SAFETY AND SHIPPING

REVIEW 2018

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

Allianz �

CONTENTS

Cover images: Indian Coast Guard, iStock, US Navy

SAFETY & SHIPPING REVIEW 2018 IN NUMBERS

90% of global trade transported by shipping

1,129 total losses over past 10 years

94 total losses in 2017. Second lowest total in a decade.

Bad weather a factor in **21** losses

30 losses in South China, Indochina, Indonesia and Philippines - the main hotspot

Major risks

Busy seas

Typhoons

Piracy

Safety standards

Political risk

180 piracy attacks in 2017[1]. Down year-on-year. Lowest total for 22 years

3 regions account for almost half of all losses

53 losses - cargo ship most frequent vessel lost globally in 2017 | Up year-on-year

61 losses caused by foundering in 2017. | Up year-on-year

6 vessels lost to fire in 2017. | Down year-on-year

EXECUTIVE SUMMARY

Shipping is the lifeblood of the global economy, transporting approximately **90%** of global trade. There are over 50,000 merchant ships trading internationally,[1] carrying every kind of cargo, so the safety of vessels is critical. The maritime industry saw the number of total shipping losses remain stable during 2017, declining slightly to **94** – the second lowest total over the past decade.

Losses were down 4% compared with a year earlier **(98)** – current figures show a significant improvement on the 10-year loss average **(113)** – down 17%. Over the past decade, total losses have declined by more than a third (38%), driven by improved ship design, technology and advances in risk management and safety. Recent lower shipping activity is also a factor.

and Black Sea region is the second major loss hotspot **(17)**, followed by the British Isles **(8)** and the Arabian Gulf **(6)**.
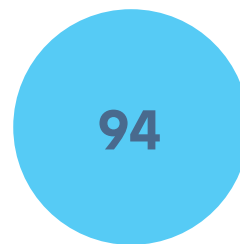
Cargo ships **(53)** account for over half of all vessels lost during 2017, with activity up annually by 56%, driven by a rise in foundering (sinking) incidents. Fishing and passenger vessel losses are down year-on-year. Losses involving bulk carriers and tankers increased, with bulk carriers accounting for five of the 10 largest reported total losses by gross tonnage (GT).

Foundering has been the cause of over half of the **1,129** total losses reported over the past decade. It accounted for an even higher share of 2017 losses (65%), with bad weather often a factor. Wrecking/stranding ranks second **(13)**, followed by machinery damage/failure **(8)**. Fire/explosion losses declined year-on-year **(6)**.

There were **2,712** reported shipping incidents (casualties) in 2017, up slightly year-on-year by 3%, driven by a rise in machinery damage incidents – the top cause of casualties around the globe (42%). The East Mediterranean and Black Sea region is the most frequent location for incidents.

**Behavioral and cultural risk needs addressing. Technology can help**. Despite huge improvements in maritime safety, fatal accidents at sea persist. Human error continues to be a major driver of incidents and captains and crews are under increasing commercial pressure as supply chains are streamlined. Tight schedules can have a detrimental effect on safety culture and decision-making leading to the **"normalization of risk"**. Better use of data and analytics can help to address this. The shipping industry has learned from losses in the past but predictive analysis is important for the future. New insights from crew behavior and near-misses can help identify human error trends. Sensor technology can also enhance risk management. For example, hull stress monitoring sensors could be linked to ship navigation in bad weather, feeding real-time information on structural integrity. However, over-reliance on technology on board must be avoided. Continual training is imperative to ensure the right balance is achieved between technology and human intervention.

Disparities remain. The South China, Indochina, Indonesia and Philippines maritime region has been the number one area worldwide for major shipping incidents for the past decade, leading some media commentators to call it the **"new Bermuda Triangle"**. Last year, almost a third (32%) of losses occurred here **(30)** – up 25% annually. Not only are the seas busy, they are also prone to bad weather – in 2017 **Typhoon Damrey** contributed to a number of losses **(6)**. In addition, safety processes on some domestic routes continue to lag behind global standards. The East Mediterranean

Container ships are getting bigger. Capacity has increased by almost **1,500%** in 50 years

Major risks

Fire-fighting capability

Cargo misdeclaration

Salvage challenges

Ports of refuge

75% of shipping insurance losses are caused by human error. Equivalent to **$1.6bn**

Source: Allianz Global Corporate & Specialty

Additional references: **1** International Maritime Bureau; Lloyd's List Intelligence Casualty Statistics

94

losses in 2017

This sixth annual review focuses on key developments in maritime safety and analyzes shipping losses **(of over 100 gross tons)** during the **12 months prior to December 31, 2017**. It follows the **Safety & Shipping Review 2017** available at **www.agcs.allianz.com/insights**

21
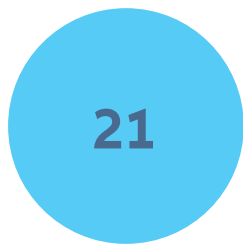
losses from bad weather in 2017

MTWTFSS

Friday is the most frequent day for shipping losses over the past decade (175) with **Saturday** (143) the safest day at sea. **Friday 13th** can be unlucky with five ships lost, including three on January 13, 2012 – one of which was **Costa Concordia**.

JFMAMJ JASOND

November is the busiest month for losses **(36)** in the top hotspot over the past decade – South China, Indochina, Indonesia and Philippines – a third were directly caused by typhoons **(12)**.

Industry's struggle with container ship fires continues: Major fires on container vessels are one of the most significant safety issues. The blaze on the ultra-large container ship (ULCS) **Maersk Honam** in March 2018 is one of a number of incidents in recent years. Issues driving container ship fire exposures include the adequacy of fire-fighting capabilities as vessels become larger, misdeclaration of cargo, salvage challenges and time taken to access a port of refuge. ULCS provide economies of scale but the industry needs to ensure risk management standards are up to speed, as larger container ships are on their way.

Record-breaking hurricane season brings supply chain and yacht problems: Hurricanes Harvey, Irma and Maria (HIM) and other severe weather events in 2017, such as Typhoons Damrey and Hato, show traditional maritime risks should not be overlooked. AGCS analysis shows bad weather directly contributed to at least **21** total losses in 2017 and this could yet increase further *(see page 9)*. Fuel market, cargo, cruise ship and port operations were also disrupted, leading to natural catastrophes being ranked the top risk by shipping experts in the **Allianz Risk Barometer 2018**. Shippers need to consider scenarios where multiple locations are impacted when drawing up contingency plans. Meanwhile, the estimated 60,000 pleasure craft[2] damaged or destroyed by HIM in the US and Caribbean raises questions over the insurability of such vessels remaining in the region during the season.

Fast-changing ice conditions bring route risks: Climate change is impacting ice hazards for shipping, freeing up new trade routes. For example, cargo volumes on the Northern Sea Route increased by nearly 40% to 9.7 million tons over the past year – the biggest annual volume ever[3]. China has also announced plans for an **"Arctic Silk Road"**, developing shipping lanes opened up by global warming. There were **71** reported shipping incidents in Arctic Circle waters during 2017, up 29% year-on-year. Arctic conditions can change quickly and transit information

will need to be disseminated faster than at present in future. Ice also poses a significant hazard elsewhere. Over 1,000 icebergs drifted into North Atlantic shipping lanes in 2017 – the fourth consecutive "extreme" season[4]. Sailing in such conditions necessitates specialist training for seafarers and additional routing support.

Exploitation of the seas increases: The marine environment is seen as a resource, bringing environmental risks for shipping, such as pollution of fish farms or even pirate fishing, which is estimated to cost the global economy as much as **$23.5bn** a year[5]. Increasing maritime activity also brings potential new collision hazards, such as the growing number of offshore wind farms in the North Sea – offshore wind In Europe grew 25% in 2017; a record year[6].

New emissions rules problematic: Increasing environmental and sustainability pressures – such as the new **"Paris Agreement for the shipping industry"**, which aims to significantly cut all emissions – and existing industry commitments to reduce sulphur oxide emissions – will enhance innovation in ship design and practices but will also bring changes in risk profile and financial challenges. The shipping industry is increasingly looking to technical solutions to reduce emissions, which could bring accompanying risk issues with engines and bunkering of biofuels, as well as questions over appropriate training of crew. The reduction in sulphur emissions by 2020 comes with cost implications and doubts over sufficient availability of affordable low-sulphur fuel. Exhaust gas-cleaning systems or **"scrubbers"** are costly, with demand outstripping supply. Compliance is likely to be problematic and industry preparation lacking.

Shippers get serious on cyber: Major attacks, such as NotPetya, which caused around **$3bn** of economic losses, have created a renewed urgency in tackling the threats posed to vessels and the supply chain, as well as increasing interest in cyber business interruption insurance. The current lack of incident reporting
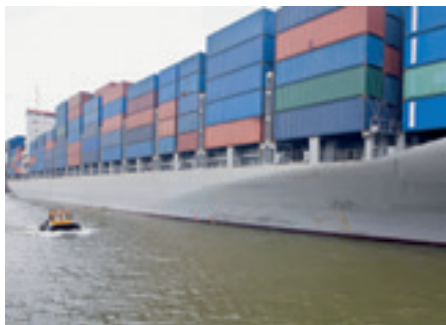
Photo: iStock
Container-carrying capacity has increased by almost 1,500% in 50 years, bringing new risks.

Photo: US Navy
The USS Fitzgerald collided with a container ship in June 2017.

Photo: US Navy
Human error was a factor in the El Faro loss in late 2015, which has led to new safety legislation being proposed.

masks the true picture in shipping when it comes to cyber risk. New regulations such as the **European Union's Network and Information Security Directive** will change that and also exacerbate the fall-out from any cyber failure. Many shipping companies are looking to improve cyber security on board, by separating IT systems for different functions, such as navigation, propulsion and loading.

Drones ready for take-off: Unmanned aircraft systems are finding a growing number of applications in the maritime sector. They are increasingly used by class societies and marine surveyors to assess vessel damage and more uses are likely in future, which could have the potential to make a significant contribution to safety and risk management. These include assessing environmental pollution, monitoring cargo loading and pirate activity along coastlines and carrying out cargo tank inspections. Drones could enable faster, more informed decision-making on board, reducing the impact of any incident.

Autonomous shipping progresses but challenges remain: Significant milestones continue to be reached but legal, safety and security issues are likely to limit growth of crewless vessels for the foreseeable future. Autonomous shipping could improve maritime safety but will not remove human error entirely. It will still be present in the algorithms that drive the decision-making of vessels, while manned onshore bases will continue to control and monitor. Automation raises questions about who is at fault in an accident – the manufacturer, software provider or the onshore bases. New kinds of losses, such as cyber or product liability, could replace traditional claims. Technical management and maintenance of ships will also need to be rethought. One of the main challenges for the insurance industry in future will be dealing with more technical shipping claims, resulting from greater use of new technology.

Political risk and piracy still rule the waves: Heightened political tensions around major shipping routes, such as off the coast of Yemen in the Middle East and the South China Sea in Asia, pose a risk of disruption. Although piracy incidents have dropped to a 22-year low (180 attacks)[7], hotspots remain. Three quarters of incidents occur in South East Asia and Africa. Indonesia (43 attacks) remains the main location although activity has declined. Conversely, activity in the Philippines more than doubled year-on-year (22 attacks). In Africa, there was an increase in Somalian pirate activity. In South America, Venezuela saw a significant increase in piracy activity, with one happening every month on average during 2017.

