SAFETY AND SHIPPING REVIEW 2019

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

Allianz

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Indonesian Navy patrol boats help to put out a fire on board cargo vessel, **Michael Putra**, one of 2018's total losses.

Photo: Indonesian Navy

Passenger ferry, **Mestre Simao**, was grounded at the entrance to the port of Madalena on the island of Pico in the Azores.

Photo: Carlos Luis M C da Cruz [CC BY-SA 4.0]

The Indian Navy anchors burning container vessel, **SSL Kolkata** at the Ganges Delta.

Photo: Indian Navy

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Cover images: Anti-piracy operations - Cassandra Thompson, US Navy, Wikimedia Commons

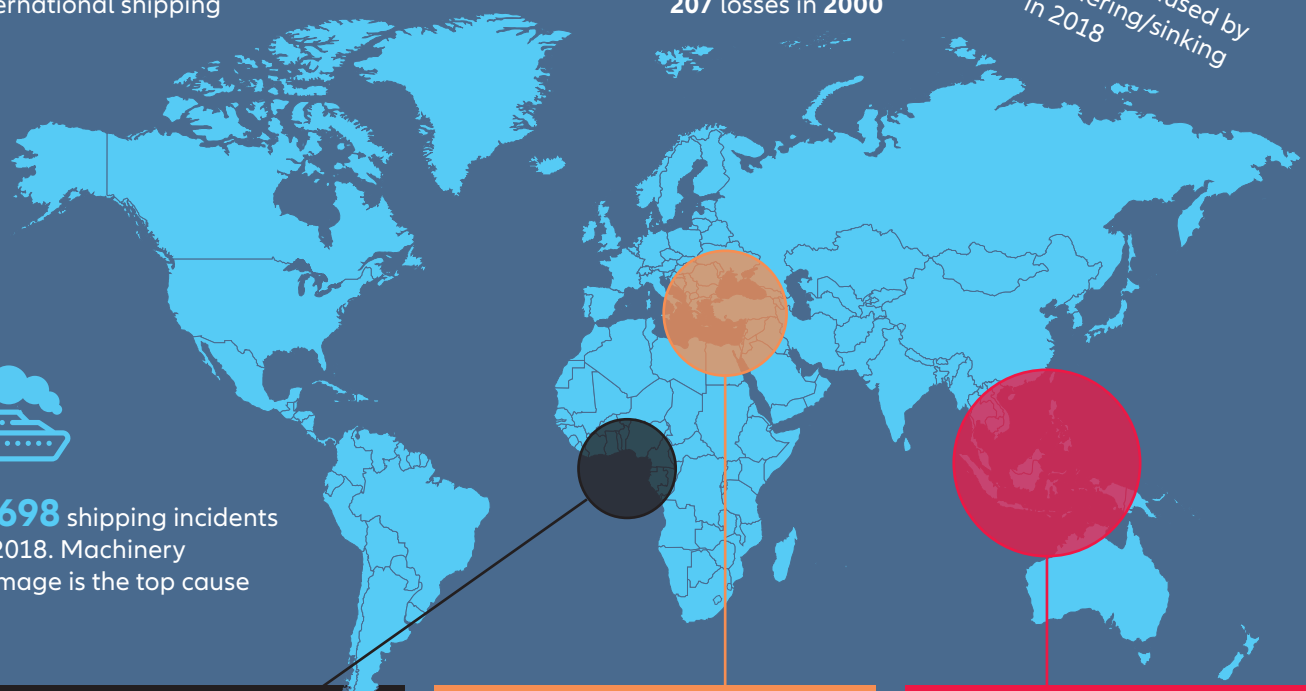
SAFETY & SHIPPING REVIEW 2019 IN NUMBERS

90% of global trade carried by international shipping

1,036 total losses over past **10 years**

46 total losses in **2018** – lowest this century. **207** losses in **2000**

30 losses caused by foundering/sinking in 2018



2,698 shipping incidents in 2018. Machinery damage is the top cause

48 piracy incidents in **Nigeria** in 2018 – replacing **Indonesia** as **the top hotspot**

544 incidents in **2018** in the **East Mediterranean** and **Black Sea – the global hotspot**

1 in 4 losses in **2018** occurred in South China, Indochina, Indonesia and Philippines – **the global hotspot**

EXECUTIVE SUMMARY

The international shipping industry is responsible for around 90% of world trade. There are around 60,000 merchant ships, transporting every kind of cargo. The world fleet is registered in over 150 nations[1], and manned by over a million seafarers, meaning the safety of vessels is critical. The maritime industry saw the number of total shipping losses of vessels **over 100GT** plummet during 2018 to **46** – the lowest total this century. To put this into context there were **207** total losses reported in 2000.

Shipping losses declined by a record level of more than 50% year-on-year from **98** in 2017, driven by a significant fall in hotspots around the world and weather-related losses halving after a quieter year of hurricane and typhoon activity. The 2018 loss year is exceptional compared with the rolling 10-year loss average of **104** (down by 55%). Meanwhile, since 2009, (**132**), shipping losses have declined by 65%. Improved ship design and technology, stepped-up

The cost of claims

$1.5bn

value of claims from ship sinking/collision incidents[1]

$1bn+

value of claims from machinery damage incidents[1]

Wednesday is the most frequent day for losses – **12** in **2018** and **169** in the last **10 years**

Source: Allianz Global Corporate & Specialty

1 Based on analysis of more than 230,000 marine insurance industry claims with a value of approximately $10bn by Allianz Global Corporate & Specialty (July 2013 to July 2018)

regulation and advances in risk management and safety are driving the sector's long-term loss improvement. More robust safety management systems and procedures on vessels is also a factor in preventing breakdowns, accidents and other mistakes from escalating into total losses.

The South China, Indochina, Indonesia and Philippines maritime region remains the major loss location over the past decade. More than a quarter (26%) of all losses over the past year globally occurred here **(12)**. However, this represents a significant fall year-on-year (**29** in 2017) and is the first time the region has seen losses decline in four years, reflecting the fact that Asia-based international shipping operations are typically well run and have claims frequency rates on a par with European counterparts. Newer infrastructure, better port operations and more up-to-date charts will also help to address safety challenges in the region, such as an overall increase in the frequency and cost of collision, grounding and fire incidents in some locations. The East Mediterranean and Black Sea region **(6)** is the second most frequent loss location.

Cargo vessels **(15)** were involved in a third of losses during 2018, driven by activity in the top loss hotspots globally. Foundering (sinking) has been the cause of over half of all vessel losses (53%) over the past decade and was the primary cause of 65% of losses **(30)** in 2018. Analysis of more than 230,000 marine insurance industry claims with a value of almost $10bn between July 2013 and July 2018 by Allianz Global Corporate & Specialty (AGCS) shows that ship sinking/collision incidents are the most expensive cause of loss for insurers, accounting for 16% of the value of all claims – equivalent to more than $1.5bn.

While the number of losses has fallen significantly over the past year in particular, the number of shipping casualties or incidents **(2,698)** remains challenging, declining by less than 1%. The East Mediterranean and Black Sea is the top incident hotspot, accounting for one in five incidents globally. Activity is up in this region year-on-year, driven by machinery damage/failure incidents, which is also the top cause of shipping incidents globally, accounting for 40% **(1,079)**.

Of the 26,000+ reported shipping incidents over the past decade, more than a third **(8,862)** have been caused by machinery damage or failure – over twice as many as the next highest cause. Such incidents have increased by a third over the past decade and costs are rising as well. Historically, it is one of the largest causes of marine insurance claims, according to AGCS, causing $1bn+ worth of damage over five years – the third most expensive cause of claims. A growing number of engine manufacturers are now installing **"Internet of Things"** devices to collect real-time data which can be used to issue recommendations to vessels and carry out maintenance, potentially preventing breakdowns before they happen.

1 International Chamber of Shipping

shipping losses in 2018 – the lowest this century

Annual decline in shipping losses

8,862

machinery damage incidents in 10 years, up by a third over this period

$10bn

Value of 230,000 marine insurance industry claims in five years. Ship sinking/collision incidents account for 16% of this total

Wednesday is the most frequent day for shipping losses over the past decade (169) with **Saturday** (130) the safest day at sea. **Twelve** of 2018's 46 losses occurred on a Wednesday.

January is the busiest month for shipping losses around the world with **117** over the past decade, including **nine** in 2018.

Berra G was one of the largest vessels lost according to gross tonnage during 2018.
Photo: Wikimedia Commons

RISKS IN THE SPOTLIGHT

Larger vessels bring bigger losses: Insurers have been warning for years that the increasing size of vessels is leading to a higher accumulation of risk. These fears are now being realized as evidenced by the growing number, and cost, of incidents such as fires on large container vessels; major losses on car carriers, which average two a year; engine failure; and even the loss of cargo overboard, all of which are potentially offsetting safety and risk management improvements.

Such incidents can easily result in claims in the hundreds of millions of dollars, if not more. In future, a worst-case scenario involving the collision and grounding of two large vessels in an environmentally-sensitive location could result in a loss as big as $4bn when the cost of disruption, salvage, wreck removal and environmental claims are considered. Loss prevention measures are not always keeping pace with the upscaling of vessels.

Cargo and fire risks mount: Container-carrying capacity has almost doubled over the past decade which brings issues as well as benefits. Fires and explosions on board continue to generate large losses with an incident occurring every 60 days on average. Fire activity increased in 2018 with **174** reported incidents – a trend which continued through early 2019. Misdeclared cargo, including incorrect labelling and packaging of dangerous goods, is believed to be a root cause of a number of fires and is a problem exacerbated by larger vessels, which can make issues more difficult to detect, locate and combat. Regulations and guidelines for dangerous cargo do exist but are not always adequately enforced and adhered to. However, a growing number of ship owners are taking innovative steps to address the issue of misdeclared cargo.

On board firefighting capability continues to challenge larger vessels. If considerable outside assistance is required to control a blaze, significant damage to the vessel is likely to happen before this occurs, considerably increasing the size of the salvage claim. Meanwhile, the loss of hundreds of containers over board from an ultra large container ship in early 2019 provides a reminder that damaged goods, including containers, is one of the most frequent generators of insurance industry shipping claims, accounting for one in five claims over five years. Inadequate stowing and lashing of cargo on board poses a serious risk in bad weather.

Emissions cap challenges shippers: Regulation limiting sulphur oxide emissions from 2020 is likely to be a game-changer for the shipping industry with wide-ranging implications for cost, compliance and crew. It is important shipping plays its part in achieving a more sustainable environment but this needs to be done in a way that does not overburden an industry already under pressure. Insurers are concerned

The tanker Sanchi sank after a collision with another vessel resulted in a fire.
Photo: Bengt-Rune Inberg, shipspotting.com

Dredger, Barlovento Primero was one of 2018's total losses.
Photo: eldiariomontanes.es, shipwrecklog.com

about a potential increase in the frequency and cost of machinery breakdown claims following the introduction of low-sulphur fuels if the transition is not well-managed. There are also worries that the increased cost of such fuels may lead to cost savings in other areas, such as crew training or maintenance. There is also potential for disruption and delays to voyages if there is a lack of compliant, compatible fuel at a bunker port.

Unpredictable climate brings new loss scenarios: The shipping industry is no stranger to extreme weather which remains a factor in many accidents. The changing climate is opening up potential new shipping routes in previously hard-to-access areas such as the Arctic, which brings concerns about the rescue and salvage challenges an incident involving a large vessel in a remote location would bring, as well as the potential environmental impact. There were **46** reported shipping incidents in Arctic Circle waters during 2018. At the same time, changing weather patterns have led to grounding and collision incidents in the US from unseasonal high waters following heavy summer rains, while record low water levels in Europe on the Rhine and Elbe have brought supply chain disruption.

Trusting technology: The growing use of connected technology in the maritime sector is a positive for safety and claims. Electronic navigation tools, ship-to-shore communications and the greater use of sensors have the potential to improve navigation and help avoid incidents. Sensors can also reduce machinery claims through performance monitoring and early intervention and help mitigate cargo losses. Yet, at the same time, accidents continue to happen due to overreliance on technology – even down to crew members being on their phones when a loss event occurs. A generation of seafarers has grown up trusting what they see on a screen but it is crucial that crew continue to have appropriate training and develop a solid understanding of the fundamentals of sound navigation and situational awareness.

Automation, crewless ships and the bottom line: Progress continues to be made in the area of autonomous shipping, particularly in coastal waters and with smaller vessels and it is anticipated that such developments will improve shipping safety. While there will be incidences where technology and automation will remove crew from hazard, innovation should not be driven primarily by efficiency and accounting. As ongoing issues with large container ships and fires and misdeclared cargo show – innovation and technology is not a panacea if the root cause of incidents and losses is not addressed.

Identifying cyber exposures: Technological advances also means cyber losses will be an increasing feature of marine claims going forward. Companies are responding with an uptick in cyber security assessments while some insurers are looking to clarify so-called "silent" exposures. More contingency planning and stress testing of systems needs to be done to combat a growing number of loss scenarios, such as extortion.

Security threats evolve and challenge: Political risk remains heightened around the globe and increasingly poses a threat to shipping, trade and supply chains through conflicts, territorial disputes, cyber-attacks, sanctions and, of course, piracy. Piracy incidents increased over the past year, with Nigeria replacing Indonesia as the top global hotspot. Nigeria, specifically Lagos, is also the location of the highest reported number of stowaway incidents – a long running problem for ship owners, which is now also challenging commercial vessels, driven by the ongoing migrant crisis. Stowaways and migrant rescues at sea can have serious consequences for ship owners, causing delays and diversions and putting crew members under pressure, while repatriation is a complex procedure.

