



ANNUAL OVERVIEW OF MARINE CASUALTIES AND INCIDENTS 2015

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OF MARINE CASUALTIES AND
INCIDENTS 2015**

OVERVIEW OF KEY FIGURES

Key figures for 2014 as reported in the European database on marine accidents



3025 accidents

99 very serious accidents



3399 ships involved

51 ships lost



1075 persons injured

136 fatalities



125 investigations
launched



CONTENTS

EXECUTIVE SUMMARY 8

CHAPTER 1

INTRODUCTION 10

Background 11

Scope 11

Content of the review 12

CHAPTER 2

MARINE CASUALTIES IN GENERAL 14

2.1 Number and severity of accidents 17

2.2 Type of occurrences 20

CHAPTER 3

ACCIDENTS BY SHIP CATEGORY 22

3.1 Main ship types 17

3.2 Detailed ship types 22

CHAPTER 4

NATURE OF OCCURRENCE 28

4.1 Casualty with a ship 29

4.2 Occupational accidents 31



Grounding, C/V YUSUF, 8/3/2014

CHAPTER 5

EVENTS AND CONTRIBUTING FACTORS ANALYSIS 32

5.1 Accidental events 38

5.2 Contributing factors 39

CHAPTER 6

CONSEQUENCES 42

6.1 Consequences to ship 45

6.2 Consequences to person 46

6.3 Other consequences 48

CHAPTER 7

ACCIDENT LOCATION 52

7.1 Voyages 52

7.2 Location of accidents 52

7.3 Regional distribution 52

CHAPTER 8

ACTIONS TAKEN BY THE ACCIDENT INVESTIGATION BODIES 52

8.1 Safety investigations 52

8.2 Investigation reports 52

8.3 Safety recommendations 52

APPENDICES

Appendix 1 Acronyms and definitions 57

Appendix 2 EMCIP model 63

Appendix 3 List of national accident investigation bodies 70



Grounding, C/V YUSUF, 8/3/2014

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NOTICE

Article 1 of Directive 2009/18/EC of the European Parliament and of the Council of 23 April 2009 establishing the fundamental principles governing the investigation of accidents in the maritime transport sector and amending Council Directive 1999/35/EC and Directive 2002/59/EC of the European Parliament and of the Council states:

“The purpose of the Directive 2009/18/EC of 23 April 2009 is to improve maritime safety and the prevention of pollution by ships, and so reduce the risk of future marine casualties, by:

(a) facilitating the expeditious holding of safety investigations and proper analysis of marine casualties and incidents in order to determine their causes; and

(b) ensuring the timely and accurate reporting of safety investigations and proposals for remedial action.

Investigations under this Directive shall not be concerned with determining liability or apportioning blame.”

The information contained in this document is to be used only for the improvement of maritime safety and the prevention of pollution by ships. It shall not be used for determining liability or apportioning blame.

DISCLAIMER

The marine casualty and incident data presented is strictly for information purposes only. The statistics presented are from the data stored in the European Marine Casualty Information Platform (EMCIP) by the accident investigation bodies of the EU Member States. It reflects the information at the time the data was extracted (13/5/2015). While every care has been taken in preparing the content of the report to avoid errors, the Agency makes no warranty as to the accuracy, completeness or currency of the statistics in the report. The Agency shall not be liable for any kind of damages or other claims or demands incurred as a result of incorrect, insufficient or invalid data, or arising out of or in connection with the use, copying or display of the content, to the extent permitted by European and national laws. The information contained in the report should not be construed as legal advice.

ACKNOWLEDGEMENTS

The Agency wishes to acknowledge the contribution made by the EU Member States and the European Commission and to thank them for their support in the conduct of this work and in the preparation of this report.

EXECUTIVE SUMMARY

A total of 9180 occurrences have been reported to EMCIP over its first four years in operation, 2011-2014, and have been used to produce this publication.

EU Member States have continued to increase the reporting of casualties and incidents in EMCIP. Comparison of the notifications in EMCIP against commercial sources that record accidents, suggested that approximately 3500 occurrences (ranging from marine incidents at the lower end of the scale through to very serious accidents) could be expected to be notified annually. However, only some 3025 occurrences were in fact reported to EMCIP for the year 2014. It should be borne in mind that there can be a time-lag between the incident and it being reported in EMCIP, and a number of incidents that took place in 2014 were still to be notified when the data for the Annual Overview was extracted.

The implementation of the reporting of marine casualties and incidents into EMCIP has been a gradual process. While the data can be used to shed light on certain aspects of maritime safety, it should not be used as an indication of the full picture.

Over the period 2011-2014 under consideration, more than 390 persons lost their lives and 3250 were injured.

Around two thirds of the total occurrences directly involved damage to a ship while one third was about accidents to persons on board.

While the majority of ships that sank were fishing vessels, cargo ships represented 44% of all ships involved.

67% of accidents were related to human erroneous actions.

Although EMCIP contains a substantial body of data, the population of the database has been gradual and progressive and it is too soon for this publication to provide a full picture or indicate trends over recent years. However, if used with caution, the data provides a picture of some aspects of maritime safety within the scope of the Directive.

In total, the accident investigation bodies of the EU Member States opened investigations into more than 530 accidents and incidents that occurred from 2011 to 2014. Some 410 investigation reports were published.

55% of the safety recommendations issued by the accident investigation bodies have been positively considered by the addressees.



5th meeting of the Permanent Cooperation Framework of accident investigation bodies and the European Commission, 2-4/6/2015, EMSA, Lisbon

CHAPTER 1

INTRODUCTION



Collision , MAERSK KALMAR and CONRAR AVENUE, 7/5/2013

Background

The purpose of the European Maritime Safety Agency is to ensure a high, uniform and effective level of maritime safety, maritime security, prevention of and response to pollution caused by ships and by oil and gas installations.

EMSA's activities cover the following main areas:

- providing technical and scientific assistance to the Member States and the European Commission in the proper development and implementation of EU legislation on maritime safety, security, prevention of pollution by ships as well as to simplify maritime transport administrative duties
- improving cooperation with and between Member States in all key areas
- offering operational assistance, including developing, managing and maintaining maritime services for ship monitoring
- carrying out operational preparedness, detection and response tasks with respect to pollution caused by ships and by oil and gas installations.

As a body of the European Union, the Agency sits at the heart of the EU maritime safety and pollution response network and collaborates with many industry stakeholders and public bodies, in close cooperation with the Commission and the Member States.

Following the entry into force of Directive 2009/18/EC¹ establishing the fundamental principles governing the investigation of accidents in the maritime transport sector, EU Member States shall, among other obligations:

- establish independent, impartial and permanent accident investigation bodies. Landlocked countries without a maritime fleet are not obliged to comply with this provision, other than to designate a focal point. This is the case currently for the Czech Republic and Slovakia.

¹Directive 2009/18/EC of the European Parliament and of the Council of 23 April 2009 establishing the fundamental principles governing the investigation of accidents in the maritime transport sector and amending Council Directive 1999/35/EC and Directive 2002/59/EC of the European Parliament and of the Council.

- require to be notified of marine accidents and incidents. This obligation covers casualties and incidents that:
 - involve ships flying the flag of one of the Member States
 - occur within Member States' territorial seas and internal waters
 - involve other substantial interests of the Member States.
- investigate accidents depending upon their severity. Casualties which are classified as very serious shall be investigated; serious casualties shall be assessed in order to decide if the accident needs to be investigated, while it is left to the accident investigation body to decide whether to investigate a less serious accident or a marine incident
- publish investigation reports
- notify the European Commission of marine casualties and incidents via EMCIP.

EMCIP is the European Marine Casualty Information Platform; a centralised database for EU Member States to store and analyse information on marine casualties and incidents.

This EMSA-run platform relies on the competent national authorities to provide data. It is this data which forms the basis of the Annual Overview of Marine Casualties and Incidents.

In this publication, the terms "Europe" and "EU Member States" are considered to be the 28 Member States plus the EFTA Member States, Iceland and Norway.

Scope

EMSA has the obligation to provide an annual overview of marine casualties and incidents under Regulation (EU) No 100/2013 which amended the Agency's founding Regulation (EC) No 1406/2002.

This publication presents casualty statistics on ships flying a flag of an EU Member State, accidents in European territorial seas and internal waters or wherever there are European interests involved, as reported by EU Member States in EMCIP.

Considering the date of the implementation of the accident investigation Directive in June 2011, the Agency decided to cover the 2011-2014 period in this publication. It is intended in future publications to provide a multi annual overview to better analyse the information provided and for example highlight trends in the area of maritime accidents.

The data can be subject to small changes over time as EU Member States add more information or older cases to the EMCIP database. For this reason, the figures extracted from the database in May 2015 and presented in this publication are likely to be slightly different to those presented throughout the year in various fora or in the next edition to be published in 2016.

The figures presented in this publication have the aim of providing a general overview of the safety of maritime transport in the scope of European interests. However, it is limited by the quantity and nature of information presently contained in EMCIP and is therefore not intended as a comprehensive technical analysis.

Moreover, at the present moment, it cannot be used as an indication of trends. This is due to the fact that implementation of the accident investigation Directive has only been required since 17 June 2011 as well as due to progressive implementation by some Member States. Should further information about specific cases be required, readers are invited to contact the national competent accident investigation bodies (whose contact details can be found in Appendix 3 of the publication).

Content of the review

This publication has been organised in such a way as to cover the main aspects of maritime safety as given in the Directive and as included in the Agency's remit. Consequently, the publication is divided into the following chapters: general picture, ship categories, accident types, contributing factors, consequences, regional distribution and investigation outcomes.

More information about the Agency's activities related to marine accidents can be found at:

<http://www.emsa.europa.eu/implementation-tasks/accident-investigation.html>
<https://emcipportal.jrc.ec.europa.eu/>

A list of acronyms and definitions as well as extra information on the accident categories used can be found in Appendix 1. Appendix 2 illustrates the data model used in EMCIP and the list of accident investigation bodies in Europe can be found in Appendix 3.

CHAPTER 2

MARINE CASUALTIES

IN GENERAL



Contact, KARLA C, 13/4/2014



Collision, MV ARKLOW and FV ELLUMA, 22/8/2014

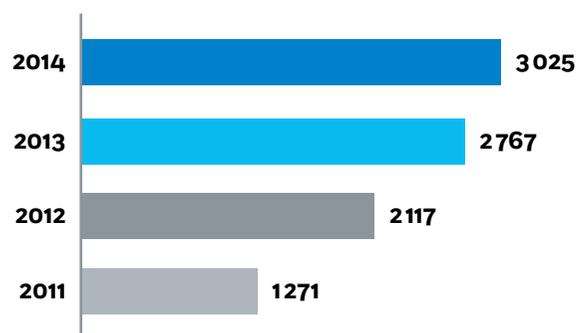


Fire, EUGEN MAERSK, 18/6/2013

This chapter provides general information about the number of accidents, their severity and nature, as well as EU Member States' involvement as Flag State, Coastal State or interested State.

2.1 NUMBER AND SEVERITY OF ACCIDENTS

Figure 1: Number of reported marine casualties and incidents



A **MARINE CASUALTY** can be understood as any event directly connected with the operations of a ship that has resulted in any of the following scenarios:

- the death of, loss of or serious injury to, a person
- the loss, presumed loss or abandonment of a ship
- material damage to a ship or to marine infrastructure external to a ship
- the stranding or disabling of a ship, or the involvement of a ship in a collision
- severe or potential for severe damage to the environment, brought about by the damage of a ship.

A **MARINE INCIDENT** can be understood as any event, or sequence of events, other than a marine casualty, which has occurred directly in connection with the operations of a ship that endangered, or, if not corrected, would endanger the safety of the ship, its occupants or any other person or the environment.

For the purposes of this overview, the term **OCCURRENCES** is used to include both marine casualties and marine incidents.

It should be noted that neither a marine casualty nor incident include a deliberate act or omission, with the intention to cause harm to the safety of a ship, an individual or the environment.

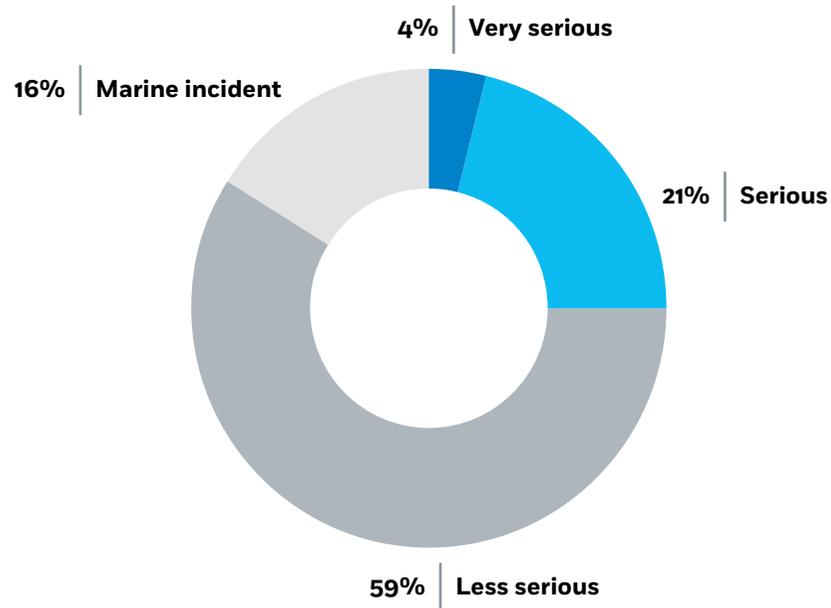
The total number of reported occurrences was 9180.

About 340 occurrences related to accidents that happened during the period 2011-2013 were notified in 2014.

In 2014, the evolution of the total number of occurrences reported confirms an improvement in the reporting by the EU Member States. Some under-reporting of occurrences however still exists, mainly due to the on-going take-up of reporting in EMCIP and the remaining difficulties met by some EU Member States in the implementation of the Directive. Such under-reporting remains inversely related to the severity classification: there is little under-reporting of Very Serious casualties but there seems to be a higher level of under-reporting for Marine Incidents. EU Member States continue to improve their reporting of occurrences in each category of severity.

The number of occurrences for the year 2015 is estimated to be between 3500 and 4000.

Figure 2: Distribution of occurrences according to severity 2011-2014



VERY SERIOUS CASUALTIES are marine casualties involving the total loss of the ship or a death or severe damage to the environment.

SERIOUS CASUALTIES are marine casualties to ships which do not qualify as very serious casualties and which involve for example a fire, collision, grounding, heavy weather damage, suspected hull defect, etc., resulting in the ship being unfit to proceed, pollution or a breakdown necessitating towage or shore assistance.

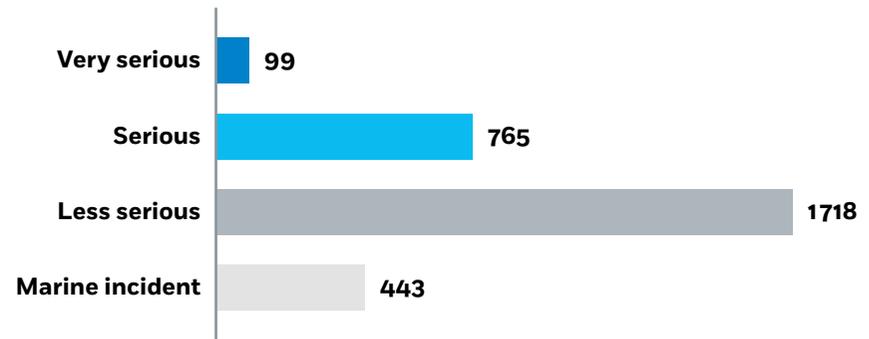
LESS SERIOUS CASUALTIES are marine casualties that don't qualify as very serious or serious casualties.

MARINE INCIDENTS are events, or sequence of events, other than marine casualties, which have occurred directly in connection with the operations of a ship that endangered, or, if not corrected, would endanger the safety of the ship, its occupants or any person or the environment.

The relative proportions of occurrence severity during the past 4 years have been fairly constant. However the low percentage of reported marine incidents is probably linked to the under-reporting issue and the difficulties for such incidents to be properly considered: a high number of incidents, with little or no damage to the ship, the person or the environment, representing a burden for parties involved to be consistently and correctly treated.

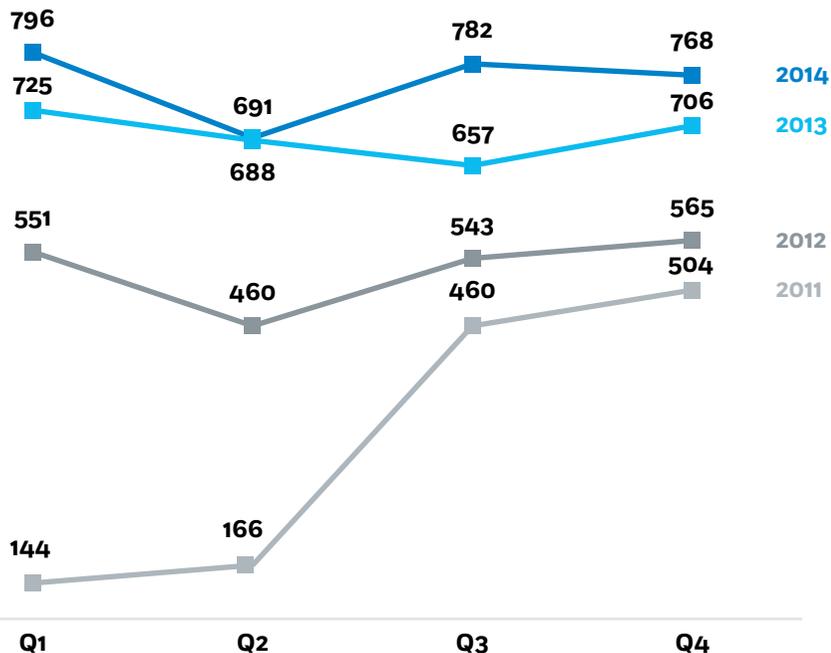
4% of the reported occurrences were classified as very serious casualties.

Figure 3: Number of occurrences in 2014 according to severity



The number of very serious casualties has risen from 81 in 2013 to 99 in 2014, and is expected to be similar in 2015.

Figure 4: Number of occurrences per quarter 2011-2014

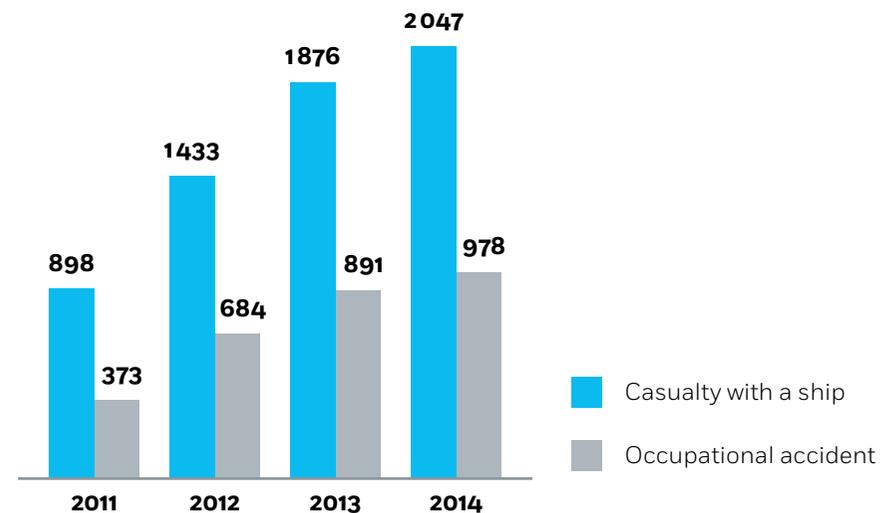


The figure shows the number of occurrences per quarters during the 2011-2014 period based on the date the accidents occurred.

The average number of accidents per quarter in 2014 was 756.

2.2 TYPE OF OCCURRENCES

Figure 5: Occurrences by type



In EMCIP Marine casualties are separated into two different categories: on one hand, there is a **CASUALTY WITH A SHIP**, when a ship, its equipment or cargo is affected by an accident and, on the other hand, there is an **OCCUPATIONAL ACCIDENT**, where the accident affects only a person.

A total of 6254 casualties with a ship and 2926 occupational accidents were recorded.

The distribution per year between casualties with a ship and occupational accidents indicates that the ratio 1/3 to 2/3 has been stable from 2011 to 2014, and the totals increased in line with the improvement of reporting of occurrences.

It is however likely that occupational accidents resulting in light injuries are under-reported, in line with the underreporting of marine incidents from a general perspective.



Contact, APOLLO, 25/7/2013



Grounding, COMMODORE CLIPPER, 14/7/2014



Contact, DIAMOND, 25/3/2014

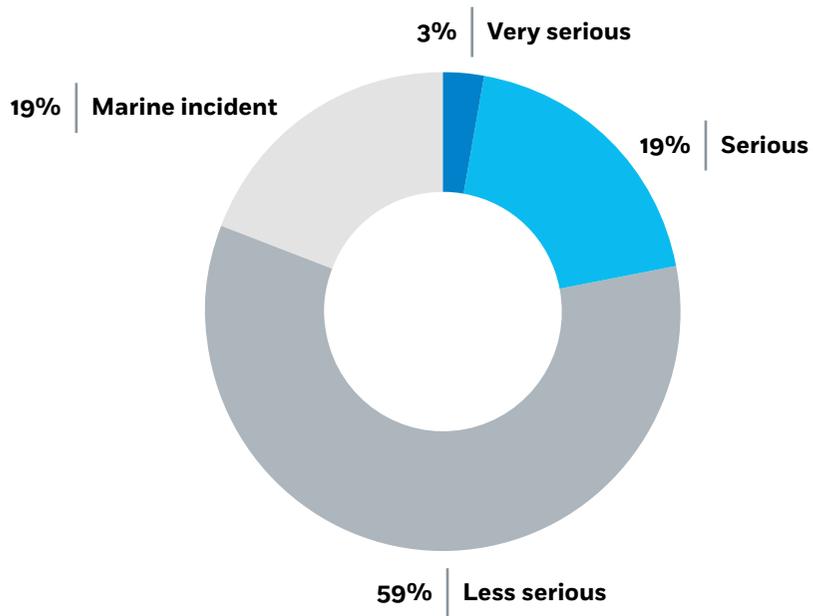


Collision, CHRITOS XXII and HULK, 13/1/2013



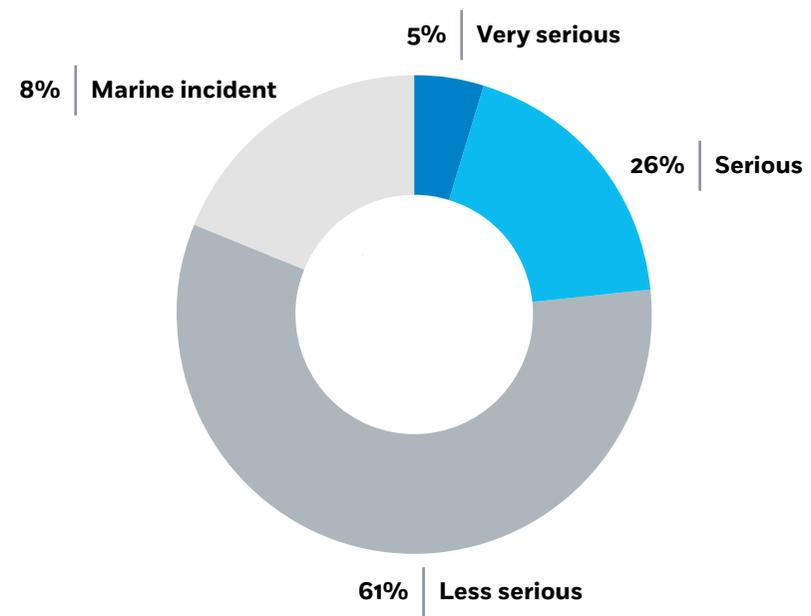
Collision, ORAKAI and MARGRIET, 21/12/2014

Figure 6: Distribution of casualties with a ship by severity 2011-2014



From 6254 casualties with a ship, 178 were classified as very serious, 1193 serious and 3662 less serious.

Figure 7: Distribution of occupational accident by severity 2011-2014

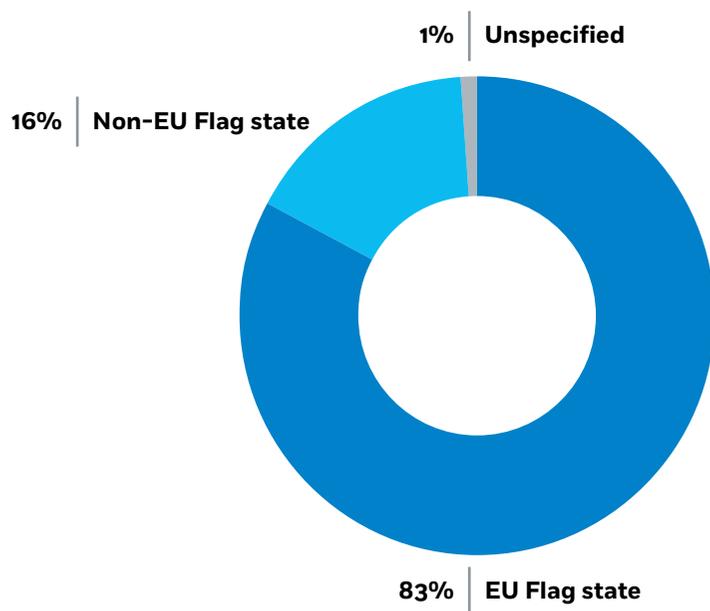


From 2926 occupational accidents, 163 were classified as very serious, 750 serious and 1791 less serious.

2.3 INVOLVEMENT OF EU MEMBER STATES AS FLAG STATE, COASTAL STATE OR SUBSTANTIAL INTERESTED STATE

As defined in the Directive, EU Member States must report all occurrences involving ships flying their flag, regardless of location; ships flying the flag of non-EU countries that occur within EU Member States' territorial sea and internal waters; and accidents that involve other substantial interests of the EU Member States whatever the flag of the ship and the location of the occurrence.

Figure 8: Distribution of ship flags 2011-2014



FLAG STATE means a State whose flag a ship is entitled to fly.

The total number of ships involved was 10 440.

8 718 ships flagged under an EU Member State were involved in an occurrence. **28** EU Member States were involved as flag of the ship. Austria, Czech Republic and Slovenia were the three EU Member States for which no registered ship was involved.

1 637 ships flagged under a total of 85 non-EU countries were involved in an occurrence.

The flag of **85** ships was not identified.

There is a higher ratio of EU Flag States affected by an occurrence in comparison with non-EU. It should be recalled that occurrences on-board ship flagged in non-EU countries not involving substantial EU interests are not covered by the EU Directive and therefore not required to be reported to EMCIP.

