a relatively short time frame. Many of these developments will impact regulations, which will need to keep pace with, and adjust to, new technology and trends," Steel continues.

"However, the industry is so big and varied and regulation has, historically, not evolved quickly. The challenge will be to develop the technology to meet the demands of greenhouse gas targets and, at the same time, for regulation to keep pace. The focus on safety will only increase."

Decarbonization will present various challenges for an industry juggling new technologies alongside existing ways of working. For example, the industry will need to develop infrastructure to support vessels using alternative fuels, such as bunkering and maintenance, while at the same time phasing out fossil fuels.

"Alternative fuels infrastructure and supply chains are in need of further development and improvement and may not be sufficient on all routes at present. There are also potential safety issues with terminal operators and vessels' crew handling alternative fuels that can be toxic or highly explosive," says Steel.

Shipyard capacity will also be key as demand for green ships accelerates, according to Heinrich. Such capacity is currently constrained, with long waiting times and high building prices: Over 3,500 ships must be built or refitted annually until 2050, yet the global shipbuilding industry built 2,700 vessels a year at its peak in 2010, while the number of shipyards more than halved between 2007 and 2022 to just 300[36]. Global newbuilding capacity (GT) delivered in 2022 fell by 8.6%.

"Capacity constraints on shipyards will limit options for decarbonizing the fleet. For insurers this is an important topic as the world fleet ages. Older vessels have a very different exposure profile to new builds and younger vessels," says Heinrich.

Increasing shipbuilding capacity will be crucial to meeting IMO targets and the industry's sustainability goals, Heinrich adds.

"Slots in shipyards are booked years in advance and are becoming increasingly rare, so even where companies are keen to modernize their fleets, there is the problem of shipyard availability. And with shipyard capacity in high demand, there could be consequences for ship repair and maintenance. Damaged vessels or those with machinery breakdown could face long delays in repair," says Heinrich.

Alternative fuels could also present new challenges for salvors and wreck removal, and should be considered in vessel design, according to **Captain Nitin Chopra, Senior Marine Risk Consultant, Allianz Commercial.** The risks of alternative fuels like green hydrogen and ammonia – which are explosive and toxic – are very different to traditional bunker oil.

"The salvage and rescue of the next generation of green shipping could open high-risk scenarios for insurers. If a large container ship or tanker powered by LNG or ammonia runs aground or capsizes, it would not be easy for salvors to remove fuel and refloat the vessel due to the risk of fire and explosion. As the industry transitions to alternative fuels, it will be important to consider the implications for salvage," says Chopra.

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ETS to turbocharge shipping transition

While maritime transport plays an essential role in the EU economy and is one of the most energy-efficient modes of transport, it is also a large and growing source of greenhouse gas (GHG) emissions. In 2018, global shipping emissions represented 1,076 million tons of CO_2, and were responsible for around 2.9% of global emissions caused by human activities. At EU level, maritime transport represents 3% to 4% of the EU's total CO_2 emissions, or over 124 million tons of CO_2 in 2021[37].

In response, first launched in 2005, the EU's 'cap and trade' mechanism for GHG emissions in heavy industry, the Emissions Trading System (ETS)[38], which makes polluters pay for their GHG emissions, is being extended to cover shipping for the first time (from January 1, 2024). The ETS will help bring emissions down, as well as generating revenue to finance the EU's green transition, according to the European Commission.

It will apply 100% to emissions for large commercial vessels (above 5,000 gross tonnage) transiting between EU ports, and 50% of emissions from ships transiting between the EU and a port outside the EU. Initially the ETS covers CO_2 emissions but will be extended to methane (CH4) and nitrous oxide (N20) as of 2026.

Shipping companies will be required to purchase and surrender (use) their first ETS allowances by September 30, 2025, for emissions reported in 2024. The share of emissions that must be covered by allowances gradually increases each year from 40% of emissions reported for 2024 to 100% for 2027 and beyond.

Under the system, a shipping company can buy or sell allowances. Under the ETS 'polluter pays principle' a third party that is contractually responsible for actions that could lead to emissions, such as under a chartering arrangement, could be liable for the costs arising from the surrender of allowances under the scheme. The charterer may also pass the costs on to others in the cargo supply chain.

The ETS will have implications for the shipping industry and may have a knock-on effect for freight rates as companies pass on the costs of allowances. It should also incentivize companies to increase efficiency and reduce vessel emissions, such as through route optimization or the use of alternative fuels.

"The ETS could be a big incentive for shipowners to decarbonize. However, the calculation under ETS potentially discriminates non-liner business and vessel types with longer port stays as a consequence of the business model," says **Justus Heinrich, Global Product Leader Marine Hull at Allianz Commercial.**

Ongoing diversion of marine traffic, such as around the Cape of Good Hope given the situation in the Red Sea, means that more shipping companies could have higher exposure to the ETS, subsequently increasing their shipping costs.

Shipping diversions from the Red Sea are already cited as being a primary cause of a 14% surge in the carbon emissions of the EU shipping sector during the first two months of 2024[39].

ESG is a high priority for shipping companies and insurers alike

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ESG – Standing alongside shippers

Like many other sectors, the shipping industry faces growing environmental, social, and governance (ESG) demands and requirements from regulators, investors, customers and service providers. The EU's Emissions Trading System and the International Maritime Organization's (IMO) recently revised greenhouse gas emissions strategy are set to intensify the focus on ESG, which could affect access to capital and insurance.

