CURRENT MARITIME SAFETY ISSUES

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MARITIME SAFETY – GENERAL TERMS

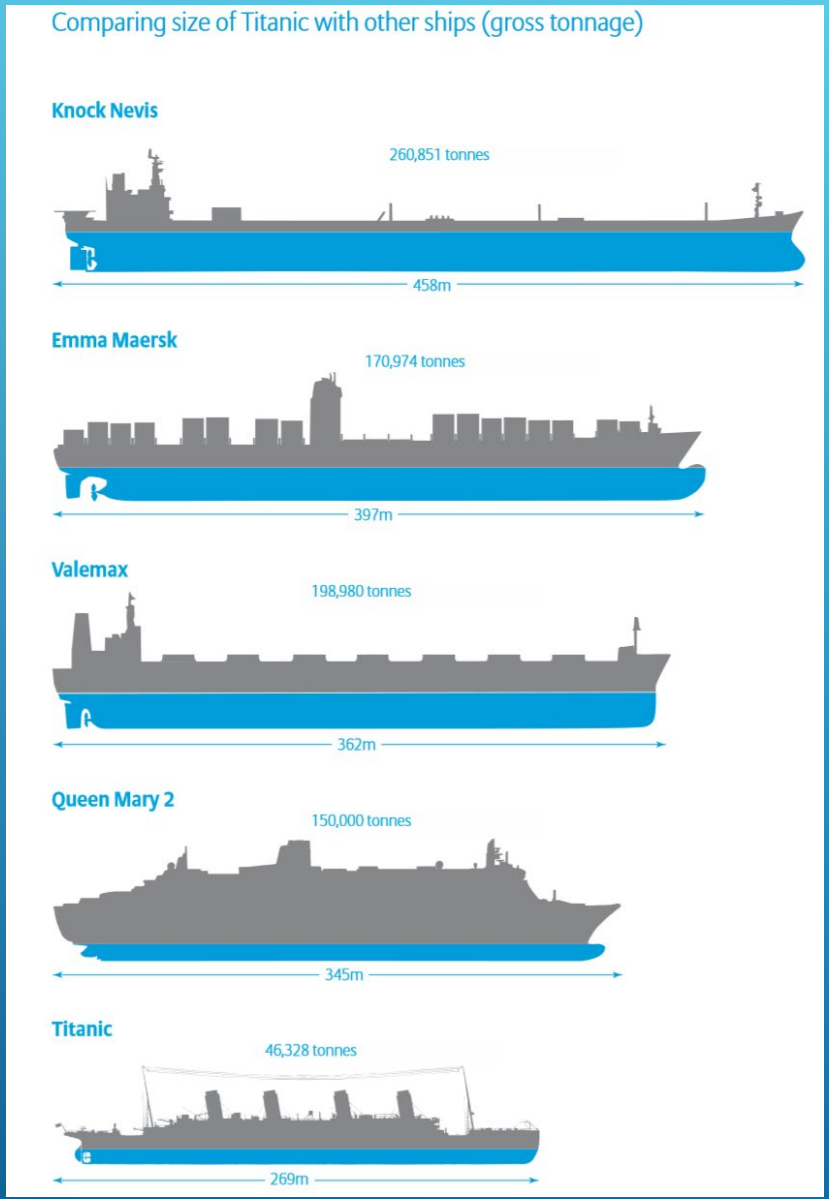
- **Maritime safety affects everyone, from blue collar factory workers and school children, to journalists and company chief executives.**

- **The global population depends on a safe and efficient shipping trade network for modern day living to continue unchecked. In the 100 years since the loss of the RMS Titanic, the maritime industry has worked steadily to improve safety performance so that almost 30 million tonnes of cargo and more than 55,000 cruise passengers and 1,1 million passengers in EU waters that travel by ship every day do so safely and efficiently in the vast majority of cases.**

MARITIME SAFETY – KEY FACTS

- **Ship sizes** have increased significantly, dwarfing the Titanic in comparison.
- The largest modern container ships, such as Maersk's new Triple-E class, pose challenges for insurers due to their sheer scale and value.
- Other ships are pushing the design envelope, breaking new ground in terms of design challenges which has led to concerns about structural integrity.

MARITIME SAFETY – KEY FACTS



MARITIME SAFETY – KEY FACTS

- **Cruise ships:** Despite the strong passenger safety record of the cruise industry, the modern trend towards ultra-large cruise ships, carrying over 6,000 passengers, poses new challenges, especially in terms of evacuation and rescue in remote environments.