$1.6bn

Cost of losses resulting from human error, based on analysis of 15,000 marine insurance claims[8]

2 Boat Owners Association of The United States
3 Russian Federal Agency For Maritime and River Transport
4 G Captain, Ice Patrol More Than 1,000 Icebergs Drifted Into N. Atlantic Shipping Lanes in 2017, December 2017
5 Agnew DJ, Pearce J, Pramod G, Peatman T, Watson R, Beddington JR, et al. (2009) Estimating the Worldwide Extent of Illegal Fishing. PLoS ONE 4(2): e4570.
6 Wind Europe, Offshore wind in Europe grew 25% in 2017, February, 2018
7 International Maritime Bureau
8 Allianz Global Corporate & Specialty, Global Claims Review: Liability In Focus, 2017

LOSSES IN FOCUS

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

TOTAL LOSSES BY TOP 10 REGIONS
2008-2017 AND 2017

94 total losses in 2017

Russian Arctic and Bering Sea

89
8

British Isles, N. Sea, Eng. Channel and Bay of Biscay

2
Baltic

169

48
4

West Mediterranean

17

East Mediterranean and Black Sea

126
6

Japan, Korea and North China

62
6

Arabian Gulf and approaches

51
3

West African Coast

34

East African Coast

28
2

Bay of Bengal

252
30

S. China, Indochina, Indonesia and Philippines

29

241
11

All other regions

5

S. Atlantic and East Coast S. America

🔵 Total Losses by region: **from Jan 1 2008 - Dec 31 2017**
🔴 Total Losses by region: **from Jan 1 2017 - Dec 31 2017**

1,129 total losses between 2008 and 2017

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

TOTAL LOSSES BY YEAR
A DECLINING TREND

Shipping losses have declined by 38% over the past decade - from 151 in 2008 to 94 in 2017.
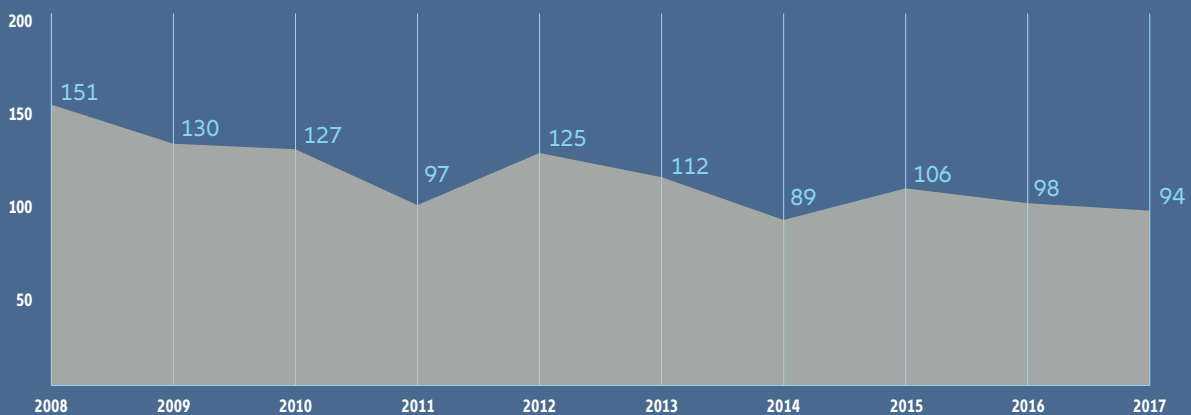
Year	Total losses
2008	151
2009	130
2010	127
2011	97
2012	125
2013	112
2014	89
2015	106
2016	98
2017	94

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

2017 REVIEW

2017: The database shows 94 total losses reported during 2017. This compares with 98 during 2016 – a decline of 4%. South China, Indochina, Indonesia and Philippines is once again the top region for total losses. Almost a third (32%) of losses occurred in this region (30 total losses). Over three quarters of these incidents involved cargo vessels. Foundered (sunk/submerged) was the top cause, accounting for 80% of losses in this region. Typhoon Damrey was a contributing factor to at least 6 losses.

**TOTAL LOSSES BY TOP 10 REGIONS
FROM JANUARY 1, 2017 TO DECEMBER 31, 2017**

Region	Loss Total	Year-on-year change
S. China, Indochina, Indonesia and Philippines	30	↑ 6
East Mediterranean and Black Sea	17	↓ 2
British Isles, N. Sea, Eng. Channel and Bay of Biscay	8	=
Arabian Gulf and approaches	6	↑ 3
Japan, Korea and North China	6	↓ 5
S. Atlantic and East Coast S. America	5	↑ 1
West Mediterranean	4	=
West African Coast	3	=
Baltic	2	↑ 2
Bay of Bengal	2	↓ 1
Other	11	↓ 4
Total	**94**	**↓ 4**

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

2008 - 2017 REVIEW

All figures are based on reported total losses as of **February 5, 2018**. 2017 total losses may increase slightly 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 three total losses per year. However, in some years this varies, with up to 13 additional losses being notified for one year.

**TOTAL LOSSES BY TOP 10 REGIONS
FROM JANUARY 1, 2008 TO DECEMBER 31, 2017**

Region	Total Loss
S. China, Indochina, Indonesia and Philippines	252
East Mediterranean and Black Sea	169
Japan, Korea and North China	126
British Isles, N. Sea, Eng. Channel and Bay of Biscay	89
Arabian Gulf and approaches	62
West African Coast	51
West Mediterranean	48
East African Coast	34
Russian Arctic and Bering Sea	29
Bay of Bengal	28
Other	241
Total	**1,129**

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

2008 to 2017: The 2017 accident year (94) represents a significant improvement on the rolling 10-year loss average (113) – down 17%. South China, Indochina, Indonesia and Philippines (252 total losses) has been the top loss hotspot for a decade.

There have been 1,129 total losses over the past decade.

Three shipping regions account for almost half (48%) of all losses over the past 10 years.

MAJOR LOSSES: 2017

LARGEST SHIPS LOST

10 LARGEST VESSELS LOST FROM JANUARY 1, 2017 TO DECEMBER 31, 2017
(showing approximate location of loss and type of vessel)

MED STAR

SAINT NEKTARIS

MAERSK PEMBROKE

MELITE

EMERALD STAR

NORM

KEA TRADER

STELLAR DAISY

THERESA ARCTIC

MUTIARA SENTOSA 1

● BULK
● CHEMICAL/PRODUCT
● CONTAINER
● PASSENGER

"The frequency and severity of total losses declined over the past year, continuing the positive trend seen over the past decade. Claims have been relatively benign due to lower shipping activity in some maritime industry segments but reflecting mainly improved ship design, positive effects of risk management policy and shipping safety regulation over time.

"However, as the use of new technologies on board vessels grows, we expect to see changes in both the risk profile of shipowners and the maritime loss environment in future. Insurers will have to deal with a growing number of more technical claims – such as cyber incidents or technological defects – in addition to traditional losses, such as collisions or groundings."

Baptiste Ossena
Global Product Leader, Hull and Marine Liabilities, AGCS

LARGEST SHIPS LOST

STELLAR DAISY
March 31, 2017. Sank after taking on water following hull crack, approximately 3,700km off the coast of Uruguay. 22 crew missing.
148,431 GT

THERESA ARCTIC
June 20, 2017. Grounded on reefs off Kilifi, Kenya. Refloated. Sent for scrap.
43,414 GT

MELITE
July 26, 2017. Grounded at Pulau Laut, Indonesia. Hull damage.
39,964 GT

EMERALD STAR
October 13, 2017. Sank off the coast of the Philippines. 11 crew missing.
33,205 GT

MAERSK PEMBROKE
August 22, 2017. Fire broke out approximately 400km off Isles of Scilly. Extinguished. Towed and sold for break-up
31,333 GT

NORM
August 30, 2017. Engine malfunction near Rondo Island, Indonesia. Towed. Sent for demolition.
25,190 GT

KEA TRADER
July 12, 2017. Ran aground on the Durand reefs off Mare, New Caledonia. Damaged beyond repair.
25,145 GT

MED STAR
June 15, 2017. Fire broke out off Rhodes, Greece. Extinguished. Towed and sent for break-up.
16,776 GT

SAINT NEKTARIS
February 28, 2017. Engine failure at Varna, Bulgaria. Towed to scrapyard pier.
13,697 GT

MUTIARA SENTOSA 1
May 19, 2017. Fire broke out near Masalembu Island in the Java Sea. 5 fatalities, several missing.
12,365 GT

Half of the 10 largest ships reported as total losses in 2017 were bulk carriers

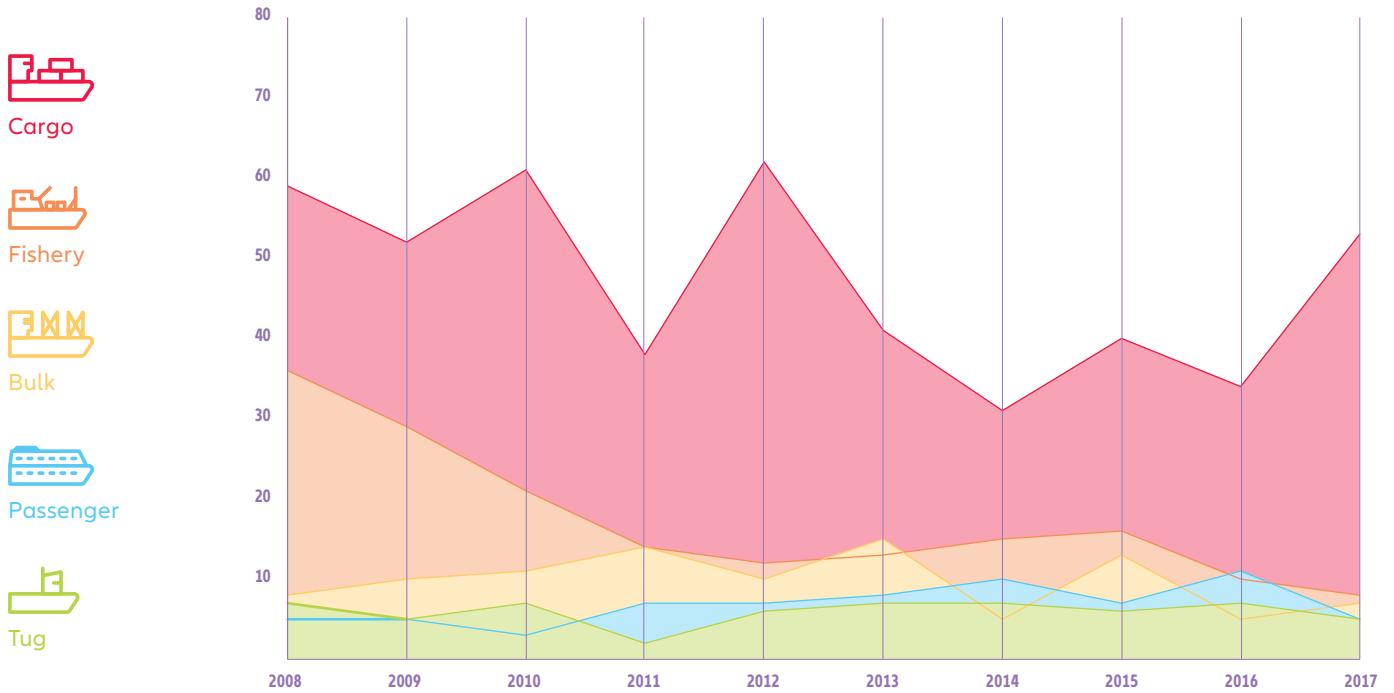Fire was the cause of loss for three of the 10 largest vessels lost

The **Stellar Daisy** was the largest vessel lost last year

TOTAL LOSSES BY TYPE OF VESSEL 2008 - 2017

Cargo, fishery, bulk, passenger and tug are the vessel types that have seen the most total losses over the past decade.

TOP 5 VESSEL TYPES LOST

Cargo

Fishery

Bulk

Passenger

Tug

Cargo (42%) and fishing vessels (15%) account for almost 60% of the 1,129 total losses over the past decade.

TOTAL LOSSES BY TYPE OF VESSEL: 2008-2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	TOTAL
Cargo	59	52	61	38	62	41	31	40	34	53	471
Fishery	36	29	21	14	12	13	15	16	10	8	174
Bulk	8	10	11	14	10	15	5	13	5	7	98
Passenger	5	5	3	7	7	8	10	7	11	5	68
Tug	7	5	7	2	6	7	7	6	7	5	59
Chemical/Product	7	9	6	2	8	10	2	3	7	4	58
Ro-ro	8	6	1	3	5	2	5	6	9		45
Container	2	4	5	3	6	4	4	5	4	3	40
Other	5	5	3	5	3	6	4	4	3	1	39
Supply/Offshore	1	3	2	2	3	2	3	3	2	2	23
Dredger	5		2	2	1		1	1	1	3	16
Tanker	3	2	3	4	1		1			2	16
Barge	3		1			3	1		3	1	12
LPG	1		1	1	1			1			5
Unknown	1					1		2	1		5
Total	151	130	127	97	125	112	89	106	98	94	1,129

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

Cargo vessels accounted for over half of all total losses during 2017, with activity up year-on-year from 34 in 2016 to 53 in 2017 (an increase of 56% year-on-year).

Fishing, passenger and tug losses were down year-on-year. Bulk and tanker losses increased.
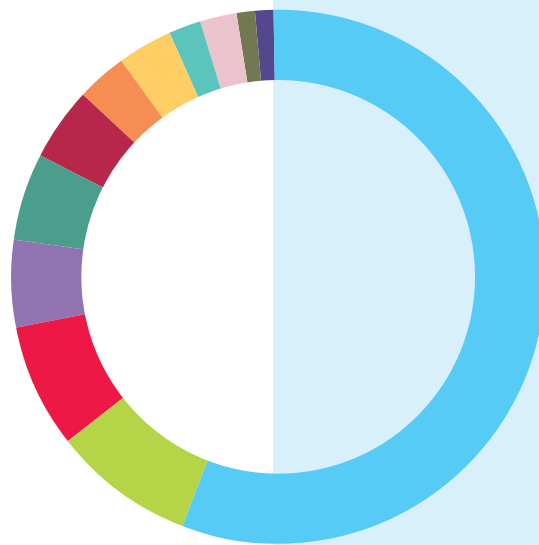
2017 REVIEW

**TOTAL LOSSES BY TYPE OF VESSEL
JANUARY 1, 2017 TO DECEMBER 31, 2017**

|		
● Cargo	53
● Fishery	8
● Bulk	7
● Passenger	5
● Tug	5
● Chemical/Product	4
● Container	3
● Dredger	3
● Supply/Offshore	2
● Tanker	2
● Barge	1
● Other	1
Total	**94**

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

Passenger ship total losses halved over the past year to 5 losses, with activity located in the top hotspots of the South China waters and the Mediterranean. Fire was the cause of 3 losses.