According to sustainability consultancy Woodrow[40], 64% of UK finance professionals are considering reducing their investment in the maritime sector due to ESG risks, while two-thirds (66%) believe the maritime sector faces greater ESG-related financial risks compared to other industries.

ESG is a high priority for shipping companies and insurers alike. Marine insurers are increasingly wanting to understand the ESG credentials of insured assets and operations as they look to 'green' their underwriting portfolios and align them with their corporate sustainability goals and commitments, says **Justus Heinrich, Global Product Leader Marine Hull, Allianz Commercial.**

"As insurers, we are increasingly looking at clients' ESG approaches and seeing where these sit with our own strategy," says Heinrich. *"But it is important to recognize that you can't look at every shipping company with the same expectations. Different clients and segments will move at a different pace, while technical and commercial challenges will affect the speed of transition.*

"As an insurer, we continue to support clients as they decarbonize, and are seeking to provide coverages to respond to risks linked to climate change and ESG requirements. We stand with clients during the transition, maintaining existing scopes of cover while changes in risk profiles means increasing uncertainty."

64%

of UK finance professionals are considering reducing their investment in the maritime sector due to ESG risks

66%

of UK finance professionals believe the maritime sector faces greater ESG-related financial risks compared to other industries

> As insurers, we are increasingly looking at clients' ESG approaches and seeing where these sit with our own strategy

Climate change and geopolitical risks boost Polar shipping

The number of vessels sailing in Arctic waters continues to rise with growing commercial interest in the region and climate change.

According to data from the Arctic Council[41], the number of unique ships entering the Arctic Polar Code area from 2013 to 2023 increased by 37%, around 500 ships. Over the same period, the distance sailed in the Arctic Polar Code Area increased 111%, from 6.1 million to 12.9 million nautical miles.

The increase in Artic shipping is down to a combination of commercial interests and changes in sea ice conditions in a warming planet. The decrease in the extent of sea ice and the loss of older, thick ice, has significant implications for longer navigation seasons and new access to previously difficult to reach regions of the Arctic.

Cargo volume on the Northern Sea Route hit a new record in 2023, bolstered by increased oil shipments between Russia and China, according to Russian officials[42]. In addition, large mining and energy projects in the Arctic are also helping drive an increase in shipping, while cruising is another growth area with more than 20 cruise companies and 40 expedition vessels operating in Arctic waters in 2023[43].

The challenging Arctic environment brings a higher risk to vessels, crews, and the environment, however. Conditions in Polar waters are harsh, with the threat of sea ice and hazardous weather conditions, while the region's remoteness means limited access to infrastructure if a vessel runs into problems. In September 2023, the cruise ship **MV Ocean Explorer** ran aground in Greenland with 206 people on board, but was towed free after three days.

Of particular concern is the use of non-ice-class tankers in Arctic waters. Last year the first non-ice-strengthened tankers transited the Northern Sea Route[44]. Russia is looking to develop infrastructure along the Northern Sea route, constructing new ports, fuel terminals and icebreakers, as it looks to promote the route as an alternative to the Suez Canal. However, there is currently an insufficient number of icebreakers to meet growing demand.

"The use of non-ice-class vessels in Polar waters is a big concern from an environmental perspective," explains **Captain Nitin Chopra, Senior Marine Risk Consultant, Allianz Commercial.** *"In the past, we have had incidents where vessels have become stuck in the ice. If that were to happen to a non-ice-class vessel, it would not only mean the probable loss of the vessel and a risk to the safety of the crew, but also a potential environmental disaster."*

To reduce the risk of incidents, the 'International Code for Ships Operating in Polar Waters' (Polar Code) was introduced in January 2017. The Code, which is mandatory for certain ships under the SOLAS and MARPOL Conventions, requires vessels to be certified and assigned to a category based on the sea ice conditions.

However, a recent study of Arctic shipping concluded that the current Polar Code may contain gaps, especially in the face of the rapid increase in shipping traffic[45]. Last year, the International Maritime Organization (IMO) adopted amendments to the Polar Code covering fishing vessels and pleasure yachts operating in Polar waters. The IMO is also considering 14 recommendations aimed at enhancing training programs for seafarers who operate in polar waters[46].

"Exposures in Polar waters are changing with climate change and geopolitical events. This is an important area for the future and is an area of risk that we are looking into in more depth," says **Justus Heinrich, Global Product Leader Marine Hull at Allianz Commercial.**

Exposures in Polar waters are changing with climate change and geopolitical events

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Allianz Commercial is the center of expertise and global line of Allianz Group for insuring mid-sized businesses, large enterprises and specialist risks. Among our customers are the world's largest consumer brands, financial institutions and industry players, the global aviation and shipping industry as well as family-owned and medium enterprises which are the backbone of the economy. We also cover unique risks such as offshore wind parks, infrastructure projects or film productions.

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Data and sources

The primary data source for total loss and casualty statistics is Lloyd's List Intelligence Casualty Statistics (data run on March 31, 2024).

Total losses are defined as actual total losses or constructive total losses recorded for vessels of 100 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 currencies listed in the report are in US dollars unless stated

Cover image: Sunken cargo ship near Crimea

Further information and contacts

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