- The International Maritime Organisation (IMO) has introduced regulations addressing such risks, including proactive risk management with improved fire safety systems and a focus on the need for such vessels to be their 'own best lifeboat' so that, in the event of a casualty, persons can stay safely on board, as the ship proceeds to port.

MARITIME SAFETY – KEY FACTS

- **Training and labor:** with increased cost pressure, many ship-owners look to source crews from emerging economies due to lower wage demands.

- Despite IMO attention through international standards, training regimes and assessment are not consistent and may lead to variations in crew and officer competence

MARITIME SAFETY – KEY FACTS

- **Crewing levels in a competitive industry continue to pose risks, despite the greatly improved efficiency of modern vessels, and may compromise margins of safety.**

- **Some commentators regard minimum crewing levels as too low, and point out they do not allow for the inevitable extra tasks that 24 hour operations require – with 'human factor' risks such as fatigue being significant causes of accidents.**

MARITIME SAFETY – KEY FACTS

Inadequate risk management is identified as a key challenge which can be addressed through improved safety management systems and processes.

MARITIME SAFETY – KEY FACTS

- **Piracy continues to threaten shipping, especially off Somalia and the Horn of Africa where 28 ships were attacked in 2011, with attacks also being seen in other regions (such as West Africa).**

- **The economic impact of piracy was estimated to be around $7 billion in 2011.**

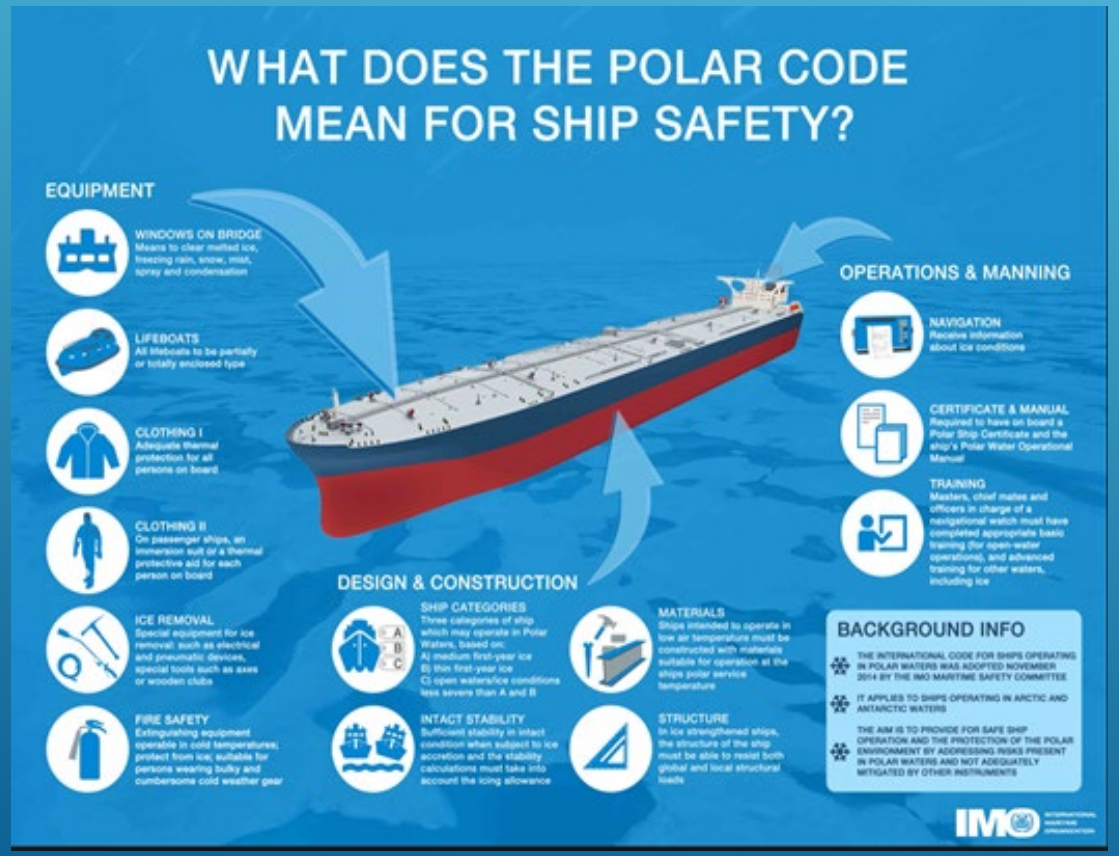
MARITIME SAFETY – KEY FACTS

- **Language barriers** are also cited as potential risks, given the dependence on English as the 'language of the seas'.