Figure 9: Number of Flag States in 2014

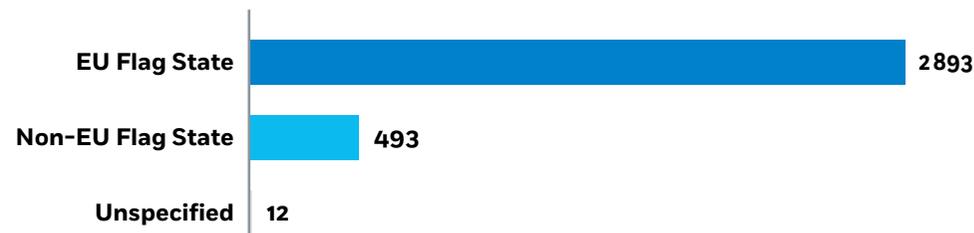
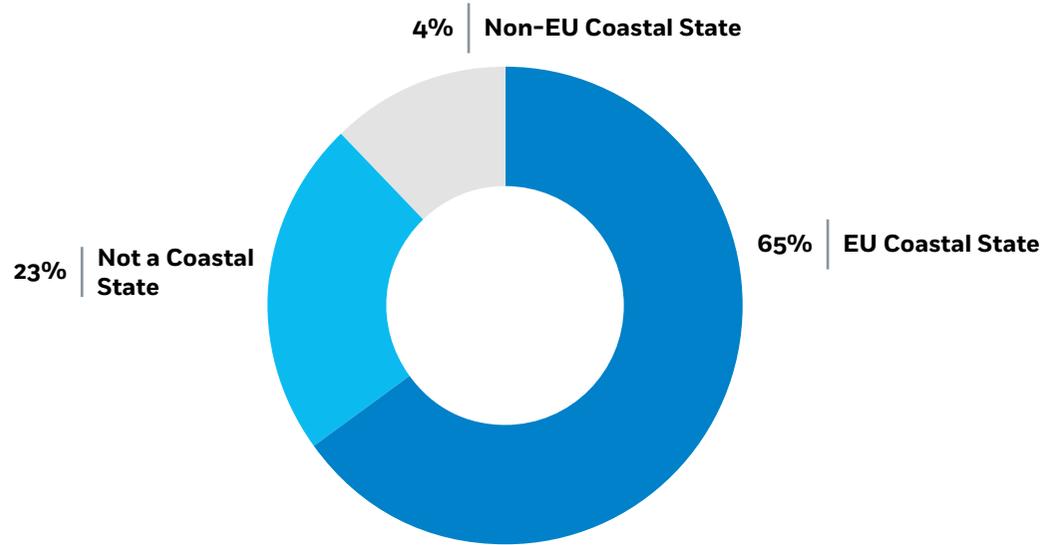


Figure 10: Distribution of Coastal States 2011-2014



A **COASTAL STATE** means a State in whose territorial sea or internal waters, a marine casualty or marine incident occurs.

In 7010 cases, at least one Coastal State was reported to be affected by the occurrence. Considering the total number of occurrences (9180), this means that 77% of the accidents happened in territorial seas or internal waters.

The grand total of Coastal States affected was **7063**, as more than one Coastal State could be affected by the same occurrence.

26 EU Member States were involved as a Coastal State **5 990** times.

111 non-EU countries were reported as Coastal State **1073** times.



Capsizing, JETTE SAJ, 10/1/2013

As with EU flag ships, there is a higher ratio of EU Coastal States affected by an occurrence in comparison with non-EU. Again, it should be recalled that occurrences in coastal waters of non-EU countries not involving substantial EU interests are not to be reported to EMCIP.

Figure 11: Number of Coastal States in 2014

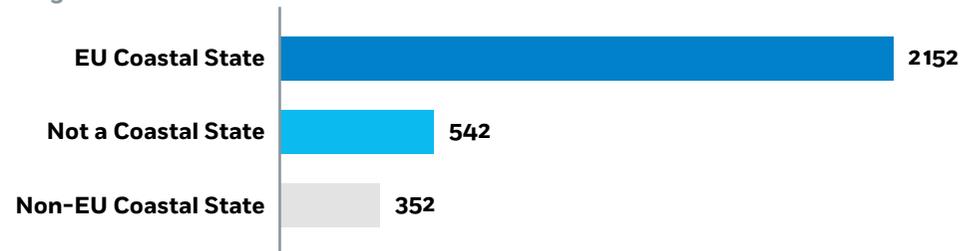
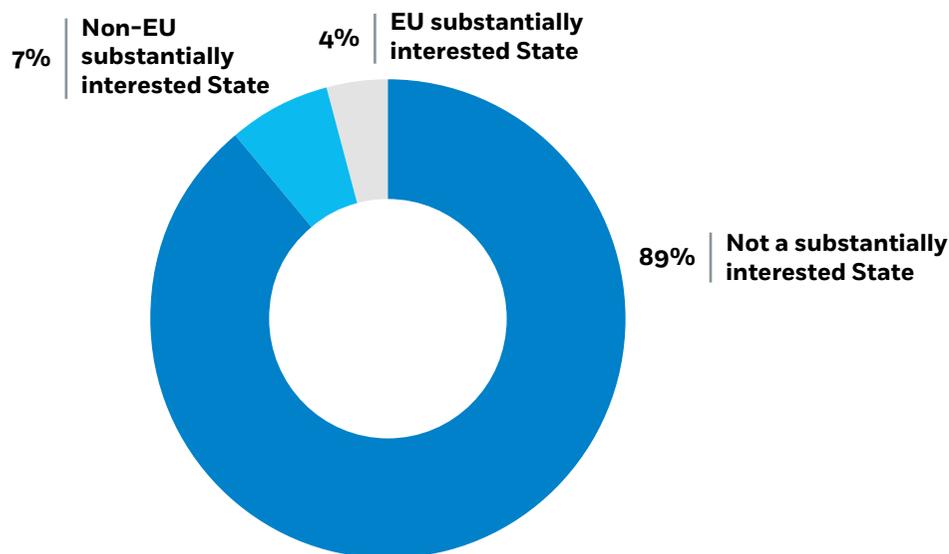


Figure 12: Distribution of substantially interested States other than Flag or Coastal States 2011-2014



SUBSTANTIALLY INTERESTED STATE REFERS to a State:

- which is the Flag State of a ship; or
- which is the Coastal State; or
- whose environment was damaged; or
- that suffers or is threatened with serious harm as a consequence of a marine casualty; or
- whose nationals lost their lives or received serious injuries; or
- that has important information at its disposal that the marine safety investigating State(s) consider useful to the investigation; or
- that for some other reason establishes an interest that is considered significant by the marine safety investigating State(s).



Capsizing, JETTE SAJ, 10/1/2013

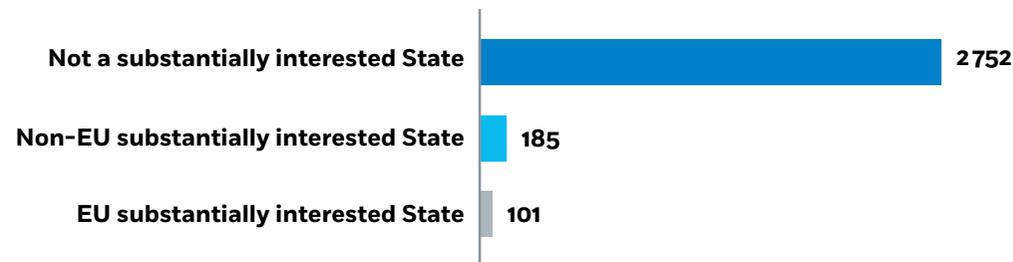
Other than Flag States or Coastal States as described in figures 5 and 7, in 920 occurrences, at least one substantially interested State was reported. Considering the total number of occurrences (9180), a State different from the flag or the Coastal State was interested in 10% of occurrences.

A total of **984** substantially interested states were registered, bearing in mind that a single occurrence can involve more than one substantially interested State.

27 EU Member States were involved as substantially interested State **347** times.

82 non-EU countries were affected **637** times.

Figure 13: Number of substantially interested States in 2014



CHAPTER 3

ACCIDENTS BY SHIP

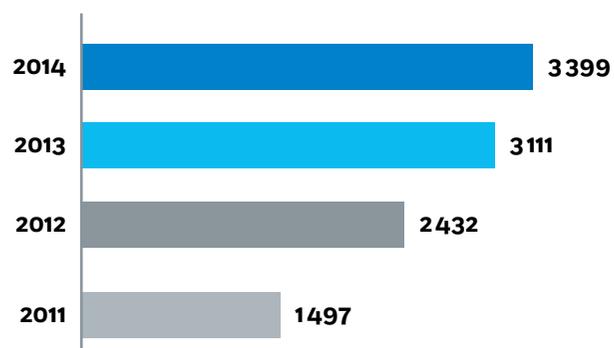
CATEGORY



This chapter focusses on the ships involved in marine casualties and incidents. Ships have been classified by the main categories: cargo ship, fishing vessel, passenger ship, service ship and other ship.

3.1 MAIN SHIP TYPES

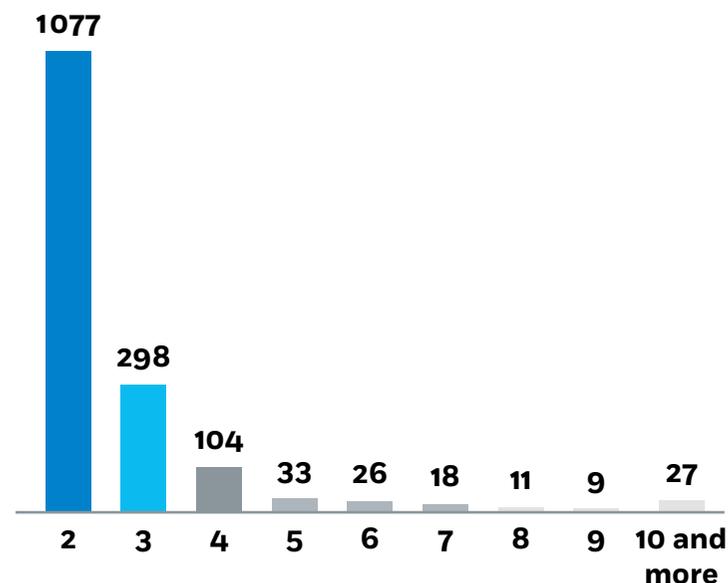
Figure 14: Number of ships involved in accidents



An occurrence might involve more than one ship, in particular in the case of collision where two or more ships could be involved.

In the **9180** occurrences that happened from 2011 to 2014, the total number of ships involved was **10439**. The increase of ships involved is proportional to the improvement in reporting.

Figure 15: Number of individual ships involved in more than one accident 2011-2014



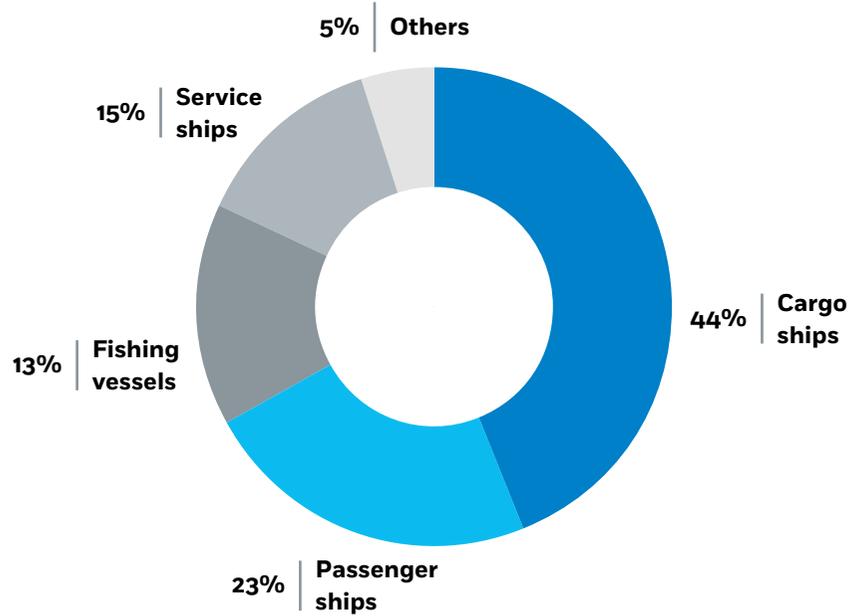
Similarly, a single ship can be affected by several accidents (different dates, different nature of accidents, etc.).

A total of 7420 individual ships were involved in occurrences.

5817 of these ships were involved in one occurrence only.

1603 were involved in more than one occurrence, as shown in the distribution above.

Figure 16: Proportion of ships involved by main category 2011-2014



The main ship category is decided according to the ship's main activity:

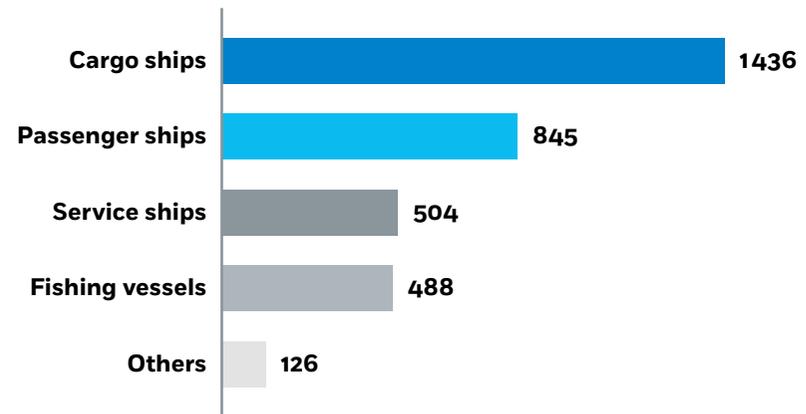
- **CARGO SHIP** is a commercial ship designed for the carriage of various types of cargo, goods or products and up to a maximum of 12 passengers.
- **FISHING VESSEL** is a vessel equipped or used commercially for catching fish or other living resources at sea.
- **PASSENGER SHIP** is a ship designed to transport more than 12 passengers.
- **SERVICE SHIP** is a ship designed for special services, like a tug or a dredger.
- **OTHER SHIP**, may be:
 - **INLAND WATERWAY VESSEL** is a vessel intended solely or mainly for navigation on inland waterways.
 - **RECREATIONAL CRAFT** is a boat of any type, regardless of the means of propulsion, intended for sports or leisure purposes.

- **NAVY SHIP** is a ship operating under the Navy or other military organisation.
- **UNKNOWN SHIP TYPE:** occurrence for which it wasn't possible to identify the vessel type.

Such vessels are considered within the scope of the Directive only when they are involved in an occurrence together with a ship which is covered by the Directive (e.g. a collision between a cargo ship and a recreational craft).

During the period 2011-2014, general cargo ships were the main category involved (4 620), followed by passenger ships (2 383).

Figure 17: Number of ships involved in 2014 by main category

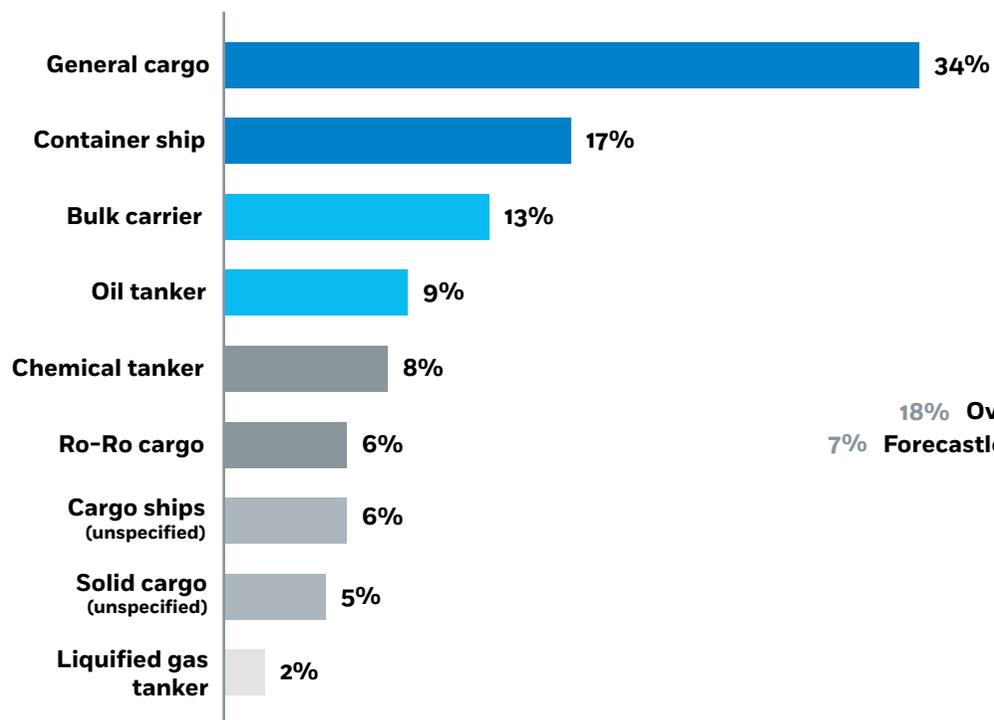


3.2 DETAILED SHIP TYPES

Under the main five categories referred to in figure 16, detailed ship categories are also defined. The following figures (18 to 27) show the main detailed ship sub-categories that were involved in occurrences during the 2011-2014 period, as well as the main places where the casualties took place on board per main category.

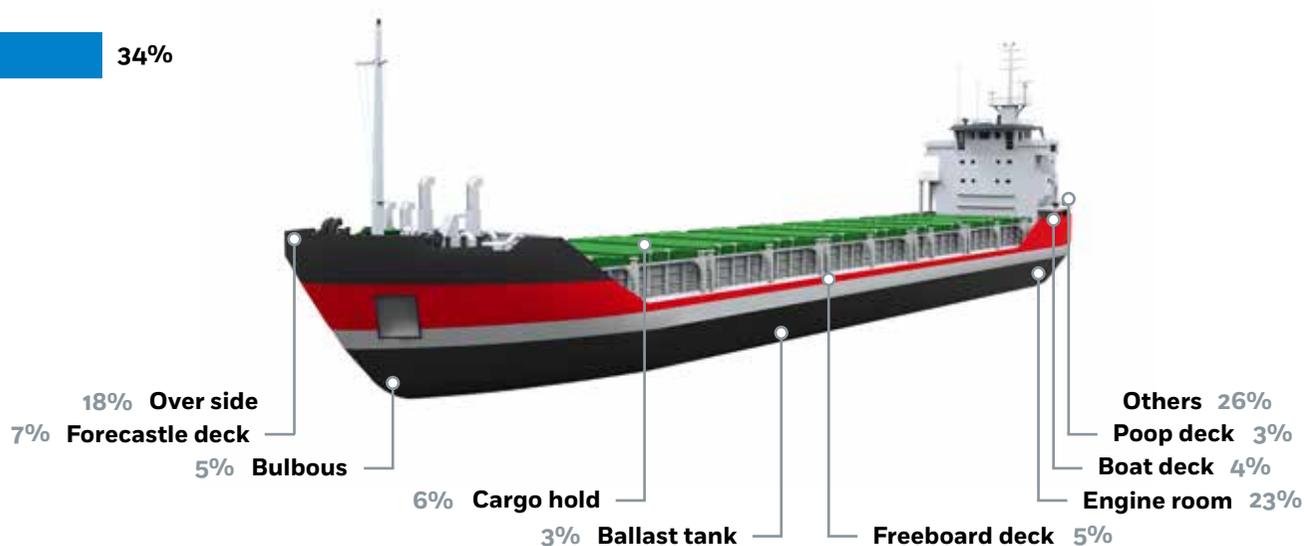
3.2.1 CARGO SHIPS 2011-2014

Figure 18: Distribution of cargo ships involved



From a total of 4620 general cargo ships involved, the main subcategory was represented by the general cargo only (1600 cases), followed by the container ships (787 cases).

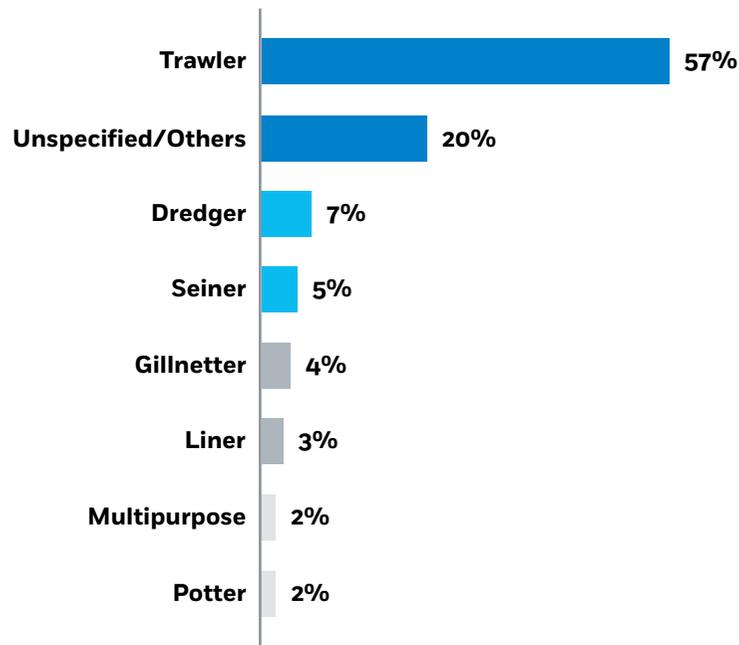
Figure 19: Main places of casualties on board cargo ships



When specified, the main location of accidents was the engine room (789 cases), followed by over side (610 cases).

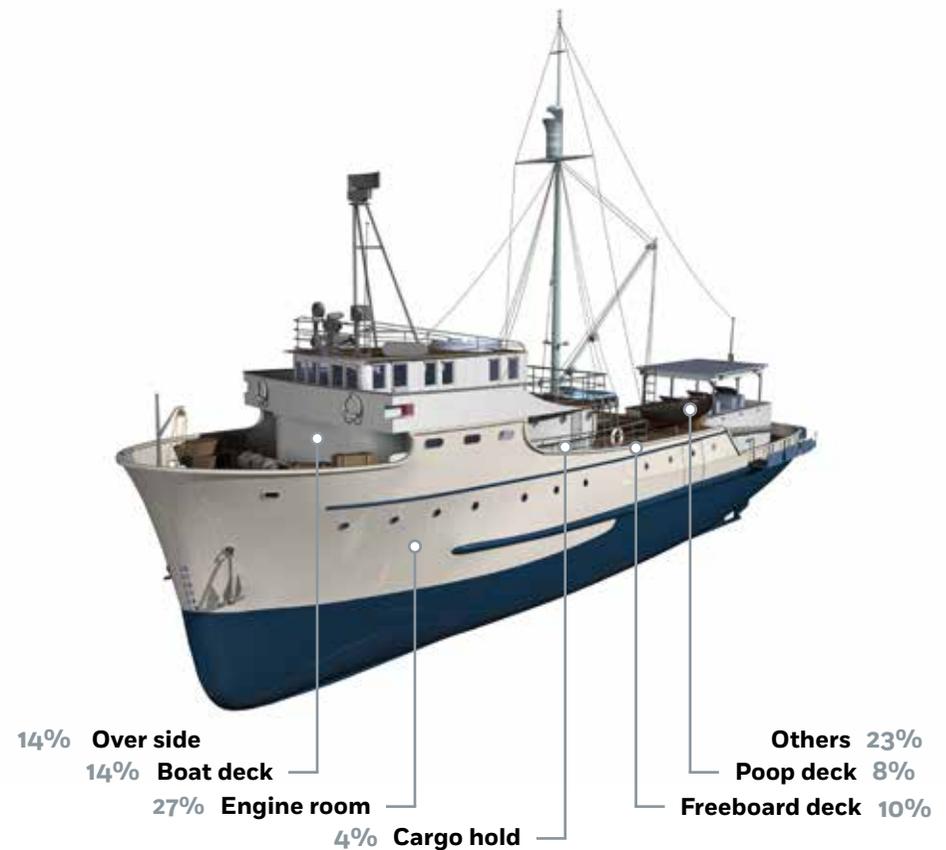
3.2.2 FISHING VESSELS 2011-2014

Figure 20: Distribution of fishing vessels involved



From a total of 1368 fishing vessels ships involved, the main specified subcategory was represented by trawlers (786 cases), followed by dredgers (93 cases).

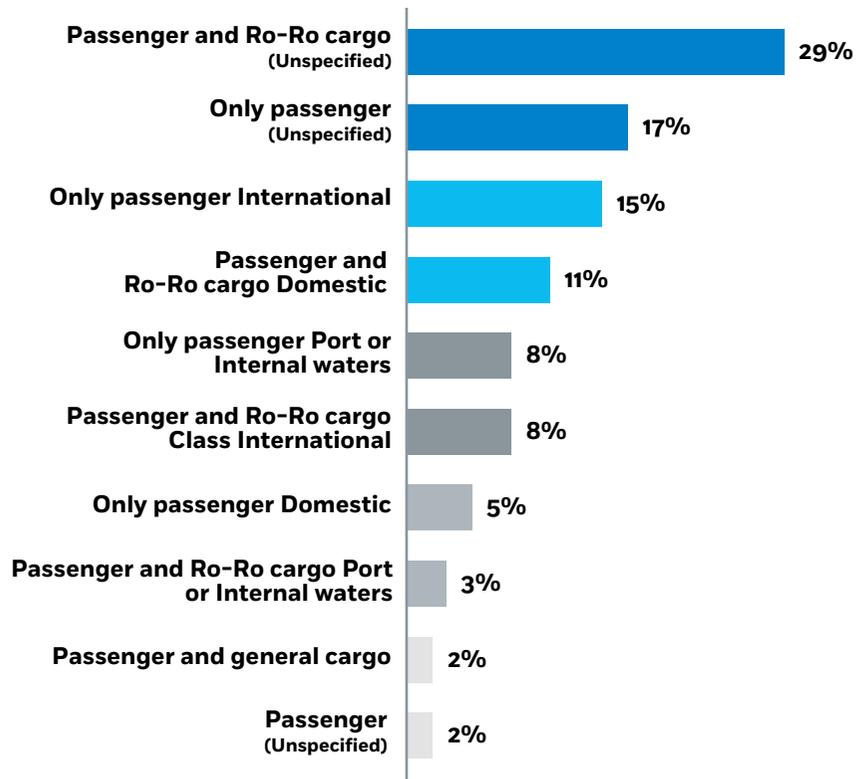
Figure 21: Main places of casualties on board fishing vessels



When specified, the main location of accidents was the engine room (272 cases), followed by the boat deck (143 cases) and over side (142 cases).

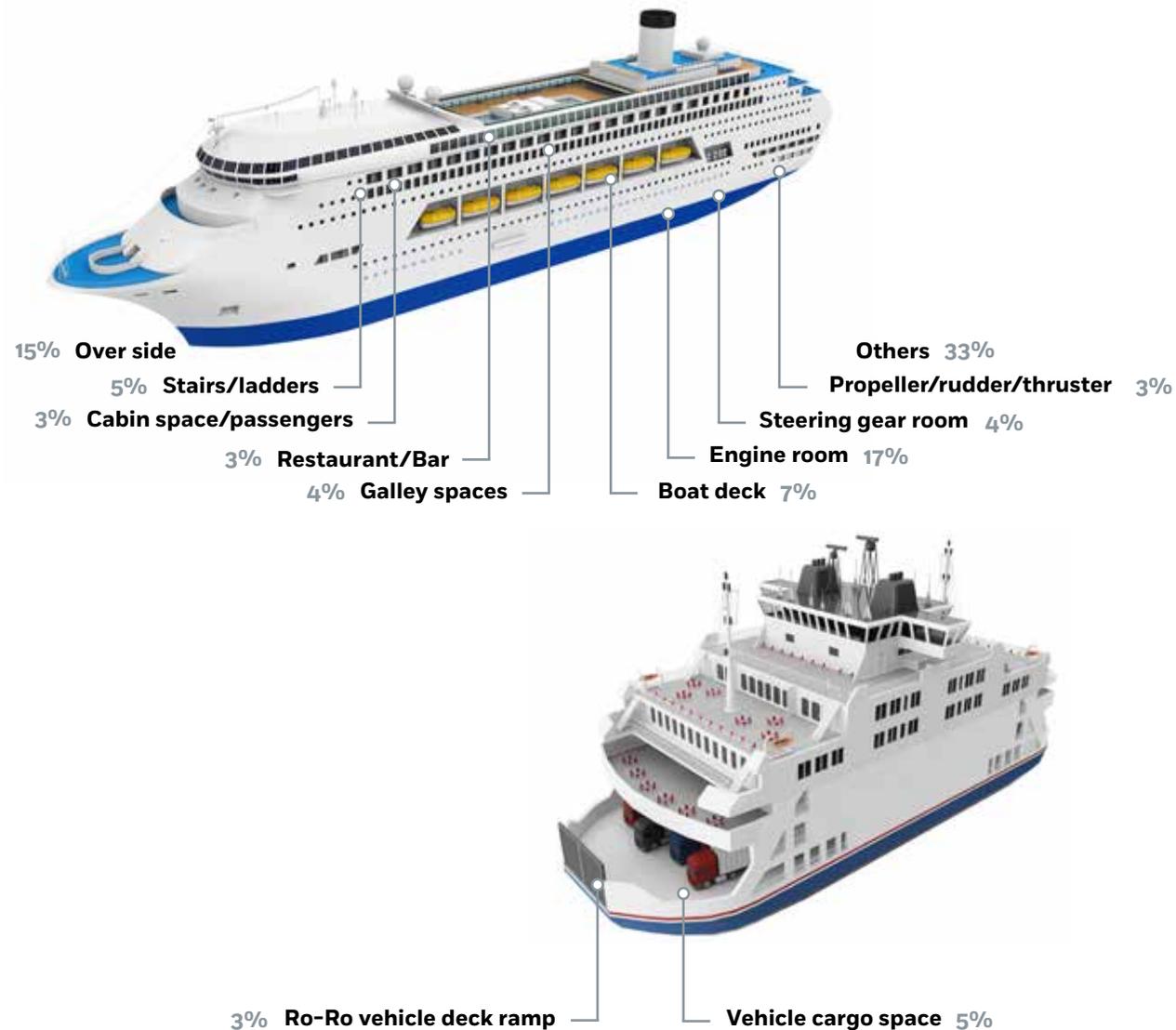
3.2.3 PASSENGER VESSELS 2011-2014

Figure 22: Distribution of passenger vessels involved



From a total of 2383 passenger vessels involved, the main subcategory was represented by the passenger and Ro-Ro cargo unspecified certification (683 cases), followed by ships carrying only passengers unspecified certification (412 cases).