174

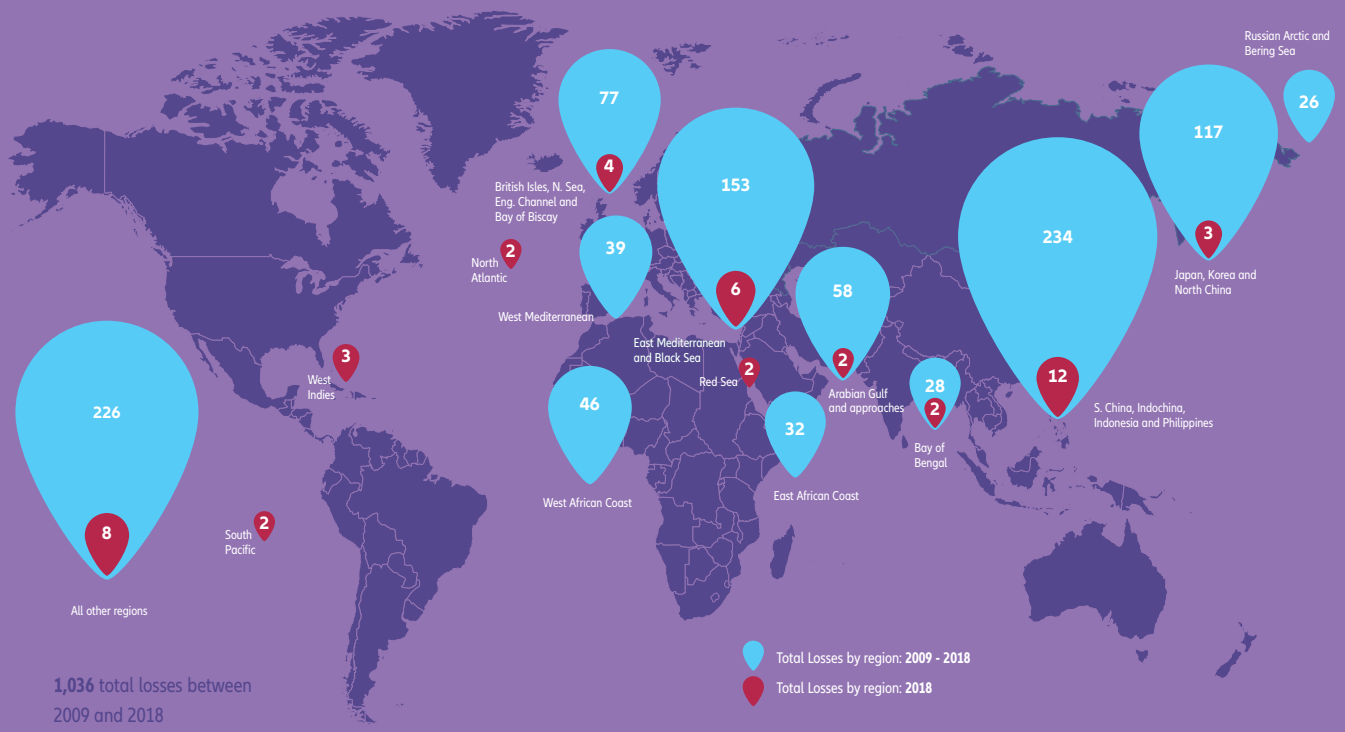
reported fire incidents in 2018

LOSSES IN FOCUS

The analysis over the following pages covers both total losses and casualties/ incidents. See page **48** for further details

TOTAL LOSSES BY TOP 10 REGIONS
2009-2018 AND 2018

46 total losses in 2018

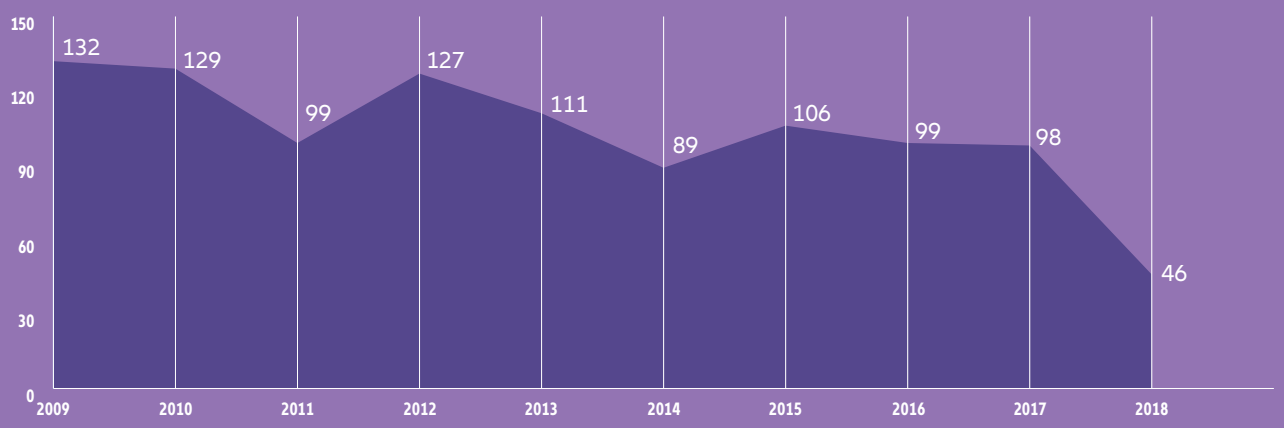


1,036 total losses between 2009 and 2018

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

TOTAL LOSSES BY YEAR
LOWEST THIS CENTURY

Annual shipping losses have fallen by more than 65% over the past decade – from 132 in 2009 to 46 in 2018 and are now at their lowest level this century. There were 207 total losses reported in 2000 alone.



Vessels over 100GT only

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

2018: The database shows 46 total losses of vessels over 100GT during 2018 around the world. This compares with 98 during 2017 – a significant decline of more than 50%. South China, Indochina, Indonesia and Philippines remains the top region for total losses. A quarter (26%) of losses occurred here, although the total of 12 also represents a significant decline (29 in 2017) – the first time the region has seen a fall in losses in four years. Globally, the number of weather-related total losses halved year-on-year from more than 20 in 2017 to 10 in 2018.

All figures are based on reported total losses as of **April 1, 2019**. 2018 total losses may increase slightly in future as, based on previous years' experience, developments in losses lead to a number of total losses being confirmed after year-end. The average variance over the past nine years has been an increase of fewer than two total losses per year. However, in some years this can increase, with up to four additional losses being notified for one year.

2018 REVIEW

TOTAL LOSSES BY TOP 10 REGIONS FROM JANUARY 1, 2018 TO DECEMBER 31, 2018

Region	Loss Total	Year-on-year change
S. China, Indochina, Indonesia and Philippines	**12**	**↓ 17**
East Mediterranean and Black Sea	6	↓ 13
British Isles, N. Sea, Eng. Channel and Bay of Biscay	4	↓ 4
Japan, Korea and North China	3	↓ 3
West Indies	3	↑ 1
Arabian Gulf and approaches	2	↓ 5
Bay of Bengal	2	=
North Atlantic	2	↑ 2
Red Sea	2	↑ 2
South Pacific	2	↓ 1
Other	8	
Total	**46**	**↓ 52**

Vessels over 100GT only

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

2009 – 2018 REVIEW

TOTAL LOSSES BY TOP 10 REGIONS FROM JANUARY 1, 2009 TO DECEMBER 31, 2018

Region	Total Loss
S. China, Indochina, Indonesia and Philippines	**234**
East Mediterranean and Black Sea	153
Japan, Korea and North China	117
British Isles, N. Sea, Eng. Channel and Bay of Biscay	77
Arabian Gulf and approaches	58
West African Coast	46
West Mediterranean	39
East African Coast	32
Bay of Bengal	28
Russian Arctic and Bering Sea	26
Other	226
Total	**1,036**

Vessels over 100GT only

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

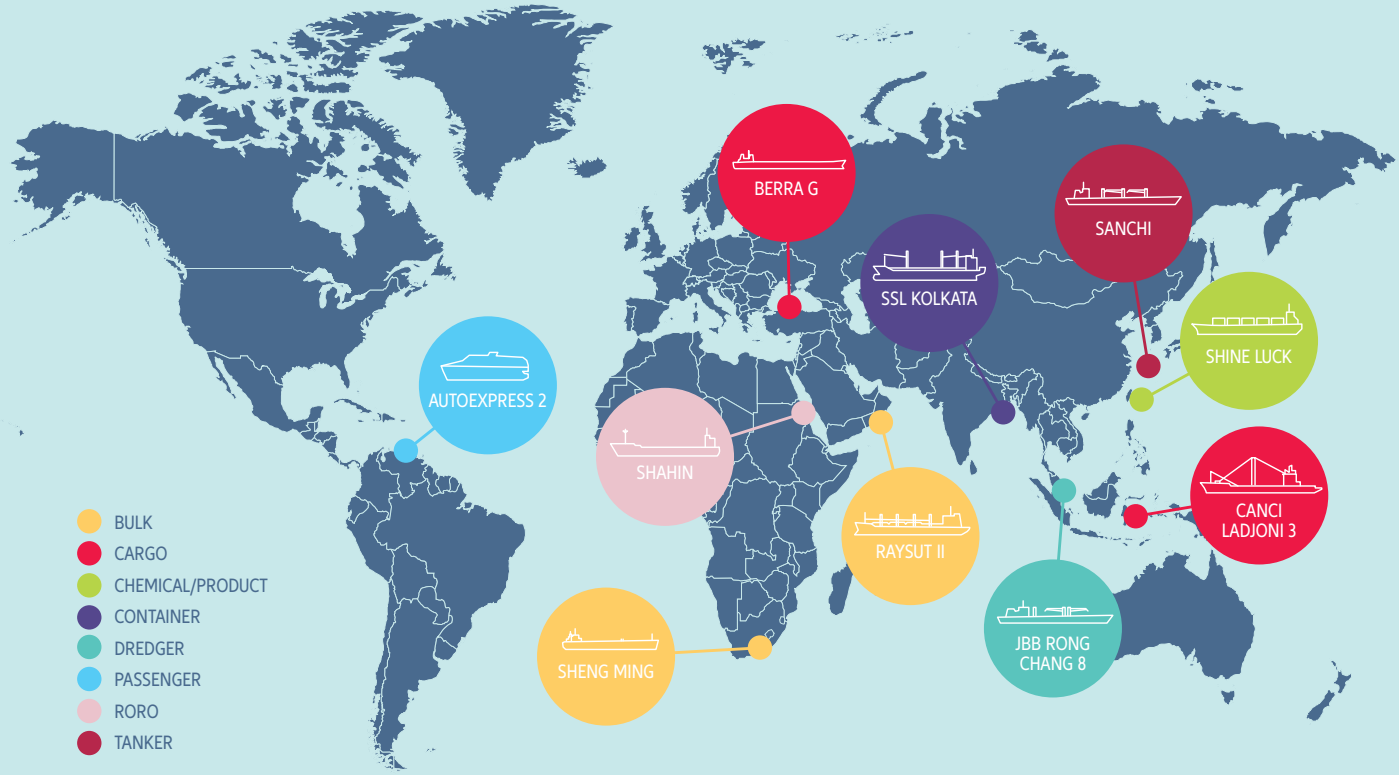
2009 to 2018: The 2018 loss year (46) represents a significant improvement on the rolling 10-year loss average (104) – down 55%. South China, Indochina, Indonesia and Philippines (234 total losses) has been the top loss hotspot since the turn of the century, followed by the East Mediterranean and Black Sea (153) and Japan, Korea and North China (117).

Together, the top 10 maritime regions account for three in four (78%) of all losses over the past 10 years. There have been 1,036 reported total losses of vessels over 100GT in the past decade.

MAJOR LOSSES: 2018

LARGEST SHIPS LOST

10 LARGEST VESSELS LOST FROM JANUARY 1, 2018 TO DECEMBER 31, 2018
(showing approximate location of loss and type of vessel)



Vessels over 100GT only

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

"Today's record low loss activity is the culmination of a number of initiatives, regulatory responses and innovations, such as improved ship design and more robust safety management systems on vessels. At the same time, we are also seeing an improvement in the insurance environment with positive signs in the hull market, driven by lower claims activity and technical underwriting.

"However, the lack of an overall fall in shipping incidents, as well as heightened political risks to vessel security and compliance with emissions rules in 2020 bring new challenges."