TOTAL LOSSES BY CAUSE
2008 - 2017

Foundered, wrecked/stranded, fire/explosion, machinery damage and collision are the most frequent causes of loss at sea over the past decade.
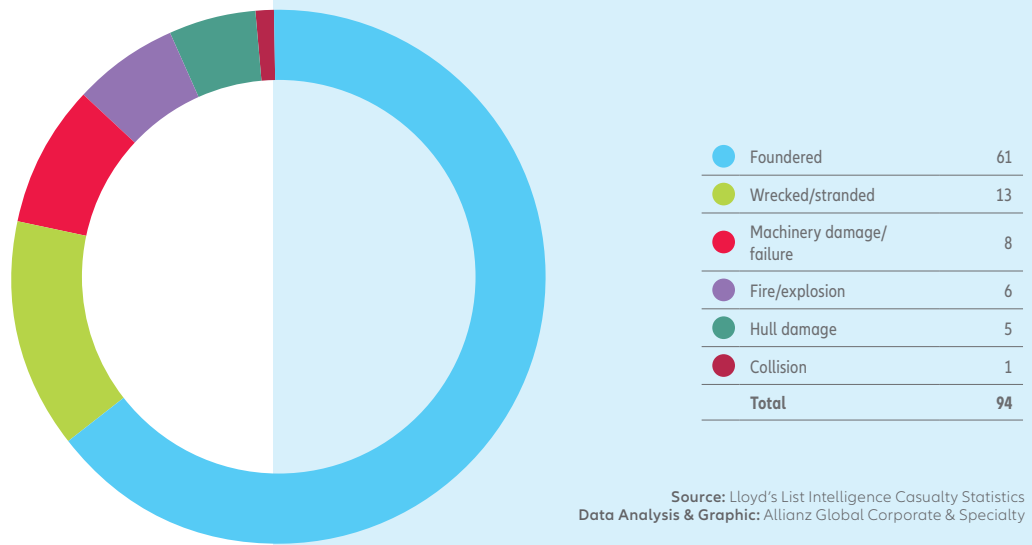
TOP 5 CAUSES OF LOSS

Foundered

Wrecked/stranded

Fire/explosion

Machinery damage

Collision
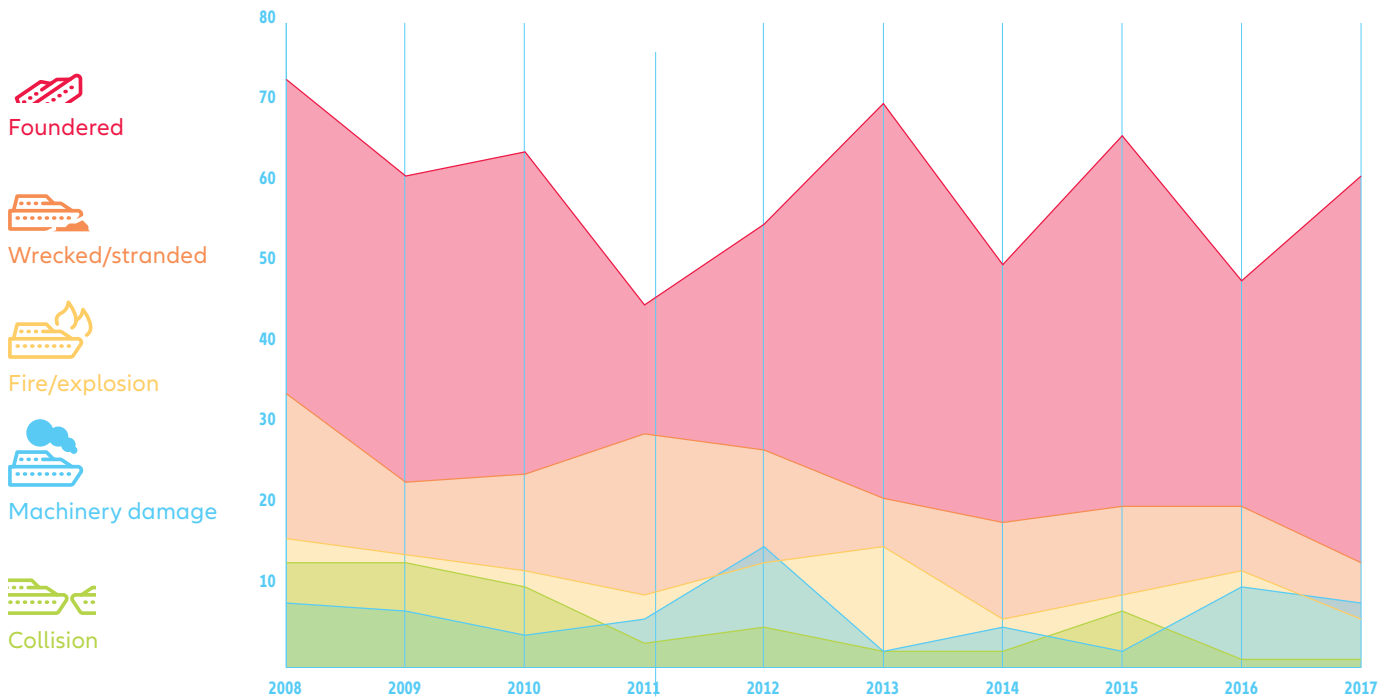
ALL CAUSES OF TOTAL LOSS: 2008 - 2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	TOTAL
Foundered (sunk, submerged)	73	61	64	45	55	70	50	66	48	61	593
Wrecked/stranded (grounded)	34	23	24	29	27	21	18	20	20	13	229
Fire/explosion	16	14	12	9	13	15	6	9	12	6	112
Machinery damage/failure	8	7	4	6	15	2	5	2	10	8	67
Collision (involving vessels)	13	13	10	3	5	2	2	7	1	1	57
Hull damage (holed, cracks, etc.)	4	8	4	3	7	1	5	2	4	5	43
Miscellaneous	1	2	6	1	1	1	2		1		15
Contact (e.g harbor wall)	1	1			2		1				5
Missing/overdue	1		1						2		4
Piracy		1	2	1							4
Total	**151**	**130**	**127**	**97**	**125**	**112**	**89**	**106**	**98**	**94**	**1,129**

Foundered (sunk/submerged) has been the cause of over half of all total losses over the past decade. It accounted for an even higher share of all losses through 2017 (65%). Bad weather is often a factor.

2017 REVIEW

CAUSES OF TOTAL LOSS
JANUARY 1, 2017 TO DECEMBER 31, 2017

● Foundered		61
● Wrecked/stranded		13
● Machinery damage/ failure		8
● Fire/explosion		6
● Hull damage		5
● Collision		1
Total		**94**

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

The number of total losses caused by fire and explosion halved year-on-year to 6, although three of these vessels were among the 10 largest lost.

Don't bother leaving port...

The unluckiest ship of 2017 is a passenger ferry operating in the East Mediterranean and Black Sea region. It was involved in seven reported incidents in just 12 months, all caused by machinery/damage failure.

TOTAL LOSSES IN ALL REGIONS: 2017

This map shows the approximate locations of all reported total losses during 2017.

Canadian Arctic and Alaska — 1

Iceland and Northern Norway — 1

Russian Arctic and Bering Sea — 1

Baltic — 2

British Isles, N. Sea, Eng. Channel and Bay of Biscay — 8

West Mediterranean — 4

East Mediterranean and Black Sea — 17

Japan, Korea and North China — 6

S. China, Indochina, Indonesia and Philippines — 30

Gulf of Mexico — 1

West Indies — 2

South Pacific — 2

Arabian Gulf and approaches — 6

Bay of Bengal — 2

West African Coast — 3

East African Coast — 2

South American West Coast — 1

S. Atlantic and East Coast S. America — 5

TOTAL 94

21 losses from bad weather

	Regional loss rankings	Losses	% Share
1	South China, Indochina, Indonesia & Philippines	30	32%
2	East Mediterranean and Black Sea	17	18%
3	British Isles, North Sea, English Channel and Bay of Biscay	8	9%
4	Arabian Gulf and approaches	6	6%
	Japan, Korea and North China	6	6%
6	South Atlantic and East Coast South America	5	5%
7	West Mediterranean	4	4%
8	West African Coast	3	3%
9	Baltic	2	2%
	Bay of Bengal	2	2%
	East African Coast	2	2%
	South Pacific	2	2%
	West Indies	2	2%
14	Canadian Arctic and Alaska	1	1%
	Gulf of Mexico	1	1%
	Iceland and Northern Norway	1	1%
	Russian Arctic and Bering Sea	1	1%
	South American West Coast	1	1%

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

2017 REVIEW

2017: The East Mediterranean and Black Sea region has been the location of the most shipping incidents (casualties) for the past six years. However, 2017 saw a significant decline in activity – 18%.

Machinery damage is the top cause of incidents around the globe, accounting for 42% of casualties, followed by collision (13%) and wrecked/stranded (12%).

There were 2,712 casualties reported during 2017. These figures include total losses of 94 during this period. This total is up year-on-year, driven by a rise in machinery damage/failure incidents.

ALL CASUALTIES INCLUDING TOTAL LOSSES: 2017
TOP 10 REGIONS

Region	Casualty Total	Year-on-year change
East Mediterranean and Black Sea	464	↓ 101
British Isles, N. Sea, Eng. Channel and Bay of Biscay	430	↑ 58
S. China, Indochina, Indonesia and Philippines	263	↑ 18
Baltic	162	↑ 21
Great Lakes	145	↑ 30
Japan, Korea and North China	142	↑ 17
West Mediterranean	122	↑ 14
North American West Coast	114	↓ 29
Newfoundland	110	↑ 40
Iceland and Northern Norway	101	↑ 19
Other	659	
Total	**2,712**	

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

2008 - 2017 REVIEW

2008-2017: The East Mediterranean and Black Sea region is also the location with the most shipping incidents over the past decade (4,618).

Of the **25,967** reported casualties over the past decade, approximately a third were caused by machinery damage (8,532), followed by collision (3,787) and wrecked/stranded (3,740).

These figures include total losses of **1,129**.

ALL CASUALTIES INCLUDING TOTAL LOSSES: 2008 - 2017
TOP 10 REGIONS

Region	Total
East Mediterranean and Black Sea	4,618
British Isles, N. Sea, Eng. Channel and Bay of Biscay	4,086
S. China, Indochina, Indonesia and Philippines	2,285
Baltic	1,661
Japan, Korea and North China	1,618
Great Lakes	1,274
Iceland and Northern Norway	1,060
West Mediterranean	948
North American West Coast	898
West African Coast	707
Other	6,812
Total	**25,967**

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

CASUALTIES
BEHAVIORAL AND CULTURAL RISK STILL NEEDS ADDRESSING

Human error continues to be a major driver of shipping incidents across the board. Better use of data and analytics could help change behavior and significantly improve safety.

Despite decades of improvements in maritime safety regulation, training, technology and risk management, fatal accidents at sea persist. And human behavior is often a factor, with many captains and crews operating in an increasingly time- and resource-pressured industry. It is estimated that 75% to 96% of marine accidents can be attributed to human error[1]. Furthermore, AGCS analysis of almost 15,000 marine liability insurance claims between 2011 and 2016 shows that human error is a primary factor in 75% of the value of all claims analyzed – equivalent to over $1.6bn of losses.

In recent years, a number of major casualties have been linked to human error, including the sinking of the **El Faro** *(see page 23)* in late 2015 and the grounding of the **Costa Concordia** in 2012. More recently, the sinking of the oil tanker **Sanchi** in January 2018 and the collisions of the **USS Fitzgerald** and the **USS John S. McCain** navy ships with commercial vessels in Asia during 2017, have also been linked to human behavior factors.

"Such incidents can have a common theme," explains **Captain Rahul Khanna, Global Head of Marine Risk Consulting at AGCS**. "Safety rules and regulations are in place and are mostly followed, but there are some aspects of human nature that we are not addressing as an industry."

"Understanding human behavior and how it can lead to accidents is the missing link in the shipping industry today. We need to understand how and why seafarers make decisions, especially when this deviates from protocols and training."

Inadequate shore-side support and commercial pressures have an important role to play in maritime safety and risk exposure, Khanna believes. "These can push people to make decisions that lead to mistakes and accidents. At times, captains can be under commercial pressure to cut corners."

Captains and crews are under increasing pressure as shipping supply chains are streamlined for greater efficiency. While vessels once spent weeks in port, turn-around times for a cargo vessel are now measured in days. And tight schedules can have a detrimental effect on safety culture and decision-making.

Captain Andrew Kinsey, Senior Marine Risk Consultant, at AGCS, describes it as the **"normalization of risk"** in the decision-making process. "It's human nature. Many mariners have done it. They are under pressure, take a shortcut once that may not be the safest way to go, and get away with it. This then becomes the norm under stressed conditions."

"There is always the need to strike the right balance between safety and commercial pressures. We all have to meet deadlines in our working lives, but commercial factors can lead to undue pressures on board. We have to make sure this is understood and addressed and look more closely at human nature – not just human error – both on board and onshore. We need to look at behavior modification and how to get crew and personnel to move away from normalizing risk."