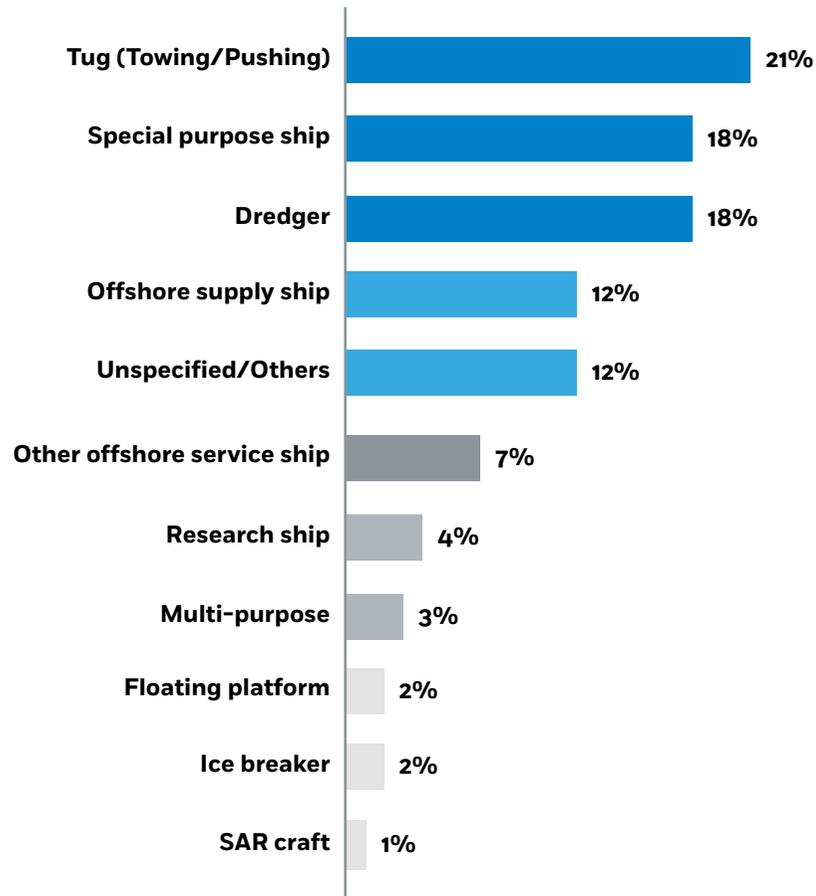
Figure 23: Main places of casualties on board passenger vessels



When specified, the main location of accidents was the engine room (317 cases), followed by over side (269 cases).

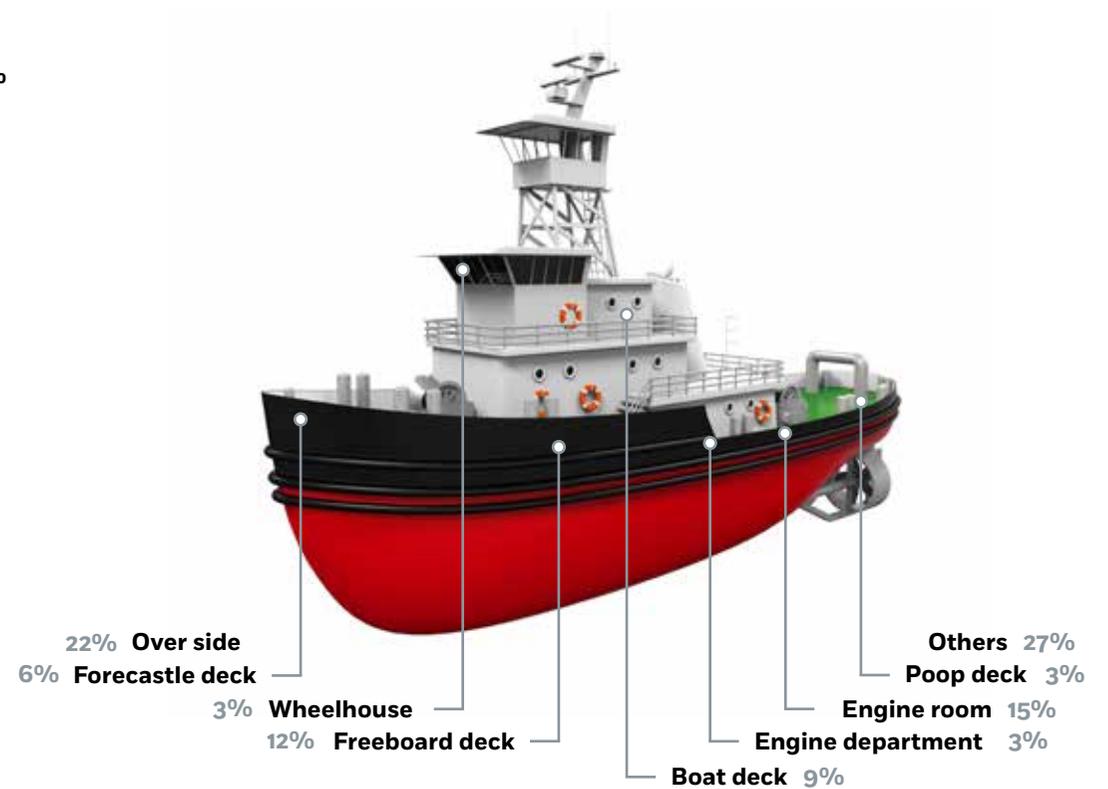
3.2.4 SERVICE SHIPS 2011-2014

Figure 24: Distribution of service ships involved



From a total of 1566 service ships involved, the main subcategory was represented by the tugs (334 cases), followed by special purpose ships (287 cases) and dredgers (278 cases).

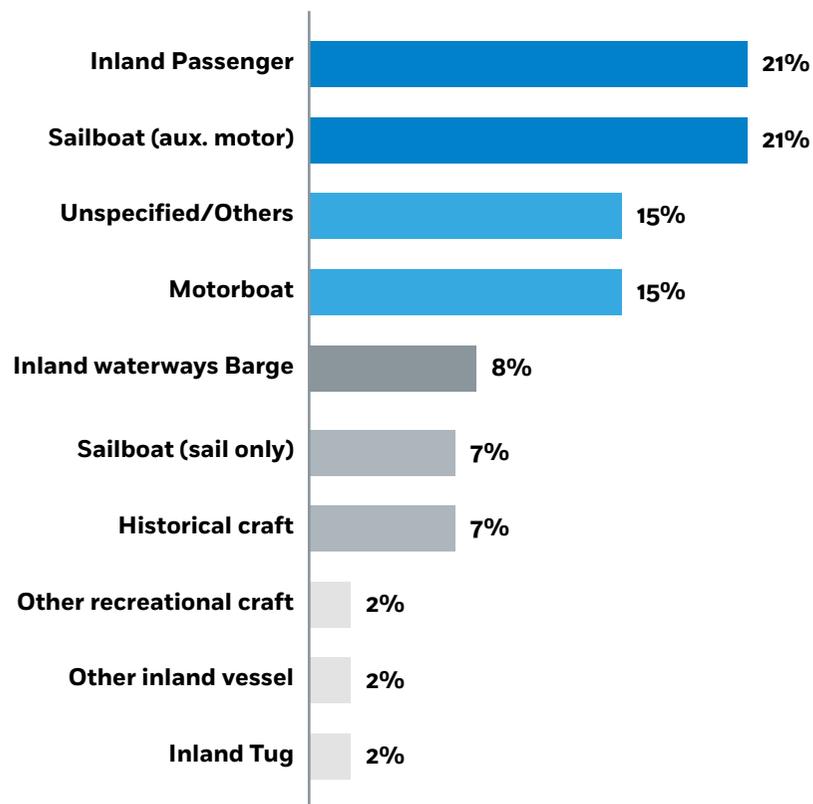
Figure 25: Main places of casualties on board service ships



When specified, the main location of accidents was over side (226 cases), followed by engine room (160 cases).

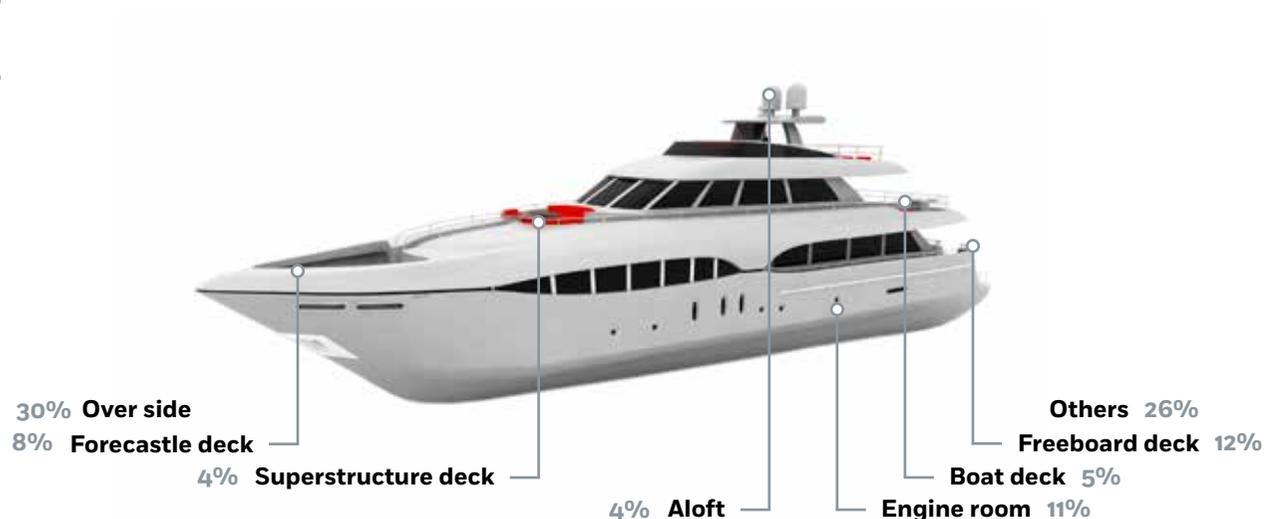
3.2.4 OTHER SHIPS 2011-2014

Figure 26: Distribution of other ships involved



From a total of 502 other type ships involved, the main subcategory was represented by Inland passenger ships (105 cases) and sailboats (103 cases).

Figure 27: Main places of casualties on other ships



When specified, the main location of accidents was over side (80 cases), followed by freeboard deck (31 cases).

CHAPTER 4

NATURE OF OCCURRENCE

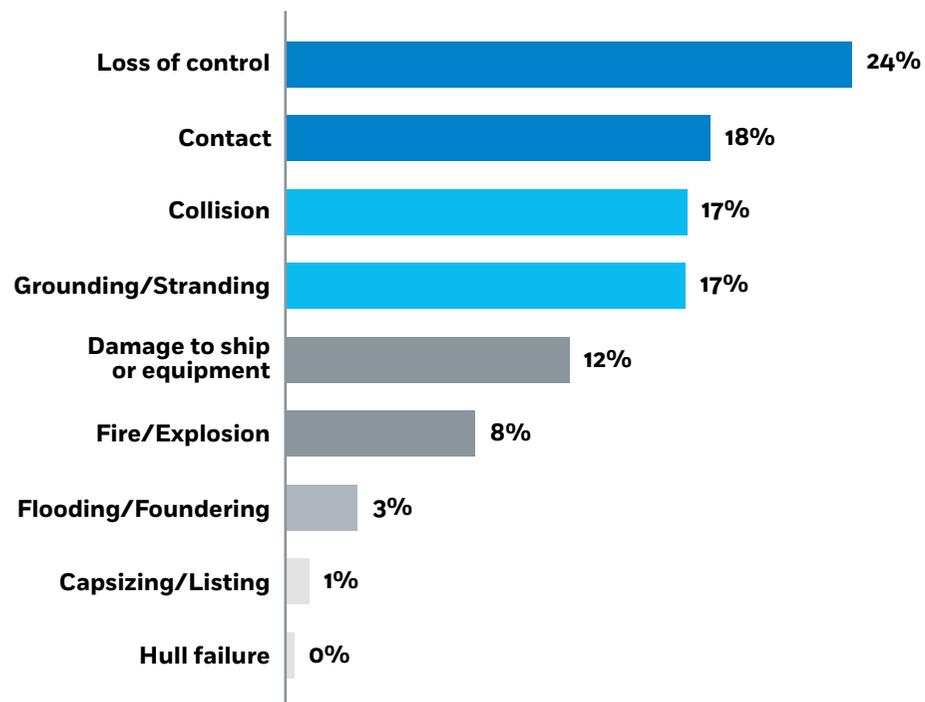


Collision between a dredger and a yacht, 8/6/2014

This chapter examines the different natures of occurrence.

4.1 CASUALTY WITH A SHIP

Figure 28: Distribution of casualty events 2011-2014



Events that led to an occurrence involving a ship are categorised as “casualty events”. These are unwanted events in which there has been an impact on a ship including people, its equipment and/or cargo and/or the environment. Definitions for casualty event can be found in Appendix 1.

During the period 2011-2014, loss of control is the most frequent event (1489 occurrences), followed by contact, groundings and collision (1155, 1087 and 1032 respectively).

Figure 29: Number of casualty events in 2014

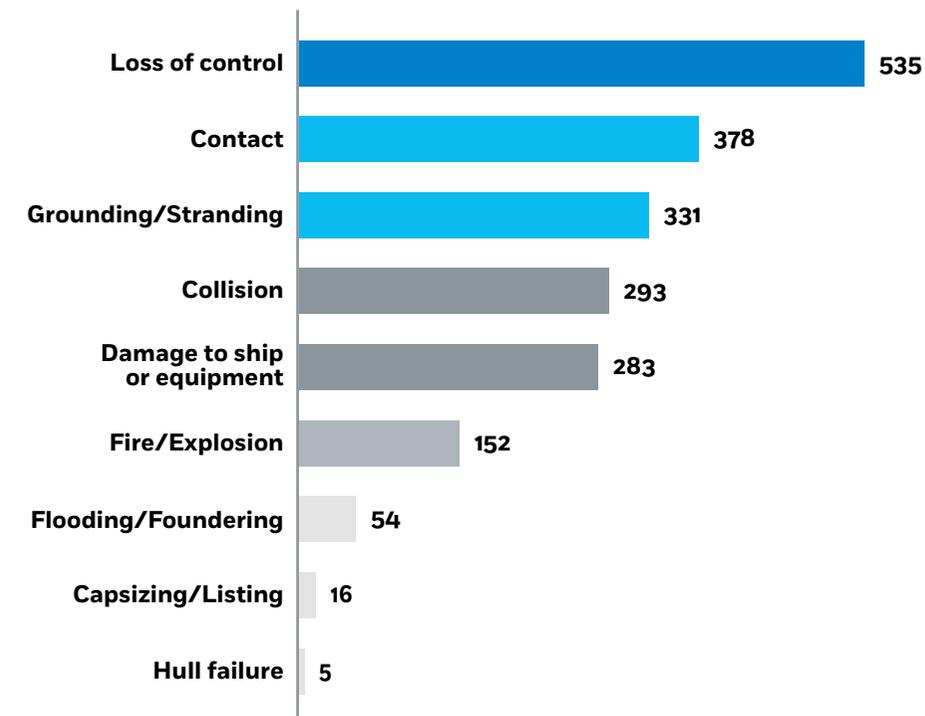
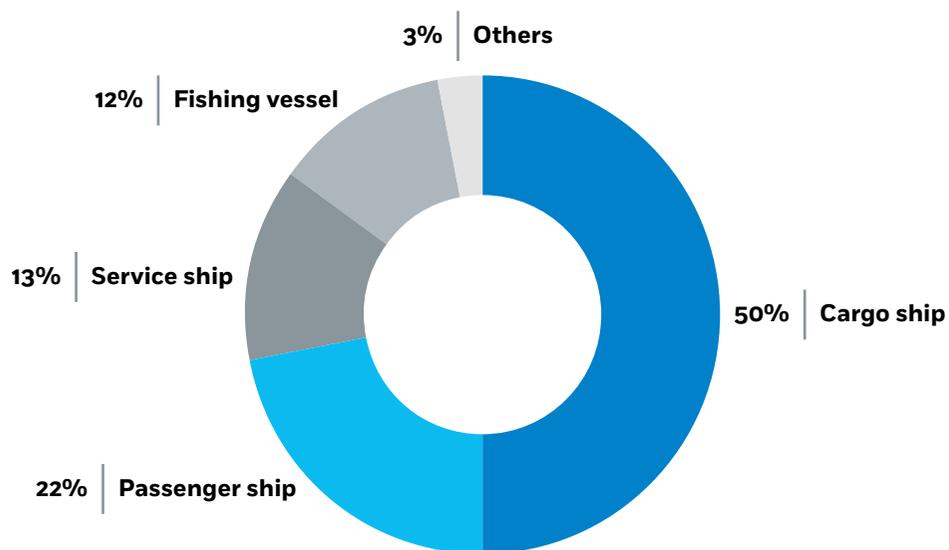
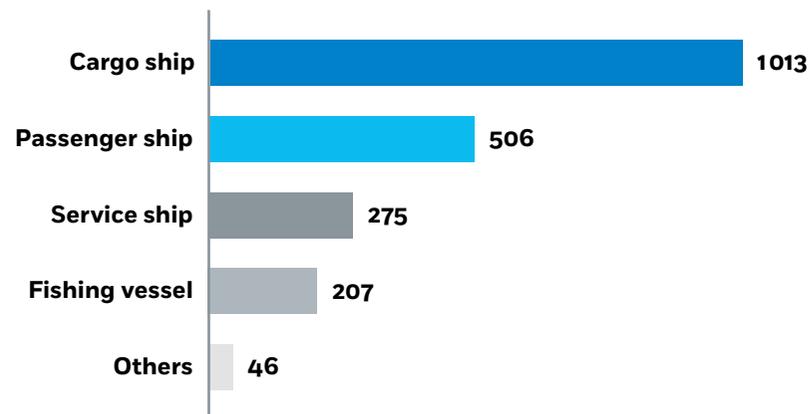


Figure 30: Distribution of ships involved in a “casualty with a ship” by ship category 2011-2014



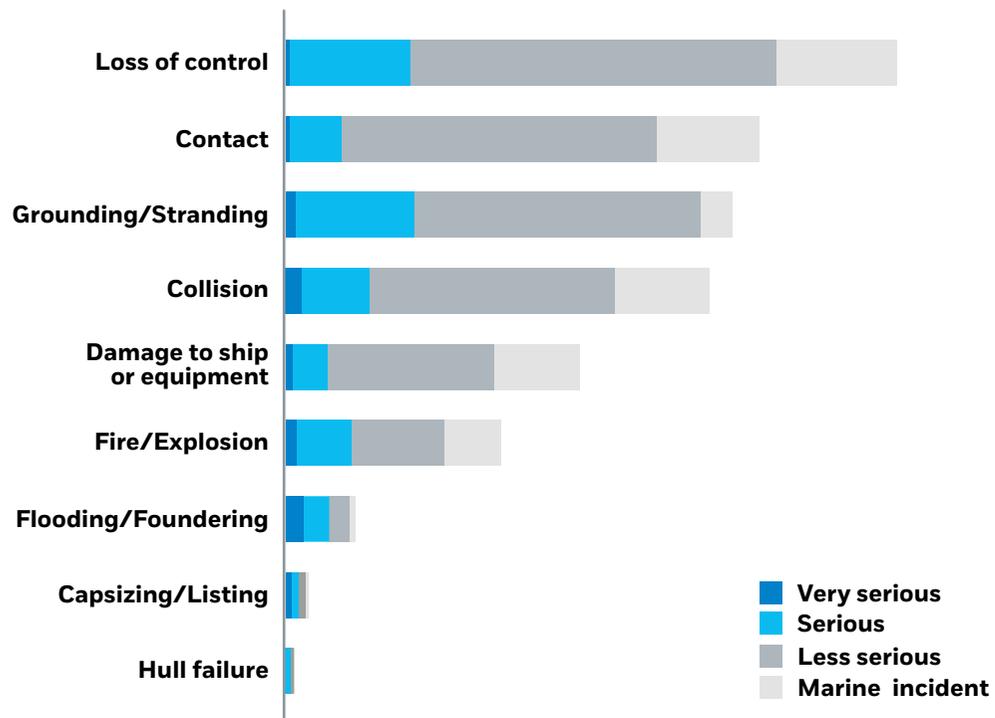
During the period 2011-2014, in line with the total number of ships involved in casualties, cargo ship (3143) was the most frequent ship type involved in “casualty with a ship”, followed by passenger ship (1377).

Figure 31: Number of ships involved in a “casualty with a ship” in 2014



SAR operations following fire, SEA GALE, 20/5/2014

Figure 32: Distribution of casualty events by severity 2011-2014



This figure provides a general indication of the occurrence severities per type of casualty events. More details can be found in the next figures.



Collision, KATRE and STATENGRACHT, 2/2/2013



Fire, NORMAN ATLANTIC, 28/12/2014

Figure 33: Distribution of very serious casualty events 2011-2014

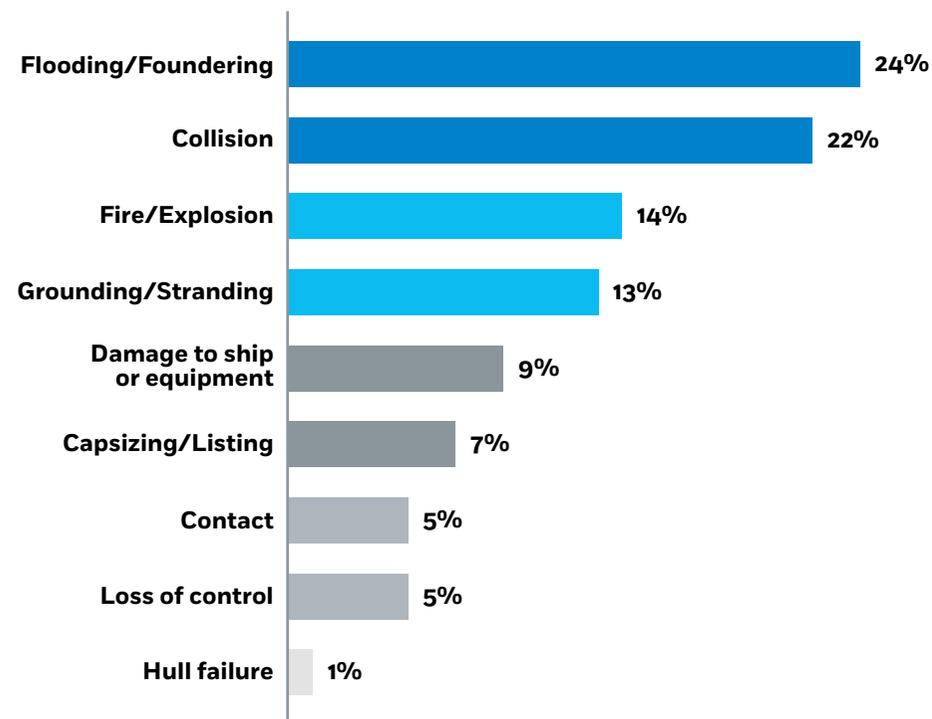
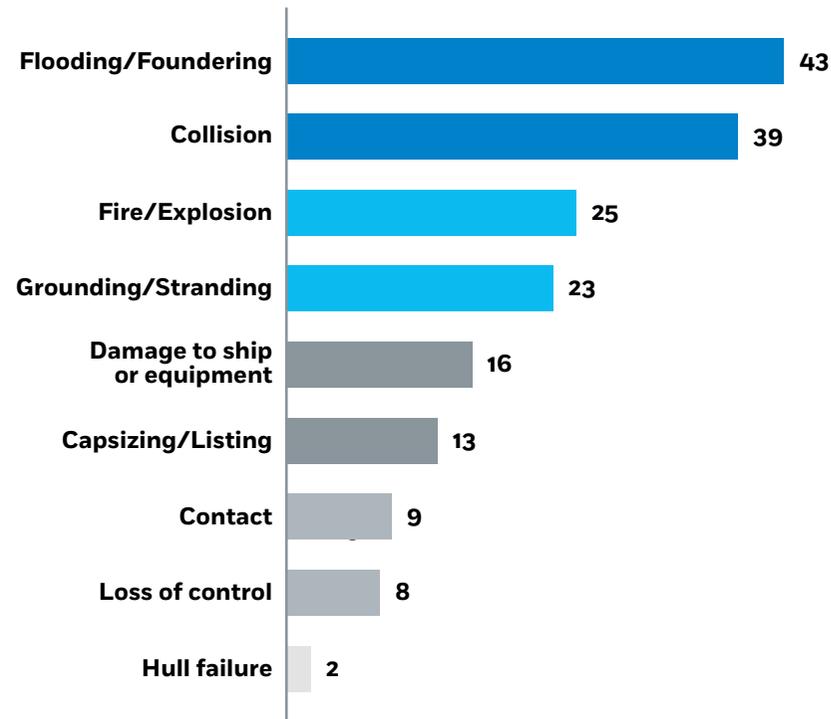


Figure 34: Number of very serious casualty events 2014



Out of 178 very serious casualties with a ship, 43 were floodings/founderings followed by 39 collisions.