- With increasingly multi-national crews, concern has been raised about communication in an emergency, or even misunderstandings in routine operations.

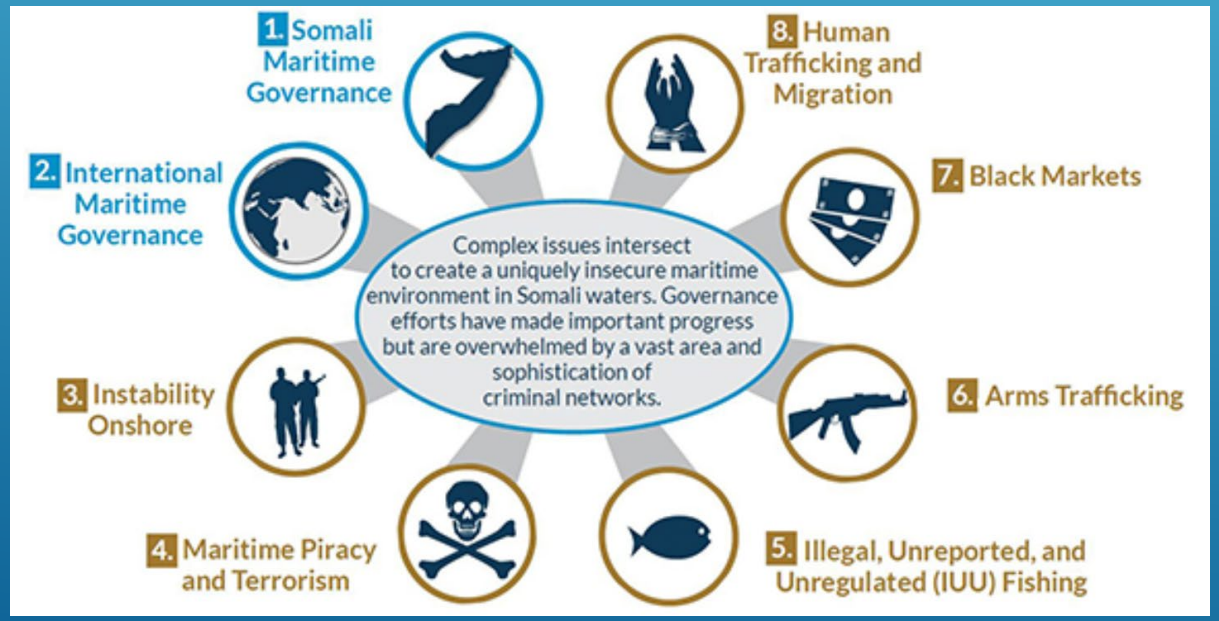
MARITIME SAFETY – KEY FACTS

- **Arctic and Polar waters:** climate change is opening up access to previously impassable seaways, but the development of new routes, such as the North East Passage, pose great challenges in terms of ice navigation, environmental concerns, and design and construction demands, as well as emergency procedures in extremely hostile environments.