According to Khanna, the use of technology is vital in addressing this: "Technology can help better understand the behavior and decision-making process of seafarers. By analyzing data 24/7 we can gain new insights from crew behavior and near-misses that can help us to identify trends that are behind human error being the main cause of accidents."

Operators are beginning to use Voyage Data Recorder (VDR) analytics to improve safety and risk behavior, but this has so far focused on periodic analysis of data. The industry needs to go further, Khanna believes.

"It is no longer sufficient to analyze data just once or twice a year. It should be done in 'real time'. The industry needs to be proactive and not reactive. We have, in the past, learned from losses, but predictive analysis is important. This is possible with technology already available."

Some operators are now starting to continually monitor bridge data recorders, looking to identify any deviation from procedures, which would raise an alarm to alert ship managers in real time. While not perfect, this gives operators far greater information on what is happening on board and the decisions being made.

"There are many good reasons why a captain may deviate from procedures in order to avoid an incident, but they may also do so to save time. There is simple information available that can help us to understand these types of behavioral issues," says Khanna.
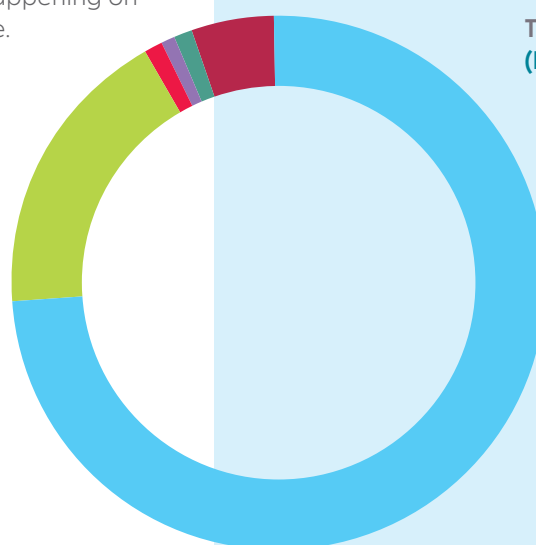
Analyzing complex or unstructured data like voice recorders is still some way off. However, simple data like weather, vessel speed and location can be analyzed 24/7 and compared with benchmarks. For example, ships are required to keep a minimum clearance between the keel and the sea bed, but an automatic alert can be created if this is not maintained.

"We have the data. How we make best use of it will be key," says Khanna. "At the moment, it is down to shipowners to use data to improve safety but there is no reason why the International Maritime Organization (IMO) or other industry associations cannot take the lead and be more proactive."

By using such technology, tragic losses could be avoided in future. "Analysis of the decision-making process of the captain and officers can be the difference between a safe voyage and a disaster," says Khanna.

However, greater deployment of technology doesn't mean becoming over-reliant, adds **Chris Turberville, Head of Marine Hull & Liabilities, UK, AGCS**.

"This brings its own risks. Continual training is therefore imperative to ensure the right balance is achieved between technology and human intervention."

Human error has long been regarded as contributing to the majority of incidents in the shipping sector. It is estimated that **75%** to **96%** of marine accidents can be attributed to human error[2]. In addition, AGCS analysis of almost 15,000 marine liability insurance claims between 2011 and 2016 shows that human error is behind 75% of the value of all claims analyzed, equivalent to over **$1.6bn**.

TOP CAUSES OF LIABILITY LOSS: MARINE (BY VALUE OF CLAIMS)

Human error	75%
Accidental nature/damage	18%
Natural hazards	1%
Negligence/poor maintenance	<1%
Failure to provide service	<1%
Other	5%

14,828 liability claims analyzed between 2011 and 2016 (September 13)
Source: Global Claims Review: Liability in Focus, Allianz Global Corporate & Specialty

2 Safety & Shipping 1912-2012 From Titanic to Costa Concordia, Allianz Global Corporate & Specialty

INDUSTRY'S STRUGGLE WITH CONTAINER SHIP FIRES CONTINUES

There are a number of issues driving container ship fire exposures, including the adequacy of fire-fighting capabilities, ongoing problems with misdeclaration of cargo, salvage challenges and how long it can take to access ports of refuge.

Photo: Adobe Stock

What's in a teu?
Container ship capacity is measured in 20-foot equivalent units (teu). Typical loads are a mix of 20-foot and 40-foot containers. The world's largest container ship – the 21,000+ teu **OOCL Hong Kong**[1] – has the capacity to carry around 21,000 containers, which can be laden with anything from cars to electrical goods to shoes. And 22,000+ teu vessels are coming soon.

Major fires on container vessels are among the largest hazards for the global shipping industry and the insurance industry's fears of a major cargo ship fire was realized on March 7, 2018, with a fire on board the ultra-large container ship (ULCS) **Maersk Honam**. The 353-meter vessel caught fire southeast of Oman en route from Singapore to Suez. The fire was stopped at the superstructure and crew members were evacuated. Tragically, five died.

The salvage operation was challenging. It took five days to bring the fire under control, and a further seven weeks before the vessel could be towed to a suitable port of refuge – Jebel Ali in the UAE – for unloading. It was carrying 7,860 containers, corresponding to 12,416 teu, when the incident occurred. At the time of writing, the cause of the fire is unknown, but the ULCS is less than a year old and was fitted with up-to-date fire-fighting equipment. The incident is expected to be one of the largest general average claims on record, (in the hundreds of millions of dollars). A total loss could have seen damages in excess of $1 billion.
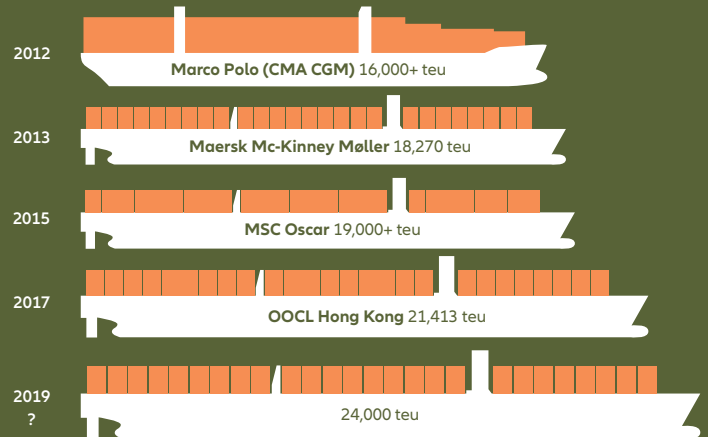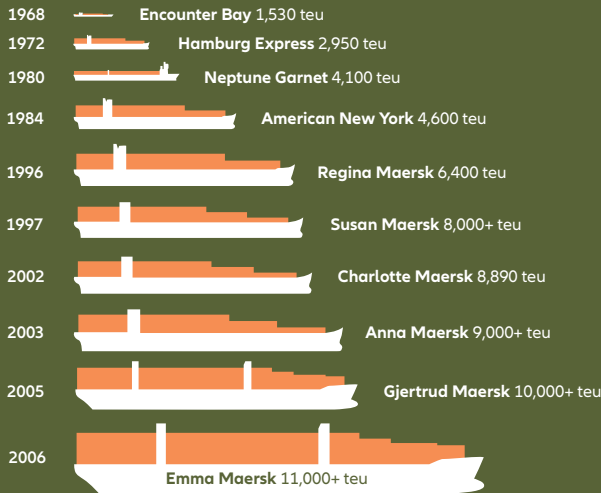
The incident is not the first major fire to involve a large container vessel in recent times. In 2017, the 13,800 teu **MSC Daniela** was on fire for more than a week, off the coast of Sri Lanka. There were a number of incidents during 2016 including the 9,000 teu **CCNI Arauco**, which caught fire in Hamburg. In 2012, a fire onboard the German container ship the **MSC Flaminia** burned for six weeks, resulting in the death of three crew, the destruction of 70% of the cargo and the vessel being declared a constructive total loss[2].

"ULCS' can create a serious exposure and risk for shipowners and insurers," says Khanna. Fire-fighting capabilities on board have not necessarily kept pace with the increasing vessel sizes. ULCS' provide economies of scale for shipping companies but the industry needs to make sure that risk management and safety standards are brought up to speed.

"Despite International Maritime Organization (IMO) requirements that shippers declare container contents, there are still many cases where cargo is not being properly declared. This

50 YEARS OF CONTAINER SHIP GROWTH

Year	Ship	Capacity
1968	Encounter Bay	1,530 teu
1972	Hamburg Express	2,950 teu
1980	Neptune Garnet	4,100 teu
1984	American New York	4,600 teu
1996	Regina Maersk	6,400 teu
1997	Susan Maersk	8,000+ teu
2002	Charlotte Maersk	8,890 teu
2003	Anna Maersk	9,000+ teu
2005	Gjertrud Maersk	10,000+ teu
2006	Emma Maersk	11,000+ teu

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

Container-carrying capacity has increased by almost **1,500%** since 1968

Year	Ship	Capacity
2012	Marco Polo (CMA CGM)	16,000+ teu
2013	Maersk Mc-Kinney Møller	18,270 teu
2015	MSC Oscar	19,000+ teu
2017	OOCL Hong Kong	21,413 teu
2019 ?		24,000 teu

Source: Allianz Global Corporate & Specialty (AGCS)

can make fighting fires challenging. The salvage of ULCS also represents unchartered waters, as, due to their size, there are only a small number of ports that can accommodate them and provide safe refuge following a fire."

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

"While fire-fighting systems have developed to ensure the crew are able to ensure their safety, and thereby complying with International Convention for the Safety of Life At Sea (SOLAS) requirements, fire-fighting capabilities on board have not kept up with the upsizing of container vessels, to ensure the preservation of the vessel itself," says Turberville. "This is one of the most significant safety issues on board this type of vessel and there needs to be considerable development to protect container ships in the event of fire."

"Improved fire-fighting equipment on board ULCS and correct cargo declaration and storage should greatly reduce the risk of fire," says **Volker Dierks, Head of Marine Hull Underwriting, AGCS Central & Eastern Europe**.

"The issue of fires on ULCS has been raised by insurers but it appears to have fallen on deaf ears. As an insurer, we would like to see an urgent review by the IMO and class societies, or at the very least a study into the adequacy of current requirements and controls," says Khanna.

Bigger ULCS are on their way. More than 20 ships in excess of 18,000 teu are expected to enter into service during 2018, followed by another 30 in 2019. Meanwhile, there have been at least 20 orders for 22,000 teu vessels from companies such as the Mediterranean Shipping Company and CMA CGM. And 24,000 teu ships have been predicted to quickly follow.

12%
of global container trade comprises dangerous goods[3]

65%
Increase in incorrectly declared dangerous goods during 2015[4]

$500m
Annual supply chain losses related to packing failures[3]

1 OOCL, OOCL Japan Named. Sister Vessel OOCL Hong Kong Achieved A Guinness World Records Title
2 International Union of Marine Insurance
3 International Cargo Handling Coordination Association
4 Container Management, Hapag-Lloyd Warns of 65% Increase in Mislabelling of Dangerous Goods

SAFETY RESPONSES ROUND-UP

The United Nations' global shipping regulator, the International Maritime Organization (IMO) has continued its commitment to safety improvements in the sector with a number of recent initiatives[1].

Photo: Rolls-Royce Ship Intelligence, flickr.com

The IMO has taken its first steps towards addressing autonomous shipping.

First steps taken to address autonomous shipping:
The IMO's senior technical body, the Maritime Safety Committee (MSC), announced at its 99th session meeting in May 2018 that it will start looking at how safe, secure and environmentally-sound autonomous ship operations *(see page 40)* may be addressed in IMO conventions. The committee endorsed a framework for a regulatory scoping exercise.

Updating the International Maritime Dangerous Goods (IMDG) Code:
The IMO has adopted amendments to update the IMDG Code (Amendment 39-18) in line with the latest United Nations Recommendations on the Transport of Dangerous Goods, which sets the basic requirements for all transport modes. The amendments include new provisions regarding IMO type 9 tanks, a set of new abbreviations for segregation groups and new special provisions for carriage of lithium batteries and for carriage of vehicles powered by flammable liquid or gas. The amendments are expected to enter into force on January 1, 2020.

The second phase of the Polar Code:
The International Code for Ships Operating in Polar Waters (Polar Code) entered into force in January 2017 under both **SOLAS** and **The International Convention for the Prevention of Pollution from Ships (MARPOL)** treaties. It provides additional requirements for ships trading in Arctic waters and the Antarctic area. The MSC is considering how the safety measures of the Polar Code might be applied in the future to non-SOLAS vessels operating in polar waters and has agreed that the development of such safety measures should focus on fishing vessels, pleasure yachts above 300 gross tonnage not engaged in trade and cargo ships below 500 gross tonnage down to 300 gross tonnage. It will develop recommendatory safety measures for the following types of vessels when operating in polar waters: fishing vessels of 24m in

1 Maritime Safety Committee, 99th session, May 16-25, 2018, International Maritime Organization

length and over (with a view to alignment with the 2012 Cape Town Agreement) and pleasure yachts above 300 gross tonnage not engaged in trade.

New ships' routing measures in Bering Sea adopted:

The MSC has also adopted new and amended ships' routing measures in the Bering Sea and Bering Strait, aimed at reducing the risks of incidents – the first measures adopted by IMO for the Arctic region where the Polar Code applies. It accepted a proposal to create six two-way routes for vessels traveling between the Arctic and Pacific oceans. In addition, for ecological reasons, protective zones will be established around Nunivak Island, St Lawrence Island and King Island.