Baptiste Ossena
Global Product Leader, Hull & Marine Liabilities,
Allianz Global Corporate & Specialty

LARGEST SHIPS LOST

SANCHI

January 6, 2018: In collision with bulker **CF Crystal** around 160 nautical miles east of mouth of Yangtze River, China. Severe fire, listing, oil spillage. Sank January 14.
85,462GT TANKER

SHENG MING

April 25, 2018: 12 miles off Cape Town with a partially flooded engine-room. Under tow. Reported sank May 28.
38,403GT BULK

RAYSUT II

May 26, 2018: Grounded at Fazayah Beach, 18 miles west of Salalah, Oman.
10,880GT BULK

SSL KOLKATA

June 13 2018: Vessel caught fire following an explosion en route from Visakhapatnam to Kolkata, India. Grounded.
9,956GT CONTAINER

JBB RONG CHANG 8

March 21, 2018: Capsized in the waters off Parit Jawa, Malaysia.
6,200GT DREDGER

AUTOEXPRESS 2

August 6, 2018: Sank in the port of Guanta, Venezuela, due to water ingress.
5,419GT PASSENGER

SHAHIN

April 10, 2018: Sank off Port Sudan. Vessel had been under arrest by Port Sudan civil court for a considerable period.
4,759GT RORO

SHINE LUCK

June 14, 2018: Ran aground off Kaohsiung port, Taiwan, due to bad weather.
3,274GT CHEMICAL/PRODUCT

BERRA G

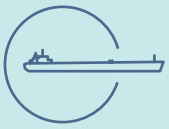
January 19, 2018: Dragged its anchor due to weather conditions, drifted and ran aground at Eregli, Turkey.
2,995GT CARGO

CANCI LADJONI 3

January 27, 2018: Sank off Selayar Island, South Sulawesi province, Indonesia.
2,076GT CARGO

Six of the largest vessels lost occurred in Asia and Middle East

Foundered was the cause of loss for five of the 10 largest vessels lost

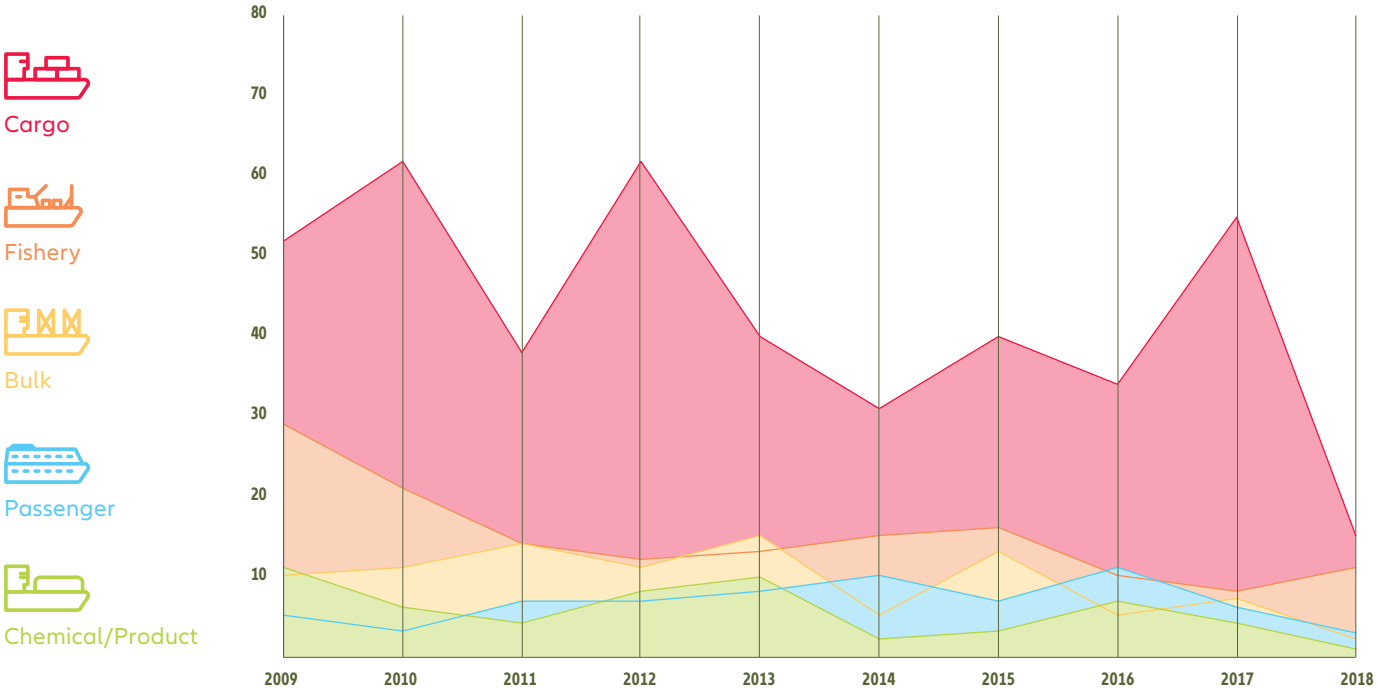


Sanchi was the largest vessel lost in 2018

TOTAL LOSSES BY TYPE OF VESSEL **2009 - 2018**

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

TOP 5 VESSEL TYPES LOST



Cargo, fishing, bulk, passenger and chemical/product are the vessel types that have seen the most total losses over the past decade, accounting for 75%+ of all cases.

TOTAL LOSSES BY TYPE OF VESSEL: 2009-2018

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	TOTAL
Cargo	**52**	**62**	**38**	**62**	**40**	**31**	**40**	**34**	**55**	**15**	**429**
Fishery	29	21	14	12	13	15	16	10	8	11	149
Bulk	10	11	14	11	15	5	13	5	7	2	93
Passenger	5	3	7	7	8	10	7	11	6	3	67
Chemical/Product	11	6	4	8	10	2	3	7	4	1	56
Tug	5	7	2	6	7	7	6	7	5	4	56
Container	4	5	3	7	4	4	5	5	3	1	41
Ro-ro	6	1	3	5	2	5	6	9		1	38
Supply/Offshore	3	2	2	3	2	3	3	2	2	1	23
Tanker	2	4	4	1		1			2	3	17
Dredger		2	2	1		1	1	1	3	2	13
Barge		1			3	1		3	1	2	11
LPG		1	1	1				1	1		5
Unknown					1		2	1			4
Other	5	3	5	3	6	4	4	3	1		34
Total	**132**	**129**	**99**	**127**	**111**	**89**	**106**	**99**	**98**	**46**	**1,036**

Vessels over 100GT only

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

Cargo vessels accounted for a third of all total losses during 2018, driven by activity in the South East Asia, Japan, Korea and China and Mediterranean regions in particular. However, loss activity involving these vessels was significantly down year-on-year – by over 70%.

2018 REVIEW

TOTAL LOSSES BY TYPE OF VESSEL
JANUARY 1, 2018 TO DECEMBER 31, 2018

Cargo	**15**
Fishery	11
Tug	4
Passenger	3
Tanker	3
Barge	2
Bulk	2
Dredger	2
Chemical/Product	1
Container	1
Roro	1
Supply/Offshore	1
Total	**46**

Vessels over 100GT only

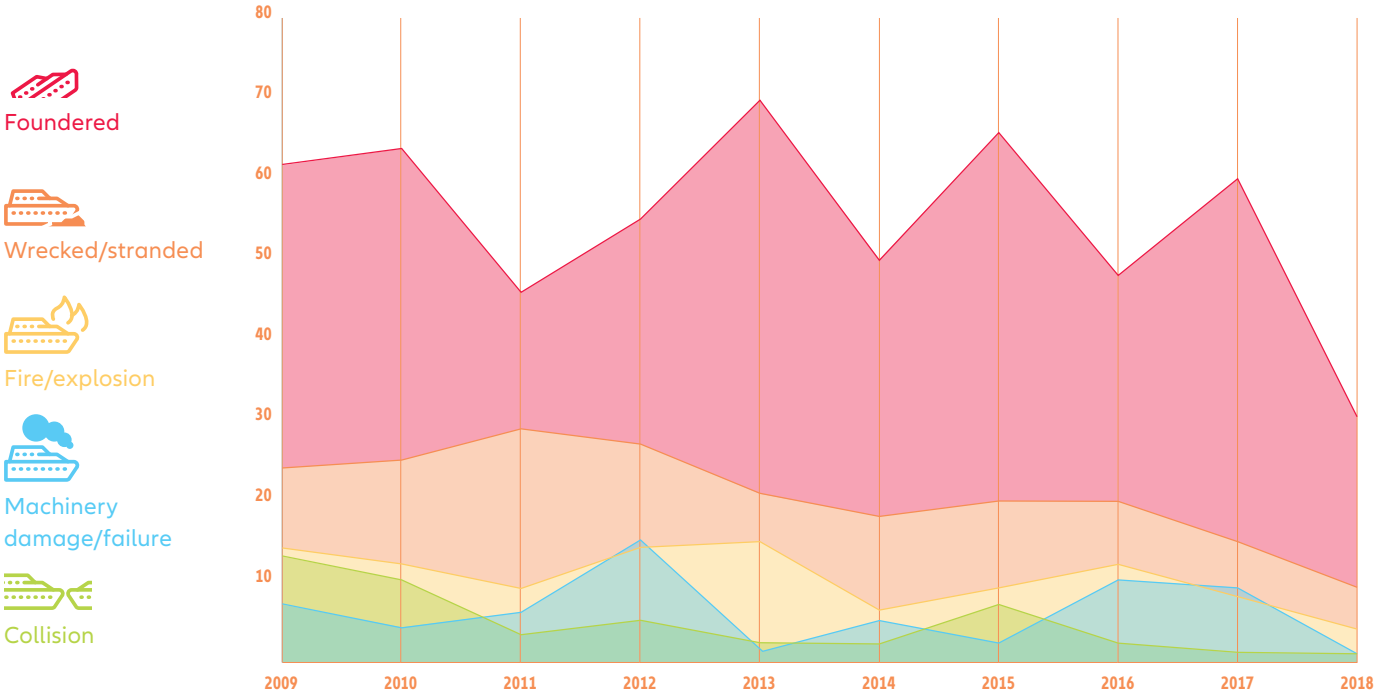
Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

Fishing vessel loss activity increased year-on-year with 11 total losses reported. Passenger ship total loss activity declined year-on-year.

TOTAL LOSSES BY CAUSE **2009 - 2018**

Foundered (sunk/submerged), wrecked/stranded, fire/explosion, machinery damage and collision are the most frequent causes of total losses over the past decade, accounting for over 90% of all reported cases.

TOP 5 CAUSES OF LOSS



ALL CAUSES OF TOTAL LOSS: 2009 - 2018

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	TOTAL
Foundered (sunk)	**62**	**64**	**46**	**55**	**70**	**50**	**66**	**48**	**60**	**30**	**551**
Wrecked/stranded (grounded)	24	25	29	27	21	18	20	20	15	9	208
Fire/explosion	14	12	9	14	15	6	9	12	8	4	103
Machinery damage/failure	7	4	6	15	1	5	2	10	9	1	60
Collision (involving vessels)	13	10	3	5	2	2	7	2	1	1	46
Hull damage (holed, cracks etc.)	8	5	3	7	1	5	2	4	5	1	41
Miscellaneous	2	6	2	2	1	2		1			16
Contact (e.g harbor wall)	1			2		1					4
Piracy	1	2	1								4
Missing/overdue		1						2			3
Total	**132**	**129**	**99**	**127**	**111**	**89**	**106**	**99**	**98**	**46**	**1,036**

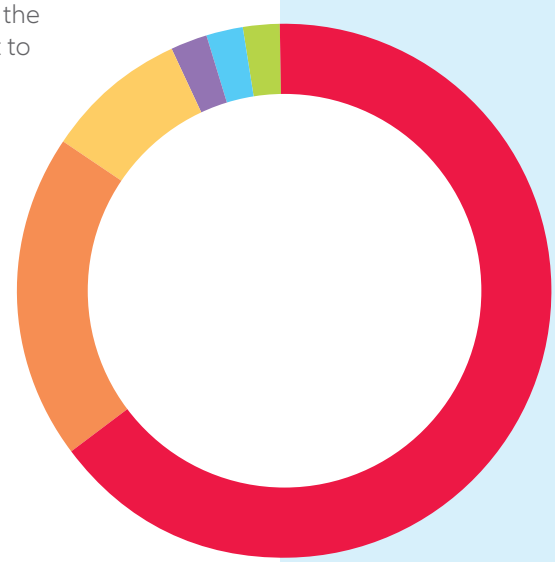
Vessels over 100GT only

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

Foundered (sunk/submerged) has been the cause of over half of all total losses (53%) over the past decade. In 2018 it was the primary cause of more than 65% of losses around the world. Analysis of more than 230,000 marine insurance industry claims with a value of €8.8bn ($9.9bn) between July 2013 and July 2018 by AGCS shows that ship sinking/collision incidents are the most expensive cause of loss for insurers, accounting for 16% of the value of all claims – equivalent to €1.39bn/$1.56bn.

2018 REVIEW

CAUSES OF TOTAL LOSS
JANUARY 1, 2018 TO DECEMBER 31, 2018



Foundered (sunk)	**30**
Wrecked/stranded (grounded)	9
Fire/explosion	4
Hull damage (holed, cracks etc.)	1
Machinery damage/failure	1
Collision (involving vessels)	1
Total	**46**

Vessels over 100GT only

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

TOTAL LOSSES IN ALL REGIONS: 2018

This map shows the approximate locations of all **46** reported total losses during 2018.

	Regional loss rankings	Losses	% Share
1	South China, Indochina, Indonesia and Philippines	12	26%
2	East Mediterranean and Black Sea	6	13%
3	British Isles, North Sea, English Channel and Bay of Biscay	4	9%
4	Japan, Korea and North China	3	7%
	West Indies	3	7%
5	Arabian Gulf and approaches	2	4%
	Bay of Bengal	2	4%
	North Atlantic	2	4%
	Red Sea	2	4%
	South Pacific	2	4%
	West African Coast	2	4%
	West Mediterranean	2	4%
6	Russian Arctic and Bering Sea	1	2%
	South American West Coast	1	2%
	South Atlantic and East Coast South America	1	2%
	United States Eastern Seaboard	1	2%

Vessels over 100GT only

10

losses from bad weather

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

2018: While the number of total losses has declined significantly over the past year, the number of shipping casualties or incidents has remained stable. The East Mediterranean and Black Sea is the top incident hotspot, accounting for one in five incidents globally. Activity is up in the region, driven by machinery damage/failure incidents.

Machinery damage/failure was the top cause of incidents over the past year (1,079) accounting for 40%. Fire and explosion activity increased during 2018 with 174 reported incidents.