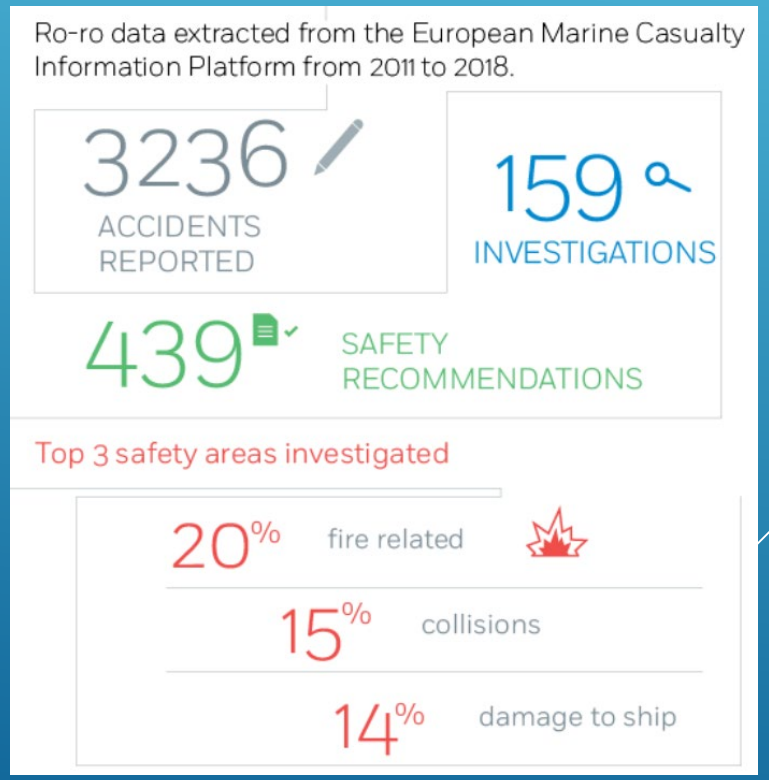
MARITIME SAFETY – KEY FACTS

- **Poor enforcement & coordination:** with a complex regulatory environment, coordination of such regulations needs to be improved. Despite an alignment of objectives, individual enforcement bodies do not always coordinate actions, nor is it easy to enforce responsibility in the event of an incident.



MARITIME SAFETY – KEY FACTS

- **Fire remains a major on-board risk especially in 'RoRo' ferries (with relatively open decking) and also on passenger ships with increased 'hotel' services and large passenger numbers.**



MARITIME SAFETY – KEY FACTS

Summary of the Cyber Threats in the Maritime

Cyber Threats in the Maritime may lead to:

- Concealing ship movements or cargo data by cracking related systems/ databases
- Distortion of critical infrastructure architecture (i.e. port automated cargo systems or off-shore energy producing facilities)
- Losing information sovereignty on ship position and distance to ports/coast guard/special vessels
- Disruption of communication, traffic and navigational systems
- Infiltration of key personnel (e.g. data on Inspectors) on ships by organized crime or other actors
- Distortion of (e-)navigational data leading to accidents, hijackings and environmental pollution
- Distortion maritime reports related to accidents leading to manipulated information on accidents
- Conceal the point of origin (previous ports) of the vessel
- Maritime attacks (organized crime, terrorism, piracy) as well as information misuse by peer business competitors (i.e. business espionage, influencing price fluctuations, accessing proprietary company data as well as details of vessel schedules)

MARITIME SAFETY – KEY FACTS

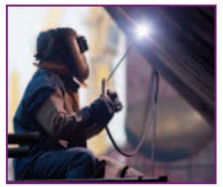
Timeline: Key milestones in maritime safety since 1912

1914
International Convention for the Safety of Life at Sea (SOLAS) established – setting standards for maritime safety provisions.

1914
International Ice Patrol starts aerial monitoring of icebergs.

1922
Echo sounding applied on board to monitor depth of water.

1930
International Convention on Load Lines addresses issues on loading and stability.



1940s
Welding starts to replace riveting, later followed by prefabrication, increasing quality of ship construction.

1940s
LORAN (LOng RAnge Navigation) radio navigation system allows accurate offshore position finding to 900 miles.

Image: Wikimedia Commons/Stahlkocher

1944
DECCA position fixing allows accurate position finding up to 400 miles offshore.

1948
International Maritime Organization (IMO) established, and entered into force in 1958.

1960s
Computer-aided ship design revolutionizes ship design.

1960s
Widespread use of Very High Frequency radio improves ship-to-ship and ship-to-shore communication.

1965
RADAR made mandatory under 1960 SOLAS convention.

1967
"Transit" Sat Nav system: the first satellite-based positioning system for merchant ships, giving regular position fixes on 'transit' of a satellite.

1969
Automatic Radar Plotting Aid (ARPA) introduced (mandatory 1989), replacing manual plotting of movements.

1972
International Regulations for Preventing Collisions at Sea (COLREGS) establishes 'rules of the road' for shipping.

1973
International Convention for the Prevention of Pollution From Ships (MARPOL) addresses maritime pollution risk.

1978
International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) establishes basic training and certification requirements.

1993
International Safety Management (ISM code) adopted by IMO, establishing standards for safe management and operation of ships.

1994
Global Positioning System (GPS) fully operational, allowing accurate satellite-based position finding.

1999
Global Maritime Distress and Safety System (GMDSS) establishes protocols for ships in distress and rescue scenarios and introduces mandatory distress communication equipment on board vessels.

Photo: Hervé Cozanet from the marine-marchande.net Website

2000
IMO adopts amendments to SOLAS making "Voyage Data Recorders" (VDR) or the 'Black Box' of navigational bridge mandatory on new ships.