Seating in survival crafts:

The MSC has also considered the issue of personal mobility and practical seating capacity in survival crafts. The way they are designed today leaves seafarers and passengers with very little space, so they cannot move around the craft for sanitary or medical reasons, for example. The MSC agreed there is an urgent need to implement a minimum standard for personal mobility and seating space in survival crafts by developing new regulation.

Interim guidelines for the harmonized display of navigation information received via communication equipment:

IMO interim guidelines aim to ensure that information is displayed in an efficient, reliable and consistent format, in a manner that is easily interpreted for the seafarer to support decision-making.

2 The National Transportation Safety Board, Sinking of US Cargo Vessel SS *El Faro* Atlantic Ocean, Northeast of Acklins and Crooked Island, Bahamas, October 1, 2015

NTSB publishes El Faro report

On October 1, 2015, the US cargo ship **El Faro** sailed directly into Hurricane Joaquin, sinking with the loss of 33 crew – the deadliest US maritime disaster for over 30 years.

Published in February 2018, the final report into the sinking by the US National Transportation Safety Board (NTSB) outlines the factors which contributed to the incident – weather, machinery failure and flooding of the cargo hold, as well as the lack of a damage control plan and inadequate safety equipment.

The NTSB[2] concluded that the probable cause of the sinking was the captain's insufficient action to avoid the hurricane, failure to use the most up-to-date weather information, and the late decision to muster the crew. It also drew attention to ineffective bridge resource management, inadequate company oversight, and the safety management system.

In response to the loss, there are plans to introduce a new bill. The **Maritime Safety Act of 2018** includes provisions to ensure proper vessel inspections are undertaken and that vessels have necessary safety equipment and timely weather charts.

Sanchi oil tanker collision

When the Panamanian-flagged Suez max crude oil tanker **Sanchi** collided with the Hong Kong-flagged cargo ship **CF Crystal** in January 2018 it led to one of the worst tanker incidents for several decades.

After burning for more than one week, the Sanchi eventually sank off the coast of Shanghai, China. The entire crew of 32 died in the incident, which was also the worst tanker spill in 35 years, according to the International Tanker Owners Pollution Federation.

At the time of the collision, the Iranian-owned Sanchi was carrying 1 million barrels of condensate – a highly flammable, ultra-light crude oil – from Iran to South Korea. The nature of condensate limited the extent of pollution and environmental impact.

The cause of the collision is not known at time of writing, although human error is likely to have played a part. China has opened an investigation into the collision and the Sanchi's black box, containing the ship's sailing data and a voice recorder, was recovered before the vessel sank.

Tanker safety has improved significantly since a number of major pollution incidents led to improved ship design and improvements in risk management in the 1990s. However, the large loss of life on board the Sanchi is likely to focus attention on the adequacy of fire protection for crew.

CLIMATE

RECORD-BREAKING HURRICANE SEASON BRINGS SUPPLY CHAIN PRESSURE

The impact of Harvey, Irma and Maria (HIM) in particular highlights the fragile nature of just-in-time supply lines and the need to consider multiple events in contingency planning.

In addition to causing significant damage across southern US and the Caribbean, 2017's hurricanes caused delays in cargo shipments.

The three powerful storms which struck the Caribbean and southern United States in 2017 provide a clear reminder to the shipping sector that traditional maritime risks should not be overlooked.

"For whatever reason, we are witnessing a rise in the frequency and severity of extreme weather events, while rising sea levels will mean an increased risk of flooding and storm surge for coastal areas and ports," explains Kinsey.

In September 2017, Hurricane Irma caused major disruption to the fuel market in Florida, first by creating increased demand and then by disrupting the supply chain. As people fled the approaching hurricane, it generated a spike in demand for fuel, adding to logistical pressures already created by Hurricane Harvey, which struck Texas just over a week earlier. Between August 21 and August 28, 2017 when Harvey made landfall in Texas, retail gasoline prices in Florida and Miami increased 10 cents per gallon and 5 cents per gallon[1] respectively.

"The events of 2017 have shown that shippers need to look at the seasonal impact of hurricanes across a region, and not just one specific event. Storms can build on top of each other and as one port recovers from a storm it can impact the ability of another port to prepare for the next one," says Kinsey.

Harvey, Irma and Maria affected parts of Texas, Louisiana and Florida in the space of just one month. As each storm struck, it caused freight to be redirected to other ports, with a knock-on impact for rail and truck shipments across the region. Major ports along the Gulf Coast and Caribbean, including Houston and Miami, were closed for up to a week after the hurricanes, causing delays in cargo shipments and cruise ship operations.

"When drawing up contingency plans, shippers need to consider scenarios where multiple locations are impacted. Look at the whole season and not just what happens if a storm hits a particular location," advises Kinsey.

---

1 US Energy Information Administration Weekly Survey of Gasoline Prices

Photo: iStock
The 2017 hurricane season resulted in a large number of pleasure craft insurance claims.

According to the Boat Owners Association of The United States, some 63,000 boats were damaged by Harvey and Irma in the US alone, at a cost of an estimated $655 million[1]. For months after the storms, salvage teams recovered large and small craft that either sunk or were run-aground on beaches, coral reefs and mangroves – 1,500 vessels were salvaged in Florida after Hurricane Irma alone and 459 boats were recovered in the United States Virgin Islands.

The series of storms have prompted debate within the marine insurance market about the insurability of pleasure craft in the region during hurricane season.

"The yacht insurance market saw large losses from the 2017 hurricane season. While larger permanently-manned vessels are able to sail away from storms, many smaller pleasure craft were not as well-informed or alert to the hurricane activity," says Dierks. "Many remained in the area and were not adequately-secured."

Following the storms, the insurance market is reconsidering the adequacy of premiums for pleasure craft exposed to hurricanes, as well as how the risk can be covered in the future.

"The 2017 hurricane season was a wake-up call and resulted in a large number of pleasure craft claims. Some insurers have quit the market due to losses and many are now considering under what circumstances they can continue to cover yachts in hurricane-exposed regions, especially during the actual hurricane season," says Dierks.

SUPERSTORMS POSE FUTURE CHALLENGES FOR YACHT MARKET

Hurricanes Harvey, Irma and Maria also damaged or destroyed thousands of pleasure craft in the Caribbean and US, raising questions over the insurability of vessels remaining in the region during the season.

TOP 5 RISKS IN MARINE & SHIPPING

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

Responses: 104

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

Rank	Percentage	2017 rank	Trend
1 **Natural catastrophes (e.g. storm, flood, earthquake)**	34%	4 (23%)	↑
2 Business interruption (incl. supply chain disruption)	31%	2 (28%)	–
3 Cyber incidents (e.g. cyber crime, IT failure, data breaches) **NEW**	31%	–	↑
4 Theft, fraud, corruption	27%	2 (28%)	↓
5 Fire, explosion **NEW**	25%	–	↑

Source: Allianz Risk Barometer 2018

---

1   BoatUS, Harvey and Irma Damage Or Destroy More Than 63,000 Recreational Boats

FAST-CHANGING ARCTIC AND NORTH ATLANTIC CONDITIONS BRING ROUTE RISKS

Climate change is impacting ice hazards for shipping, freeing up new trade routes in some areas, while increasing the risk of ice in others.

There was another milestone for Arctic shipping in early 2018 when a specially-designed LNG tanker became the first commercial ship to travel the Northern Sea Route in winter and without the assistance of an ice breaker. The **Eduard Toll** successfully journeyed from South Korea to Montoir, France via northern Russia, shaving around 3,000 nautical miles off the traditional transit via the Suez Canal.

It followed the transit in August 2017 of another specially-designed tanker, the **Christophe de Margerie**, which became the first merchant ship to sail across the Arctic Ocean without the aid of an icebreaker. It took just 19 days to reach South Korea from Norway, almost a week faster than going via the Mediterranean.

Arctic ice has been thinning and retreating over the past 40 years, bringing new opportunities for shipping, but also serious environmental concerns. Research shows the mean center of shipping activity moved 300km north and east—closer to the North Pole—over a seven-year span[1].

As a result, a growing number of vessels are sailing in Arctic waters. For example, cargo volumes on the Northern Sea Route (NSR) increased by nearly 40% to 9.7 million tons in 2017, the biggest annual volume ever, according to the Russian Federal Agency for Maritime and River Transport[2]. This is expected to rise to 40 million tons by 2022, reflecting the development of oil and gas fields, and 70 to 80 million tons by 2030.

"Climate change could open up new shipping routes in the Arctic, such as the North West Passage, and routes across Russia and Canada. These routes will have advantages as well as disadvantages. For example, a collision in a

remote hostile environment like the Arctic could prove challenging, and would be a long way away from salvage teams," says Dierks.

In February 2018, China announced plans for an **"Arctic Silk Road"** by developing shipping lanes opened up by global warming. China said it would encourage infrastructure development and conduct commercial trial voyages in Arctic waters, with plans to build its first Polar expedition cruise ship by 2019[3].

At the beginning of 2017 the International Code of Safety for Ships Operating in Polar Waters **(Polar Code)** came into force. The code introduces mandatory requirements for shipping in Polar regions, principally relating to ice navigation, manning and ship design.

"The Polar Code continues to be refined," says Kinsey. "Arctic conditions are fast-changing and the normal International Maritime Organization review updates are too slow. For these new shipping routes we need to find faster ways to disseminate information and the lessons of successful transits."

Ships operating in Arctic waters are bound by the Polar Code, but ice is also posing a significant hazard for shipping elsewhere.

Outside the Arctic and Antarctic, a number of so-called conditional areas also carry a higher risk of ice, including the Gulf of St. Lawrence, Alaska, Sakhalin, Russia and the Baltic Sea. Trading in these areas has also been increasing with global warming.

ARCTIC CIRCLE WATERS
CAUSES OF CASUALTIES (SHIPPING INCIDENTS) 2008-2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	TOTAL
Machinery damage/failure	13	14	16	12	13	20	27	46	32	46	239
Wrecked/stranded	11	14	9	9	8	10	14	6	11	9	101
Miscellaneous	1	4	4	2	6	5	5	6	4	6	43
Collision	1	4	10	4	4	2		3	2	4	34
Fire/explosion	1	2	6	6	1	4	2	4	1	3	30
Contact (e.g. harbor wall)	1	2	4	1	3	6	4	5	1	1	28
Hull damage	1	6	2	2	1	2	1	1	2	2	20
Foundered	1	2		3	1	1	2		1		11
Labor dispute									1		1
Total	30	48	51	39	37	50	55	71	55	71	507

Including **16** total losses
Source: Lloyd's List Intelligence Casualty Statistics
Data Analysis & Graphic: Allianz Global Corporate & Specialty

There is also a threat of ice hazards in more southerly shipping routes from icebergs. At the end of 2017, the US Coast Guard's International Ice Patrol warned shipping companies that an unusual number of icebergs were drifting into shipping lanes. It found that over 1,000 icebergs had drifted into North Atlantic shipping lanes in 2017, marking it the fourth consecutive season where the danger has been classified as "extreme".[4]

"Such extraordinary conditions require complementary training for crew, as well as additional routing support," says **Arnaud Gibrais, a Senior Marine Risk Consultant at AGCS**, based in Paris.

"A melting Arctic could lead to an increase in icebergs affecting trade routes, although this has not yet been a problem for the major north, south, east or west shipping lanes. But this might become more of an issue in the future," adds Dierks.

Climate researchers at the University of Manitoba, Winnipeg have also claimed more Arctic sea ice is entering the North Atlantic Ocean, increasing the level of hazard for ships in late spring. Arctic sea ice blocked normally open areas of ocean around Newfoundland in May and June 2017. The ice cover trapped many ships and even sunk some boats when it punctured hulls, the research found[5].

1 NASA Earth Observatory
2 Safety4Sea.com, Record cargo volumes shipped on Northern Sea Route in 2017, January 2018
3 Reuters, China building up Arctic Cruise Ship For Polar Silk Road, March 2018
4 GCaptain, Ice Patrol, More Than 1,000 Icebergs Drifted Into N.Atlantic Shipping Lanes in 2017, December 2017
5 University of Manitoba, Arctic Sea Ice Becoming A Spring Hazard For North Atlantic Ships

ARCTIC CIRCLE WATERS
CAUSES OF CASUALTIES (SHIPPING INCIDENTS) 2017

● Machinery damage/failure	46
● Wrecked/stranded	9
● Miscellaneous	6
● Collision	4
● Fire/explosion	3
● Hull damage	2
● Contact (e.g. harbor wall)	1
Casualties	**71**

Source: Lloyd's List Intelligence Casualty Statistics

Data Analysis & Graphic: Allianz Global Corporate & Specialty

The analysis shows there were 71 reported shipping incidents in Arctic Circle waters during 2017, including one total loss – up 29% year-on-year. Machinery damage/failure was behind over 60% of incidents, driven by the harsh operating environment. Fishing vessels were involved in almost 40% of incidents.