2018 REVIEW

ALL CASUALTIES INCLUDING TOTAL LOSSES: 2018
TOP 10 REGIONS

Region	Casualty Total	Year-on-year change
East Mediterranean and Black Sea	**544**	↑ **81**
British Isles, N. Sea, Eng. Channel and Bay of Biscay	494	↑ 65
S. China, Indochina, Indonesia and Philippines	231	↓ 31
Great Lakes	194	↑ 49
Baltic	163	↑ 1
Japan, Korea and North China	115	↓ 28
West African Coast	111	↑ 16
Iceland and Northern Norway	107	↑ 6
West Mediterranean	103	↓ 21
North American West Coast	102	↓ 12
Other	534	
Total	**2,698**	↓ **15**

Including **46** total losses

Vessels over 100GT only

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

2009 - 2018 REVIEW

ALL CASUALTIES INCLUDING TOTAL LOSSES: 2009 - 2018
TOP 10 REGIONS

Region	Total
East Mediterranean and Black Sea	**4,757**
British Isles, N. Sea, Eng. Channel and Bay of Biscay	4,099
S. China, Indochina, Indonesia and Philippines	2,348
Baltic	1,621
Japan, Korea and North China	1,522
Great Lakes	1,330
Iceland and Northern Norway	1,089
West Mediterranean	950
North American West Coast	910
West African Coast	770
Other	6,626
Total	**26,022**

Including **1,036** total losses

Vessels over 100GT only

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

TOP CAUSES OF SHIPPING CASUALTIES/INCIDENTS 2018

Machinery damage/failure	**1,079**
Collision	319
Wrecked/stranded (grounded)	315
Contact (e.g. harbor wall)	208
Fire/explosion	174
Other	603

2,698 incidents in total including **46** total losses

Vessels over 100GT only

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

2009-2018: The East Mediterranean and Black Sea region is also the location with the most shipping incidents over the past decade (4,757), accounting for 18%.

Of the 26,022 reported incidents over the past decade, more than a third (8,862) was caused by machinery damage or failure – over twice as many as the next highest cause of incident, collision (3,648). The number of machinery damage incidents have increased by a third over the past decade.

INCIDENTS IN ARCTIC CIRCLE WATERS

There have been 522 shipping incidents reported in Arctic Circle waters over the past decade. Driven by the harsh operating environment, machinery damage/failure is the most frequent cause of incidents, accounting for almost half of all cases (47%).

ALL CAUSES OF CASUALTIES/INCIDENTS: 2009 - 2018

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	TOTAL
Machinery damage/failure	**14**	**16**	**12**	**13**	**20**	**27**	**45**	**32**	**46**	**24**	**249**
Wrecked/stranded (grounded)	14	9	9	8	10	14	6	11	9	8	98
Collision (involving vessels)	4	10	4	4	2		3	2	4	2	35
Fire/explosion	2	6	6	1	4	2	4	1	3	6	35
Contact (e.g. harbor wall)	2	4	1	3	6	4	5	1	1	1	28
Hull damage (holed, cracks etc.)	6	2	2	1	2	1	1	2	2		19
Foundered (sunk)	2		3	1	1	2		1		1	11
Labor dispute								1			1
Miscellaneous	4	4	2	6	5	5	6	4	6	4	46
Total	**48**	**51**	**39**	**37**	**50**	**55**	**70**	**55**	**71**	**46**	**522**

Including **15** total losses

Vessels over 100GT only

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

2018 REVIEW

CAUSES OF CASUALTIES/INCIDENTS 2018

Machinery damage/failure	**24**
Wrecked/stranded (grounded)	8
Fire/explosion	6
Miscellaneous	4
Collision (involving vessels)	2
Contact (e.g. harbor wall)	1
Foundered (sunk)	1
Total	**46**

DOWN 25 YEAR-ON-YEAR

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

Vessels over 100GT only

Analysis shows there were 46 reported shipping incidents in Arctic Circle waters during 2018 – down 35% with no reported total losses. Machinery damage/failure was behind more than 50% of incidents.

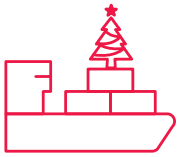
ALL AT SEA

Ahoy there! The most incident-prone vessel

Three vessels shared this unwanted accolade in 2018 – all of them passenger ferry services operating to and from Greek Islands. The three ferries were all involved in eight separate incidents over the year, with one vessel operating in the Aegean Islands involved in eight incidents in just five months. Machinery damage/failure was the cause of seven of these incidents; the vessel was also grounded as it approached port.

Watch out on Wednesday

Wednesday is the most frequent day for shipping losses over the past decade (169) with Saturday (130) the safest day at sea. Twelve, or more than a quarter, of 2018's 46 total losses occurred on a Wednesday.



Beware the start – and the end – of the year

January is the busiest month for shipping losses around the world with 117 reported over the past decade, including nine in 2018. Bad weather is often a factor. December is the second busiest month for losses (104) with one loss even reported on Christmas Day in 2018.

SWAT teams, swimming pools and sharks – strange days at sea

Over the past decade there have been many different causes of incidents and losses on board all kinds of vessels. Here are five of the most unusual:

- A chemical/product tanker had to be boarded by a SWAT team of police marksman off Lisbon, Portugal after a mutiny by crew over loading and offloading duties. The vessel eventually sailed two days later
- A passenger ferry operating in South Korea had to be towed back to port by the coast guard after colliding with a whale. The vessel was later declared a total loss, as repairs were deemed too expensive
- A passenger ship en route to Hamburg from Rotterdam had to be diverted towards Helgoland after it encountered rough seas in the North Sea and water from its swimming pools flooded restaurant areas.
- Seven of the 15 member crew of a chemical/product tanker went on hunger strike after a salary dispute at Ajman port in the United Arab Emirates, delaying the vessel by more than week.

And finally...

- A total of 893 kilos of cocaine was found on board a container ship concealed in frozen sharks while the vessel was off Yucatan in Mexico.

LOSS TRENDS

LARGER VESSELS BRING BIGGER LOSSES

Insurers have been warning for years that the increasing size of vessels is leading to a higher accumulation of risk. These fears are now being realized, potentially offsetting improvements in safety and risk management.

Over the past 50 years container ships have increased in capacity by almost 1,500%, although many of the risk concerns with them are also applicable to cruise ships, car carriers and other large vessels. In many respects, such vessels are safer and the frequency of shipping losses overall has steadily declined over the past decade. However, the cost of incidents has been increasing, driven in large part by the cost of claims involving large vessels. For example, data from the Nordic Association of Marine Insurers (Cefor) has previously shown that the most costly 1% of all claims account for at least 30% of the value of total claims in any given year[1].

Larger vessels mean far greater accumulations of risks and therefore larger values and exposures, both on board vessels and in ports. Dealing with incidents involving large ships, such as fires, groundings and collisions, are also becoming more complex and expensive.

Ultra large container ships (ULCS) are of particular concern following a number of fire and explosion incidents, but also groundings and collisions. Such vessels, the largest of which can carry 20,000+ teu (20-foot equivalent unit) containers, require ports with appropriate specialist infrastructure to unload cargo or carry out repairs.

"Insurers such as AGCS have been warning for years that the increasing size of vessels is leading to a higher accumulation of risk," explains **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**. "These fears are now being realized, as demonstrated by the growing number, and cost, of incidents with ULCS.

"While we have seen total losses reduce over the past decade, the benefits are being largely offset by the increased cost of losses for large vessels. The cost of casualties or incidents is rising, with an increase in severity, and this is down to the increasing size of vessels. Such ships generate economies of scale for ship owners but also increased risk, and a disproportionately greater cost when things go wrong."

Fires on board large container vessels are now a regular occurrence – there were two in January 2019 alone, following a number of other incidents – and continue to be a major concern *(see page 22)*. In addition, the car carrier **Sincerity Ace** caught fire in the North Pacific on December 31, 2018, the latest large vessel of this type to do so, while Ro-ro cargo ship, the **Grande America** sank on March 12, 2019 after its cargo of vehicles and containers caught fire. On average, insurers see around two major losses involving car carriers each year.

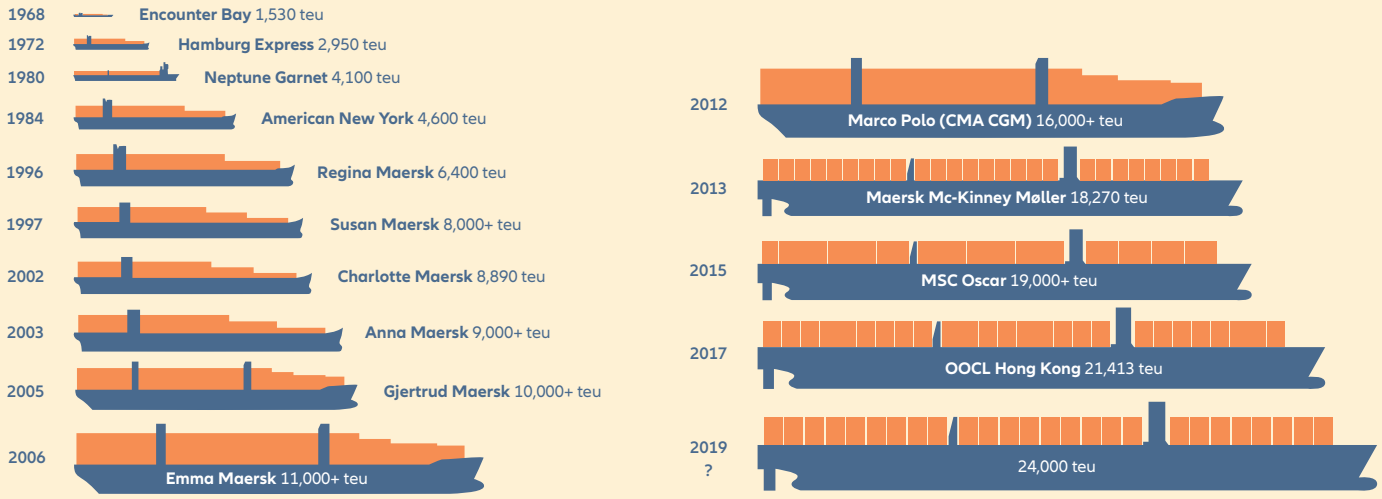
Such incidents can easily result in large claims in the hundreds of millions of dollars, if not more. A hypothetical worse-case loss scenario involving the collision and grounding of two large container vessels, or a container vessel and a cruise ship, could result in a $4bn loss when the costs of salvage, wreck removal and environmental claims are included, according to AGCS. Potentially, one insurer could find they have insured more than one vessel involved in the same incident, with exposure to hull, machinery breakdown and cargo losses.

"The size of a vessel can significantly increase salvage and general average costs. ULCS require specialist tugs and finding a port of refuge with capacity to handle such a large ship can be difficult, which increases the salvage operation costs," explains **Régis Broudin, Global Head of Marine**

1 International Union of Marine Insurance, Global Premiums Up By 2% But Challenges Remain For Marine Underwriting, says IUMI, September 2018

50 YEARS OF CONTAINER SHIP GROWTH

Container-carrying capacity has increased by around **1,500% since 1968 and has almost doubled over the past decade**



Approximate ship capacity data: Container-transportation.com; AGCS

Source: Allianz Global Corporate & Specialty (AGCS)

Claims at AGCS. "For example, in the case of the **Maersk Honam** container ship which caught fire at sea in March 2018, salvage and **general average** represented close to 60% of the cargo value. A high contribution has also been requested for the **Yantian Express**, container vessel which suffered a fire on board in January 2019."

Following a number of incidents in recent years, the shipping industry should question whether it is running acceptable levels of risk for large vessels, according to **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**.

"There is a push for efficiency and scale in the shipping industry but this should not be allowed to give rise to unacceptable levels of risk," says Kinsey.

"We continue to see the normalization of risk in the shipping industry. There have been welcome technical advances in shipping but we do not yet see a commensurate safer environment. There is now much talk of automation and autonomous vessels and how this will be safer. But in truth, innovation will be driven by the bottom line."

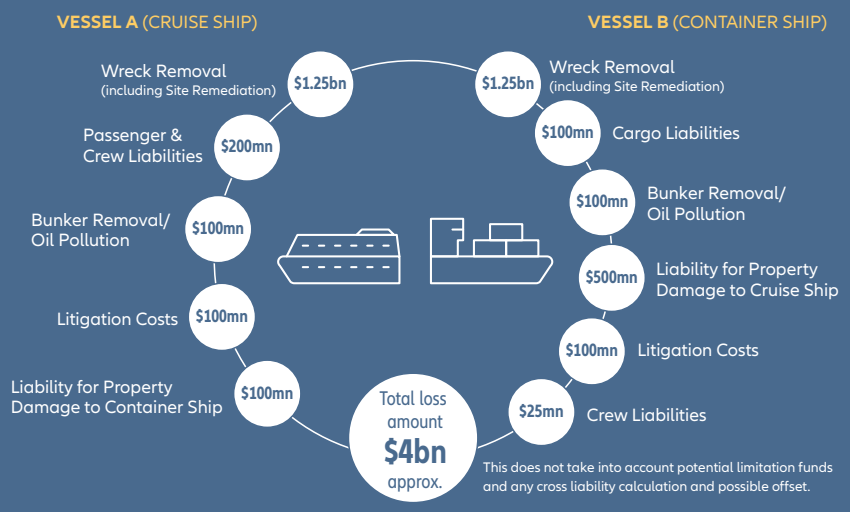
"It is very clear that in some shipping segments, loss prevention measures have not kept pace with the upscaling of vessels," says **Chris Turberville, Head of Marine Hull & Liabilities, UK, AGCS**. "This is something that needs to be addressed from the design stage onwards."

What is general average?

In event of a loss where cargo is impacted or expenses incurred, the loss is shared proportionately by all parties with a financial interest.

HOW A $4BN LOSS SCENARIO COULD OCCUR

The increasing size of vessels has raised fears about the potential for higher losses if a major casualty does occur, particularly one involving two large vessels, such as a cruise ship and a container ship, for example. There are many factors to consider when evaluating the potential costs from such an incident. Below, we consider a worst case scenario casualty involving a collision, followed by grounding of both vessels and pollution, in an environmentally-sensitive location. In this scenario both vessels are then deemed constructive total losses. The potential exposure could be:



Fighting fire on board the Maersk Honam. It was several weeks before the vessel could be towed to a suitable port of refuge.

Photo: Indian Coast Guard (GODL-India).

In January 2019, the Hapag-Lloyd **Yantian Express** caught fire as the 7,510 teu container ship transited off Canada's eastern seaboard. Just weeks later, as the fire was finally being extinguished on this vessel, fire broke out on a second container ship **APL Vancouver** off Vung Ro, Vietnam. The two incidents are the latest in a series of container ship cargo fires in recent years, which have included the **Maersk Honam** in 2018, **MSC Daniela** in 2017 and **CCNI Arauco** in 2016.