Figure 35: Distribution of serious casualty events 2011-2014

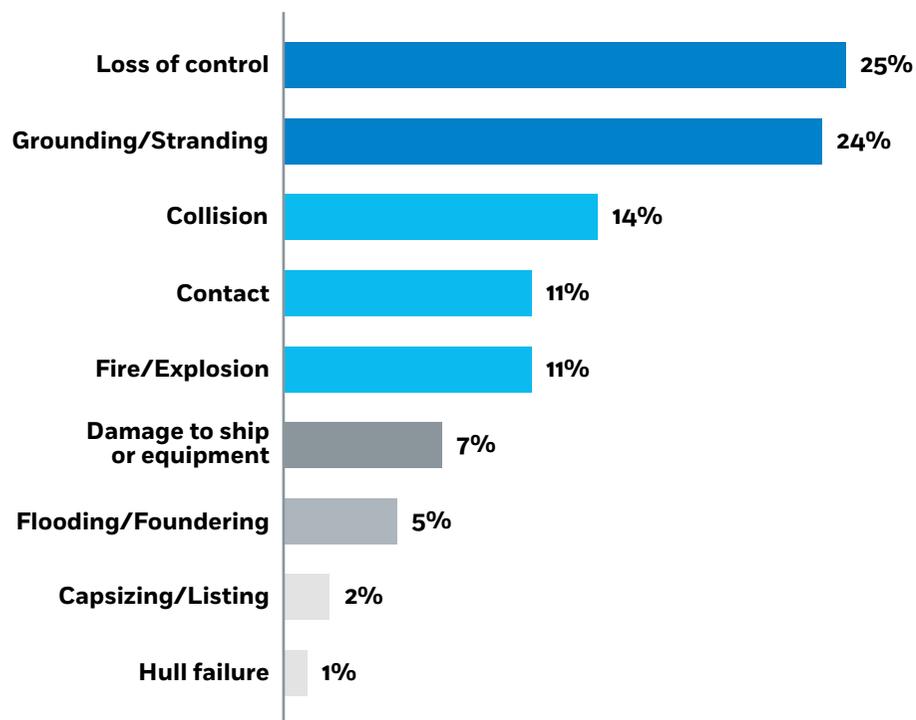
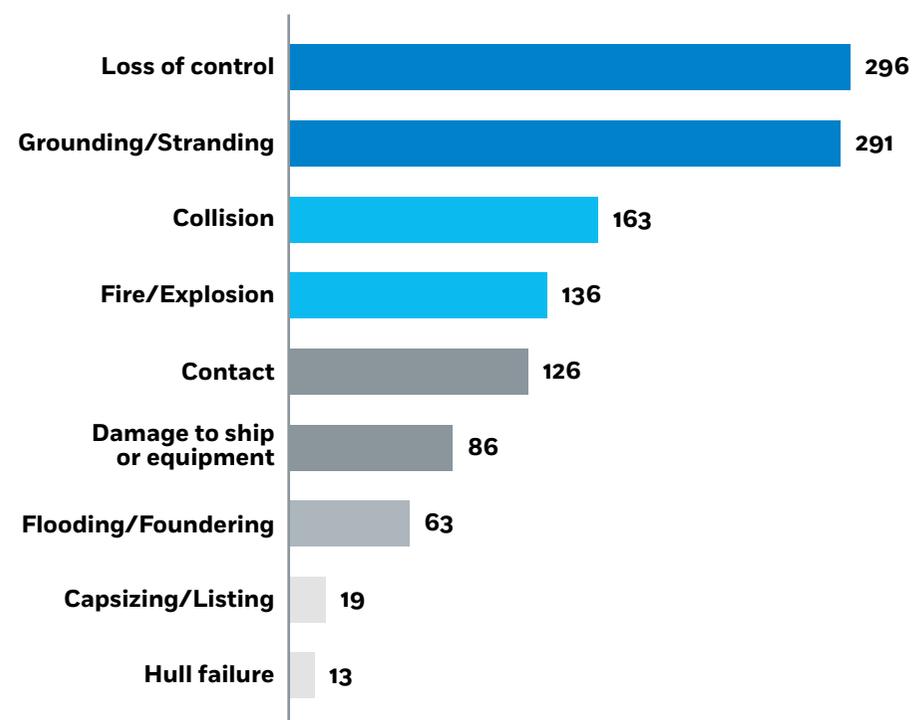


Figure 36: Number of serious casualty events in 2014



The main categories resulting in serious casualty with a ship were loss of control (296) and grounding/stranding (291).

Figure 37: Distribution of less serious casualty events 2011-2014

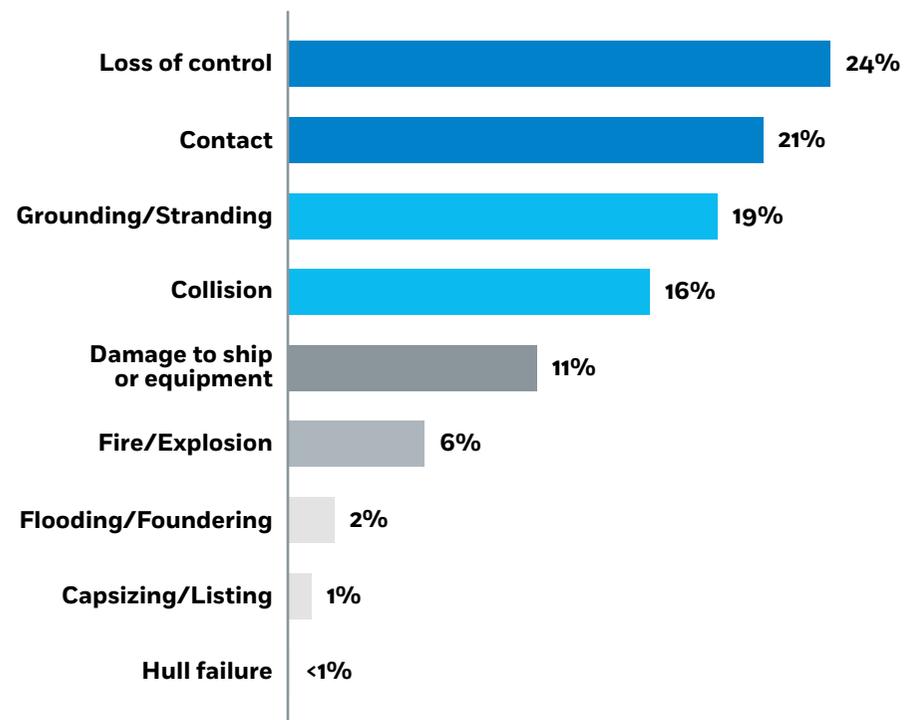
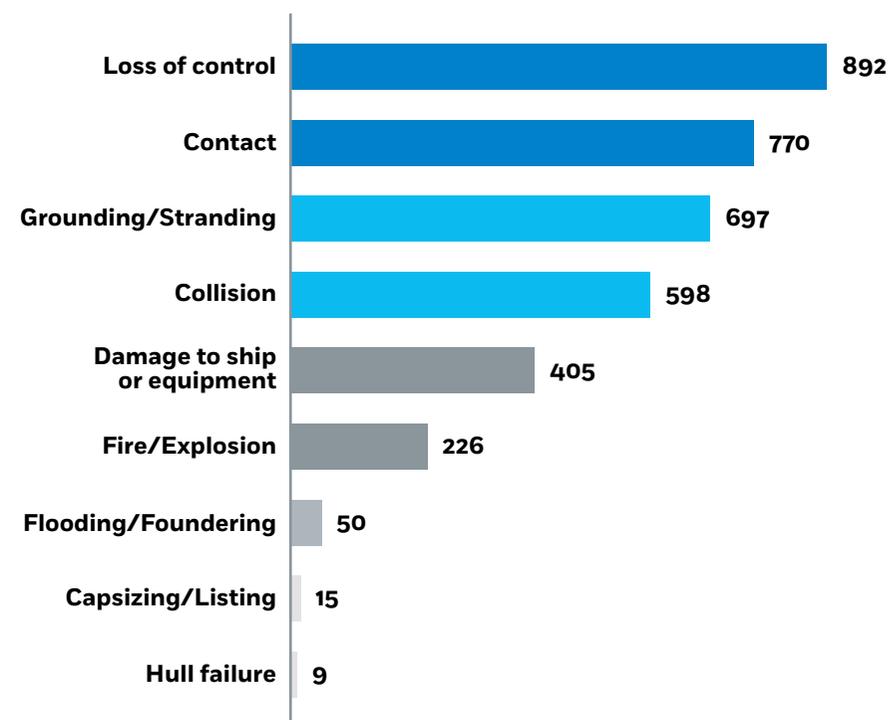
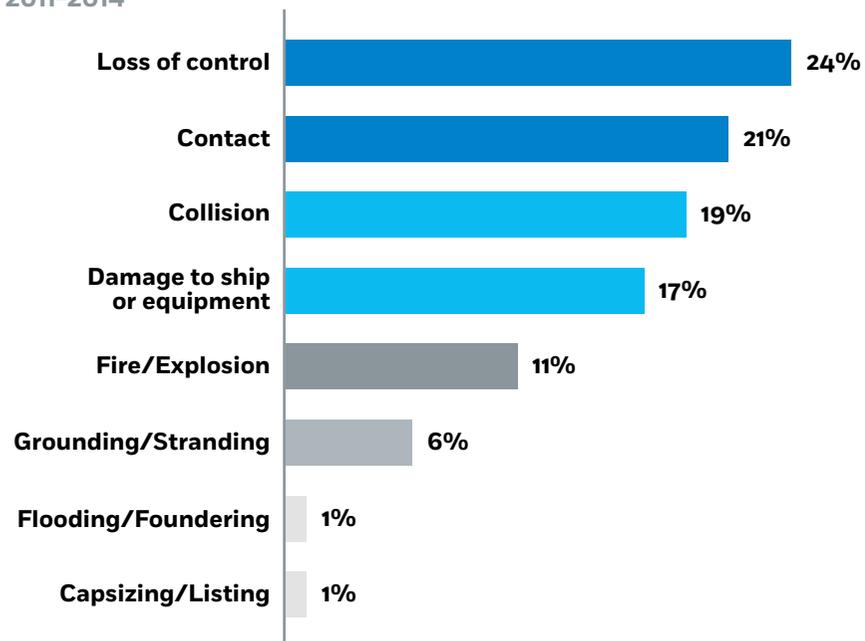


Figure 38: Number of less serious casualty events in 2014



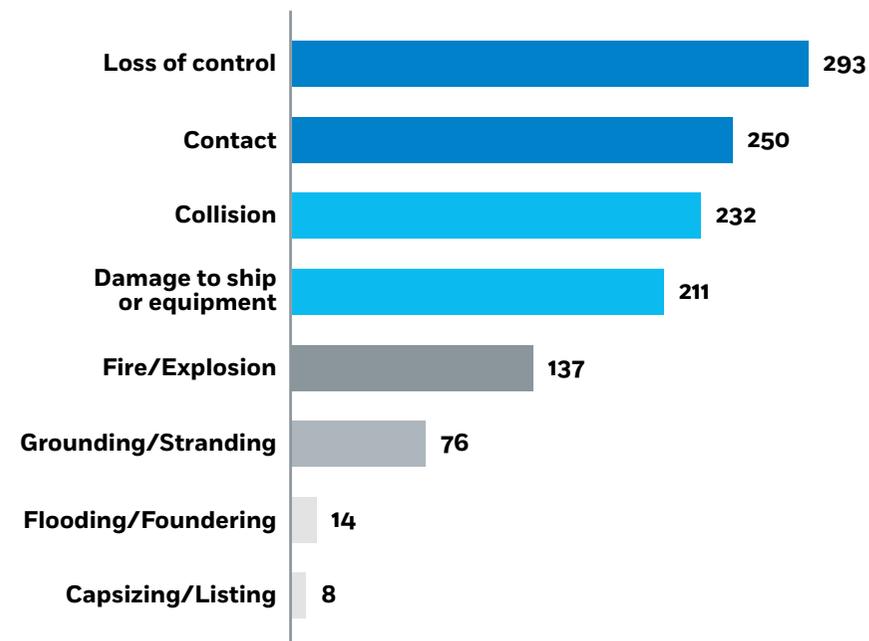
Less serious casualty events were represented by loss of control (892), followed by contact (770), grounding/stranding (697) and collision (598).

Figure 39: Distribution of casualty events classified as marine incidents 2011-2014



Marine incident events were represented by loss of control (250), followed by contact (250) and collision (232).

Figure 40: Number of casualty events in 2014 classified as marine incidents



Occurrences related to occupational accidents are classified as deviations. Definitions can be found in Appendix 1.

4.2 OCCUPATIONAL ACCIDENTS

Figure 41: Distribution of deviations 2011-2014

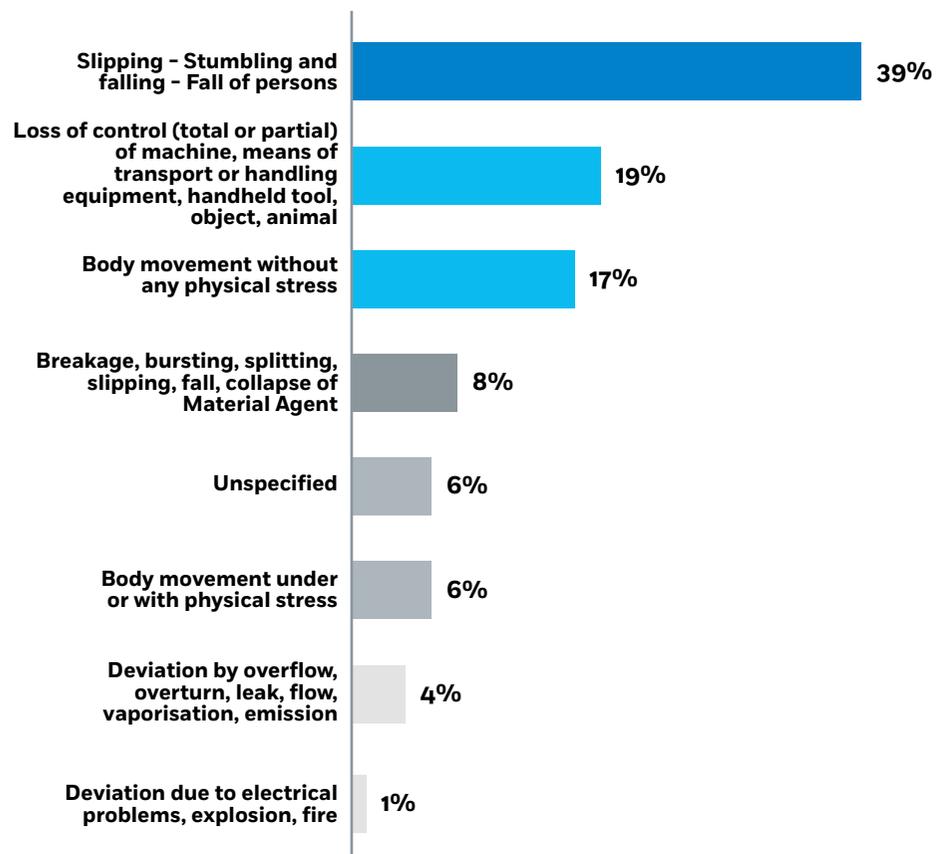
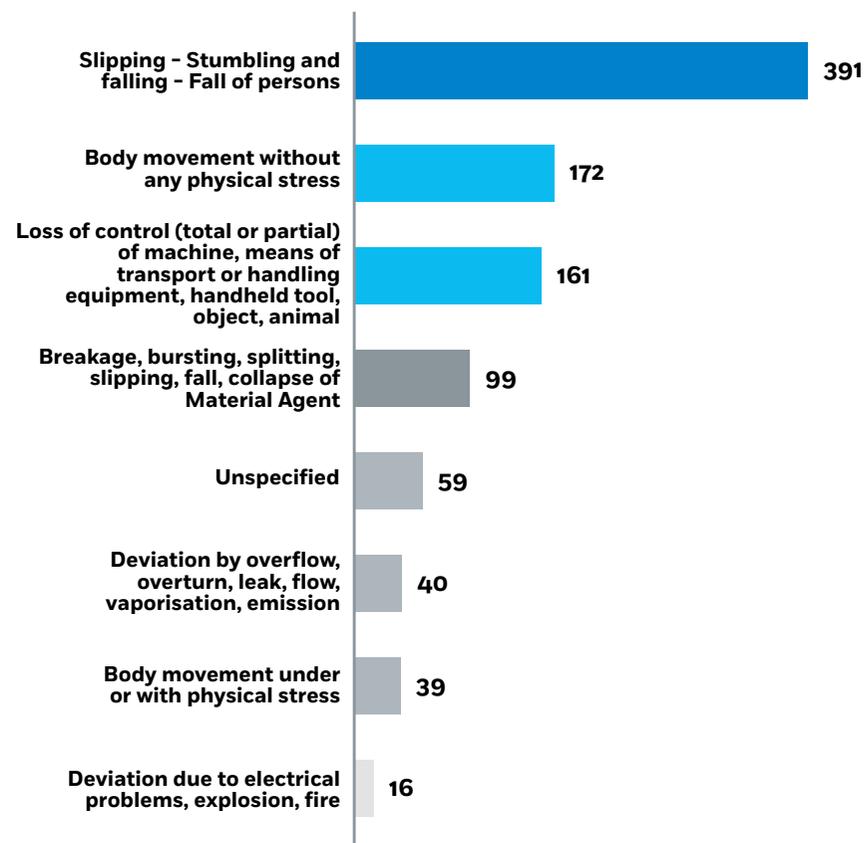
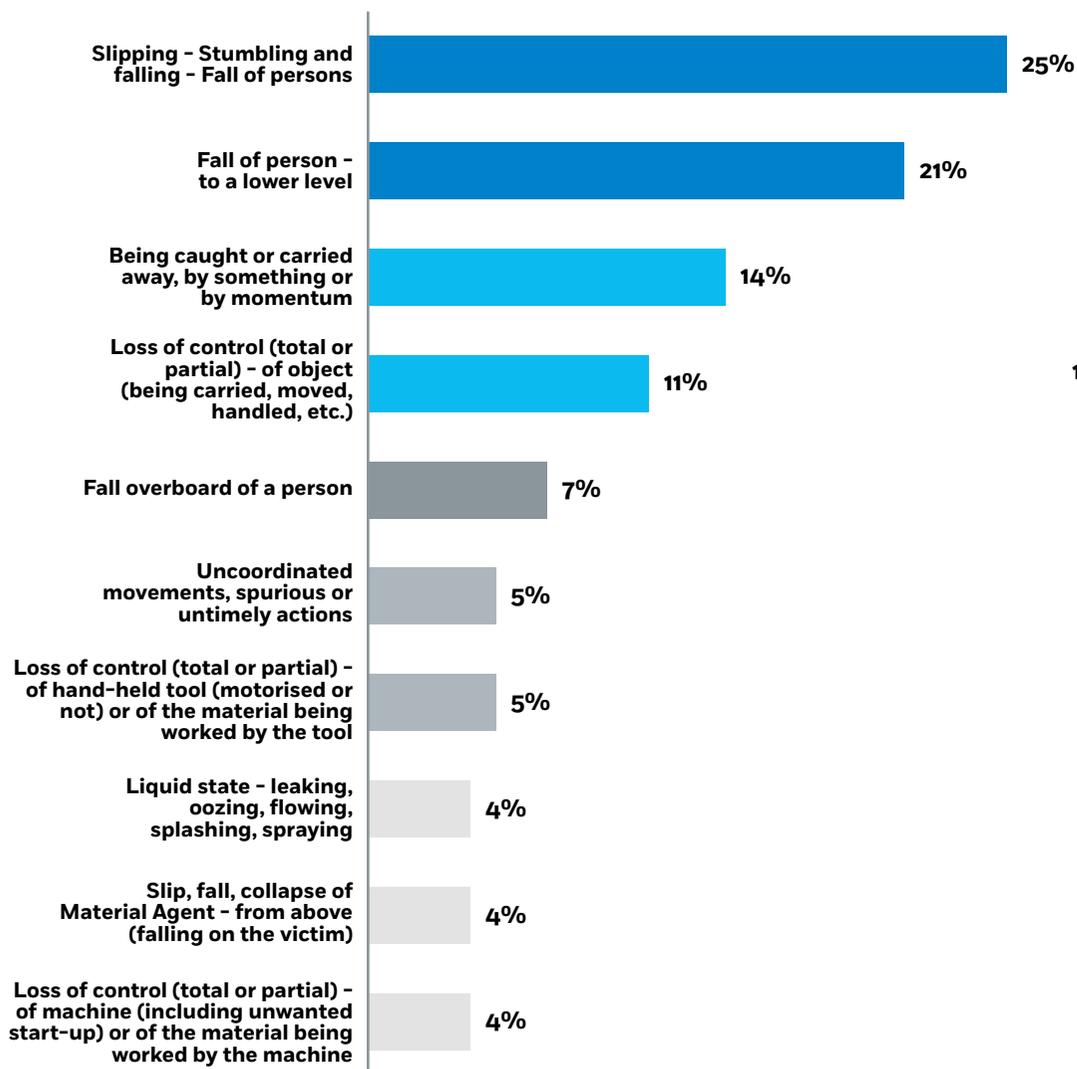


Figure 42: Number of deviations in 2014



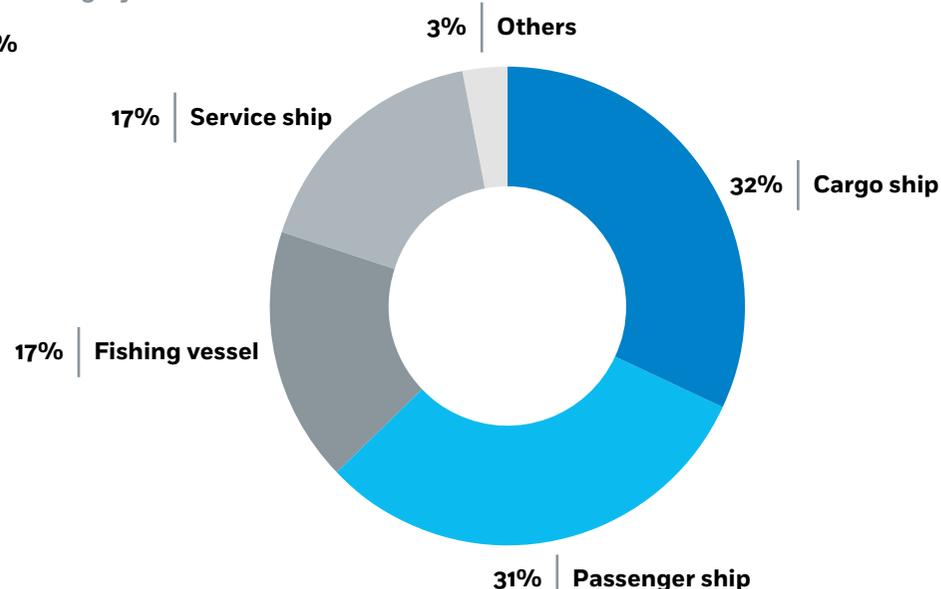
During the period 2011-2014, slipping-stumbling and falls of persons was the most frequent event (1150 occurrences), followed by loss of control of objects (1155) and body movement without physical stress (498).

Figure 43: Number of main sub-deviations 2011-2014



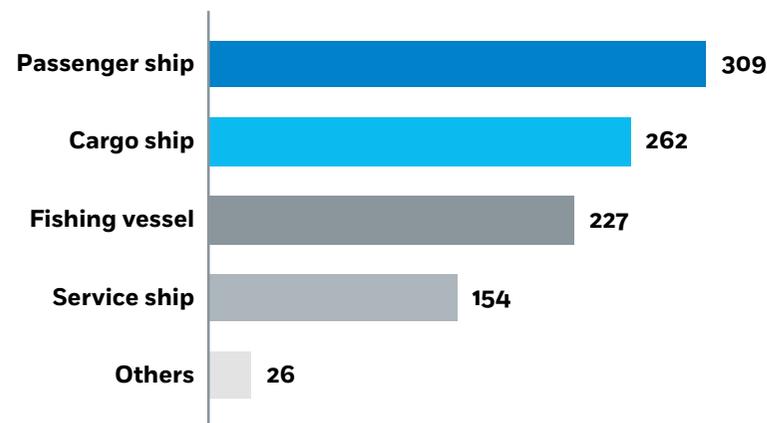
At the level of main sub-deviations, falls of persons at the same level (530 cases) or at a lower level (438 cases) were the most frequent accidents.

Figure 44: Distribution of ships involved in an occupational accident by ship category 2011-2014



Cargo ships (933) represent together with passenger ships (901) the main categories of ship where occupational accidents occurred.

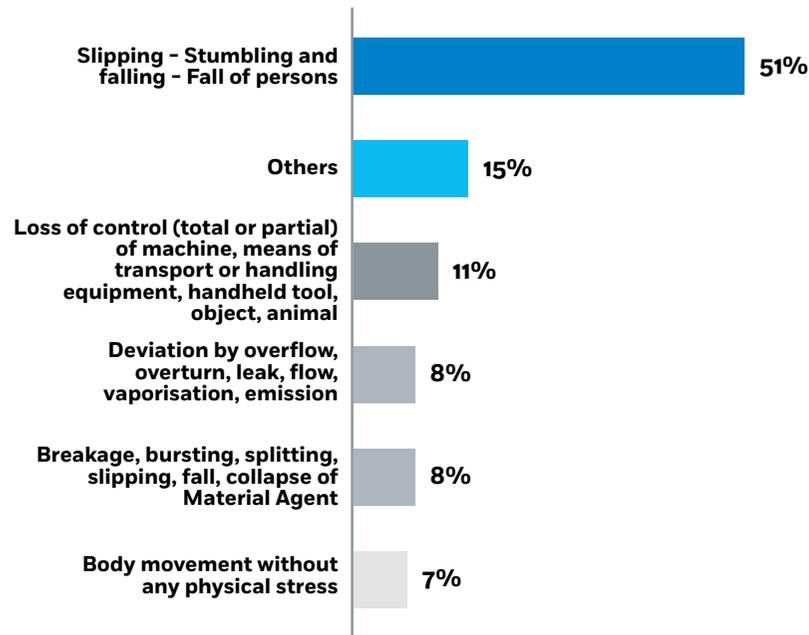
Figure 45: Number of ships involved in an occupational accident by ship category in 2014



4.2.1 SEVERITY PER TYPE OF DEVIATIONS 2011-2014

This figure provides a general indication of the occurrence severities per type of deviations. More details can be found in next figures.

Figure 46: Distribution of deviations per severity of occurrences 2011-2014



Whatever the severity of the occupational accidents, the main deviation was in any case slipping – stumbling and falling - fall of persons.