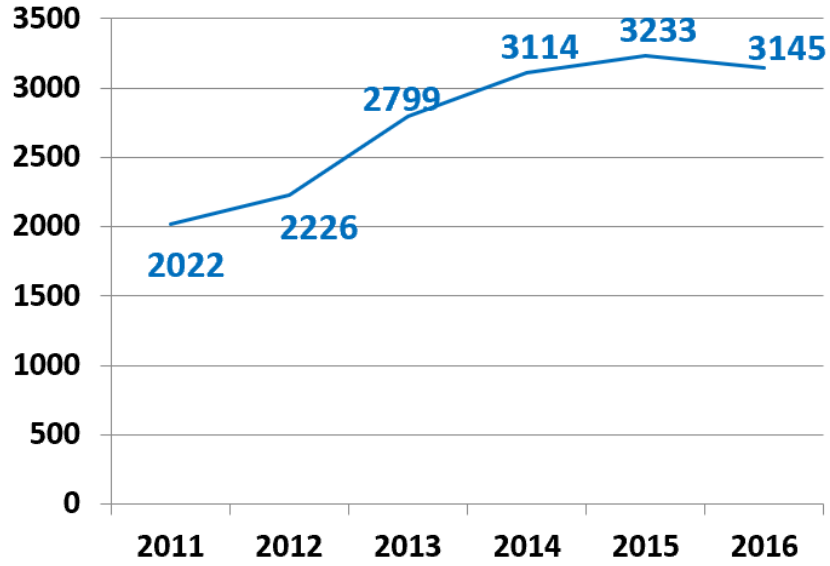
2004
Automatic Identification System (AIS) for vessel identification and tracking, reduces collision risk.

2004
International Ship and Port Facility Security (ISPS) Code enhances security in ports.

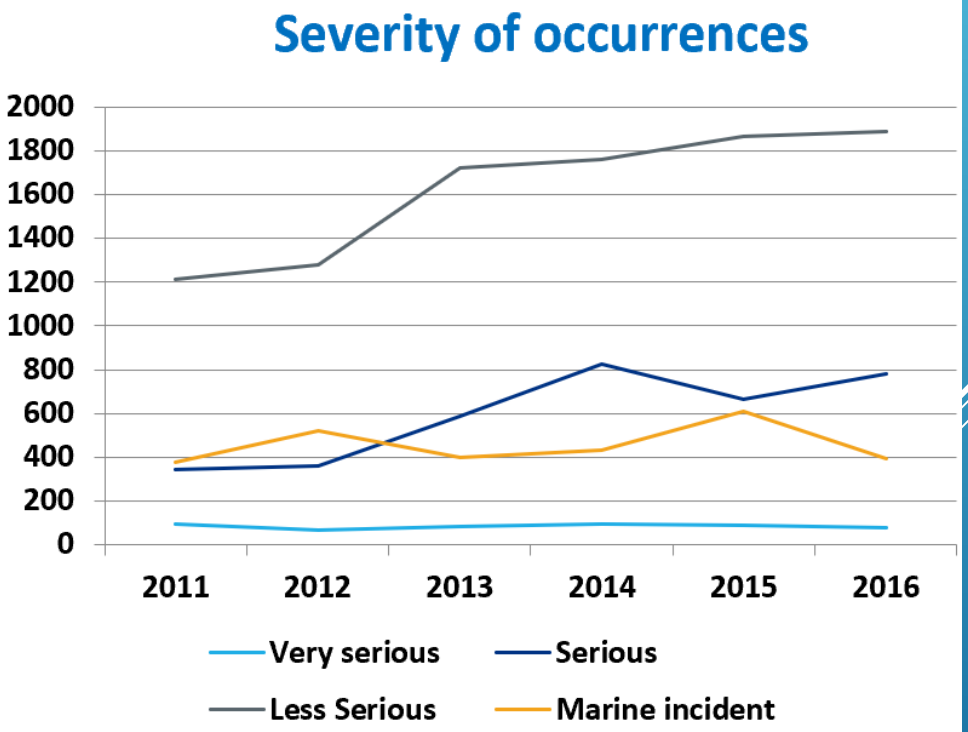
2012
Electronic Chart Display and Information System (ECDIS) navigation system become mandatory, provid continuous position and navigational information.

1910 1915 1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010 20

REPORTED OCCURRENCES 2011 -2016



Total per year



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