Insurers such as Allianz and the International Union of Marine Insurance (IUMI) have previously warned of safety concerns surrounding large container vessels, promoting improved ship design and fire-fighting equipment to prevent and extinguish fires.

"Fire on board ultra large container ships (ULCS) is our biggest concern right now," explains **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**. "Insurers have highlighted this as a growing risk in recent years and, sadly, this has proven correct. This is a serious and concerning trend. While there have been discussions within the shipping industry, we have yet to see concrete steps to tackle this risk as yet."

ULCS pose a number of challenges, including the firefighting capabilities of vessels and the complexity of salvage. Fires break out in containers relatively frequently – logistics insurer, TT Club says there is a fire every 60 days – yet firefighting capabilities have not kept up with the upsizing of container vessels.

"It should be the industry standard that any vessel, including a ULCS, should have the capability built into its design to tackle most on board fires themselves," says **Chris Turberville, Head of Marine Hull & Liabilities, UK, AGCS**. "It is very clear that this is not currently the case and they require considerable outside assistance to control a blaze; often by which time significant damage has been done to the vessel. This also significantly increases the possible salvage claim."

CONTAINER SHIP FIRE ISSUE CONTINUES TO BURN

Fires and explosions on board such vessels continue to generate large losses with an incident occurring every 60 days on average. What can be done?

Improving the firefighting capabilities of ULCS is critical, but equally challenging is the problem of misdeclared cargo *(see page 24)*, which is thought to be the root cause of a number of fires. Estimates show the majority (66%) of cargo damage across freight modes, including container fires, is attributable to poor packing and labeling of dangerous materials[1].

Prevention should be a priority for ship owners, according to **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**. "The size of large container ships and their design is a factor, but the focus should be on preventing fires from starting in the first place. There is clearly a problem with both misdeclared, and incorrect packaging of, cargo. Regulations and guidelines for dangerous cargo exist, but they are not being adequately enforced and adhered to."

A container ship fire has yet to result in a total loss, but incidents in recent years have generated some large losses. It was several weeks before the **Maersk Honam** could be towed to a suitable port of refuge after its fire on board and this incident is expected to result in one of the largest general average claims on record. However, a total loss of a ship this size could have exceeded $1bn.

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

1 TT Club, Campaign For Greater Container Safety Must Focus First On Dangerous Goods, March 2019

MISDECLARATION OF CARGO INCREASING RISK ON BOARD

A growing number and array of goods are being transported by sea and in containers, including electronics and, increasingly, chemical products. However, dangerous goods are not always properly declared, which can have dire consequences given larger vessel sizes.

The growing number of cargo fire incidents at sea – including at least three in two months at the start of 2019 – is an obvious cause of concern for the shipping industry, prompting questions about what may be behind them. Previous safety issues, such as improper packing, loading, labeling and shipping of hazardous cargoes are in the spotlight once again.

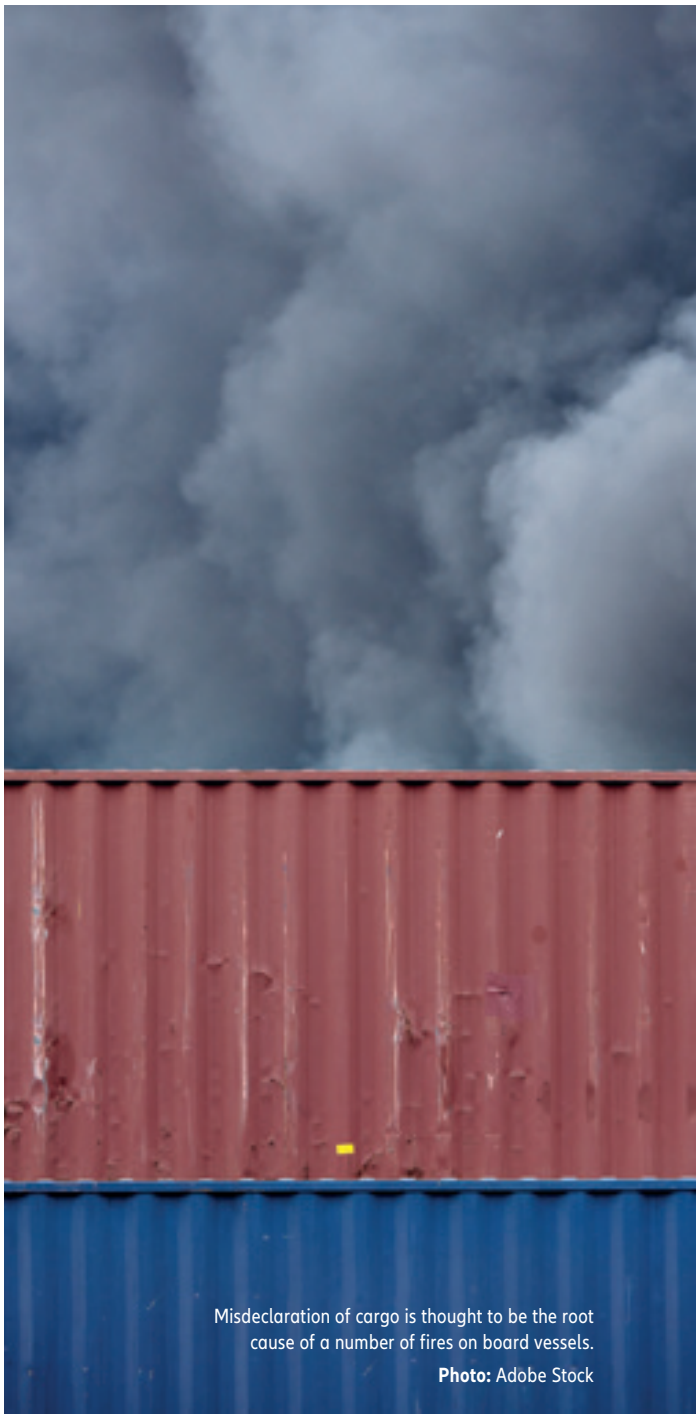
"With several major incidents in a matter of months, fires on board container ships – potentially coming from misdeclared cargo – are a hot topic, " says **Régis Broudin, Global Head of Marine Claims at AGCS**. "The large size and capacity of container ships today increases the risk of cargo misdeclaration and therefore of something going wrong.

"Misdeclared cargo can happen on mega container ships by virtue of their sheer volume. The greater the number of containers stowed, the more chance there is of a mistake, such as storing dangerous cargo close to a hot spot like the engine. Meanwhile, the size of the vessel can make it harder to access a fire and impede attempts to extinguish it."

The International Cargo Handling Coordination Association has estimated that some six million containers contain dangerous goods, and nearly 1.3 million of those boxes aren't properly packed or are incorrectly identified, according to logistics insurer TT Club[1]. Containerized shipments are misdeclared for a variety of reasons, most notably to avoid the additional costs and requirements associated with transporting certain cargos.
Cargo is handled and stowed according to its declared contents and weight, and misdeclaration can have dire consequences. For example, cargo that carries a risk of explosion must be stowed well away from crew accommodation, while heat sensitive cargo must be kept away from hot areas like fuel bunkers and engines.

Preventing cargo fires saves lives and property at sea, says **Volker Dierks, Head of Marine Underwriting, Central and Eastern Europe at AGCS**. "Increasingly, more goods are containerized, and many more substances will be transported on container ships in the future. Yet it is not always understood about the risks that certain circumstances pose (for example, incorrect stowage or temperature)."

Given the threat posed by container fires, a number of shipping companies have taken steps to address misdeclared cargo. Maersk, for example, has instituted a policy of not loading hazardous cargo adjacent to living spaces. It also recently announced that it will now work with the US National Cargo Bureau[2] to carry out random checks of containers while Hapag-Lloyd[3] is using software to scan bookings to detect undeclared dangerous cargo that require a deeper investigation. Between 2015 and 2017, Hapag-Lloyd identified some 11,000 incorrectly declared shipments.



Misdeclaration of cargo is thought to be the root cause of a number of fires on board vessels.

Photo: Adobe Stock

A number of shipping companies already share information from cargo inspections via the Cargo Incident Notification System (CINS), which alerts ship owners to potential misdeclared cargo, prompting additional checks or a ban. In October 2018, CINS also proposed a common cargo scanning system that would help shippers search for bookings that may contain undeclared or misdeclared dangerous goods[4].

"I could imagine that the insurance industry would support any shipping industry initiative that brings increased transparency on parties that misdeclared cargo," says **Justus Heinrich, Chief Underwriter Marine Hull, Central and Eastern Europe, AGCS**.

"One practical solution would be a blacklist of freight forwarders that misdeclare cargo. Obviously, some operators already do this, but to gain momentum and market acceptance more need to get on board.

"As part of the risk assessment, underwriters would be able to ask a ship owner if they are a member of such a platform. Being part of such an initiative would demonstrate that a ship owner is aware of the problem and willing to take action to deal with misdeclared cargo."

6mn
estimated number of containers with dangerous goods

1 TT Club, Campaign For Greater Container Safety Must Focus First On Dangerous Goods, March 2019
2 Maersk, Physical Container Inspection Pilot, January 2019
3 Hapag-Lloyd, Cargo Patrol – Cargo Protection Reimagined
4 CINS, CINS Cargo Scanning Request For Proposal, October 2018

LOST AND DAMAGED CONTAINER COSTS MOUNT

Although it not uncommon for containers to be lost at sea, the risks posed by heavy weather, inadequate stowing and lashing and even environmental concerns means this issue is a growing concern.

The container ship MSC Zoe lost hundreds of containers at sea in bad weather.
Photo: flickr.com, Kees Torn

On January 2, 2019 the 19,000 teu container ship **MSC Zoe** lost hundreds of containers off the German island of Borkum, amid heavy weather. Initially, some 270 containers were reported lost, but further investigation revealed that at least 345 boxes were missing and a further 450 were damaged but remained on board[1]. The contents of some containers, which included toxic substances, were washed up on a number of Dutch islands, raising environmental concerns. The owner of the vessel, Mediterranean Shipping Company, vowed to recover every missing container and clean any affected beaches. The salvage operation used a drone to locate and retrieve the containers and their spilled contents from the seafloor and navigation channel. The investigation into this incident is ongoing at the time of writing.

A common cause of cargo incidents at sea is heavy weather and lashing failures. In heavy seas, container lashing comes under strain as a vessel heels or tilts. In very large container ships, where boxes are stacked high above the water line, the motion is accentuated, exerting huge pressure on lashings.

"This can potentially push them to breaking point," says **Volker Dierks, Head of Marine Underwriting, Central and Eastern Europe at AGCS**. "We will know more once the investigation into the **MSC Zoe** is completed, but it could be that lashing and stowage procedures will need to be amended for large container ships."

It is not uncommon for containers to be lost at sea, particularly during extreme weather conditions, but the numbers are relatively small. On average, a total of 1,582 containers are lost at sea each year, according to the World Shipping Council[2], falling to 568 containers when discounting catastrophic events like sinkings. To put this in context, approximately 130 million containers are transported by sea each year, with an estimated value of more than $4trn.

Damaged goods, including containers, is one of the most frequent generator of insurance industry claims in the shipping industry, analysis by AGCS shows[3], accounting for more than one in five claims. (22% of 230,961 marine insurance industry clams analyzed over the past five years).

1,500+
average number of containers lost at sea each year

1 World Maritime News, Number of Lost MSC Zoe Containers Jumps to 345, February 2019
2 World Shipping Council, Containers Lost At Sea – 2017 Update
3 Allianz Global Corporate & Specialty, Global Claims Review: The Top Causes of Corporate Insurance Losses

MACHINERY DAMAGE INCIDENTS AND COSTS RISING

It is the top cause of shipping incidents over the past decade – a trend that is unlikely to change anytime soon, given rising repair costs and concerns over maintenance levels and larger vessels.

On September 25, 2016, Ro-ro passenger ferry **MV Hebrides** hit pontoons and ran aground in Scotland after the vessel suffered a technical failure. A September 2017 investigation[1] into the incident found that neither the ship's engineers nor shore-based service engineers had access to the relevant service instructions.

In June 2018, the US Coast Guard[2] warned that fuel contamination at the Port of Houston was causing engine problems – the problem subsequently spread to other regions as far apart as Singapore and Panama and is thought to have affected hundreds of vessels.

More recently, in March 2019, the cruise ship, the **Viking Sky**, which was carrying almost 1,400 passengers and crew, narrowly avoided running aground off western Norway after struggling with engine problems in bad weather. Almost 500 people had to be winched to safety. The engine problems have been linked to a lack of lubricating oil, possibly caused by the vessel's excessive rolling in waves.

Historically, machinery damage (including engine failure) is one of the largest causes of marine insurance claims by both value and frequency, according to AGCS. Based on analysis of more than 230,000 industry claims between July 2013 and July 2018 it accounted for 12% of the value of all claims (over $1bn in value), making it the third most expensive cause of loss after ship sinking/collision and fire/explosion *(see, right)*.

It is a trend that is unlikely to change anytime soon. In fact, machinery damage claims have been increasing in severity, driven by the rising cost of repair and the consequence of larger ships.

"Generally, there are growing concerns with the quality of maintenance and the adherence to manufacturers' guidelines, as well as issues with the quality of components and spare parts. This is happening at a time when machinery damage losses are becoming more expensive, due to higher repair costs and the increased cost of spare parts," says **Justus Heinrich, Chief Underwriter Marine Hull, Central and Eastern Europe, AGCS**.

TOP CAUSES OF LOSS:

MARINE INSURANCE CLAIMS

(Claims data applies to all aspects of the marine insurance sector, not just on board vessels)

Based on analysis of 230,961 insurance industry claims with a value of €8.8bn ($9.9bn) between July 2013 and July 2018.