Figure 47: Distribution of main sub-deviations per severity of occurrences

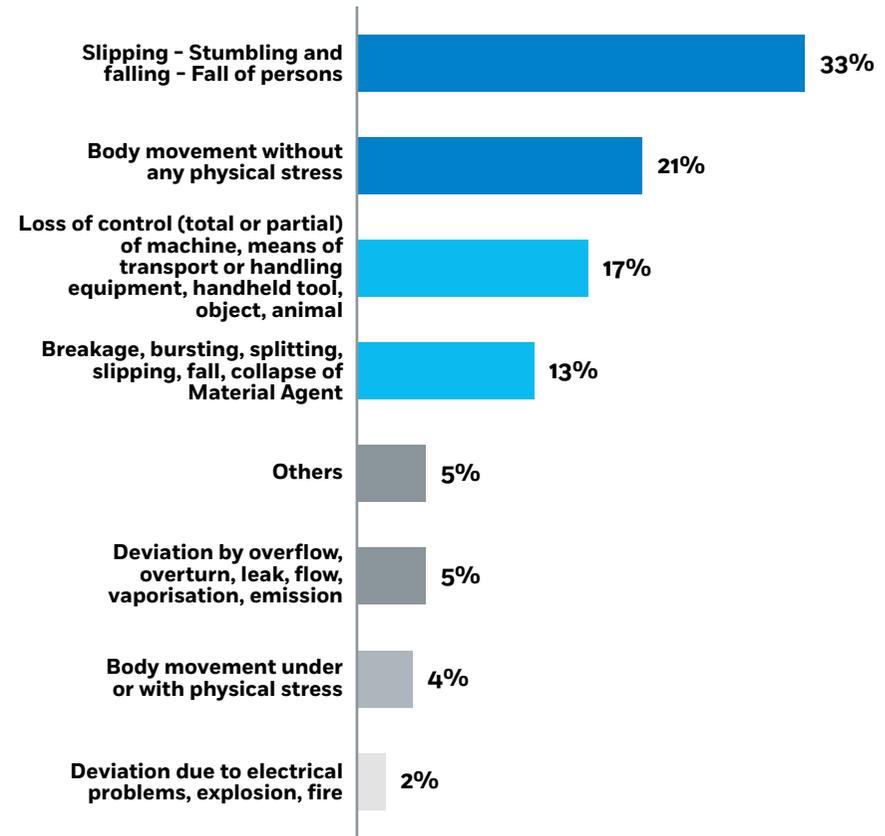
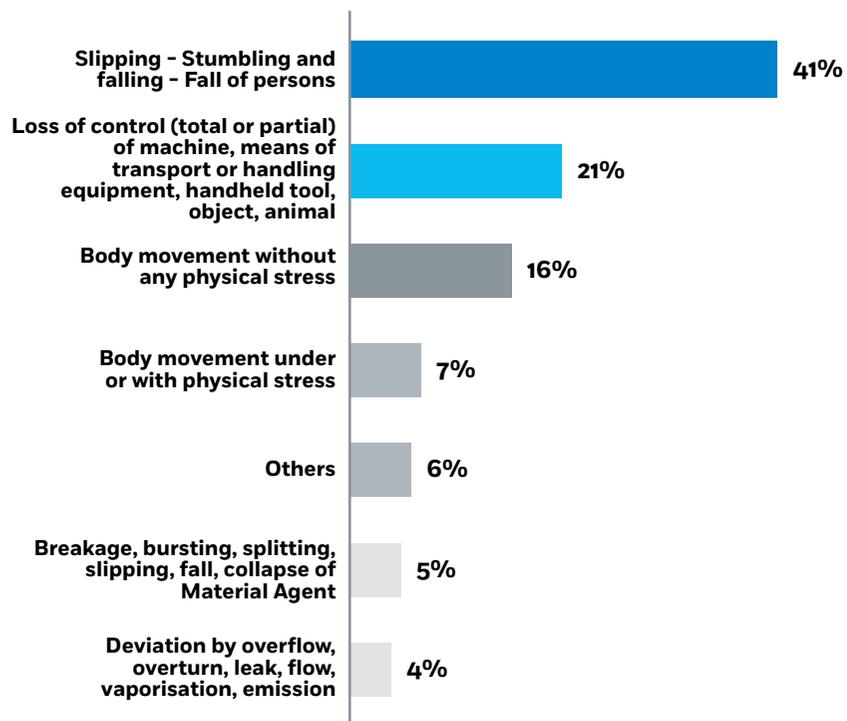
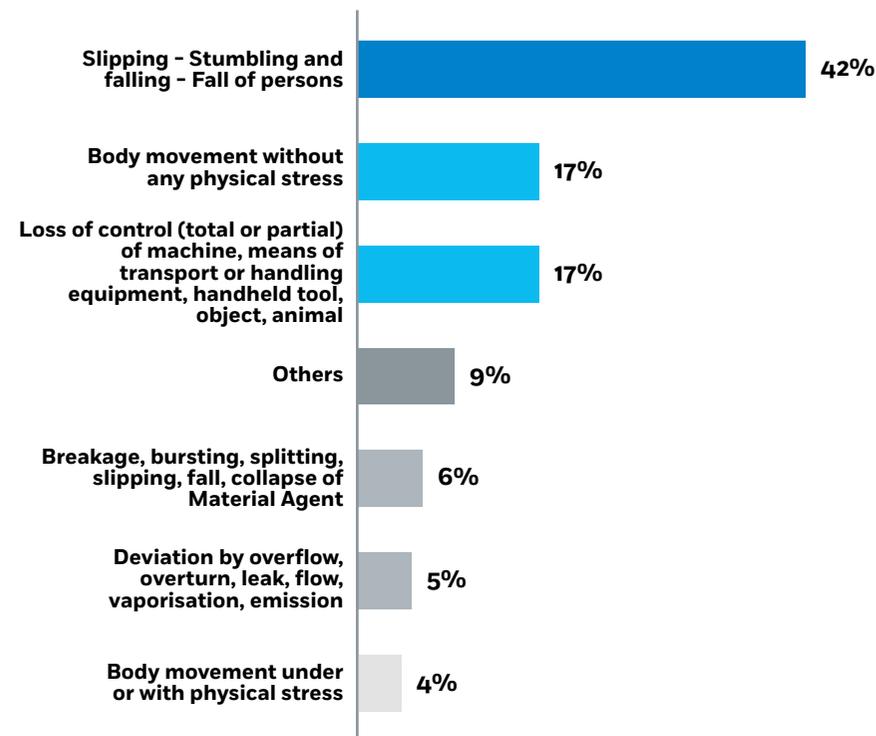


Figure 48: Distribution of deviations for very serious occurrences 2011-2014



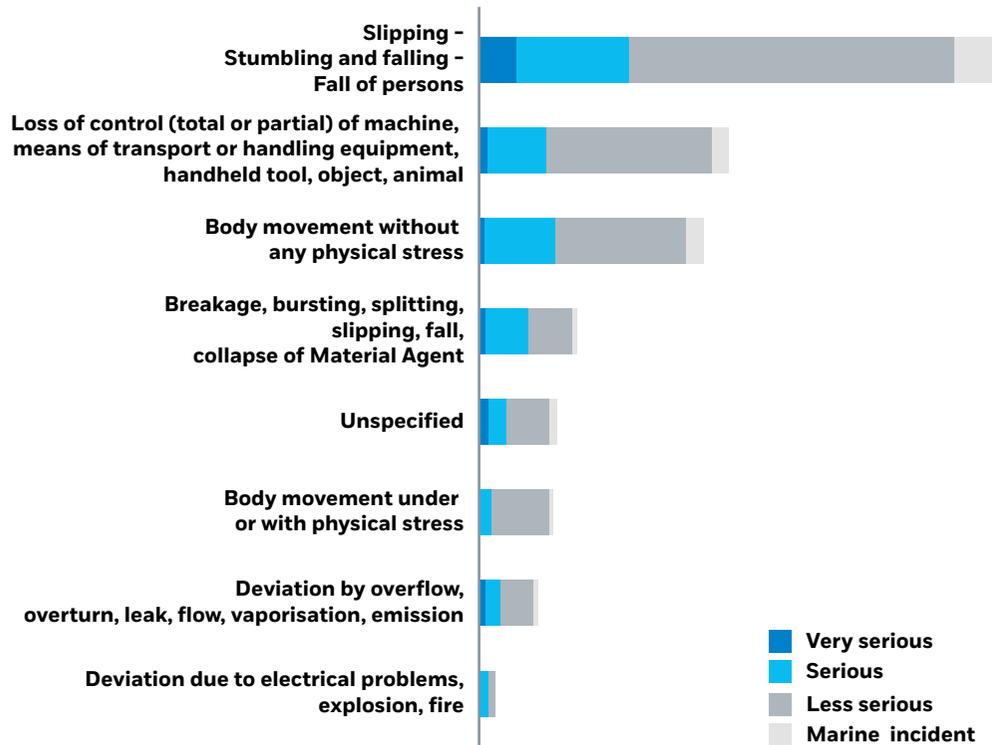
The main deviation resulting in very serious occupational accidents was slipping – stumbling and falling – falls of persons (83).

Figure 49: Distribution of deviations for serious occurrences 2011-2014



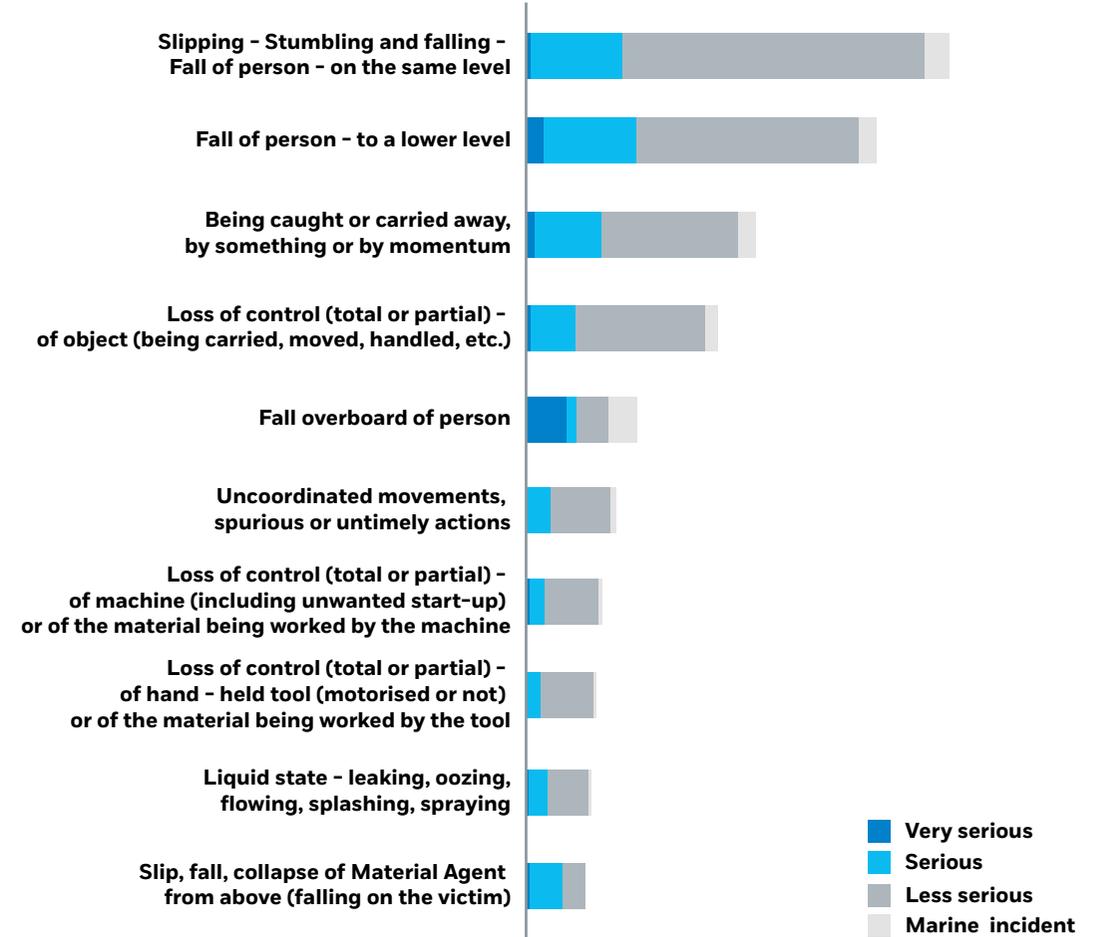
The most numerous deviations resulting in serious occupational accidents were also slipping – stumbling and falling – fall of persons (249).

Figure 50: Distribution of deviations for less serious occurrences 2011-2014



724 slipping – stumbling and falling – fall of persons resulted in less serious injuries.

Figure 51: Distribution of deviations for occurrences classified as marine incidents 2011-2014



94 marine incidents were related to the slipping – stumbling and falling – fall of persons.



Fire in engine room, GPS PERSEU, 29/9/2014

CHAPTER 5

EVENTS AND CONTRIBUTING

FACTORS ANALYSIS



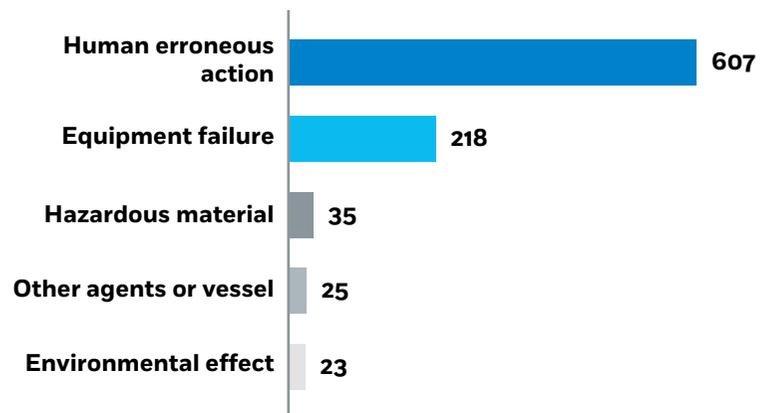
Collision, PLANET V - MS VANTAGE - E3505, 26/6/2012

This section covers the accidental events and contributing factors which led to the accidents in the 2011-2014 period.

During the investigation of the accident, the investigators search for the root causes of the event. Such causes are composed of “accidental event” and “contributing factor”. The Reporting Scheme used in EMCIP follows this approach. A detailed model of EMCIP can be found in Appendix 2.

5.1 ACCIDENTAL EVENTS

Figure 52: Number of Accidental Events



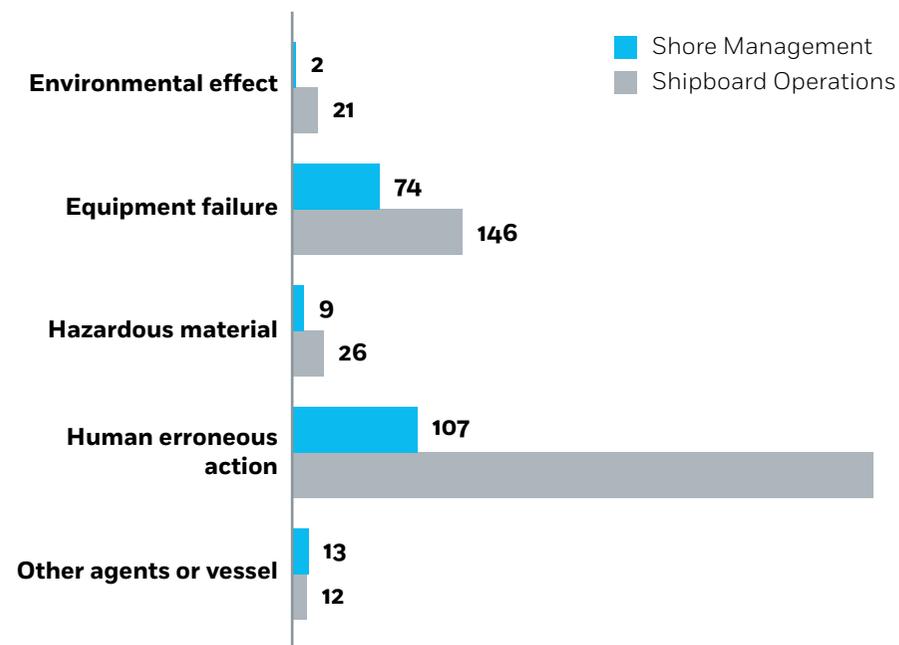
An **ACCIDENTAL EVENT** is an event that is assessed to be inappropriate and significant in the sequence of events that led to the marine casualty or marine incident.

From a total of 908 accidental events analysed during the investigations 67% were attributed to a human erroneous action.

5.2 CONTRIBUTING FACTORS

CONTRIBUTING FACTORS are separated in two categories, and then sub-divided in specific items aiming at identifying the condition that may have contributed to an accidental event or worsened its consequence.

Figure 53: Relation between accidental events and the main contributing factors



Human erroneous actions in relation with shipboard operations represented by far the main accidental event with 55% of the total.

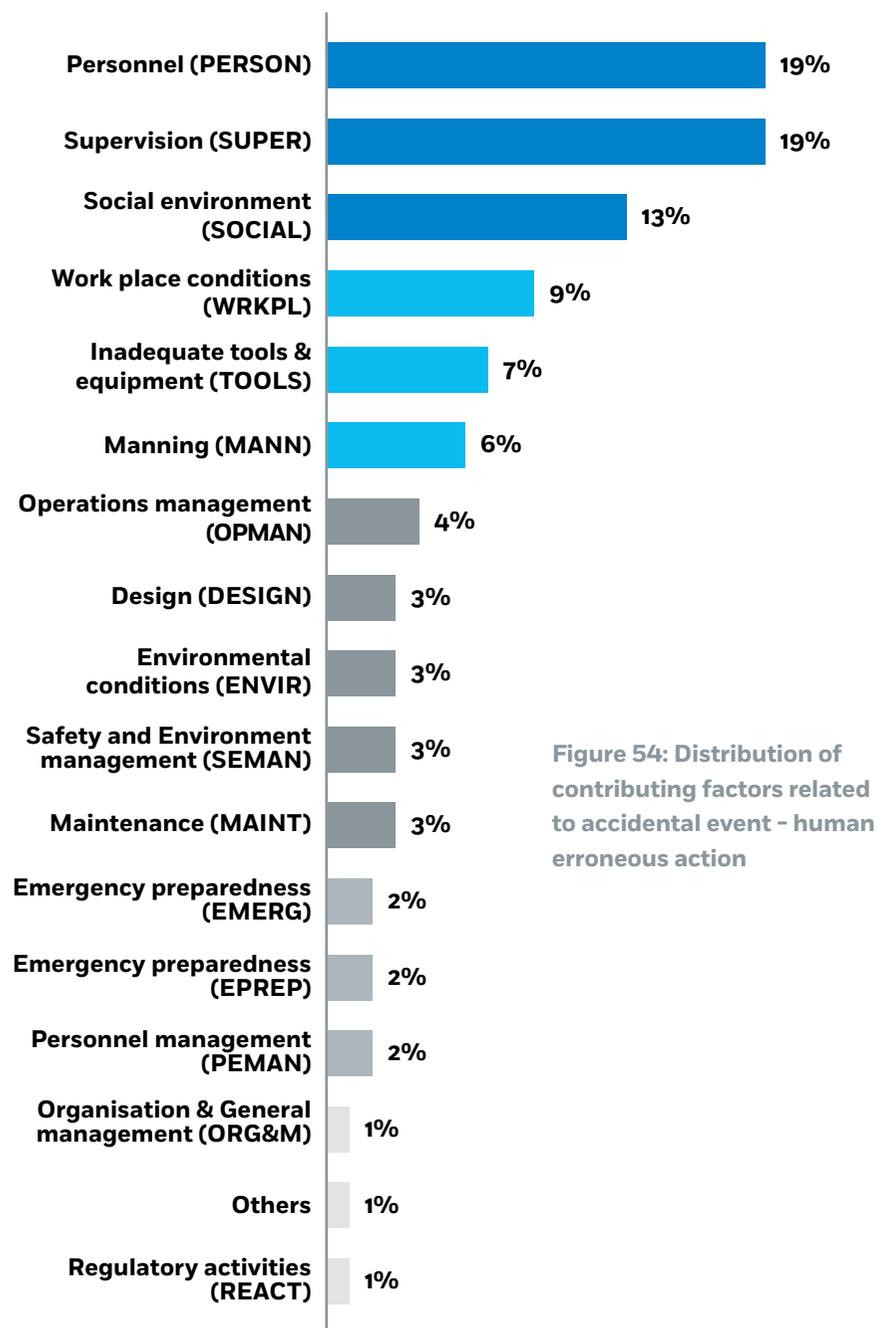


Figure 54: Distribution of contributing factors related to accidental event - human erroneous action

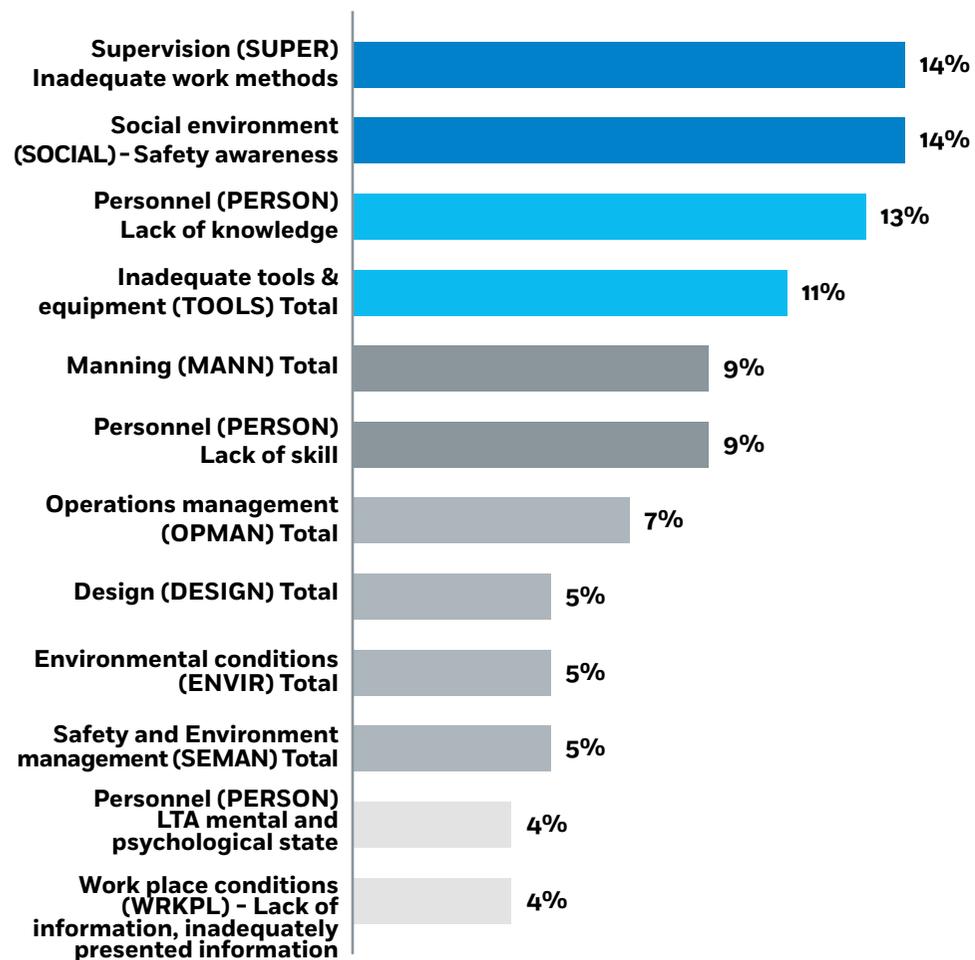
Each category of contributing factor is divided in specific areas. For the contributing factor related to the human erroneous action, 17 categories could be found in the EMCIP model.

Two contributing factors are more often quoted when the accident event is human erroneous action: **PERSONNEL** and **SUPERVISION**.



Grounding, NORFOLK EXPRESS, 18/4/2013

Figure 55: Combination of level 2 - level 3 contributing factors subcategories related to human erroneous actions (quoted more than 15 times)



Each of the 17 categories mentioned above are again divided in pertinent subcategories.

When combining the various levels, it appears that the main contributing factors that were quoted following an investigation were:

- personnel/lack of knowledge
- social environment/safety awareness
- supervision/inadequate work methods.



NORFOLK EXPRESS repaired

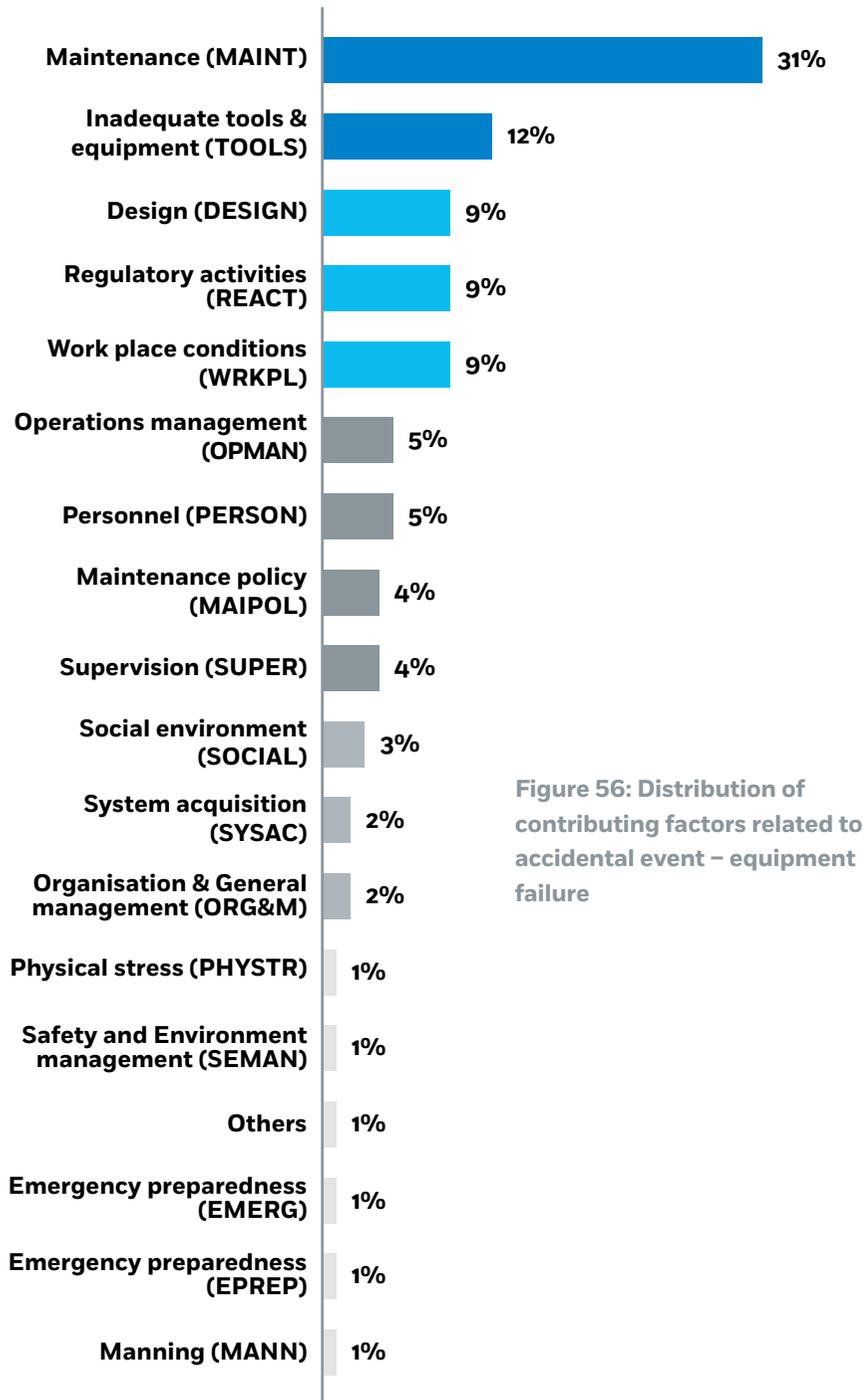
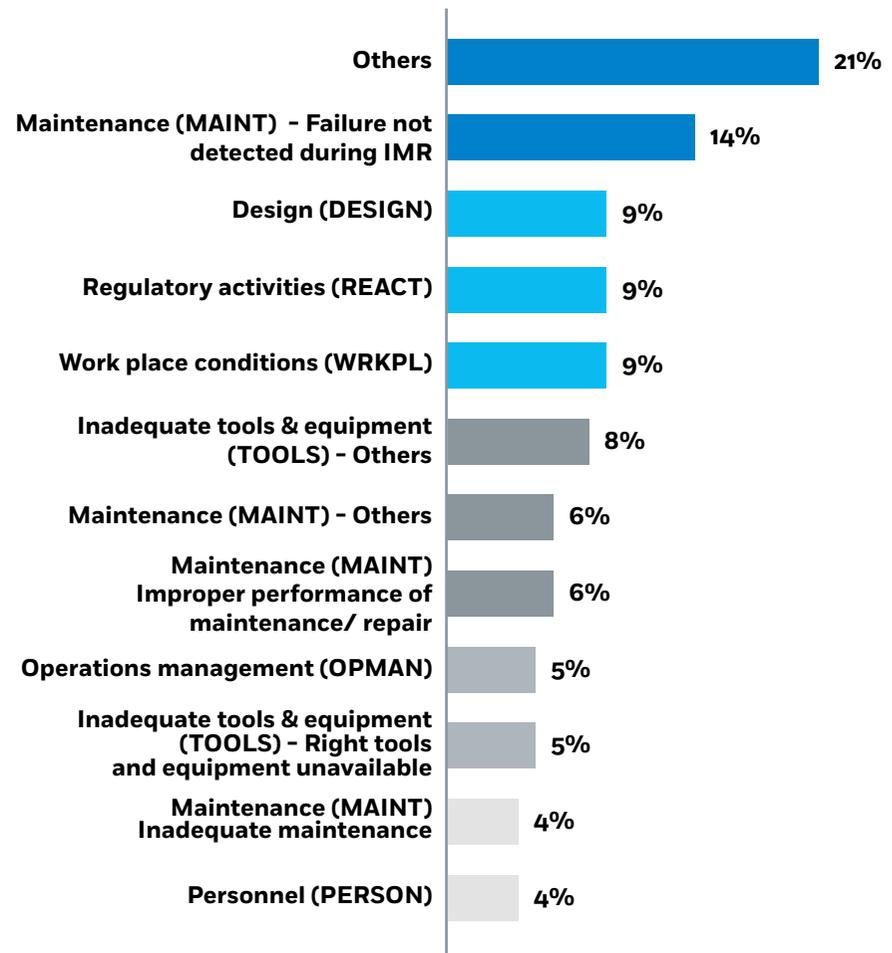


Figure 56: Distribution of contributing factors related to accidental event – equipment failure

When related to accident event equipment failure, 18 contributing factors subcategories constitute the EMCIP model.