Machinery damage/failure is also the top cause of shipping incidents in this region over the past decade, accounting for 47% of casualties. Wrecked/ stranded is the second major cause, accounting for 20% of incidents.

EXPLOITATION OF THE SEAS

The marine environment is increasingly being seen as a potential resource. In the years to come, whole new industries and support services will be created, also bringing the potential for environmental risks and collision hazards for shippers.

$23.5bn

Highest annual estimated cost to the economy from pirate fishing

Insurers unite to cut lifeline to pirate fishing

Leading insurers from around the world have committed to take action on pirate fishing, an unlawful practice that costs the global economy tens of billions of dollars in losses every year and contributes to overfishing and the destruction of vital marine habitats and ecosystems.

AGCS, Axa, Generali, Hanseatic Underwriters and The Shipowners' Club sponsored the world's first insurance industry statement on sustainable marine insurance in October 2017. The statement confirms their commitment to not insuring vessels that have been blacklisted for their involvement in pirate fishing. It is estimated that pirate fishing costs the global economy between $10bn and $23.5bn annually, or 11 million to 26 million tons of fish [1]

A growing world population is driving demand for new sources of energy and minerals. This is already leading to a growth in sub-sea exploration and mining, as well as the development of renewable energy from offshore wind farms and wave power. Aquaculture is also becoming big business, with fish-farming expanding from coastal waters with the first oceanic farms, and interest in farming seaweed for food and fuel.

"Increased commercial activity in our coastal waters and oceans will bring economic opportunities for the maritime industry through the creation of new services. However, it also raises significant environmental questions and creates hazards for shipping," says Dierks.

Increased activity will bring potential risks. For example, offshore wind farms are creating new hazards in the North Sea – and in other areas around the world – creating collision risk for commercial vessels and fishing boats – last year the International Maritime Organization (IMO) adopted amendments on a recommendation to governments to take into account safety of navigation when multiple structures at sea, such as wind turbines are being planned. Fish farms are also raising environmental concerns, with fears for pollution and the spread of diseases from farmed fish to wild stocks.

"We need to consider how shipping lanes are managed around offshore wind projects, especially in busy areas like the English Channel and North Sea. This is something to monitor in the future," says Dierks.

1 Agnew DJ, Pearce J, Pramod G, Peatman T, Watson R, Beddington JR, et al. (2009) Estimating the Worldwide Extent of Illegal Fishing. PLoS ONE 4(2): e4570.

COMPLIANCE WITH NEW EMISSIONS RULES LIKELY TO BE PROBLEMATIC

Photo: Adobe Stock
Estimates suggest the shipping sector's emissions levels are as high as Germany's.

Increasing environmental and sustainability pressures – such as the recently-announced "Paris Agreement for shipping" – will further innovation in design and shipping practices, but could also bring changes in risk profile and financial challenges. How well prepared is the industry?

In April 2018, the International Maritime Organization (IMO) reached a landmark agreement to cut shipping emissions by at least 50% by 2050, with the goal of eventually phasing them out completely.

According to the IMO, international shipping accounts for about 2.2% of all global greenhouse gas emissions and 2.1% of carbon dioxide (CO_2) emissions, which some estimates suggest is as much as Germany as a country. This would have made shipping the sixth largest emitting country of CO_2 in 2015, according to The International Council on Clean Transportation[1].

The IMO's latest agreement to curb greenhouse gases adds to the UN body's existing legally-binding rules to reduce sulphur oxide (SOx) and nitrogen oxide (NOx) emissions under Annex VI of **IMO's pollution prevention treaty (MARPOL)**. A revision to MARPOL will see SOx emissions reduce to 0.5% m/m from January 1, 2020. Any vessels failing to comply could face fines, invalidate their insurance and potentially be prevented from sailing.

1   BBC, Reality Check: Are Ships More Polluting Than Germany?, April 2018

Shipping companies are already working to cut emissions. For example, Hapag-Lloyd says that it intends to achieve a 20% reduction in CO_2 emissions by 2020, having already lowered them by 46% between 2007 and 2016. By 2025, all new ships will be 30% more energy-efficient than those built in 2014, according to the IMO[2].

Reducing emissions can be achieved by switching to cleaner shipping and fuels, while slowing ships down by 10% could reduce fuel usage by almost a third[3].

Emissions rules are already driving increasing interest in alternative fuels and innovative forms of propulsion. For example, Maersk is planning to fit spinning "rotor sails" to one of its oil tankers as it looks to reduce emissions and fuel costs[4].

An increasing number of car carriers and ferries, cruise ships, container ships, bulk carriers and tankers are already running on liquefied natural gas (LNG) as operators look to comply with emissions rules. As of March 2017, the in-service and on-order fleet of LNG-powered seagoing ships was around 200, according to LNG World Shipping[5] – up by almost 25% year-on-year.

In November 2017, container shipping group CMA CGM placed an order for nine ultra-large container ships powered by LNG. Next year will see two of the first ever LNG-powered car carriers enter service – Siem Car Carriers ordered the vessels to transport Volkswagen cars from Europe to North America.

"The shipping industry will look for technical solutions to reduce emissions. We will see environmental concerns and regulations increasingly driving technical innovation in the shipping industry. We already see it with the use of LNG-fuel for new container ships," says Dierks.

"While this may help comply with regulations, we will be watching to see if there are any technical issues with engines and bunkering of biofuels.

"The introduction of new technology can bring about new operations that will require appropriate training. The industry will have to be proactive in understanding the risks involved, rather than just being reactive," says Kinsey.

The reduction in sulphur emissions will be challenging for shipping operators, and one that is likely to have cost implications.

"The move to low sulphur fuel is a major concern for shipping companies, as the solutions to the problem are not straightforward," says Turberville. "Whether there will be enough availability of low sulphur fuel is a big question mark; the use of 'scrubbers' (exhaust gas cleaning systems) is also in question, as although they are effective in ensuring the air is clean, the waste product must go somewhere, and if it is put into the ocean this too could be seen as polluting. Another possible solution of slow steaming is not suitable for all vessel and engine types and can cause significant machinery problems."

"The shipping industry understands the need for the regulations and the need to address emissions. But compliance with the MARPOL framework is likely to be problematic and industry preparation lacking. The maritime industry's challenge is to have a smooth transition towards compliance of these regulations without causing disruption," says Khanna.

2 IMO, Low Carbon Shipping and Air Pollution Control In Focus
3 The Economist, The Shipping Industry Attempts To Cap Carbon Emissions
4 Forbes, Norsepower: Why European Ships Are Switching Back To Sails, March 2018
5 LNG World Shipping, The World's LNG-Fuelled Ships On Order, 2017

Reducing sulphur emissions will be challenging for shipping
operators and will likely have cost implications.

TECHNOLOGY

SHIPPERS GET SERIOUS ABOUT CYBER THREAT

Major attacks like the NotPetya malware incident have been a wake-up call for the shipping sector, creating a renewed urgency around tackling the threats posed to vessels and supply chains, as well as prompting an increasing interest in cyber insurance. At the same time, new regulations will exacerbate the fall-out from any future failure.

The **NotPetya** cyber-attack of June 2017 affected some 2,000 organizations across 65 countries, causing estimated economic losses of $2.5 billion to $3 billion[1] and exposing vulnerabilities in the marine supply chain. The virus led shipping group Maersk to suspend operations as it was forced to reinstall 4,000 servers, 45,000 computers and 2,500 applications, causing congestion at a number of ports worldwide and resulting in business losses in excess of $300 million[2]. The attack also disrupted operations at logistics company FedEx, resulting in $300 million in lost business and clean-up costs[3].

According to Dierks, such attacks have increased awareness of the potential for cyber business interruption losses and physical damage to vessels arising from a cyber-attack. As a result, shipping companies are now engaged in more detailed discussions with insurers about how to protect against cyber exposures.

"Three years ago operators saw ships as largely isolated from cyber risk but now they realize that their vessels and the logistics supply chain are all connected," says Dierks.

This has seen increasing interest in insurance solutions, most notably for physical damage and business interruption cover for industrial control systems, as well as insurance cover for supply chain cyber exposures.

"There has been a significant increase in the awareness of the shipping industry as to the potential risks from cyber, be they malicious or accidental," agrees Turberville. "As the technology on board increases, so do the potential risks. Safeguards need to be introduced at the same rate as new systems. We cannot wait for more significant problems to occur before we react."

The shipping industry and regulators are now taking cyber security far more seriously. The International Association for Classification Societies (IACS) plans to publish guidelines covering cyber security practices in the shipping industry by the end of 2018. Last year, the IMO issued guidelines on maritime cyber risk management and called for cyber risks to be addressed in existing safety management systems by 2021. According to Khanna this deadline is not soon enough: "The industry needs to take the initiative and address this much earlier than 2021."

1 RMS, Centre for Risk Studies, University of Cambridge Judge Business School, Cyber Risk Outlook
2 Financial Times, Moller-Maersk Puts Cost Of Cyber-Attack At Up To $300m, August 2017
3 Bloomberg, FedEx Cuts Profit Forecast On $300m Hit From Cyber-Attack, September 2017

While the vessel safety management system (SMS) is the best platform for the cyber security program to reside on, the fact that cyber is a non-traditional maritime risk should not be overlooked, Kinsey believes. Given the nature of this risk and the potential impact of the failure to adequately protect a vessel, a new approach is warranted.

"We cannot approach our procedures and auditing process the same way we do with the majority of our operational risks within the SMS. Merely having an SMS is not sufficient to prevent catastrophes," says Kinsey.

Robust training and auditing – including independent cyber-security audits to ensure procedures are adequate – and having dedicated personnel assigned to provide captains with effective guidance and procedures will be necessary, according to Kinsey.

Many shipping companies are already looking to improve cyber security on board their vessels. For example, some are reducing the threat posed by interconnectivity by separating IT systems for different functions, such as navigation, propulsion and loading.

"Cyber security is a race without a finish," adds Kinsey. "It is continually making inroads into the way we operate and manage vessels on a daily basis. The nature of ports and shipping lanes is such that the fate of one company can impact the fortunes of all."

GDPR and NIS could shed more light on true scale of cyber risk in shipping

Much attention has been devoted to the introduction of the General Data Protection Regulation (GDPR) in May 2018, which enforces tougher data protection requirements on businesses across the European Union (EU). In the same month, a less well-known EU directive was introduced which also has significance for the maritime sector.

The EU Network and Information Security Directive (NIS) will necessitate "essential services" providers, such as large ports and maritime transport services in the EU, to demonstrate that they have taken sufficient measures to manage cyber security risks. It also requires companies to report cyber incidents, including those that disrupt services. As with GDPR, the penalties for breaches of the new laws will be substantial. For example, the UK has announced it could impose sanctions of up to $22.6 million (£17 million) in fines if companies do not report serious breaches.

"The current lack of incident reporting masks the true picture when it comes to cyber risk in the marine industry," says Khanna. "The NIS directive will help to change this and will bring more transparency around the scale of the problem."
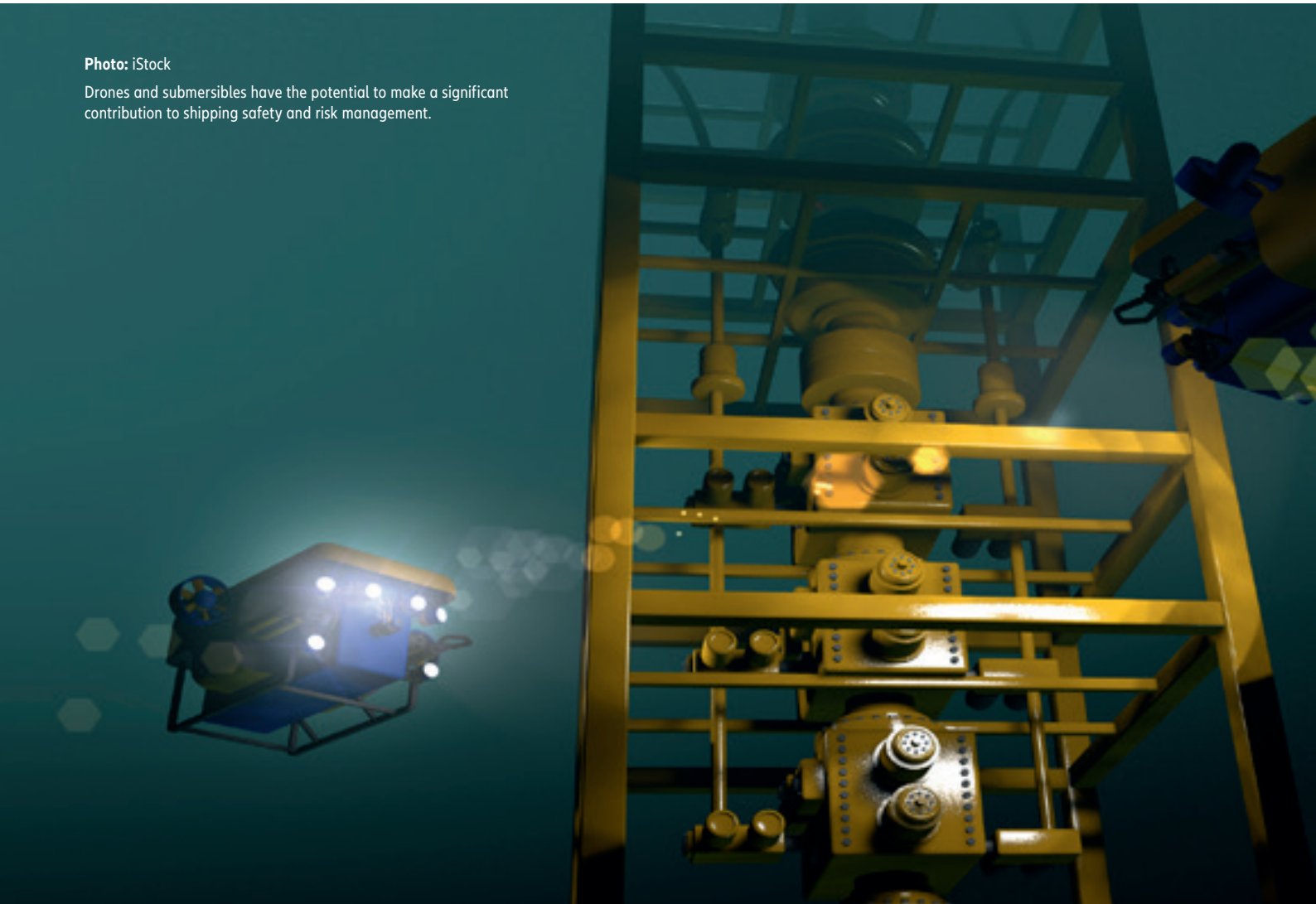
Photo: iStock
The NotPetya cyber-attack disrupted a number of ports.