Source: Allianz Global Corporate & Specialty, Global Claims Review: The Top Causes of Corporate Insurance Losses

By value of claims

Ship sinking/collision	16%
Fire/explosion	13%
Damaged goods (including handling/storage)	12%
Machinery damage (including engine failure)	12%
Storm	7%
Other	40%

By number of claims

Damaged goods (including handling/storage)	22%
Crime/disorder	5%
Ship sinking/collision	4%
Water damage	4%
Machinery damage (including engine failure)	3%
Other	62%

Unsurprisingly, **ship sinking/collision** incidents are the most expensive cause of loss for insurers, accounting for 16% of the value of all claims (€1.39bn/$1.56bn). **Machinery damage** incidents, such as engine failure, have also caused in excess of $1bn worth of damage, based on analysis of 230,000 marine insurance claims over five years.

"As vessels get bigger, so do their engines. And when large engines fail they often cost more to repair. The size of ship determines where a vessel can be repaired as only a limited number of docks can handle large ships, if dry-docking becomes necessary, while lead times for specialist replacement parts can be six months or longer," says **Volker Dierks, Head of Marine Underwriting, Central and Eastern Europe at AGCS**.

For the 2019 **Safety And Shipping Review**, AGCS analyzed 26,022 shipping incidents between January 2009 and December 2018. Of these incidents more than a third (8,862) were caused by **machinery damage or breakdown**, such as engine failure – the most common cause of shipping incidents over the past decade – and over twice as many as the next highest causes of incidents, collision (3,648) and wrecked/stranded (3,610).

The analysis shows the number of machinery damage incidents have also increased by a third over the past decade.

However, a growing number of engine manufacturers are now installing **"Internet of Things"** devices on engines in order to collect vital data in real time, says **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**. "This is enabling them to issue timely recommendations to the vessels or a problem and to carry out maintenance, potentially avoiding breakdown."

1 Marine Accident Investigation Branch, Loss Of Control And Grounding Of Ro-Ro Passenger Ferry Hebrides, September 2017
2 Safety4Sea, USCG releases alert on recent fuel contamination at Port of Houston, June 2018

Human error was determined to be a factor in the grounding of the MV Rena off New Zealand in 2011.

Photo: New Zealand Defence Force

HUMAN ERROR COMES IN MANY FORMS

Whether it's crew members on phones or an over-reliance on other forms of technology, fatigue, or a failure of organizational culture and behavior, human error remains a key safety issue and an underlying factor in many claims, meaning the quality of crew and ship owners' overall safety culture are of increasing importance to risk assessment.

$1.6bn
Value of marine insurance losses involving some form of human error, based on analysis of almost 15,000 liability claims

In October 2018, a Tunisian ferry **Ulysse** collided with the container ship **CSL Virginia** in the Mediterranean Sea after the officer on watch was found to have been distracted by a mobile phone. An investigation into the collision concluded that the ferry's officer on watch was on his own, on the phone and away from the radar. It also found the container ship's crew, under pressure from the owner, had "inadequately" moored the vessel in the middle of a merchant shipping lane[1].

Incidents like this are not uncommon. A series of human errors, including an overreliance on electronic charts, led to the grounding and total loss of the Maltese registered 2,194 teu capacity container ship **Kea Trader** in the Pacific Ocean on July 12, 2017. According to the incident report, the grounding of the six-month-old ship was the result of the deck officer's mistakes and overconfidence in the vessel's electronic navigation chart[2].

"Electronic navigation has been prevalent in the global shipping fleet for the past two decades, yet accidents continue to happen," says **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**. "It's part of the bigger problem of human error and comes down to training and the safety culture of the organization."

The grounding of the **Kea Trader** was one of the most complex container ship salvages since the 2011 grounding of the **MV Rena** in New Zealand in 2011. A year and a half after the vessel struck a reef, the wreck removal operation was still ongoing at the end of 2018, with initial efforts focusing on preventing pollution and the removal of over 750 containers.

"We have seen serious losses from an overreliance on electronic chart displays and human error on the part of crew," adds **Captain Andrew Kinsey, Senior Marine Consultant at AGCS**. "We now have a generation of seafarers that have grown up trusting what they see on a screen. Without appropriate training, however, they can be lulled into a false sense of security.

"This is a serious problem that we see in repeated cases. People believe that technology makes them safer, but they do not allow for the human element and the need for training – ensuring crews have a solid background in the fundamentals of sound navigation and situational awareness."

"It has become clear that while electronic charts can be a good addition to bridge safety, training in their use is not always as good as it could be," adds **Chris Turberville, Head of Marine Hull & Liabilities, UK, AGCS**. "It is imperative that not only training on the new equipment is given, but also training on how to use it in conjunction with radar and other bridge equipment. Simulation is a great way of providing this integrated training."

It is estimated that 75% to 96% of marine accidents can involve human error[3]. Furthermore, AGCS analysis of almost 15,000 marine liability insurance claims between 2011 and 2016 shows human error to be a primary factor in 75% of the value of all claims analyzed – **equivalent to over $1.6bn of losses**. Given the role of human error in so many incidents, the quality of crew and ship owners' overall safety culture are of increasing importance to risk assessment.

"How an operator takes care of the crew can be seen in the claims pattern. Good conditions, working hours, salaries and opportunities for career development, as well as access to training, fresh air and exercise will all help improve crew quality," says **Justus Heinrich, Chief Underwriter Marine Hull, Central and Eastern Europe at AGCS**.

Yet a survey of 2,800 maritime employees by recruiter Halcyon Recruitment and training provider Coracle[4] reveals decreasing confidence in shipping industry job security, as volatile market conditions continue to impact. Over half of shore-based employees surveyed are actively looking to change jobs with nearly two thirds worried about job security.

Crew costs are a soft factor in what is a cost-conscious industry. This will be an area to watch as ship owners face the increased cost of operating under the International Maritime Organization's pollution prevention treaty **MARPOL Annex VI** emissions cap *(see page 34)*, Heinrich predicts.

"My fear is that we could see an increase in human error and claims related to fatigue or a lack of crew engagement," says Heinrich. "As part of client risk analysis, insurers such as AGCS now routinely dig deeper into the quality of crewing to see if operators are doing more than the required minimum."

1 GCaptain.com, Human Error ID'd In Mediterranean Ro-Ro's Collision With Container Ship, January 2019
2 Safety4Sea, A Course of Human Errors Led To Kea Trader Grounding, July 2018
3 Allianz Global Corporate & Specialty, Safety & Shipping 1912-2012. From Titanic to Costa Concordia
4 Halcyon Recruitment, 10th Maritime Employee Survey Reveals Decreasing Confidence in Shipping Industry Job Security, March 2019

FEWER TOTAL LOSSES IN ASIA BUT CHALLENGES REMAIN

The frequency and cost of collision, grounding and fire incidents has increased in some locations for Asian-based ship owners and managers, but the number of total losses as a whole has reduced significantly over the past 12 months. Newer infrastructure, better port operations and more up-to-date charts will help to address some of these issues.

The number of collision incidents in the region has increased by 22% in the past four years, according to analysis of data from 4,000 insured vessels by AGCS[1]. The data shows there have been 425 collision or contact incidents during this period with the average cost of collision claims highest on container vessels (approximately $840,000 based on the 100% loss total of the insurance market, as a number of marine insurers can be involved with any one risk). Overall, collision incidents are the second most frequent cause of claims in the region behind machinery breakdown/engine damage (462 incidents).

Meanwhile, a 50% increase in the frequency of incidents overall on container vessels over the past three years alone makes these vessels one of the biggest areas of concern for insurers with around 250 incidents in total during the period covered by the data set.

Incidents of groundings have also risen among Asian ship owners/managers (177 incidents in total) with this rise affecting most ship types. Hotspots for groundings and collisions include busy and difficult to navigate ports and transit routes, such as Chittagong in Bangladesh or the Suez Canal. The South China Sea is also a hotspot for collisions.

Fires also continue to be an issue with 34 reported incidents over four years, at a total cost to the region's insurance sector of almost $50m ($48mn). In particular, there has been an increase in cargo fires on container ships and car carriers, with a number of notable losses in 2018 and 2019. There have also been a number of fires on smaller chemical and product tankers, such as those triggered by ship-to-ship cargo transfer incidents, as well as engine fires on bulk carriers.

"We have seen a rise in incidents involving car carriers, which are becoming more expensive. This is a major concern with fires on the **Auto Banner** in May 2018 and most recently the **Sincerity Ace** in January 2019," says **Tom Taberner, Regional Head, Energy & Marine, Asia at AGCS**.

Asian waters remain a hotspot for marine claims, in part a reflection of the high levels of local and international trade, myriad of islands, older fleets, congested ports and busy shipping routes. In 2018, a quarter of shipping total losses occurred in the South China, Indochina, Indonesia and Philippines maritime region *(see page 9)*, However, this region's loss total of 12 is significantly down year-on-year and is at its lowest for at least a decade.

This reflects the fact that Asia-based international shipping owners and operators are typically well run and have claims frequency rates on par with, or even lower, than their European counterparts, according to **Pierre Chevalier, Head Marine Hull, Asia, AGCS**: "We do typically see more incidents of groundings and collisions in Asia than other locations around the world, but this generally reflects the higher levels of trade and where ship owners are trading. In many cases port infrastructure in Asia is new and there are many new or expanding ports in China, Korea, Japan and Malaysia etc. Newer infrastructure means fewer issues, better port operations and more up-to-date charts."

1 Based on claims data from all vessels underwritten from AGCS Asia offices between 2015 and 2018. Claims have a total value of approximately $500mn, net of deductible (this represents the total cost to the insurance industry, not just AGCS, as more than one insurer can be involved on a particular risk)

Car carrier, the Sincerity Ace caught fire while heading from Japan to Hawaii. On average, insurers see around two major losses involving car carriers each year.

Photo: US Coast Guard

TOP CAUSES OF LOSS: ASIA

BY NUMBER OF INCIDENTS (%)

Machinery breakdown and engine damage	**31%**
Collision	**28%**
Grounding	**12%**
Other	**29%**

Source: AGCS Asia. Based on analysis of claims data from 4,000 insured vessels. 1,515 incidents in total between 2015 and 2018.

CLIMATE

EMISSIONS CAP CHALLENGES SHIPPERS

Regulation limiting sulphur oxide emissions from 2020 is likely to be a game-changer for the shipping industry, with wide-ranging implications for cost, compliance and crew. It even brings the potential for an increase in the number of machinery damage claims and incidents, if not well-managed.

$60bn

Estimated annual potential cost of the move to low-sulphur fuel

On October 26, 2018, the International Maritime Organization (IMO) officially adopted its pollution prevention treaty, **MARPOL Annex VI**, which will cap sulphur oxide emissions for shipping to just 0.5%, down from today's 3.5%, **effective January 1, 2020**. The mandatory rules require ship owners to switch to low-sulphur fuel or fit an approved exhaust gas cleaning system (EGCS), also known as a scrubber, to remove the emissions before they are released into the atmosphere. If used, the EGCS must be approved by the ship's Flag Administration and evidenced in the ship's International Air Pollution Prevention Certificate.

With time running out to prepare for compliance with the cap, the shipping industry faces a number of major challenges and uncertainties. There is real concern, for example, about the availability of compliant low-sulphur fuel, as well as its impact on engines and machinery. There are also questions around the capacity of ship yards and installers to fit enough scrubber systems before the 2020 deadline.

"The sulphur cap is one of the key issues facing the shipping industry today," says **Captain Rahul Khanna, Global Head of Marine Consulting at AGCS**. "It is important that shipping plays its part in achieving a more sustainable environment, but this needs to be done in a way as to not overburden an industry already under pressure.

"Despite the fast approaching deadline of January 2020, there is still a lack of clarity, with little in the way of international standards as well as concern over the availability and compatibility of low-sulphur fuel. This is a complex and technical problem that creates risk and liability for ship owners, raising questions about compliance and which option would be the best for their fleet. The recent banning of open loop scrubbers by many member states has further limited the options for ship owners."

Some guidance on the use of low-sulphur fuel is available, although at this point there is no clear international standard guaranteeing the consistent quality of 0.5% fuel.

IMO has published ship implementation planning guidance to help ship owners prepare for the new rules while the Oil Companies International Marine Forum and the International Petroleum Industry Environmental Conservation Association Industry have been developing guidance on handling, storing and using low-sulphur fuels[1]. The International Organization For Standardization has also established a working group and is identifying methodologies for testing long-term stability and compatibility between different fuel batches.

Penalties for non-compliance are down to individual port states, but include fines and potentially the arrest and seizure of the vessel. However, enforcement of **MARPOL Annex VI** could prove challenging as Flag States and Port Control Authorities would need to monitor vessels on a continuous basis. There is talk of so-called "sniffer" drones being used in territorial waters to check ships are compliant.

Failure to comply with the MARPOL regulation on the 0.5% sulphur 2020 cap could affect the vessel's classification status, which would subsequently null and void insurance cover. Non-compliance could also give rise to contractual disputes[2] between ship owners and charterers, including the bunkering of compliant fuel and the installation and maintenance of scrubbers.

The move to low-sulphur fuel is expected to cost the shipping industry up to $60bn annually, a cost that ship owners may try to pass on to customers. Hapag-Lloyd[3], which estimates that the increased cost of low-sulphur fuel will be around $1bn in the first years, has developed a transparent mechanism to recover the additional costs from cargo owners. Maersk[4], which estimates its extra fuel costs at more than $2bn, introduced a similar fuel adjustment surcharge from January 2019.

Machinery damage is one of the most common causes of loss in marine insurance, and underwriters worry that the frequency of such claims could increase with the introduction of low-sulphur limits.