Related to equipment failure the main contributing factor is by far the Maintenance.

Figure 57: Combination of Level 2 - Level 3 contributing factors subcategories related to equipment failure (quoted more than 10 times)



Each of the 18 categories mentioned in figures 56 and 57 are divided in pertinent subcategories.

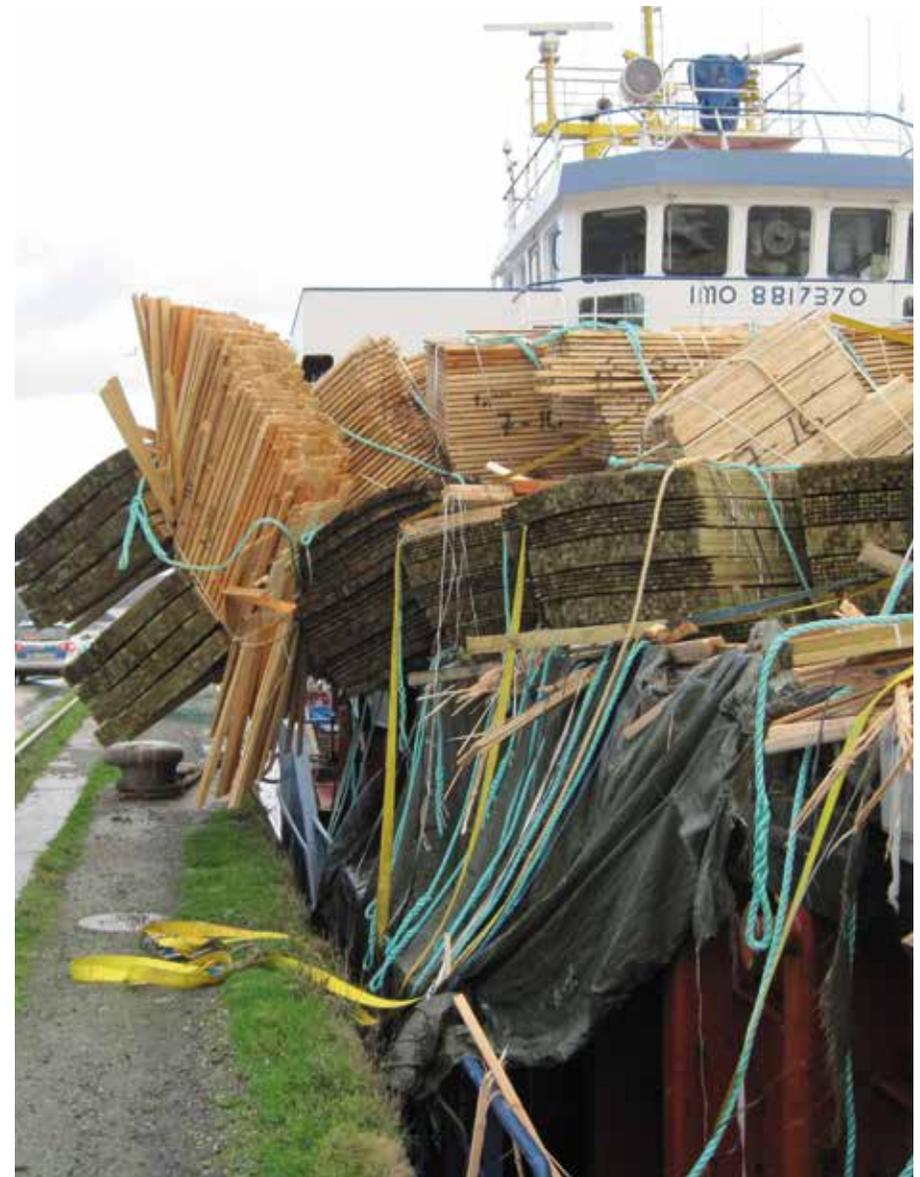
When combining the various levels, and excluding the category "Others", "Maintenance/Failure not detected during IMR" is the most quoted contributing factor.

However, the following contributing factors were also found of interest:

- design
- inadequate tools & equipment
- regulatory activities
- work place conditions.



Loss of containment, ROSEBURG, 5/11/2013



CHAPTER 6

CONSEQUENCES

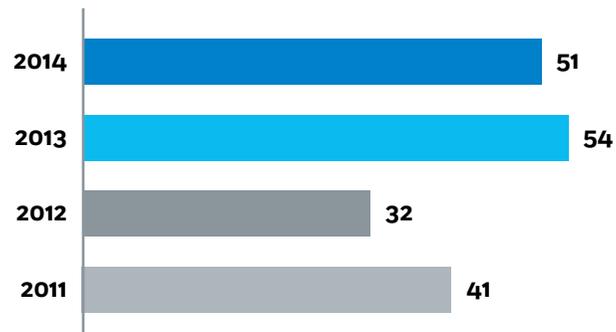


Grounding, CELIA, 28/9/2012

This chapter contains information about the consequences of accidents to ships, persons or the environment.

6.1 CONSEQUENCES TO THE SHIP

Figure 58: Number of ships lost per year



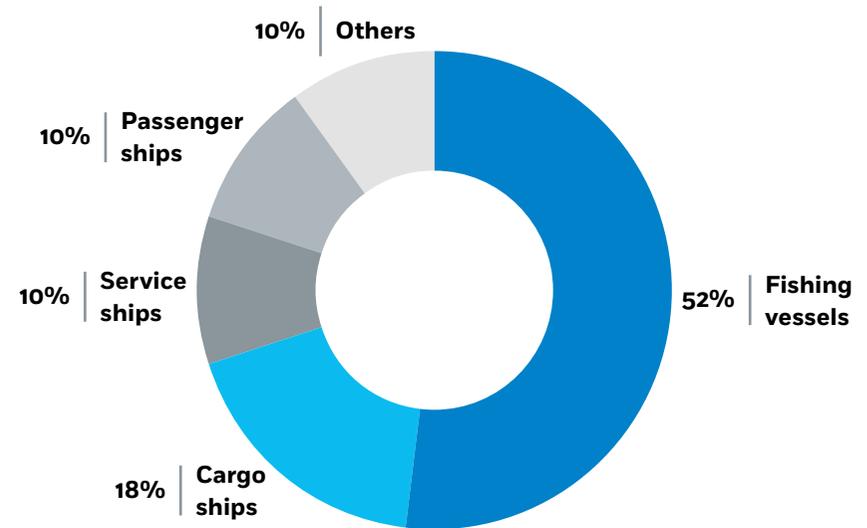
The figure shows the number of ships lost per year during the 2011-2014 period based on the date the accidents occurred.

A total of 178 ships were lost from 2011 to 2014, which means an average of four ships lost per month, with a total in 2014 almost equal to that of 2013.



Flooding/foundering, Ponton 1, 13/8/2014

Figure 59: Distribution of ships sunk 2011-2014



A **SUNKEN SHIP** means that the vessel lost her buoyancy. It does not imply the total loss of the ship.

142 ships were reported sunk, the main category of ships sunk being fishing vessels (74).

Figure 60: Number of ships sunk in 2014

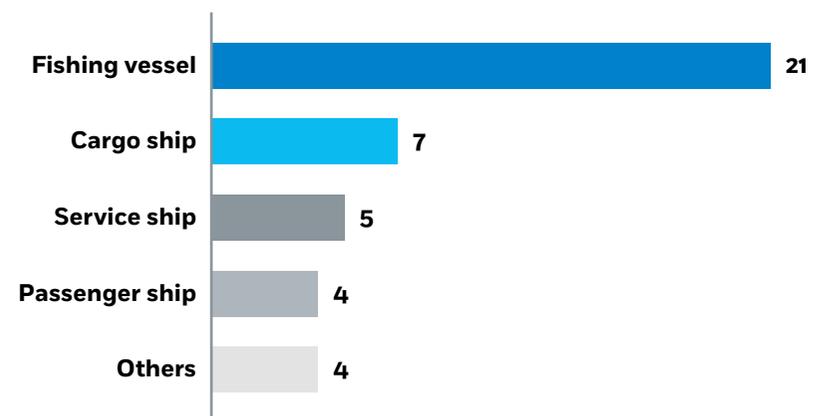
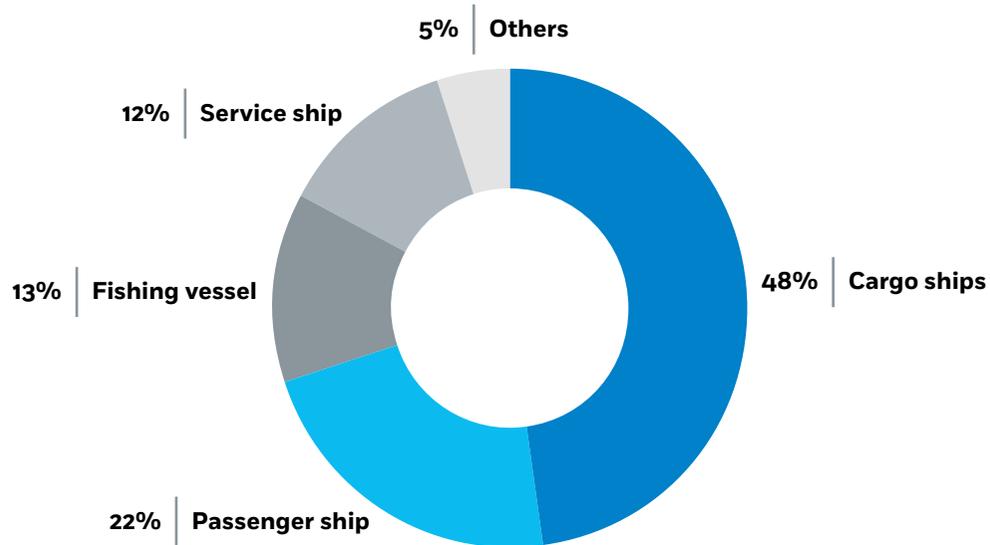


Figure 61: Distribution of ships damaged 2011-2014



A **MATERIAL DAMAGE** in relation to a marine casualty means:

- damage that significantly affects the structural integrity of a ship, or the performance or operational characteristics of its marine infrastructure and requires major repair or replacement of a major component or components; or
- destruction of the marine infrastructure or ship.

3106 ships reported some damage, the largest category being cargo ships (1005).

Figure 62: Number of ships damaged in 2014

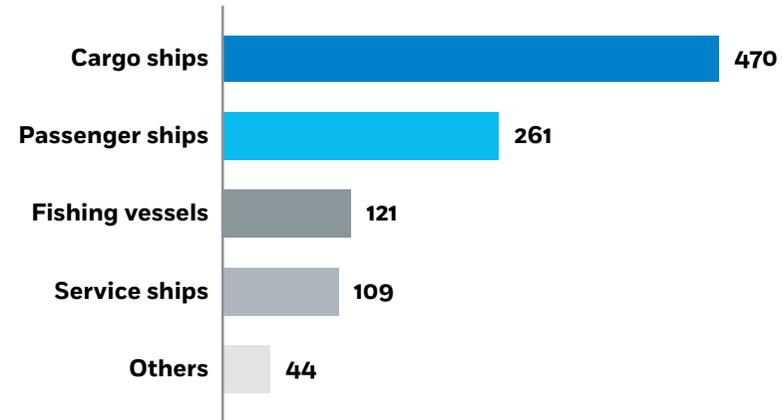
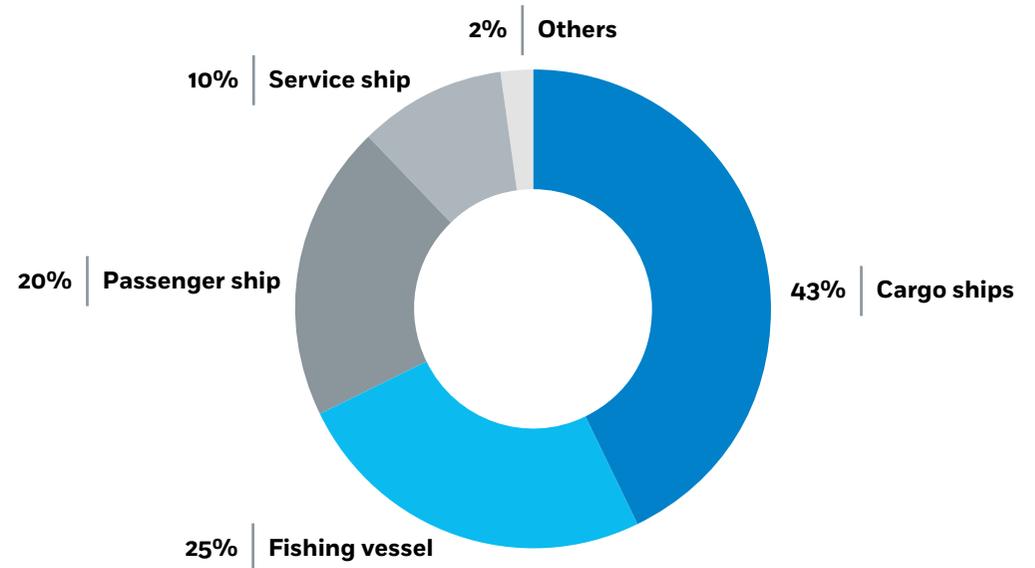


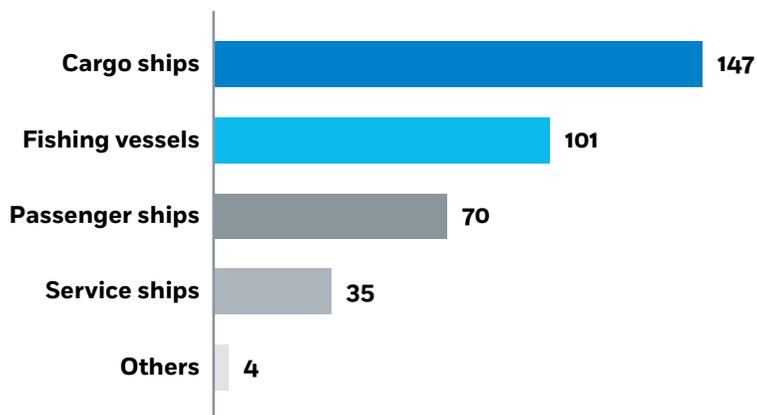
Figure 63: Distribution of ships considered unfit to proceed 2011-2014



UNFIT TO PROCEED means that the ship is in a condition, which does not correspond substantially with the applicable international conventions or national legislation, presenting a danger to the ship and the persons on board or an unreasonable threat of harm to the marine environment.

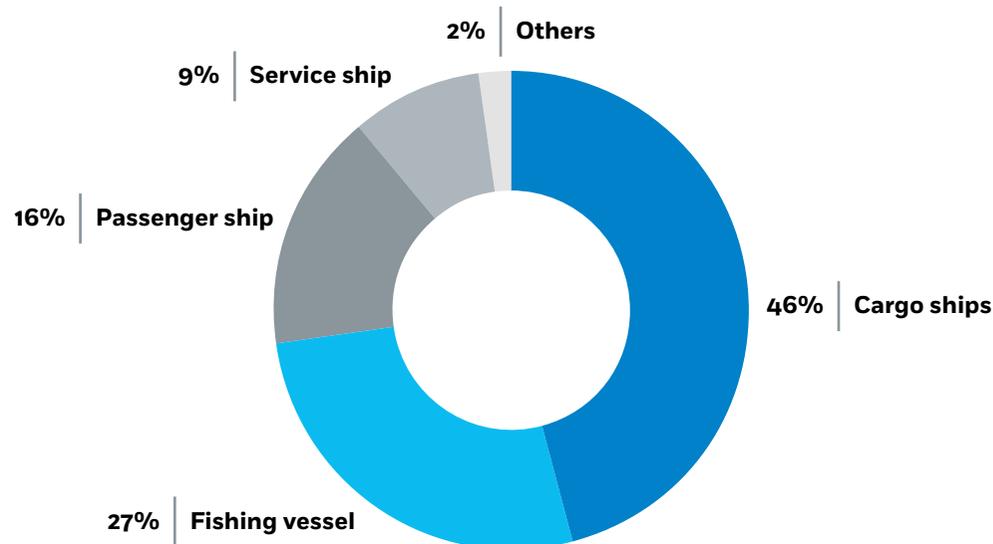
A total of 1028 ships were reported to be unfit to proceed. Of these, 441 were cargo ships.

Figure 64: Number of ships considered unfit to proceed 2014



Failure of deck crane slewing ring bearing, MV SEAPACE, 13/8/2014

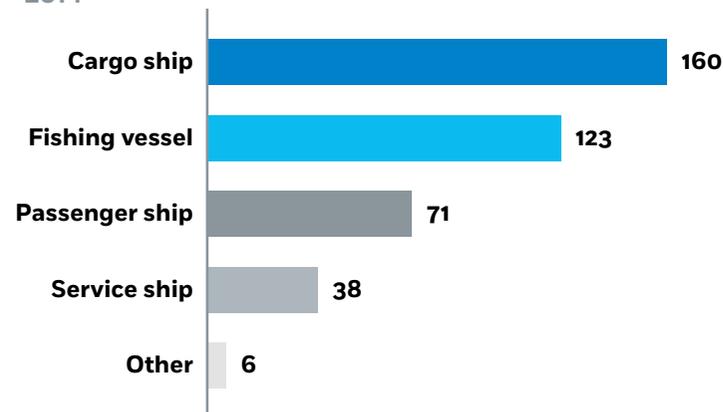
Figure 65: Distribution of ships by category requiring towage or shore assistance 2011-2014



As a consequence of a breakdown or immobilisation of the main engines or other event, the ships concerned needed towage or shore assistance.

1415 ships overall needed towage or shore assistance, including 651 cargo ships.

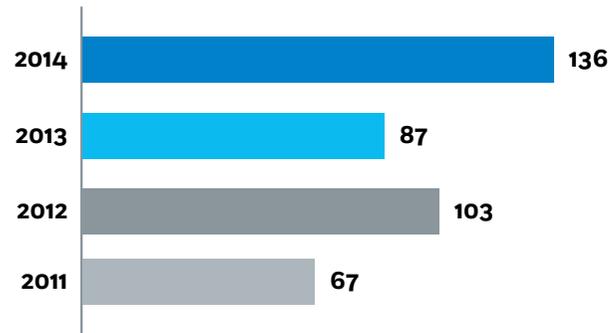
Figure 66: Number of ships by category requiring towage or shore assistance 2014



6.2 CONSEQUENCES TO PERSONS

6.2.1 FATALITIES

Figure 67: Number of fatalities 2011-2014



The total number of lives lost during the period 2011-2014 was 393, with a significant increase in 2014 in comparison with all previous years.

Persons on board are categorised as follow:

- crew members
- passengers
- others, for example persons working in harbours to load or unload ships.

303 seafarers lost their lives at sea from 2011 to 2014.

Figure 68: Distribution of fatalities by category of person 2011-2014

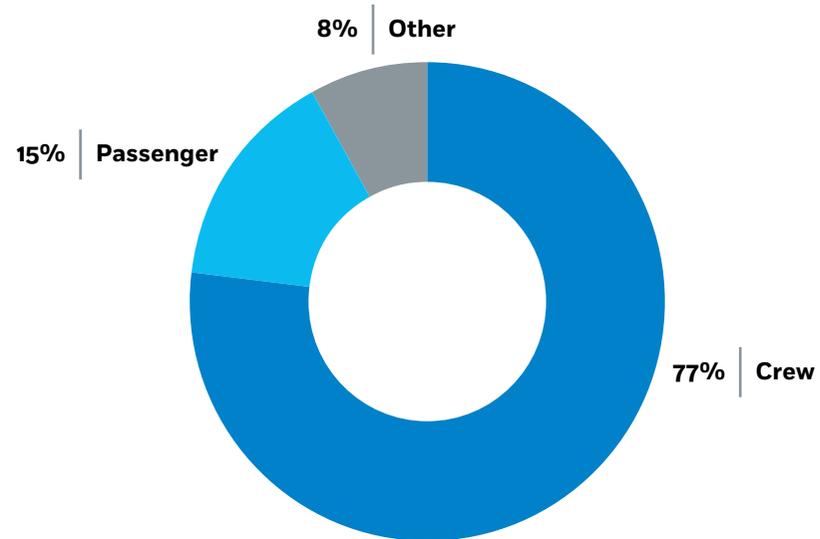


Figure 69: Number of fatalities by category of person 2014

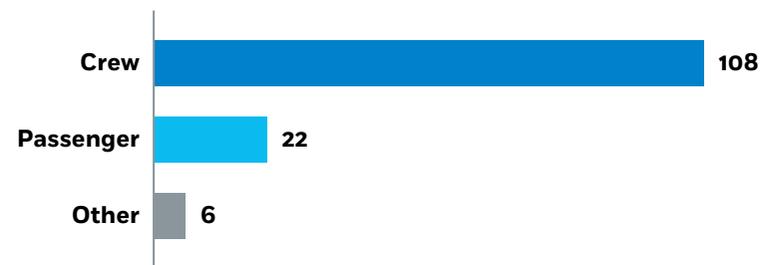
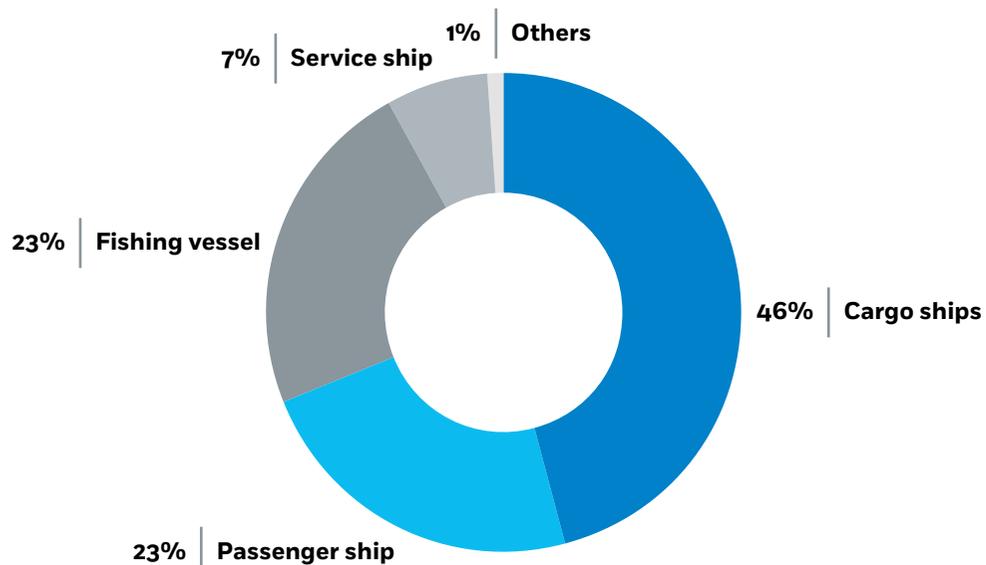
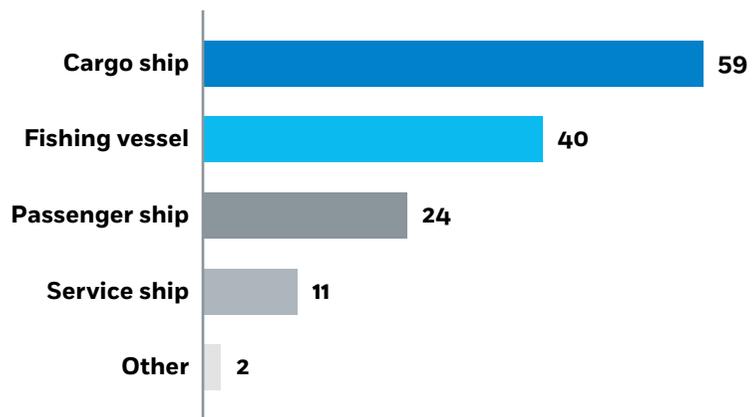


Figure 70: Distribution of fatalities by ship category 2011-2014



Fatalities took place during 2011-2014 mainly on board cargo ships (180).

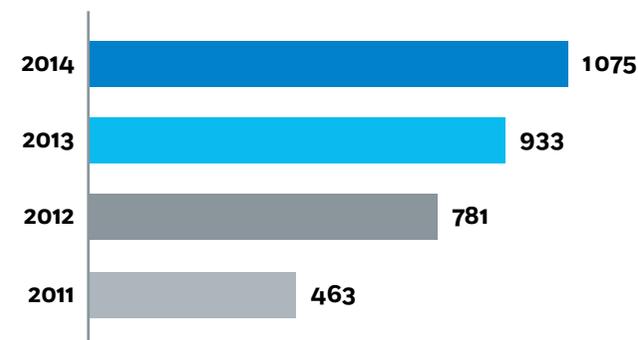
Figure 71: Number of fatalities by ship category 2014



In comparison with 2013, an increase of fatalities has been observed on all categories of ship types (+14 on cargo ships, +18 on fishing vessels, +8 on passenger vessels, +7 on service ships and +2 on others).

6.2.2 INJURIES

Figure 72: Number of injured persons 2011-2014



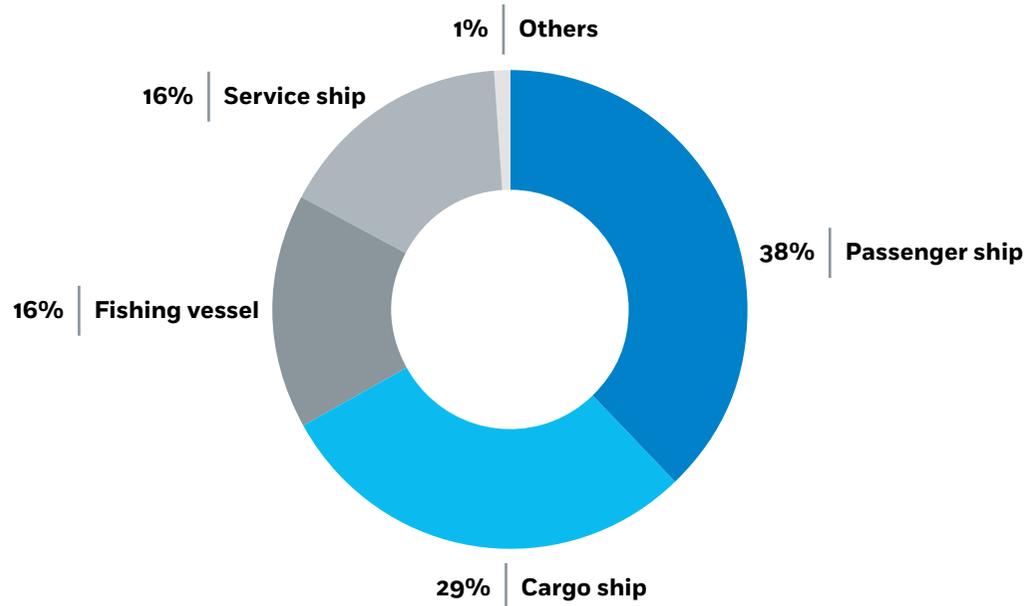
A **SERIOUS INJURY** means an injury which is sustained by a person, resulting in incapacitation where the person is unable to function normally for more than 72 hours, commencing within seven days from the date when the injury was suffered.

When the incapacitation is less than 72 hours, it is classified as a **NON-SERIOUS INJURY**.

Noting that the annual increase is in line with the improvements of reporting, a total of 3 252 persons were injured from 2011 to 2014 as a result of 2 815 occurrences.

The percentage of serious injuries remained equal to that of previous years, meaning 31% of the total number of injuries.

Figure 73: Distribution of injured people by ship category 2011-2014



1200 persons were injured on board passenger vessels.