This year saw the first successful ocean rescue of two swimmers in rough seas in Australia by drone[1]. A number of companies are developing drones for sea-based search and rescue operations, as well as drones that can identify and warn swimmers of sharks. But drones are also finding some interesting commercial applications.

They are being used by class societies and marine surveyors to physically examine ships and cargo, while loss adjusters employ drones to assess damage to vessels. Allianz has already used drones to assess marine claims, as well as property claims in the aftermath of last year's hurricanes and wildfires.

Operators are also using drones to assess the condition of assets, such as oil rigs, pipelines and offshore turbines, reducing the need for risky human inspections. In the North Sea, fishing vessels carrying drones are being used to undertake survey work and environmental monitoring.

Drones are likely to find many more uses in the maritime sector in the years to come, some of which could help prevent or mitigate losses, according to Dierks.

"Drones make it simpler and quicker to examine a ship and its cargo, but it is easy to see how the technology could be used to assess environmental pollution damage or observe shipping traffic in congested transit routes," says Dierks.

For example, drones can be used to carry out inspections of cargo tanks and holds, a risky task for crew. Dangerous gases are a notable cause of fatalities at sea, where enclosed cargo holds many contain noxious gases. Drones can also be employed to carry out inspections at height, assess the structural integrity of a vessel or to monitor the loading of cargo.

USE OF DRONES IN THE SHIPPING SECTOR SET TO TAKE-OFF

Unmanned systems are finding a growing number of applications in the maritime sector, and have the potential to make a significant contribution to safety and risk management.

Drones will also have an increasing role in spotting and avoiding hazards at sea. EU NAVFOR's anti-piracy naval mission has deployed drones to monitor the coast of Somalia and search for pirate activity.

"In the future we will see drones used to avoid hazards at sea. For example, they could be used by ships sailing in Arctic and Baltic waters to identify ice and show the route ahead," says Dierks.

If there is an incident, drones could also be used to assess damage, helping to mitigate losses, avoid loss of life or limit any potential environmental impact.

"If a vessel is grounded or suffers a collision – such as striking a reef – the crew could use a drone to assess the condition of the hull and the surroundings. This could allow for faster and more informed decision-making and reduce the impact of an incident," says Dierks.

"If a captain has access to a drone on board it could help limit or prevent a loss – it could be used to assess possible buckling on a vessel that has sailed through heavy weather, for example."

1 ABC News, Dramatic Drone Rescue of 2 Australian Swimmers Billed As A First, January 2018
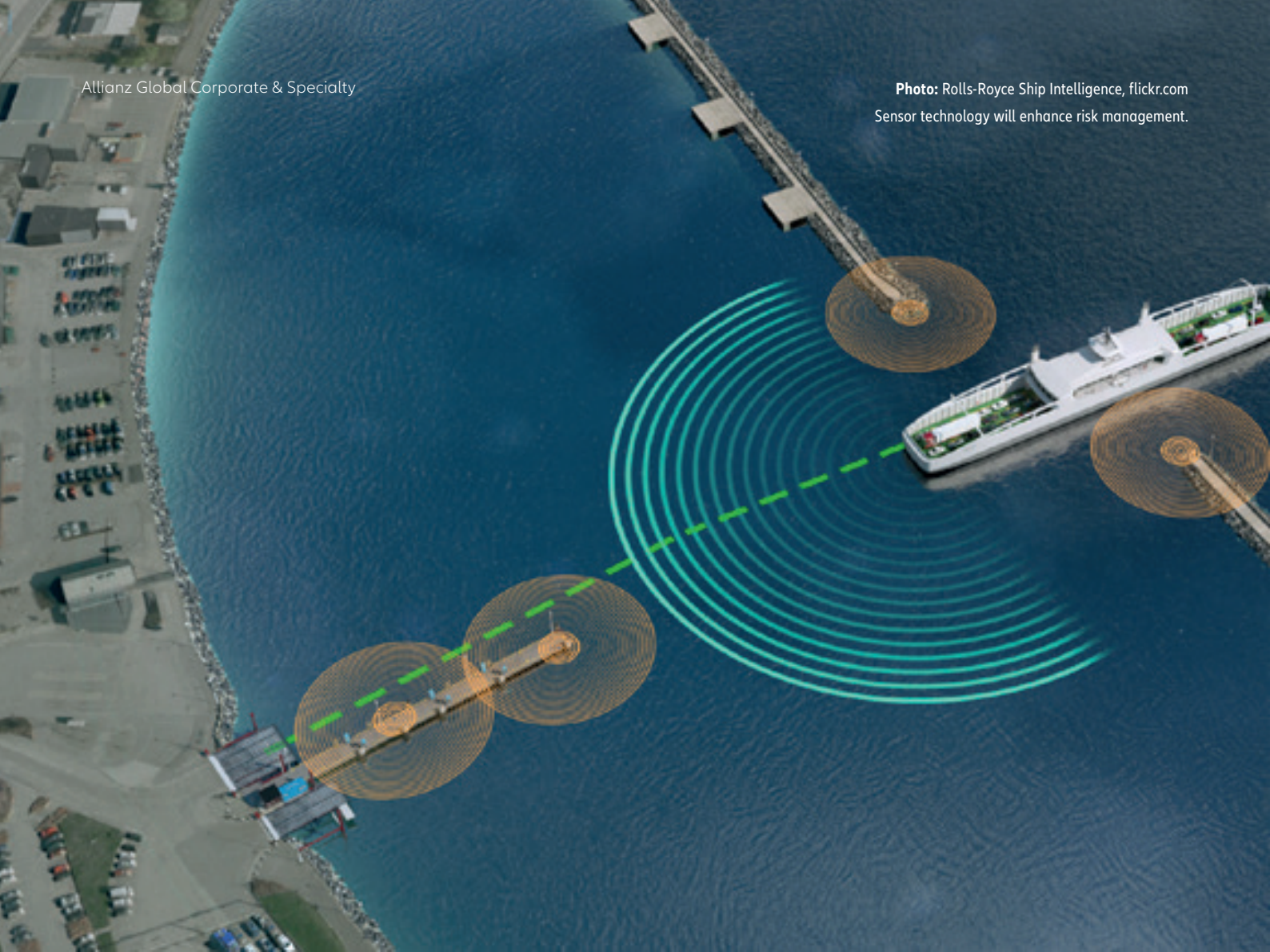
SENSORS COULD IMPROVE NAVIGATION, SUPPLY CHAIN AND CARGO RISK MANAGEMENT

Sensor technology is increasingly being used in the shipping industry for performance monitoring and maintenance. The data generated by such devices could prove invaluable for risk mitigation.

Ships today can contain sensors that measure and monitor a wide range of parameters such as weather and sea conditions, hull stress monitors, cargo hold temperature and humidity and a host of machinery health and performance indicators. Smart containers and ports are also emerging, as companies look for greater efficiencies and automation in cargo supply chains.

Today, sensors are mostly used for performance-monitoring and predictive maintenance, but the technology can also be used to enhance risk management, according to Khanna.

For example, hull stress monitoring sensors could be linked to ship navigation in heavy weather and feed information back on structural integrity to officers in real-time. Rolls-Royce recently developed a situational awareness system that combines multiple sensors with intelligent software that helps captains navigate at night, in adverse weather conditions or in congested waterways[1].

Sensor technology is also being employed for supply chain management, tracking and monitoring valuable or sensitive cargo. Such technology is also now being combined with other developments, such as blockchain, smart contracts and artificial intelligence. Maersk, for example, is developing a logistics blockchain system to digitally track cargo and share information with supply chain partners.

"Container tracking today focuses on high value or sensitive cargo, but in the future it will be common place for all containers. It is of huge benefit to shippers, improving efficiency and helping to understand issues in the supply chain. But cargo tracking can also be used as a risk management tool, enabling companies to take action if cargo is damaged or goes off route," says Khanna.

If a high-value shipment is delayed or damaged it can easily result in a million-dollar loss. However, real time analysis of cargo sensor data would enable a company to mitigate potential losses, for example taking steps to protect cargo effected by excess moisture or temperature, or quickly ordering a replacement if the cargo proves to be a total loss.

"In combination with other technologies like blockchain, container tracking will improve the transparency of container information and help the industry understand problems that cause damage or delay, such as problems with infrastructure or strikes that disrupt the supply chain. Information that can be communicated to others," says Khanna.

1 Rolls-Royce, Rolls-Royce offers ship navigators a bird's eye view with Intelligent Awareness game-changer, March 2018

AUTONOMOUS SHIPPING PROGRESSES BUT CHALLENGES REMAIN

Around the world, significant milestones continue to be reached. However, legal, safety and cyber security issues are likely to limit the growth of crewless vessels for the foreseeable future. And will human error really be eliminated?

Next year, maritime technology firm Kongsberg Gruppen will begin testing a fully-electric 120 teu autonomous ship, **Yara Birkeland**. The vessel is expected to commence full autonomous operations in 2020, transporting products from a fertilizer plant at Herøya to the Norwegian ports of Brevik and Larvik. Kongsberg also plans to establish a number of land-based control centers to support autonomous shipping internationally.

China is also investing in autonomous shipping. It recently established a test site for unmanned vessels in Guangdong, at one of the country's gateways to the South China Sea. When completed, the Wanshan Marine Test Field will be the biggest of its kind in the world[1].

Meanwhile, the Maritime Port Authority of Singapore has announced plans to introduce autonomous harbour ships in future for a number of operations, such as berthing, mooring and towing. In Europe, plans to introduce autonomous electric container barges operating from the ports of Antwerp and Rotterdam are scheduled to kick-off in August 2018[2].

However, widespread use of autonomous shipping is likely to be many years from becoming a reality. In fact, fully-automated ships may not even be possible or desirable on major congested shipping routes, believes Dierks.

"We are starting to see autonomous vessels being developed for use under controlled conditions. But there is some way to go before we see large autonomous ships transiting the globe."

The technology enabling autonomous ships is now well-developed, but regulatory and safety issues have yet to be addressed. Current rules require vessels to be manned, while automation raises questions about who is at fault in an accident – the vessel manufacturer, software or data provider, or the onshore monitoring stations.

"This is not a technical issue but a legal and safety one. For autonomous ships to become a common sight on our oceans we will need internationally-agreed rules and principles," says Dierks. Earlier this year, the International Maritime Organization started discussions around a regulatory scoping exercise for autonomous ships.

The majority of maritime accidents involve an element of human error, and autonomous ships could bring about a reduction in the frequency of incidents. However, autonomous ships will not remove human error completely. Human risk will still be present in the algorithms that drive the decision-making of autonomous vessels, while vessels will continue to be monitored and controlled from manned onshore bases.

1 South China Morning Post, China starts work on world's biggest test site for drone ships at gateway to South China Sea, February 2018
2 The Guardian, World's first electric container barges to sail from European ports this summer, January 2018

Will technology eliminate human error as expected or will it only transpose the point of occurrence," says **Captain Nitin Chopra, a Senior Marine Risk Consultant at AGCS**, based in Singapore. "It is difficult to imagine that unmanned ships calling at automated ports will not be marred by loss events. On the contrary, due to absence of manpower, the immediate response to mitigate loss could be delayed."

"We could see the automation of certain tasks but decision-making will rest largely with humans – at least for some time yet – and not in dynamic circumstances like major shipping lanes," adds Khanna.

"Not only is navigation in congested waters a significant issue, there is also the fact that vessels require continual maintenance, which requires crew to be on board," says Turberville. "And what happens in an emergency? The decision-making process could be multi-faceted and therefore not achievable without human intervention."

"The world will change with increasing automation," says Khanna. "We may see fewer losses from human error during navigation causing collisions or groundings. However, these may be replaced by new losses, such as from cyber incidents or faults with technology."