"The worry is that we could see an increase in the frequency and cost of machinery breakdown claims related to IMO 2020," says **Justus Heinrich, Chief Underwriter Marine Hull, Central and Eastern Europe at AGCS**. "The increased cost of fuel and the extent to which this can be passed on via higher freight costs, may also influence cost-saving in other areas, like crew training or maintenance."

Even more concerning is that technical problems resulting from the use of low-sulphur fuel could cause a vessel to lose power or control, which could lead to collisions and groundings. According to the International Union of Marine Insurance (IUMI), statistics from the California Department of Fish and Wildlife show that switch-overs between heavy fuel oils and distillate fuels increase the risk of vessels losing power.

"We know that poor quality fuels can result in machinery damage, especially if cat fines are present," says Khanna. "There are questions about the ability of refineries to produce enough low-sulphur fuel to meet the needs of the industry by 2020. Even were enough low-sulphur fuel to be available, the quality standard of some of the blended fuels may not be easily ascertained and there could be an impact on the engine and operation of a vessel. The results could be increased machinery damage, which can in turn cause maritime accidents."

The industry has limited experience with using low-sulphur fuels, which differ from high sulphur fuels – for example, low-sulphur has a lower flashpoint and requires additional storage capacity and increased tank cleaning between bunkering.

There may also be potential issues with fuel quality, stability and contamination. For example, the composition and blending of fuel differs by region and port, which can directly affect engine performance. Low-sulphur fuels are also likely to contain higher levels of catalytic fines, small particles of metal introduced to fuel in the refining process that can cause engine and equipment damage. There is also the potential for voyage disruption and delays, if there is a lack of compliant compatible fuel at a bunker port.

Many of these issues will need to be managed by the crew, requiring effective fuel management and filtration processes, as well as training and close adherence to manufacturers' standards.

"The switch to low-sulphur fuel will require operational and engineering actions, which, if not done properly, can have a wide-ranging impact. The switch will also have wider implications for the fuel supply chain, including the availability and cost of fuel," says **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**.

1 Oil Companies International Marine Forum, IMO Sulphur 2020 update, May 2018
2 Clyde & Co, A Practical Overview of the IMO 2020 Sulphur Cap, October 2018
3 The Maritime Executive, Hapag-Lloyd Announces Sulphur Fuel Charge, October 2018
4 Maersk To Change Fuel Adjustment Surcharge Ahead Of The 2020 Sulphur Cap, September 2018

IMPACT OF UNPREDICTABLE WEATHER BRINGS NEW LOSS SCENARIOS

The shipping industry is no stranger to extreme weather, which remains an important factor in many accidents. Changing weather patterns are resulting in physical damage incidents and supply chain disruption.

During 2018, Europe recorded record low water levels on the Rhine and Elbe rivers[1], leaving cruise ships stranded and inland ports left idle as millions of tons of goods were switched to road and rail transport. The low river levels disrupted supply chains in Europe's industrial heartland, affecting the movement of goods such as petrochemical and coal, driving up freight rates and commodity prices[2]. Some manufacturers and refineries were forced to cut production due to shortages. The problem resurfaced on the Rhine in April 2019, with cargo vessels unable to navigate much of the river when fully loaded.

At the same time the Mississippi River in the US, which is used to move some 175 million tons of freight each year, has also been experiencing erratic conditions. The Mississippi's high water season typically runs from December until May, however high water flows can also occur outside these months as a result of heavy summer rains. In March 2019, some 80 vessels were forced to queue at the mouth of the Mississippi River due to high waters and flood levels[3]. Portions of the river's drainage basin are the wettest in 124 years of record-keeping, according to the US Army Corps of Engineers.

High water levels can cause various problems for ships on inland waters, resulting in unexpected draft restrictions, restrictions on navigation, lock closures, additional berthing and pilot services, leading to delays and extra expense. High waters can also result in towing events and collisions with other vessels, bridges or port infrastructure.

In January 2019, the 837-foot deep-draft vessel **Anglo Alexandria** grounded in the Mississippi River[4] while in 2016, cargo vessel **Manizales** and the bulk carrier **Zen-Noh Grain Pegasus** collided on the Mississippi River during a high water event.

"Extreme weather is contributing to losses right now. As a result of changing weather patterns we have seen a number of incidences in the US and Europe, including groundings and collisions, from unseasonal high waters," says **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**.

"For example, in the past, high water conditions on the US inland river system followed a well-defined annual schedule. This is no longer the case. We are seeing higher river levels for longer periods of time. This has led to disruptions in shipping schedules, cargo and hull losses, as well as the loss of human life."

1 Phys.Org, Low Water Levels Causing Chaos in Germany, October 2018
2 S&P Global Platts, Record Low Rhine Water Levels Continue To Impact Commodities, October 2018
3 S&P Global Platts, More Than 80 Vessels Queued In And Outside Of The Mississippi River Due To High Water, March 2019
4 GCaptain.com, UK-Flagged Bulk Carrier Grounds At Mile Marker 3.5 Of Lower Mississippi River, January 2019

The Mississippi River has been experiencing erratic conditions which have resulted in a number of shipping incidents.

Photo: iStock

TECHNOLOGY

CYBER THREATS INCREASE AND EVOLVE

With cyber losses set to become more prominent in future, companies are responding with an uptick in cyber security assessments, while some insurers are looking to clarify "silent" exposures. However, more contingency planning and stress testing of systems needs to be done to combat the growing number of loss scenarios, while new services could also help.

Technology is now widespread in the maritime industry, and critical to the running of ships, ports and logistics. The growing use of connected technology in the maritime sector is expected to be a positive for both safety and claims. Electronic navigation tools, ship-to-shore communications and the greater use of sensors have the potential to improve navigation and help avoid groundings and collisions. Sensors could also reduce machinery claims through performance monitoring and early intervention, as well as help mitigate cargo losses.

"However, technology also means cyber risk is a big concern for shipping," says **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**. "As more and more systems require connectivity with the shore, so vessels become more vulnerable to a cyber-attack."

The 2017 **Not Petya** malware attack caused massive disruption to businesses around the world, not least shipping company Maersk. Vessels were unaffected, but the virus impacted a number of its container terminals and took out its online cargo booking and terminal systems, requiring the company to rebuild its network of 4,000 servers and 45,000 PCs.

"High profile incidents have made people sit up and we now see more and more clients going through cyber security assessments and putting measures in place, such as contingency planning and stress testing of IT systems. Awareness is growing but the industry still has a long way to go," says Khanna.

In 2018, COSCO Shipping Lines was hit by a cyber-attack affecting terminal operations, while the ports of Barcelona and San Diego were targeted in separate ransomware attacks. The sector is also being increasingly targeted by cyber extortion attempts and business email compromise attacks – a hacking group known as **Gold Galleon** tried to steal almost $4mn from ports and shipping companies in 2018.

In 2017, the International Maritime Organization (IMO) adopted its **Maritime Cyber Risk**

TOP 5 RISKS FOR THE MARINE AND SHIPPING SECTOR 2019

Figures represent how often a risk was selected as a percentage of all responses for that industry sector.

Responses: 100

Figures don't add up tp 100% as up to three risks could be selected.

Source: Allianz Global Corporate & Specialty, Allianz Risk Barometer 2019

Rank		Percent	2018 Rank	Trend
1	**Natural catastrophes (e.g. storm, flood, earthquake)**	**34%**	1 (34%)	=
2	Cyber incidents (e.g. cyber crime, IT failure/outage, data breaches, fines and penalties)	**32%**	2 (31%)	=
3	Market development (e.g. volatility, intensified competition/new entrants, M&A, market stagnation, market fluctuation) **NEW**	**28%**	–	↑
4	Business interruption (incl. supply chain disruption)	**26%**	2 (31%)	↓
5	Changes in legislation and regulation (e.g.trade wars and tariffs, economic sanctions, protection, Brexit, Euro-zone disintegration) **NEW**	**24%**	–	↑

Cyber ranks as the second most important risk for the shipping sector in the **Allianz Risk Barometer 2019**, an annual survey which asks 2,400+ risk management experts to identify their top threats for the year ahead.

Management in Safety Management Systems resolution, which requires ship owners and managers to incorporate cyber risk management into ship safety by 2021. Shipping bodies and classification societies are also providing guidance on cyber security. The third edition of the industry's cyber risk management guidelines - **The Guidelines On Cyber Security Onboard Ships**[1], published in December 2018, outlines a clear cyber risk management approach including implementing activities to prepare for and respond to cyber incidents.

"The IMO's cyber security requirement is set to come into force in 2021, however the risks are prevalent today, and shippers would do well to do more in the interim," says Khanna.

"Cyber is an issue for the shipping industry both onshore and at sea," adds **Volker Dierks, Head of Marine Hull Underwriting, Central and Eastern Europe, AGCS**. "A cyber-attack against a ship's navigation system or industrial control systems could cause a grounding or a collision. It does not require much imagination to find scenarios where cyber can pose a danger to shipping, crew or cargo. Therefore, the insurance industry has to find an answer to this, including client services in addition to pure physical damage compensation, such as data forensic and emergency response support, for example."

There is little doubt that cyber will become an increasing feature of marine claims going forward. The big unknowns are so-called "silent" cyber exposures in most traditional insurance policies which were designed when cyber wasn't a major risk and don't explicitly consider it. This can create uncertainty for businesses, brokers and insurers about which loss scenarios are covered. Group-wide, Allianz is reviewing cyber risks in property and casualty (P/C) policies in its commercial, corporate and specialty insurance segments and has developed a new underwriting strategy to address "silent" cyber exposures, ensuring that all P/C policies will be updated and clarified in regard to cyber risks. It has nominated AGCS to establish a **Center of Competence for Cyber** for the entire group.

1 BIMCO et al, The Guidelines On Cyber Security Onboard Ships, December 2018

Autonomous ships are predicted to reduce human error, a major driver of accidents at sea.

Photo: Rolls Royce, Ship Intelligence, flickr.com

AUTONOMOUS SHIPPING MAKES WAVES

Progress continues to be made with smaller vessels and in coastal waters but, as problems with container ships have shown, innovation and technology is not a panacea if the root cause of incidents and losses is not addressed.

In December 2018, Rolls-Royce demonstrated what it claims is the world's first fully autonomous ferry on a trip between Parainen and Nauvo in Finland[1]. The UK-based engineering group plans to bring self-guided cargo ships to the world's seas by 2025. Three months later, in March 2019, a series of autonomous operations trials were held in the North Sea off the Netherlands coast by The Dutch Joint Industry Project: Autonomous Shipping to show the decision-making process of an autonomous system in ensuring safe sailing and avoiding collisions with other vessels.

Meanwhile, Norwegian shipbuilder VARD[2] is currently building a small autonomous electric container vessel for fertilizer company Yara, planned for launch in early 2020 with autonomous operation expected by 2022. China is setting up a 225-square-mile test zone for autonomous ships while a group of Japanese shipping lines have formed a consortium to build remote-control cargo ships by 2025.

"The hype around autonomous shipping has settled down a little. Now the scientists, engineers and regulators are working away to come up with solutions for the future," says **Volker Dierks, Head of Marine Hull Underwriting, Central and Eastern Europe, AGCS**. "But this will take years to come about. However, we are now seeing a more reasoned debate."

With widespread use of autonomous ships unlikely to happen on the high seas anytime soon, early examples are likely to be limited to smaller vessels and coastal waters. Autonomous ships are predicted to reduce human error, a major driver of accidents, but crews are likely to have an important role on board vessels for the foreseeable future.

"Ferries may sound like a good place for automation, but I can't think of a worse place. If you take the crew off a ferry you introduce risk," says **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**. "I am all for automation to support the crew, but it would be foolhardy to remove crew from vessels with passengers.

"Innovations like autonomous vessels and ultra large container ships (ULCS) are driven by efficiency and do not automatically lead to improvements in the safety of shipping. For as long as it is driven by accounting, autonomous vessels will not lead to zero losses.

"There will be incidences where technology and automation can remove crew from hazard. But personally I feel we need to study autonomous technology longer and harder. If you look at the development of ULCS, they are more efficient, but we can't put out fires. This is a wake-up call that technology is not a panacea and that the root cause of loss – often misdeclared cargo in the case of ULCS fires – still needs to be addressed," Kinsey concludes.

1 Ventureboat.com, Rolls Royce demonstrates fully autonomous passenger ferry in Finland, December 2018
2 Hellenic Shipping News, Maritime autonomous surface ships on the horizon, February 2019

SECURITY

POLITICAL RISK THREAT CONTINUES TO EVOLVE

Political risk remains heightened around the globe, and increasingly poses a threat to shipping, trade and supply chains. Conflicts, territorial disputes, cyber-attacks, trade sanctions, piracy and even alleged sabotage are all impacting international shipping.

Photo: Adobe Stock

Political risk is also playing out in cyber space, as some nation states look to target critical infrastructure, including ports, logistics and shipping.

"Political risk is increasing and continues to be a major concern. Territorial disputes, trade tariffs, sanctions and the prevalence of just-in-time manufacturing, pile more and more stress on supply chains," says **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**.

Conflicts in hot spots like Yemen – where Houthis rebels attacked a Saudi oil tanker in the Red Sea in 2018 – and the Azov Sea and Black Sea – where Russian ships fired on and seized three of Ukraine's ships in 2018 – continue to fester. In May 2019, oil tankers were attacked off the coast of the United Arab Emirates, amid rising tensions between the US and Iran.

The South China Sea, a key commercial shipping route connecting Asia with Europe and Africa, is also a source of tension between nation states, in particular the US and China, which are vying for control of Pacific waters. China is also in dispute with a number of Asian countries which claim sovereignty over the Spratly Islands. Such tensions could lead to incidents – in 2017 the **USS Fitzgerald** collided with a container ship while the **USS John S. McCain** hit an oil tanker, when they were on patrol in this region.