Figure 74: Number of injured people by ship category 2014

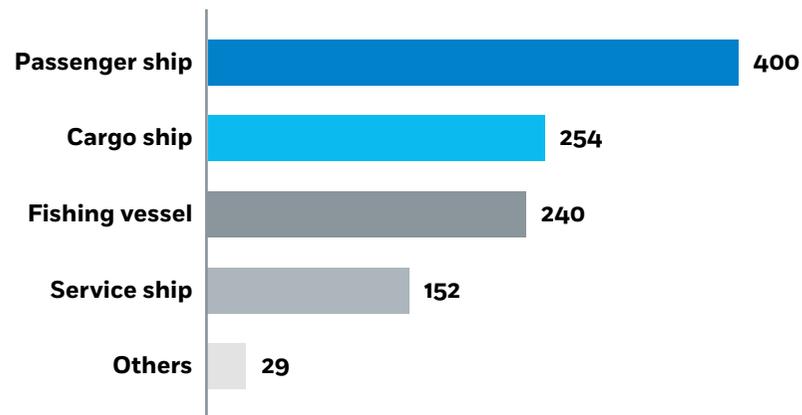
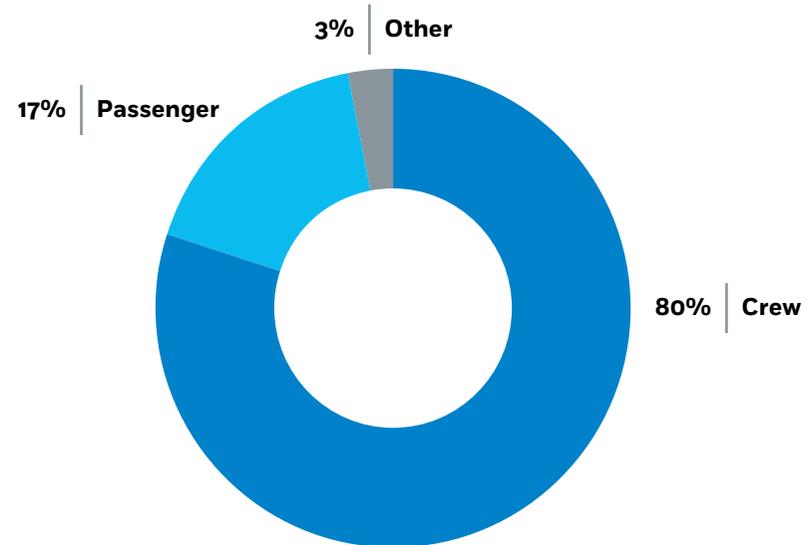


Figure 75: Distribution of injuries by nature of person 2011-2014



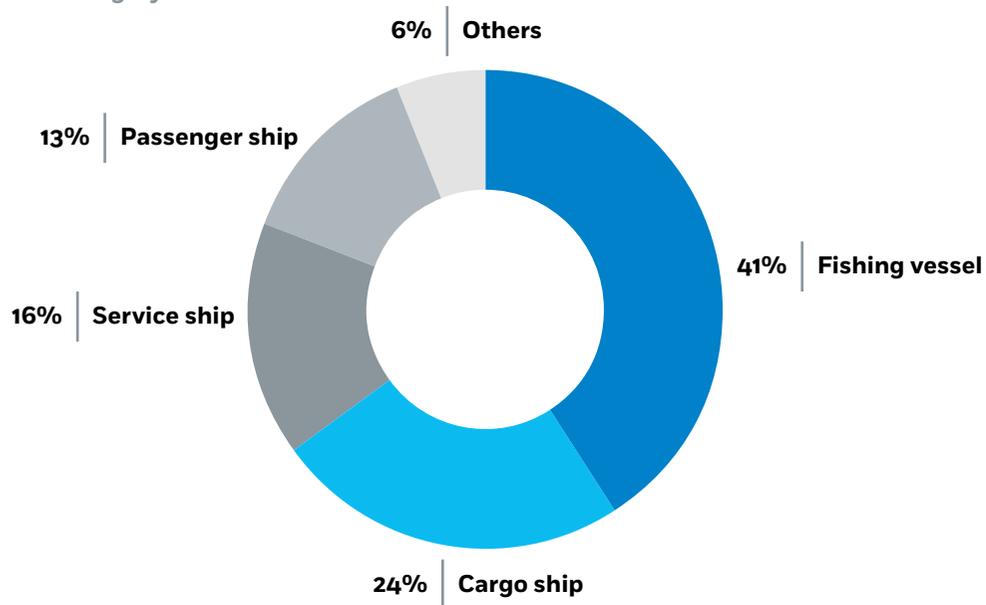
Seafarers represent the main category of persons injured at sea (2586 during the period 2011-2014).

Figure 76: Number of injuries by nature of person 2014



6.3 OTHER CONSEQUENCES

Figure 77: Distribution of Search and Rescue (SAR) operations by ship category 2011-2014



1119 ships needed a SAR operation and 455 of these were fishing vessels.

65% of the SAR operations related to ship casualties and 35% to occupational accidents.

Figure 78: Number of Search and Rescue (SAR) operations by ship category 2014

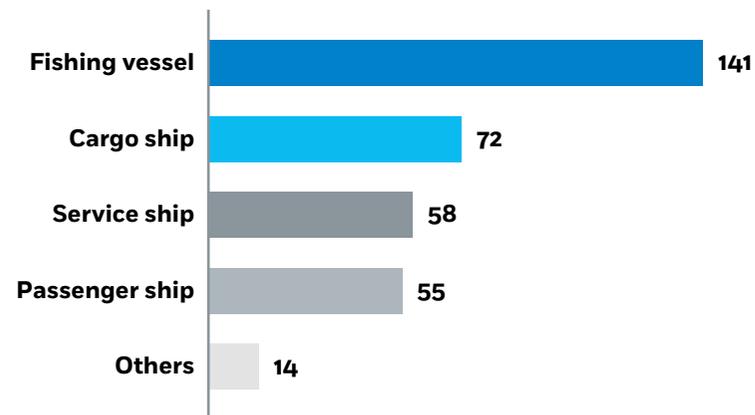
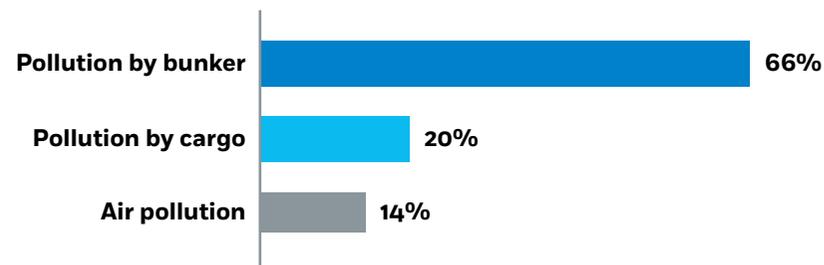


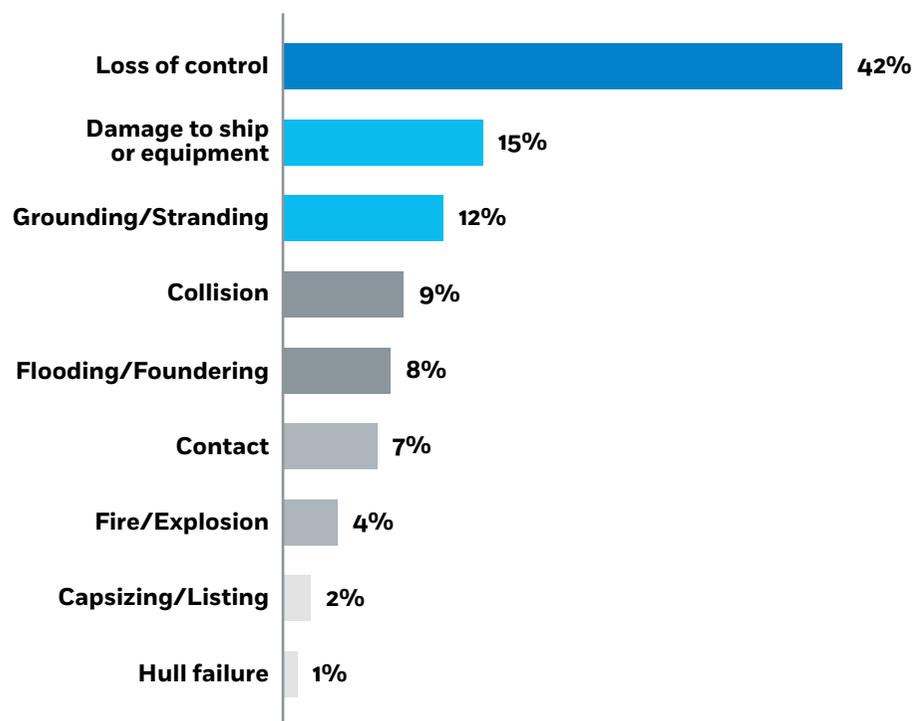
Figure 79: Type of pollution 2011-2014



251 cases of pollution were reported. Among them, 216 affected the sea, while 35 were air pollution. In the majority of the cases (165), sea pollution was caused by the release of the ship's bunkers and other pollutants (e.g. residues, lubricating or hydraulic oils).

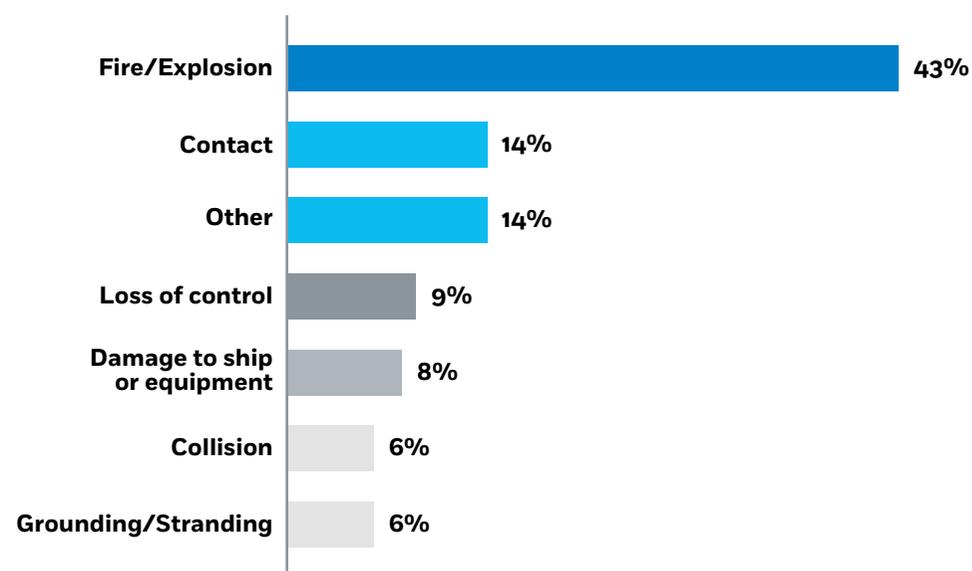


Figure 80: Distribution of cases of pollution by bunkers following an accident 2011-2014



Pollution by bunkers occurred mainly after a loss of control (70 cases).

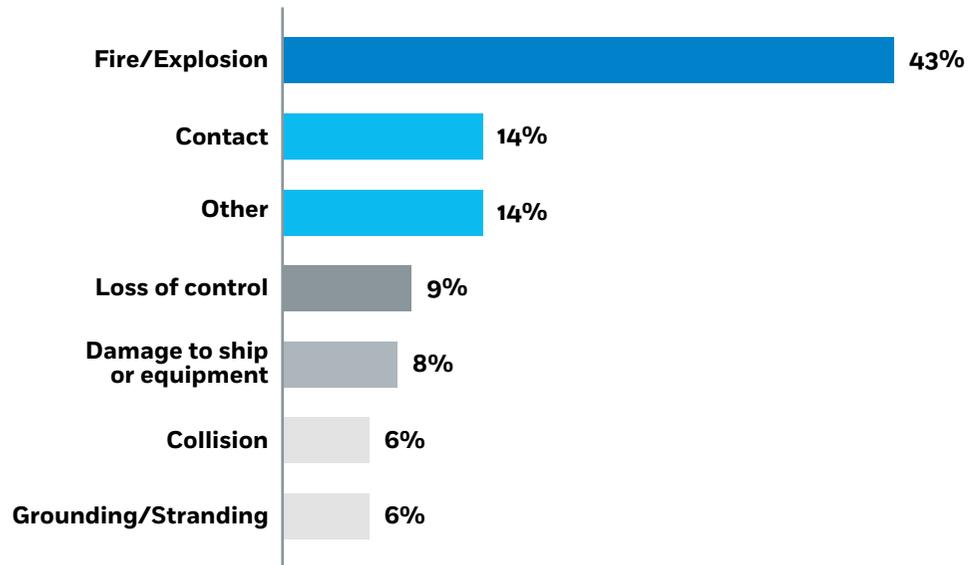
Figure 81: Distribution of pollution cases due to the cargo by nature of events 2011-2014



As with pollution by bunkers, pollution by cargo occurred mainly due to a loss of control of the ship (28 cases).

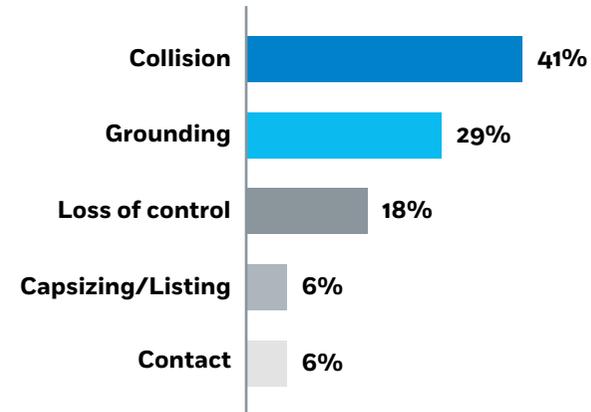


Figure 82: Distribution of air pollution cases by nature of events 2011-2014



Air pollution mainly occurred after a fire or an explosion (15 cases).

Figure 83: Distribution of oil pollution response by nature of events 2011-2014



Oil pollution response was deployed mainly after collision between ship (7 times), followed by grounding/stranding (5 cases).

CHAPTER 7

ACCIDENT LOCATION

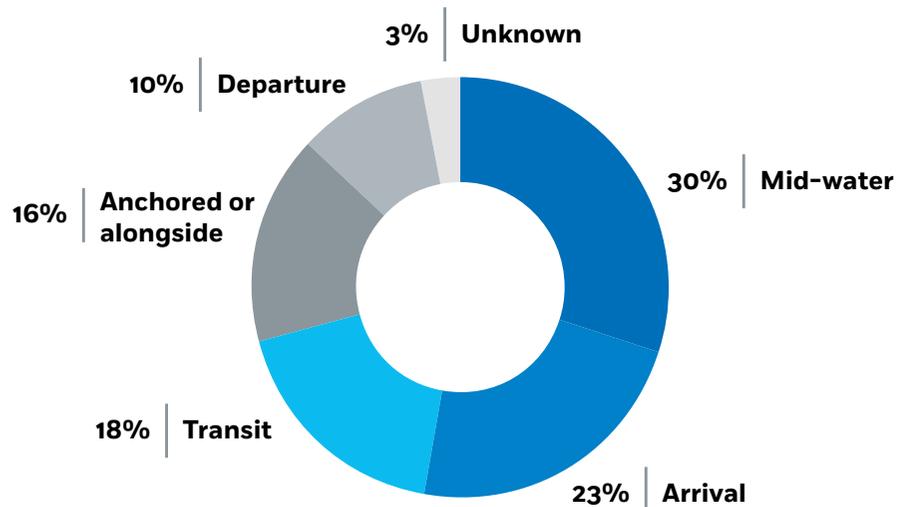


Grounding, LUNO, 5/2/2014

This chapter provides information about the location of the ships when marine casualties or incidents occurred.

7.1 VOYAGE SEGMENTS

Figure 84: Distribution of voyage segments 2011-2014

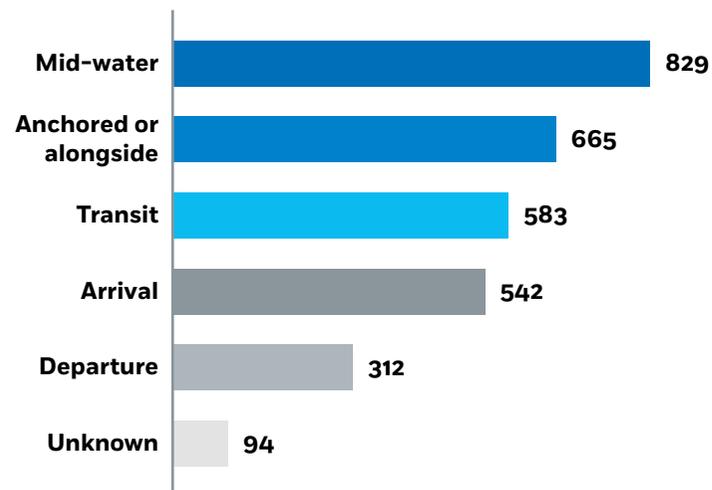


The **VOYAGE SEGMENT** determines the section of the voyage being undertaken at the time of the marine casualty or incident. It can be:

- **ANCHORED OR ALONGSIDE**
- **ARRIVAL OR DEPARTURE**
- **TRANSIT** (between the departure and mid-water or mid-water and arrival)
- **MID-WATER** (between transit phases)

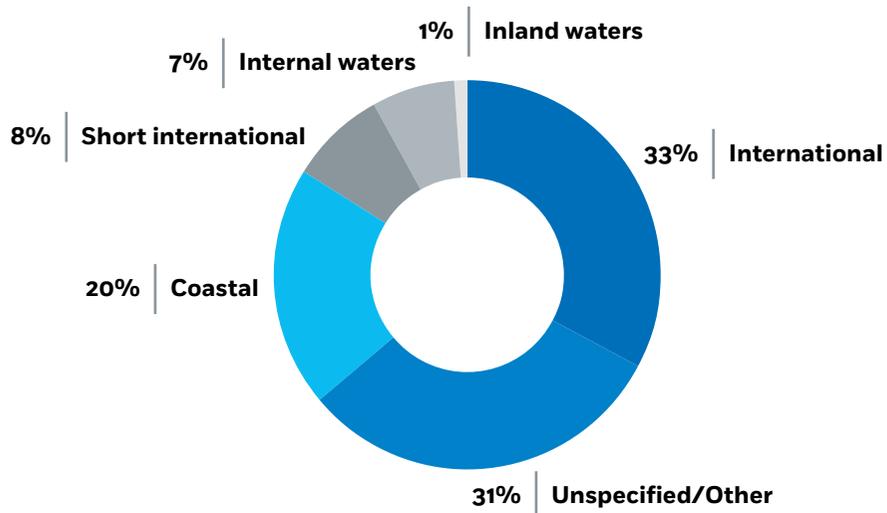
2642 occurrences happened when ships were in mid-water and 1996 during the arrival section of the voyage.

Figure 85: Number of voyage segments in 2014



Fire, NORDLYS, 15/9/2011, Source: Thomas Molnes

Figure 86: Distribution of voyage type 2011-2014



The **TYPE OF VOYAGE** is the voyage for which the ship is certified according to her statutory certificates.

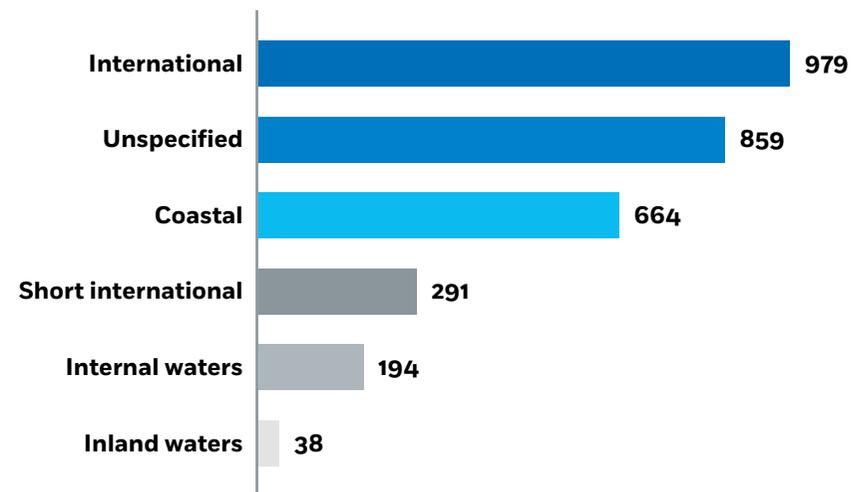
It is classified as:

- **INTERNATIONAL VOYAGE** means a voyage from a port of a Member State to a port outside that Member State; or
- **SHORT INTERNATIONAL VOYAGE** means an international voyage in the course of which a ship is not more than 200 miles from a port or place in which the passengers and crew could be placed in safety; or
- **COASTAL** means a voyage near the coast; or
- **INTERNAL WATERS** means a voyage in internal waters as defined by the State; or
- **INLAND WATERS** means a voyage in inland waterways as defined by the State; or
- **UNSPECIFIED/OTHER** means a voyage in waters different from the above, e.g. mixed areas between internal waters and inland waters.

In figures 87 and 88, "other" includes inland waters or other voyage types.

When specified, occurrences happened mainly to ships authorised to proceed in international voyages (3 038), following by ships operating in coastal areas (1 842).

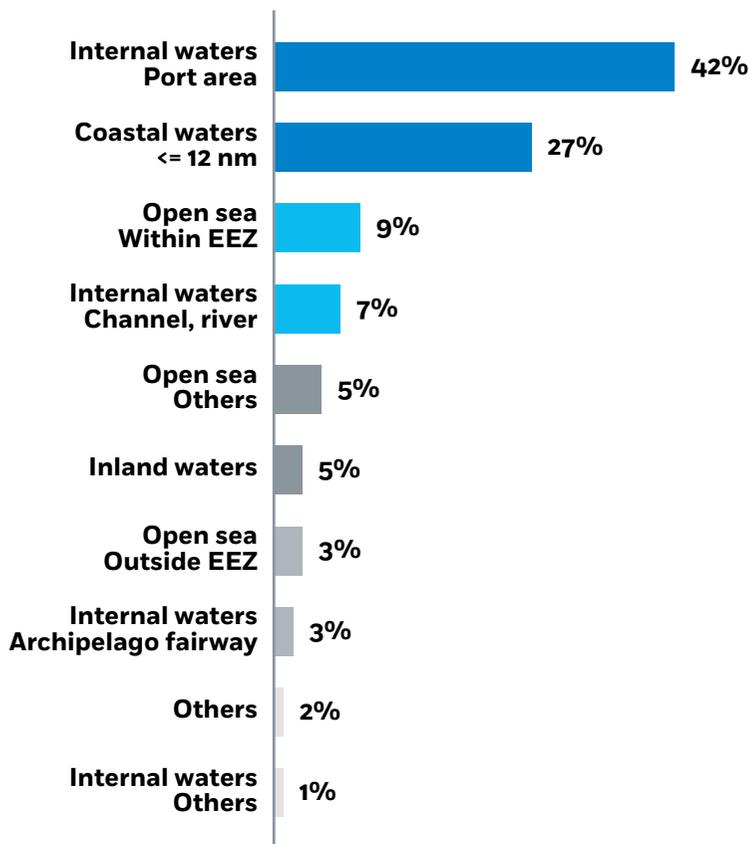
Figure 87: Distribution of voyage type 2014



Fire in cargo spaces, GRANDE COLONIA, 25/10/2013

7.2 LOCATION OF ACCIDENTS

Figure 88: Distribution of location of the occurrences 2011-2014



The figure shows the **LOCATION** where the casualty or accident occurred. Categories are:

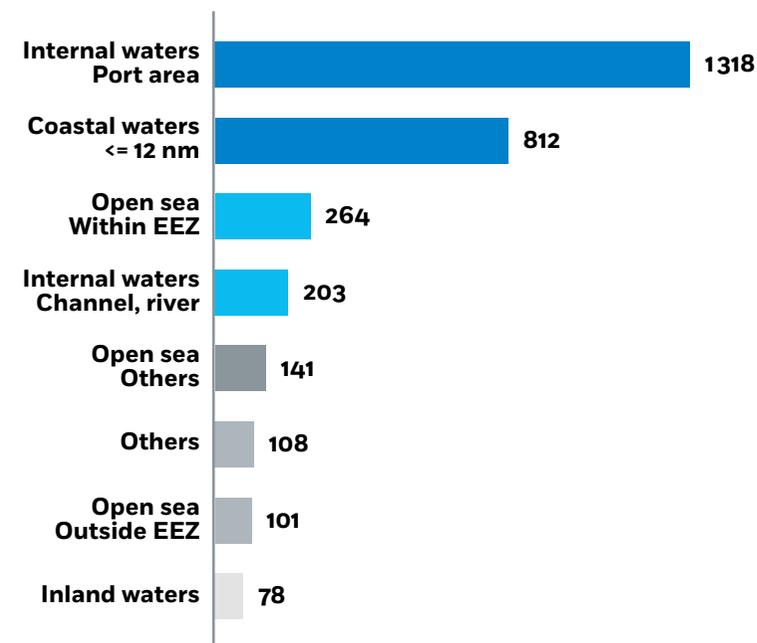
- Outside 12nm it will be regarded as **OPEN SEA**
- If it is in waters up to 12 nm it is **COASTAL WATERS ≤ 12 NM**

- If it is in the waters on the landward side of the baseline of the territorial sea it is regarded as **INTERNAL WATERS (ARCHIPELAGO FAIRWAY, CHANNEL/ RIVER, PORT AREA)**
- **INLAND WATERS**, which includes any area of water defined by EU Member States and not categorised as 'sea'- e.g. canals, tidal and non-tidal rivers, lakes, and some estuarial waters (an arm of sea that extends inland to meet the mouth of a river)
- **REPAIR YARD** and **UNKNOWN** are the two other possible values.

In figure 88, inland waters, repair yard and unknown cases have been grouped under the category "other".

There were 3831 accidents in internal waters (archipelago, fairway, channel, river or port area), followed by 2440 casualties in coastal waters.

Figure 89: Locations of the occurrences 2014



7.3 REGIONAL DISTRIBUTION

This section provides information on the geographical location of the accidents reported. It includes the involvement of EU Member States (as Flag State, Coastal State or substantially interested State).