"The arrival of autonomous shipping will not only involve new technical challenges but will also instigate radical changes in practices," says Gibrais. " For example, technical management of ships and maintenance will need to be rethought."

UNMANNED SHIPS READY FOR LAUNCH

Potential benefits
– Improved safety. Greater efficiency and productivity
– Better accessibility of remote, potentially dangerous areas
– Automated shipping lanes could increase reliability of cargo transport
– Decline in piracy incidents. No crew to be used as ransom leverage

Potential challenges and risks
– Regulatory framework. Significant international cooperation needed
– Safety considerations – collisions between manned and unmanned vessels
– Emergencies and environmental issues could pose threats. Cargo and fire management difficult without crew support
– Cyber risk to increase

Impact for insurance
– Sophisticated technology could result in higher insured values initially
– Potential reduction in crew claims but increase in product liability issues.

SECURITY
RISING POLITICAL RISK BRINGS SAFETY FEARS

International shipping and supply chains are increasingly exposed to geopolitical risks, with notable hotspots in the Middle East and South China Sea.

Security risk is manifested in many forms, from piracy and terrorism through to war. Ships and their crews are at risk of physical damage and hijacking in Africa and the Middle East while potentially heightened political tensions around major shipping routes in Asia could lead to disruption and a heightened risk of collision.

"Political risk on the seas is increasing with rising tensions in the Middle East and South China Seas, as well as the ongoing threat of piracy in Africa and Asia," says Kinsey.

Past years have seen growing tensions in the Middle East, as Iran and its allies fight proxy wars with Saudi Arabia, the US and Israel. This has seen a number of attacks against commercial shipping off the coast of Yemen, where the government and Saudi Arabia is fighting Iranian-backed Houthi rebels.

On April 3, 2018, Houthi rebels attacked a Saudi-flagged oil tanker, **Abqaiq** in the Red Sea[1], causing damage to its hull before a coalition warship intervened. Later that month, there were numerous reports of 19 oil tankers being held hostage off the Yemeni coast. Meanwhile, in January 2018 the rebels attacked another tanker using a remotely-controlled speed boat packed with explosives.

The rebels had previously threatened to disrupt or block international navigation in the Red Sea if the Saudis and their allies did not withdraw from the area around the last rebel-held port city of Al Hudaydah. Since 2016, the group has used drone ships, anti-ship missiles and sea mines to attack warships and commercial vessels.

"The security situation in the Bab-el-Mandeb strait has not improved and may even be heightened. There were

Photo: US Navy
The US guided-missile destroyer USS Fitzgerald collided with a container ship, south of Tokyo Bay in June 2017.

further attacks in the first months of 2018 as Houthi rebels threaten to block commercial traffic through the Red Sea," says Kinsey.

Another potential security hotspot for international shipping is the South China Sea, a key transit route for east–west trade from China, South Korea and Japan, accounting for around one third of global shipping trade[2]. However, China is embroiled in a territorial dispute with its neighbours and continues to militarize the South China Sea and expand its zone of influence.

"While the situation in the Middle East and Yemen is concerning, the territorial claims and disputes in the South China Sea may have bigger implications long-term. Tensions in the South China Sea could threaten the very freedom of the seas and navigation in South East Asia, with far-reaching implications for trade with Asia," says Kinsey.

Territorial disputes have resulted in an increasing military presence in the South China Sea, with the US and China conducting naval exercises and last year saw two major collisions between US naval ships and commercial vessels. The US guided-missile destroyer **USS Fitzgerald** collided with a container ship in the waters south of Tokyo Bay in June 2017, while another destroyer, the **USS John S. McCain**, struck an oil tanker off Singapore just over two months later, killing 10 of its crew.

"A growing concentration of trade and heightened political tensions makes for a volatile situation in the region that could create safety issues," says Kinsey.

1 Reuters, Saudi Arabia Expects No Oil Supply Impact From Houthi Tanker Attack
2 UNCTAD, Review of Maritime Transport 2016

43

PIRACY NUMBERS HIT RECORD LOW BUT THREAT REMAINS

1 UICC International Maritime Bureau, Piracy And Armed Robbery Against Ships – 2017 Annual Report

According to the International Maritime Bureau (IMB), incidents of piracy continued their downward trend in 2017. It recorded 180 incidences of piracy and armed robbery[1] – down 6% year-on-year and a 22-year low.
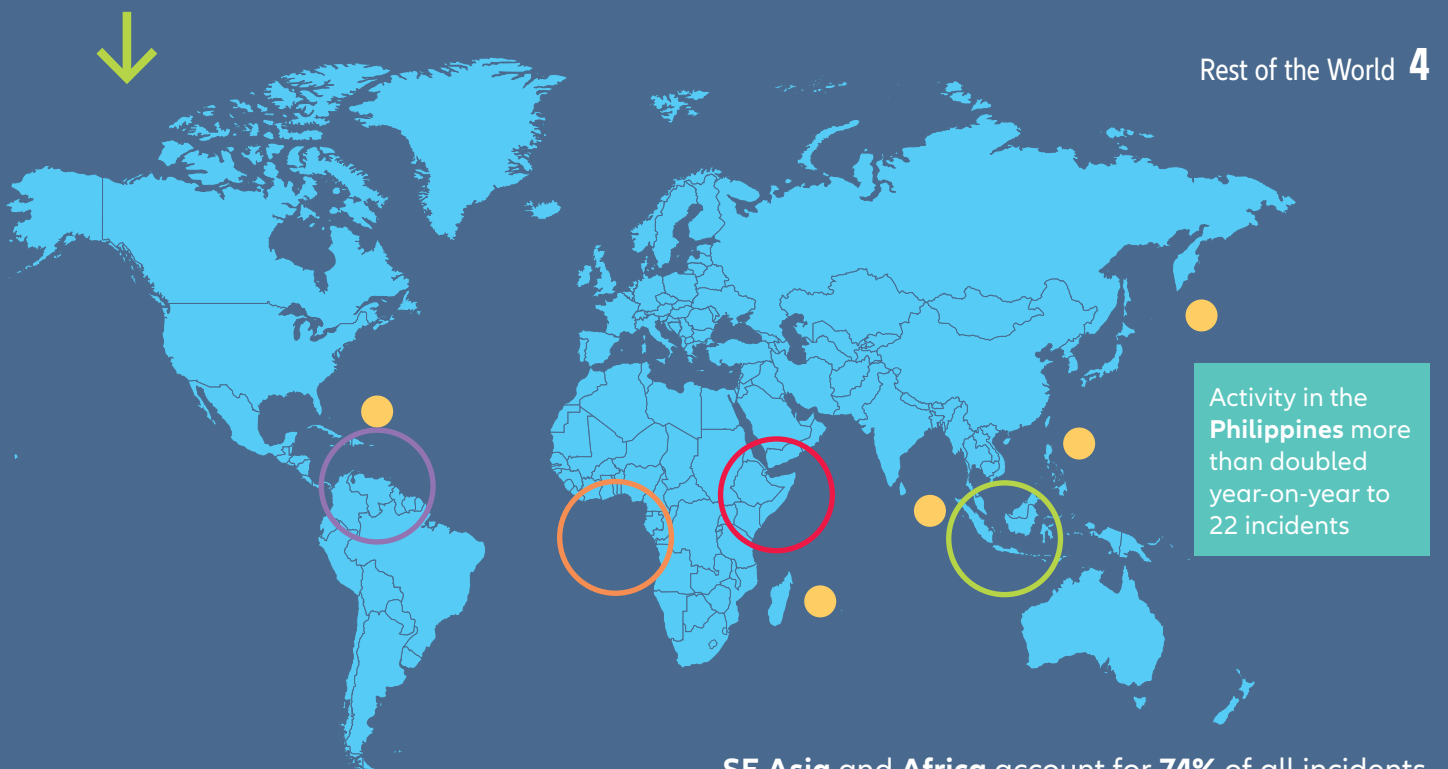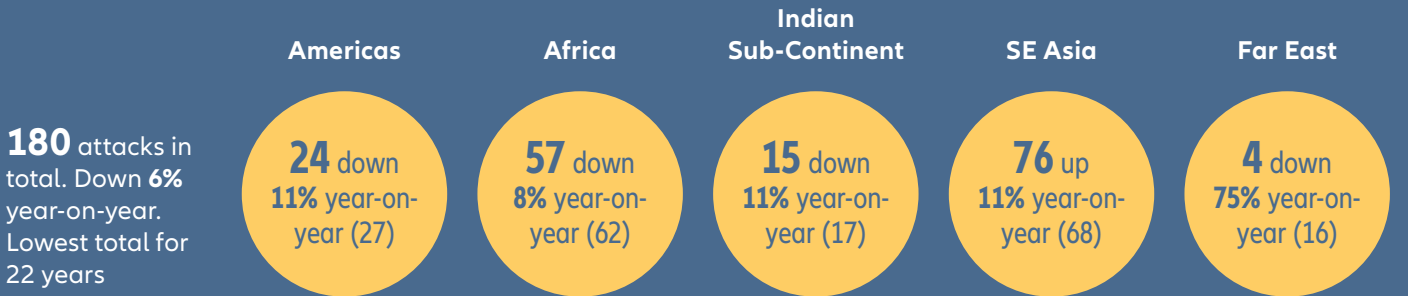
Indonesia remains the top global hotspot although incidents were down year-on-year *(see graphic)*. The IMB notes that marine patrols continue to be effective in the country's 10 designated safe anchorages. In the Philippines however, incidents more than doubled year-on-year from 10 in 2016 to 22 in 2017. According to the IMB, the majority of these incidents were low-level attacks on anchored vessels, mainly at the ports of Manila and Batangas.

In Africa, the Gulf of Guinea remains a hotspot with 36 reported incidents, while incidents off Somalia increased year-on-year to nine from two. Together, the South East Asia and Africa regions account for three quarters of all piracy incidents around the globe.

"The threat of piracy remains, albeit less pronounced than in past years," says Kinsey. "Hijackings and the boarding of vessels continues, tied to inequality and the economic situation in parts of Africa and Asia. It behooves us all to understand that global economic and geopolitical conditions play on the security of shipping."

1 UICC International Maritime Bureau, Piracy And Armed Robbery Against Ships – 2017 Annual Report

PIRACY: 12 MONTHS OF ACTIVITY

180 attacks in total. Down **6%** year-on-year. Lowest total for 22 years

Americas
24 down **11%** year-on-year (27)

Africa
57 down **8%** year-on-year (62)

Indian Sub-Continent
15 down **11%** year-on-year (17)

SE Asia
76 up **11%** year-on-year (68)

Far East
4 down **75%** year-on-year (16)

Rest of the World **4**

Activity in the **Philippines** more than doubled year-on-year to 22 incidents

SE Asia and **Africa** account for **74%** of all incidents

Venezuela – **12** incidents in 2017. Compared with 5 in 2016

Danger in the **Gulf of Guinea** – **36** reported incidents

9 incidents off **Somalia** in 2017. Activity up

43 attacks in **Indonesia** (the top global location). **Down 12%** year-on-year

Targeted vessels

Product Tanker
42

Bulk Carrier
38

Container Ship
23

Passenger Ship
0

DATA AND SOURCES

The primary data source for total loss and casualty statistics is Lloyd's List Intelligence Casualty Statistics (data run February 5, 2018). 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 AGCS

Allianz Global Corporate & Specialty (AGCS) is the Allianz Group's dedicated carrier for corporate and specialty insurance business. AGCS provides insurance and risk consultancy across the whole spectrum of specialty, alternative risk transfer and corporate business:

– Aviation (incl. Space),
– Energy,
– Engineering,
– Entertainment,
– Financial Lines (incl. D&O),
– Liability, Marine,
– Mid-Corporate,
– Property insurance (incl. International Insurance Programs).

Worldwide, AGCS operates with its own teams in 34 countries and through the Allianz Group network and partners in over 210 countries and territories, employing almost 4,700 people of 70 nationalities. AGCS provides insurance solutions to more than three quarters of the Fortune Global 500 companies, writing a total of €7.4 billion gross premium worldwide in 2017.

AGCS SE is rated AA by Standard & Poor's and A+ by A.M. Best

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
+33 1 58 85 46 98

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

Duncan Southcott
Global Head of Marine Claims
duncan.southcott@allianz.com
+44 203 451 3109

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
Head of Marine Hull – France
xavier.lozach@allianz.com
+33 1588 58712

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

Volker Dierks
Head Marine Hull – Germany
volker.dierks@allianz.com
+49 40 3617 2939

John Kiernan
Head Marine Hull – North America
john.kiernan@agcs.allianz.com
+1 646 472 1465

Gilberto de Espindola
Regional Head of Marine – South America
gilberto.espindola@allianz.com
+55 11 3527 0290

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, Hugo Kidston, Greg Dobie

Contributor:
Stuart Collins

Design:
Mediadesign

CONTACT US

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

Global
Hugo Kidston
hugo.kidston@allianz .com
+44 203 451 3549

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

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

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

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

Follow Allianz Global Corporate & Specialty on

Twitter **@AGCS_Insurance**

LinkedIn

www.agcs.allianz .com