Political risk is also playing out in the cyber space, as some nation states look to target critical infrastructure, including ports, logistics and shipping. The 2017 **NotPetya** contagious malware outbreak, attributed by the US to Russia, crippled IT systems at Maersk, disrupting its port terminals and container operations. In the same year, some 20 vessels were affected by a GPS spoofing attack in the Black Sea, while similar incidents have also been reported by ships in the Middle East.

"Political rivalries and conflicts are being played out on the seas. Whether it is the global economy, cyber or the environment, this is where borders disappear and where we all have to operate in the same body of water," says Kinsey.

Operators of commercial vessels are regularly called upon to assist people at sea, including migrants.

Photo: iStock

In December 2018, British Special Forces boarded the Ro-ro cargo ship **Grande Tema** in the English Channel after a group of stowaways threatened the crew. The 71,000-ton vessel, owned by Grimaldi Lines was en route from Lagos, Nigeria to the UK when its crew discovered four stowaways and locked them in a cabin. However, the four men escaped and demanded the vessel sail close to the coast so they could get ashore.

Ship owners have struggled with the problem of stowaways for a number of years, particularly for vessels travelling from ports in Africa, Latin America and Asia. According to Intercargo and International Maritime Organization (IMO) data there were 658 incidents of stowaways reported between January 2010 and July 2017 at 84 ports, involving a total of 1,713 stowaways[1]. Lagos, Nigeria, was the port which saw the highest number of reported incidents.

Photo: ???
???

STOWAWAYS ON COMMERCIAL VESSELS AND MIGRANT RESCUES IN SAFETY SPOTLIGHT

Stowaways are increasingly targeting commercial vessels which can have serious consequences, causing delays in port, while repatriation is a complex procedure. Meanwhile, the ongoing migrant crisis in the Mediterranean reminds ship owners of their obligations at sea.

Migrants and people traffickers are increasingly targeting commercial shipping, according to UK-based stowaway consultant Robmarine[2]. In particular, there has been a shift in stowaway trends in Europe, with stowaways switching to commercial vessels as security is stepped up at ferry terminals. In February 2019, eight stowaways were found hiding in a container at the Port of Cork Ringaskiddy ferry terminal moments after it arrived off a ship from Spain – it was the second such incident in four weeks. In January 2019, three stowaways were caught on the container ship **Diana J** heading to the port of Miami.

The presence of stowaways on board may have serious consequences for ships, causing delays in port, while the repatriation of stowaways can be a complex procedure for masters and ship owners and there are no signs of improvements regarding the reduction of stowaway cases. As a result, in 2018, the IMO updated the **Convention on Facilitation of International Maritime Traffic (FAL Convention)**, adding new guidance and procedures for handling stowaways, as well as a new stowaway data facility.

Recent years have also seen an increase in migrants making crossings in unseaworthy vessels, most notably heading to Europe from Africa and the Middle East. Around 113,000 migrants entered Europe by sea in 2018 – the fifth year in a row this total has been in excess of 100,000, according to the International Organization for Migration. In June 2018, the container ship **Alexander Maersk** rescued 113 migrants[3]. The vessel responded to a request by the Maritime Rescue Coordination Center in Rome to change course and assist in a search and rescue operation in international waters.

According to the World Shipping Council, operators of commercial vessels are regularly called upon to assist persons at sea, and have a legal obligation to do so under **The International Convention For The Safety Of Life At Sea (SOLAS)**, however, commercial cargo vessels are not designed to carry large numbers of people. The migrant crisis in the Mediterranean is a reminder that all parties operating under **SOLAS** have a shared responsibility to bring persons stranded at sea to a place of safety on land as quickly as possible, it says.

113,000

Estimated number of migrants and refugees entering Europe by sea in 2018

1 Intercargo, Stowaway Incidents And Ports Between January 2010 and July 2017, August 2017
2 Robmarine Shipping, Stowaway Activity Within Europe, June 2018
3 World Shipping Council, Rescuing Persons Stranded At Sea Is A Shared Responsibility, June 2018

Armed patrols have proven to be an effective deterrent against piracy but challenges still remain.
Photo: Cassandra Thompson, US Navy

RISE IN PIRACY INCIDENTS

4
Number of total losses from piracy in 10 years

Hijacking and boarding of vessels is still tied to inequality and the economic situation in parts of Africa and Asia, which together account for more than three in four cases globally.

The number of piracy incidents increased by 12% year-on-year to 201 in 2018, according to International Maritime Bureau statistics (including the boarding of 143 vessels; 34 attempted attacks; 18 vessels fired upon and six vessels hijacked). Given 2017's total of 180 incidents was the lowest total for 22 years, the 2018 piracy count still represents an 18% decrease in incidents from five years ago (2014 = 245).

However, the past year has seen a marked rise in attacks against ships and crews around West Africa. Increased activity in the Gulf of Guinea (more than 70 incidents overall) is responsible for making Nigeria the top global hotspot for piracy, accounting for 48 incidents or almost one in four of all reported cases globally. Many crews are kidnapped and taken into Nigeria where they are held for ransom, while Nigerian pirates have also demonstrated their capabilities further out at sea by hijacking a tanker around 100 nautical miles off Point Noire, Congo in October 2018. Safety of crew continues to be a major cause of concern.

Nigeria replaces Indonesia as the top global hotspot for piracy. Previously, Indonesia had seen the most piracy incidents for every year since 2014 when it recorded 100 incidents. However, in 2018 it saw just 36 incidents – a fall of 64% over five years. Patrols by the Indonesia Marine Police have seen the number of incidents significantly decline, with the majority of incidents low level opportunistic thefts. However, many attacks may still go unreported.

Together, the South East Asia and Africa regions account for over three quarters of all piracy incidents worldwide (77% – South East Asia 67 incidents and Africa 87 incidents). Hijacking and boarding of vessels is still tied to inequality and the economic situation in parts of Africa and Asia, meaning global economic and geopolitical conditions continue to play on the security of shipping.

However, piracy as a cause of a total loss of a vessel is extremely rare. Only four of the 1,036 vessels that have been total losses over the past 10 years were down to piracy (less than 1%) with no reported losses since 2011.

1 ICC International Maritime Bureau, Piracy And Armed Robbery Against Ships, 1 January – 31 December 2018

SANCTIONS BRING RISK EXPOSURES

More accidents and injuries at sea, stockpiling goods and additional pressure on vessels and crew could be just some of the potential knock-on effects from the new political tool of choice.

In January 2019, the US tightened sanctions against Venezuela, targeting the country's oil industry against a backdrop of growing political unrest in the country. Unable to sell sanctioned oil, the country's oil producers were forced to store 8.36 million barrels of Venezuelan crude worth $500mn in a fleet of tankers moored along the country's coast.

Sanctions have become the political tool of choice. The US and EU has a number of wide-ranging sanctions regimes in place that directly target individuals and sectors, including energy, shipping and financial services like banking and insurance. These include sanctions against Russia and Iran, and most recently Venezuela.

In November 2018, the US re-imposed sanctions on Iran's shipping and insurance sectors, including the National Iranian Tanker Company. It warned other countries that allowing Iranian tankers to call at their ports or transit waterways comes at great risk, as under-insured Iranian tankers are engaging in unsafe behavior and would be unable to cover the loss in event of an accident such as an oil spill.

Sanctions can have a direct impact on maritime safety. The US believes Iranian vessels are disabling location transponders in a bid to evade US sanctions and make it harder to track the country's oil exports. However, turning off transponders only increases the risk of accidents and injuries.

"Sanctions can increase exposures as companies are forced to stockpile or store goods in ports and on vessels. There are also considerations for vessels trading in a sanction environment, including additional pressures on the operation of a vessel and the quality and training of crew," says **Captain Andrew Kinsey, Senior Marine Risk Consultant at AGCS**.

With renewed sanctions on insurance, Iranian tankers will also lose access to the international insurance marketplace. According to the US Department of State, self-insurance and coverage from Iranian insurance companies will only go so far and is unlikely to be sufficient to cover the loss of an oil tanker, where insured values can exceed $1bn. On January 6, 2018, the Iranian-owned tanker **Sanchi** sank after colliding with another vessel in the South China Sea – the majority of the loss was covered by international insurers.

DATA AND SOURCES

The primary data source for total loss and casualty statistics is Lloyd's List Intelligence Casualty Statistics (data run April 1, 2019). Total losses are defined as actual total losses or constructive total losses recorded for vessels of 100 gross tons 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 increase as late loss reports are made. As a result, this report does not provide a comprehensive analysis of all maritime accidents, due to the large number of minor incidents, which do not result in a "total loss", and to some casualties which may not be reported in this database.

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

All $ US unless stated.

ABOUT ALLIANZ GLOBAL CORPORATE & SPECIALTY

Allianz Global Corporate & Specialty (AGCS) is a leading global corporate insurance carrier and a key business unit of Allianz Group. AGCS provides risk consultancy, Property-Casualty insurance solutions and alternative risk transfer for a wide spectrum of commercial, corporate and specialty risks across 12 dedicated lines of business.

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

Worldwide, AGCS operates with its own teams in 34 countries and through the Allianz Group network and partners in over 200 countries and territories, employing over 4,400 people. As one of the largest Property-Casualty units of Allianz Group, AGCS is backed by strong and stable financial ratings. In 2018, AGCS generated a total of €8.2 billion gross premium globally.

AGCS CONTACTS

Global

Simon Buxton
Global Head of Marine & Energy
simon.buxton@allianz.com
+44 203 451 3161

Baptiste Ossena
Global Product Leader Hull & Marine Liabilities
baptiste.ossena@allianz.com
+1 646 949 2020

Rahul Khanna
Global Head of Marine Risk Consulting
rahul.khanna@allianz.com
+44 203 451 3154

Régis Broudin
Global Head of Marine Claims
regis.broudin@allianz.com
+33 1588 59946

Marcel Ackermann
Global Cargo Product Leader
marcel.ackermann@allianz.com
+44 203 451 3014

Risk Consulting

Andrew Kinsey
Senior Marine Risk Consultant – North America
andrew.kinsey@agcs.allianz.com
+1 646 472 1404

Nitin Chopra
Senior Marine Risk Consultant – Asia
nitin.chopra@allianz.com
+65 639 53848

Arnaud Gibrais
Senior Marine Risk Consultant – Paris
arnaud.gibrais@allianz.com
+33 1 58 85 45 73

Regional

Chris Turberville
Head of Marine Hull & Liabilities – UK
christopher.turberville@allianz.com
+44 203 451 3452

Xavier Lozac'h
Senior Underwriter – Marine Hull – France
xavier.lozach@allianz.com
+33 1588 58712

Pierre Chevalier
Head Marine Hull – Asia
pierre.chevalier@allianz.com
+65 6395 8638

Volker Dierks
Head of Marine - Central and Eastern Europe
volker.dierks@allianz.com
+49 40 3617 2939

John Kiernan
Expert Underwriter – North America
john.kiernan@agcs.allianz.com
+1 646 472 1465

Wagner Spindola
Regional Head of Marine – South America
wagner.spindola@allianz.com
+55 11 3527 0291

Steffen Siljeur
Regional Head of Marine – South Africa
steffen.siljeur@allianz.com
+27 11 214 7942

Editor:
Greg Dobie (greg.dobie@allianz.com)

Publications/Content Specialist:
Joel Whitehead
(joel.whitehead@agcs.allianz.com)

Claims Data Analysis:
Doru Stan, Greg Dobie

Contributor:
Stuart Collins

Design:
Mediadesign

Research Assistant:
Penry Herdman

REFERENCE

TOTAL LOSSES: 1990 to 2018

1990: **218**	1998: **235**	2006: **157**	2014: **89**
1991: **292**	1999: **193**	2007: **171**	2015: **106**
1992: **301**	2000: **207**	2008: **150**	2016: **99**
1993: **307**	2001: **194**	2009: **132**	2017: **98**
1994: **259**	2002: **173**	2010: **129**	2018: **46**
1995: **247**	2003: **173**	2011: **99**	
1996: **253**	2004: **153**	2012: **127**	
1997: **206**	2005: **149**	2013: **111**	

Vessels over 100GT only

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

"The international shipping industry is responsible for around 90% of global trade meaning the safety of vessels is critical. In recent decades, the maritime industry has actively endeavoured to improve its safety record and the frequency of total losses has significantly declined as a result – a trend which has continued over the past 12 months.

"The growing use of safety-enhancing technology in shipping has also been a positive for safety and claims. Electronic navigation tools, ship-to-shore communications and the greater use of sensors have the potential to improve navigation, help avoid incidents and reduce the impact of human error at sea – which our research has shown is a primary factor in 75% of claims. However, accidents can also happen due to overreliance on technology, so crews and officers must understand its shortcomings and limitations. The considerable improvement in total losses over the years is evidence of improving safety standards. However, many areas still require improvements. Learning from accidents is one such area."

CAPTAIN RAHUL KHANNA
Global Head of Marine Risk Consulting,
Allianz Global Corporate & Specialty

CONTACT US

For more information contact your local Allianz Global Corporate & Specialty Communication team.

Global
Hugo Kidston
hugo.kidston@allianz .com
+44 203 451 3891

Heidi Polke-Markmann
heidi.polke@allianz .com
+49 89 3800 14303

Brazil
Camila Corsini
camila.corsini@allianz.com
+55 11 3527 0235

New York
Sabrina Glavan
sabrina.glavan@agcs.allianz .com
+1 646 472 1510

London
Michael Burns
michael.burns@allianz .com
+44 203 451 3549

Paris
Florence Claret
florence.claret@allianz .com
+33 158 858863

Munich
Daniel Aschoff
daniel.aschoff@allianz .com
+49 89 3800 18900

Singapore
Wendy Koh
wendy.koh@allianz .com
+65 6395 3796

South Africa
Lesiba Sethoga
lesiba.sethoga@allianz .com
+27 11 214 7948

Follow Allianz Global Corporate & Specialty on

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Allianz Global Corporate & Specialty SE
Fritz-Schaeffer-Strasse 9, 81737 Munich, Germany
Commercial Register: Munch HRB 208312

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