Figure 90: Global distribution of accident locations

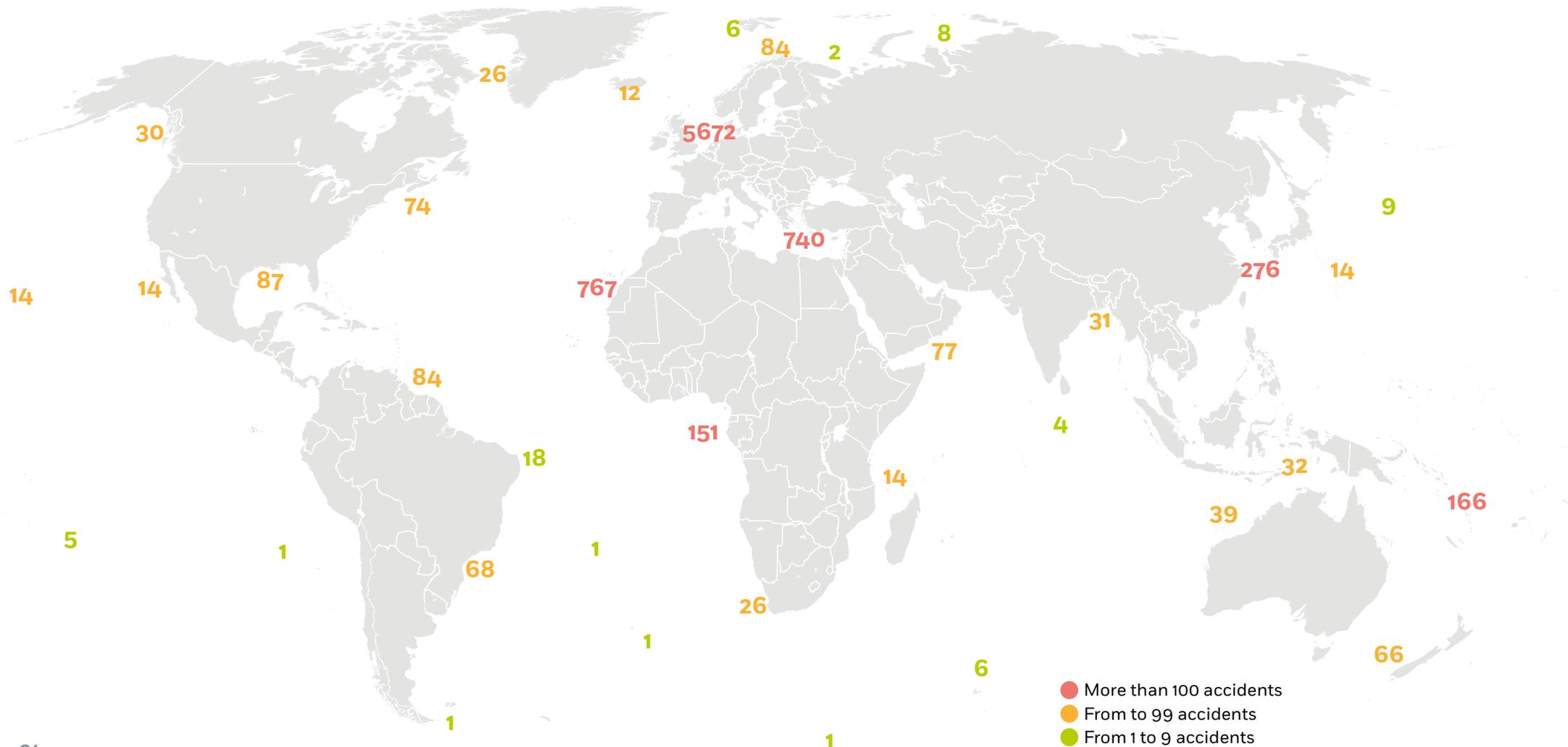
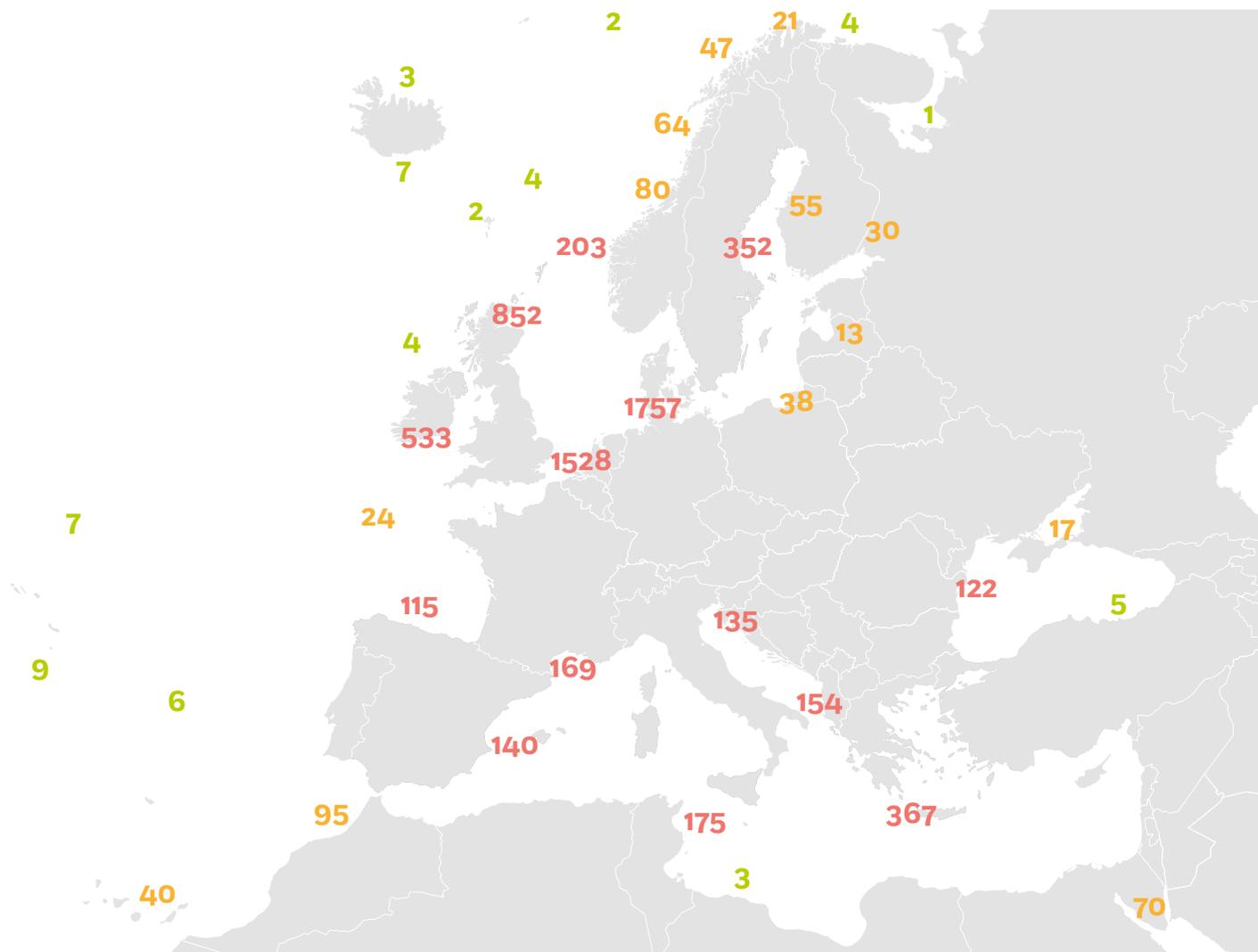


Figure 91: Distribution of accidents within the territorial sea and internal waters of EU States



TERRITORIAL SEA refers to the area within which a Coastal State exercises sovereignty, which is beyond its land territory and internal waters and, in the case of an archipelagic State, its archipelagic waters, covering an adjacent belt of the sea. It is a belt of coastal water extending at most 12 nautical miles (22.2 km; 13.8 mi) from the baseline (usually the mean low-water mark) of a Coastal State.

Figure 92: Distribution of accidents in the Atlantic Coast, North Sea and English Channel

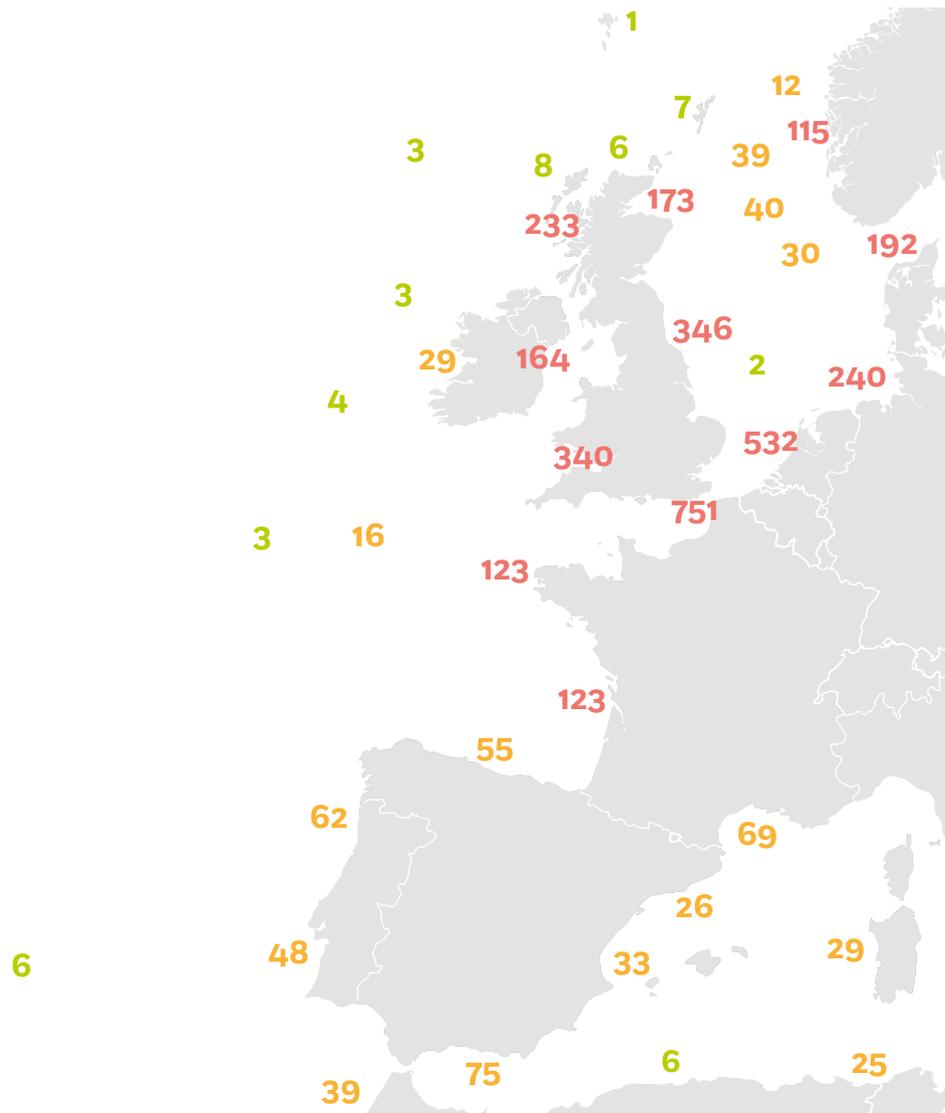


Figure 93: Distribution of accidents in the Baltic Sea and approaches

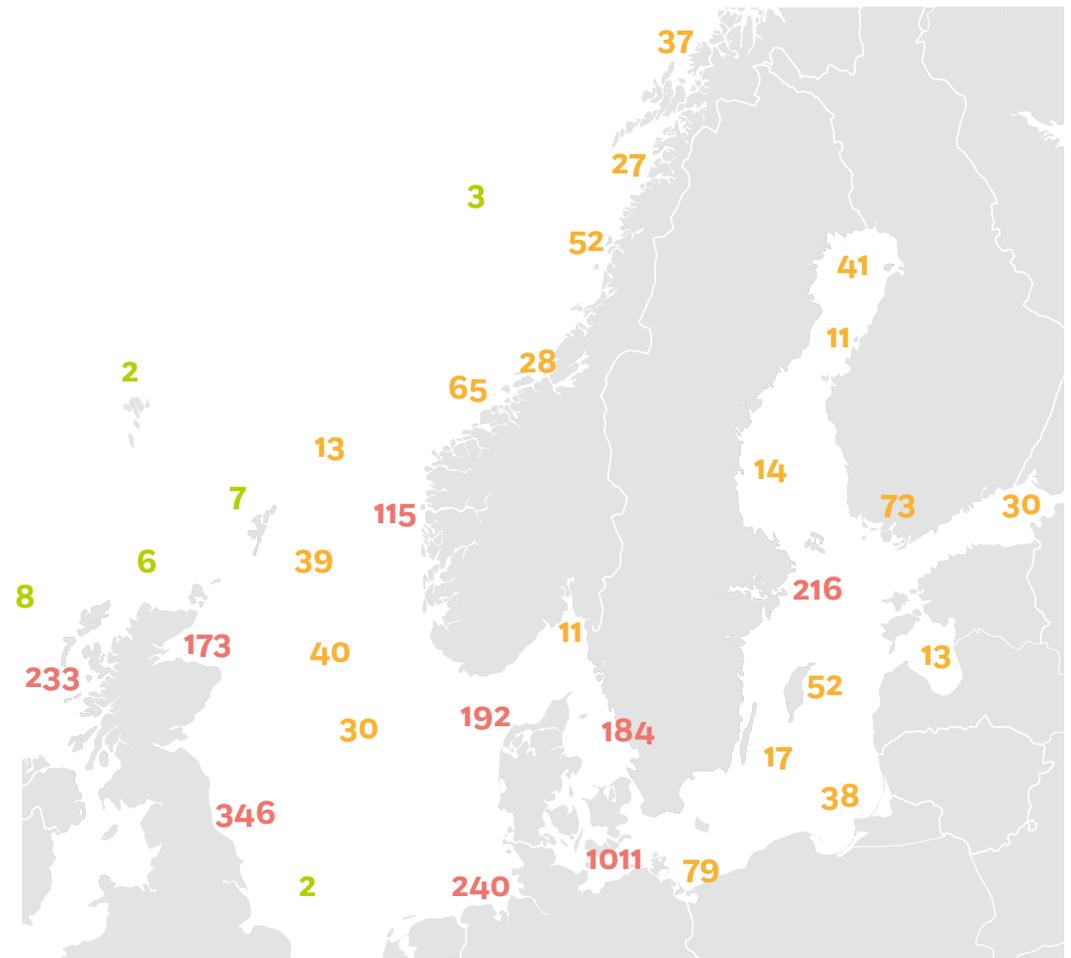
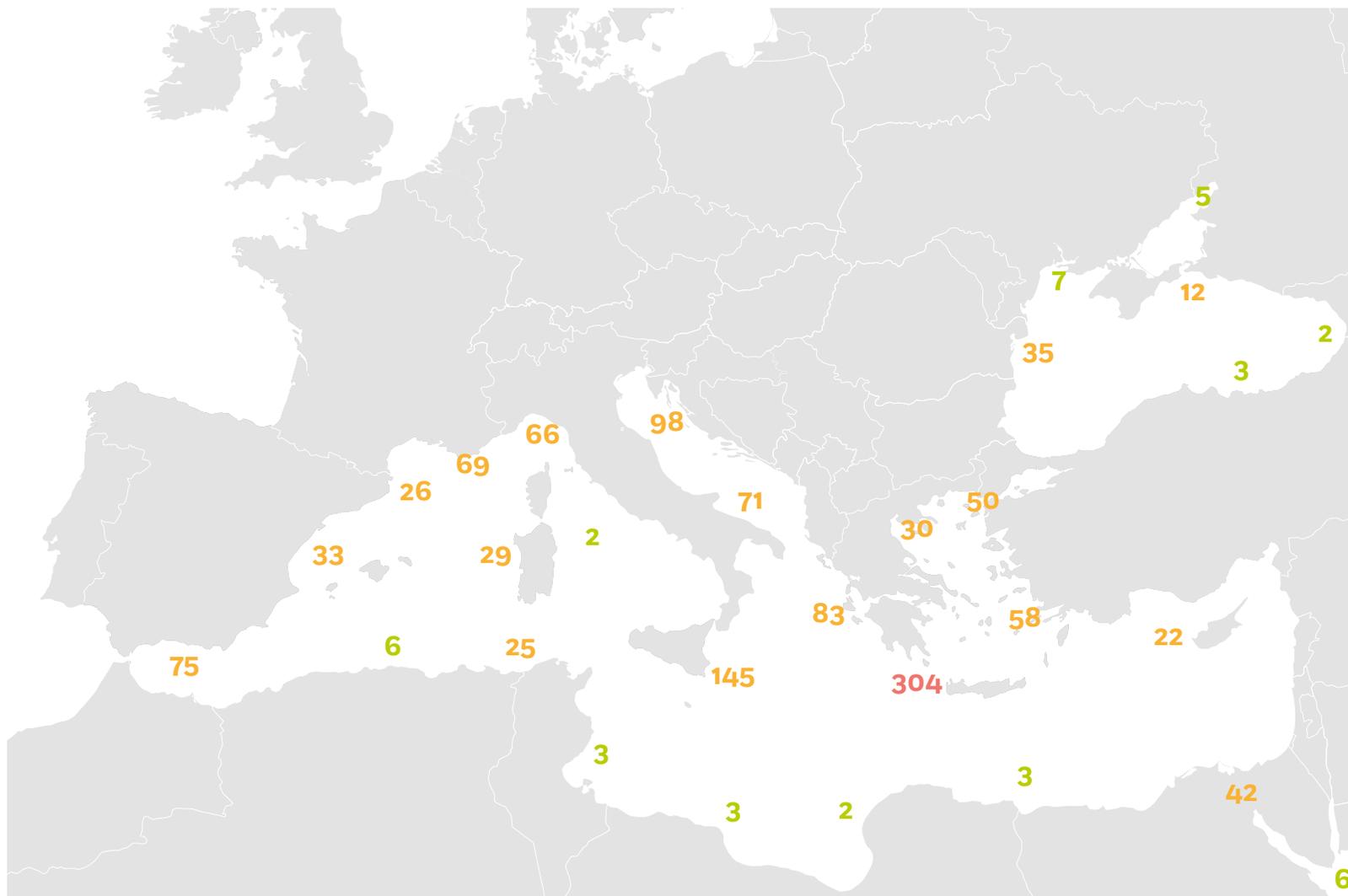


Figure 94: Distribution of accidents in the Mediterranean Sea and Black Sea



CHAPTER 8

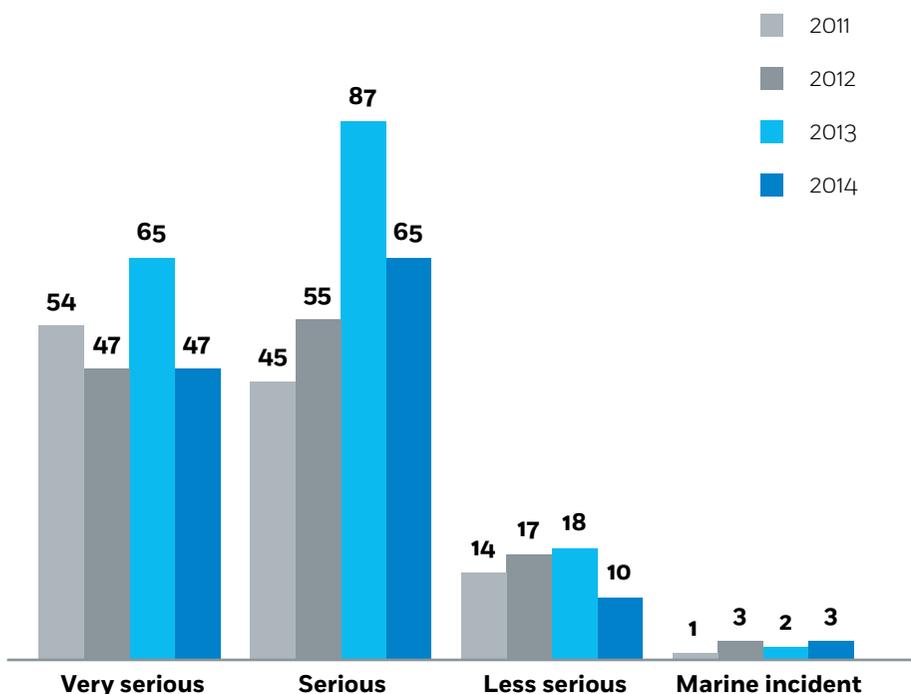
ACTIONS TAKEN BY THE
ACCIDENT INVESTIGATION BODIES



This chapter describes the activities undertaken by the accident investigation bodies of EU Member States regarding the investigations performed, reports published and safety recommendations issued.

8.1 SAFETY INVESTIGATIONS

Figure 95: Number of investigations launched by severity of occurrences



A **MARINE SAFETY INVESTIGATION** means an investigation into a marine casualty or marine incident, conducted with the objective of preventing marine casualties and marine incidents in the future. The investigation includes the collection and analysis of evidence, the identification of causal factors and the making of safety recommendations as necessary.

MARINE SAFETY INVESTIGATION AUTHORITY refers to a State authority that is responsible for conducting safety investigations. Within EU Member States, such authorities are called “accident investigation bodies”.

A total of **533** investigations were launched during the four-year period, 47% of these being related to serious casualties and 40% to very serious casualties.

The number of very serious casualties investigated in figure 95 is lower than the 341 very serious casualties reported. This difference is explained by the obligation to investigate all very serious casualties only after 17 June 2011 (date of implementation of the Directive 2009/18/EC). From 1/1/2011 to 17/6/2011, some 30 very serious accidents were not investigated by accident investigation bodies. If they were investigated by a maritime authority, as was the practice before 17 June 2011, they were not reported to EMCIP. The remaining difference could be explained by the delay of some Member States in reporting occurrences data in EMCIP.

Figure 96: Status of investigations launched since 2011

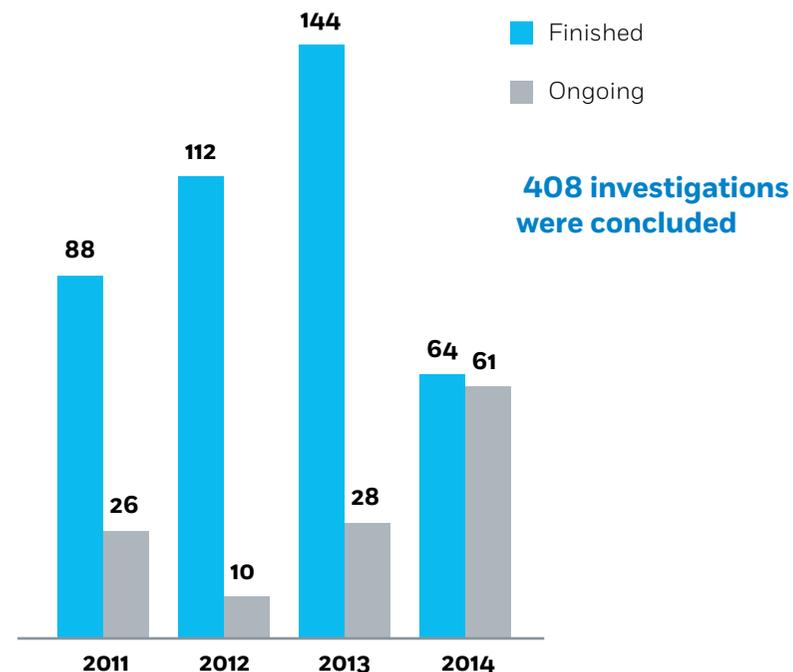
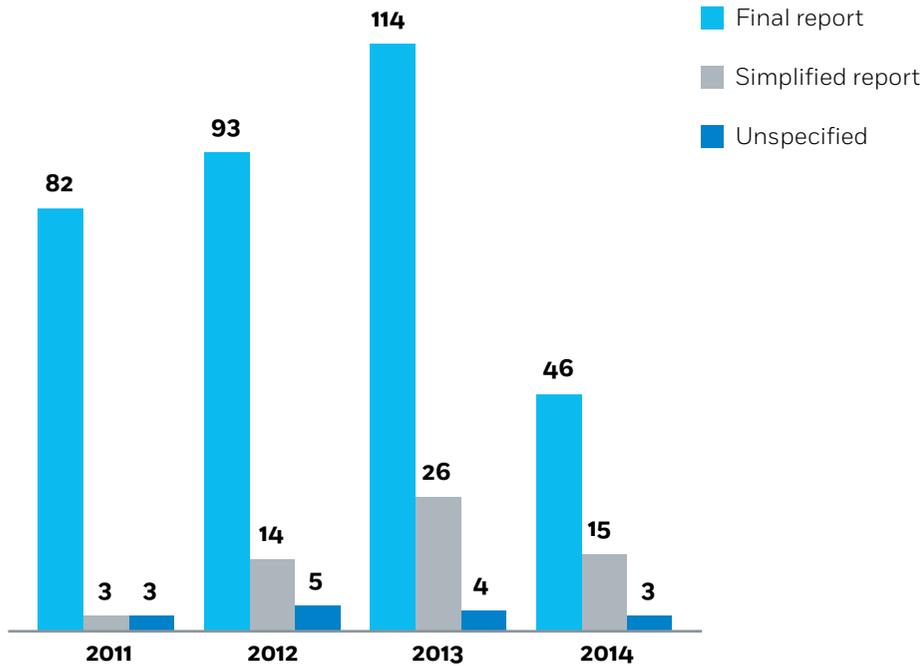


Figure 97: Number of investigation reports published



8.2 INVESTIGATION REPORTS

A **MARINE SAFETY INVESTIGATION REPORT** contains:

- a summary outlining the basic facts of the marine casualty or marine incident and stating whether any deaths, injuries or pollution occurred as a result
- the identity of the Flag State, owners, operators, the company as identified in the safety management certificate, and the classification society (subject to any national laws concerning privacy)
- where relevant the details of the dimensions and engines of any ship involved, together with a description of the crew, work routine and other matters, such as time served on the ship
- a narrative detailing the circumstances of the marine casualty or marine incident
- analysis and comment on the causal factors including any mechanical, human and organisational factors
- a discussion of the marine safety investigation's findings, including the identification of safety issues, and the marine safety investigation's conclusions
- where appropriate, recommendations with a view to preventing future marine casualties and marine incidents.

408 investigation reports were published during the four-year period. The type of report, whether final or simplified, is decided by the accident investigation body depending on the severity of the occurrence and/or the potential to prevent future casualties.

The list of all investigation reports published in EMCIP as per Article 17 of the accident investigation Directive 2009/18/EC can be found on EMCIP portal at the following address:

<https://emcipportal.jrc.ec.europa.eu/index.php/Investigation-reports>

Further investigation reports can be found on the websites of the accident investigation bodies. However those relate to cases not covered by the scope of the Directive 2009/18/EC (for example vessel categories not covered include fishing vessels below 15m length, recreational craft, inland waterway vessels in inland navigation, etc.).

Average time to publish a report after the casualty date is **377** days (data available from **76** reports out of **408** reports published).

20 Member States have published at least one report.

Figure 98: Number of investigation reports published by the Member States 2011-2014

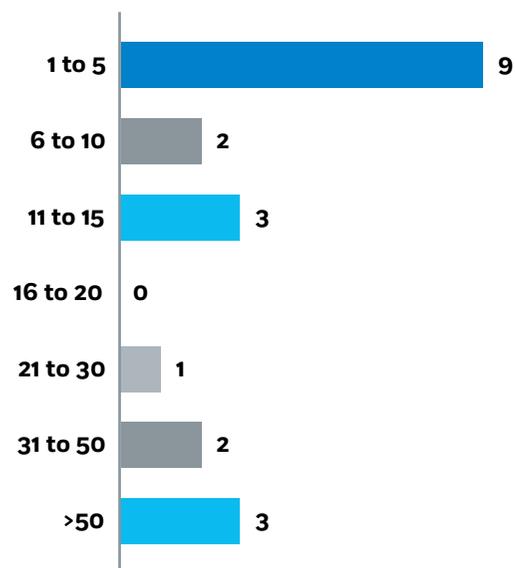
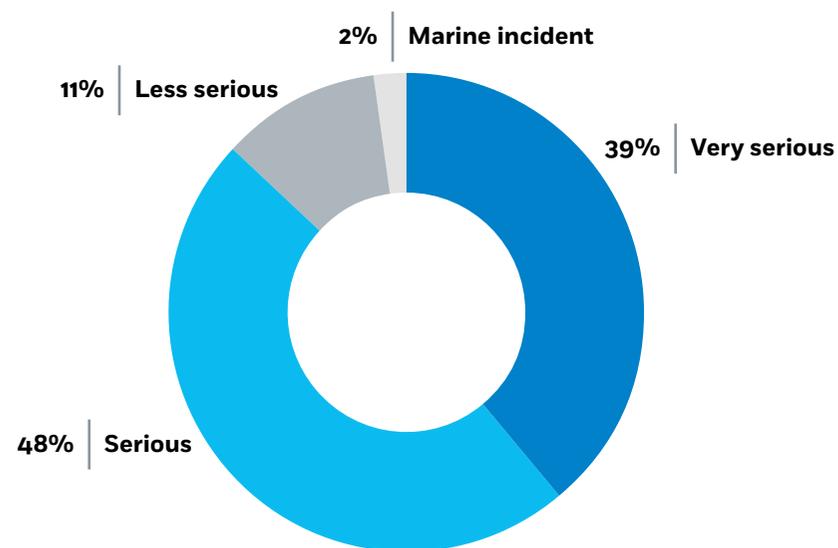
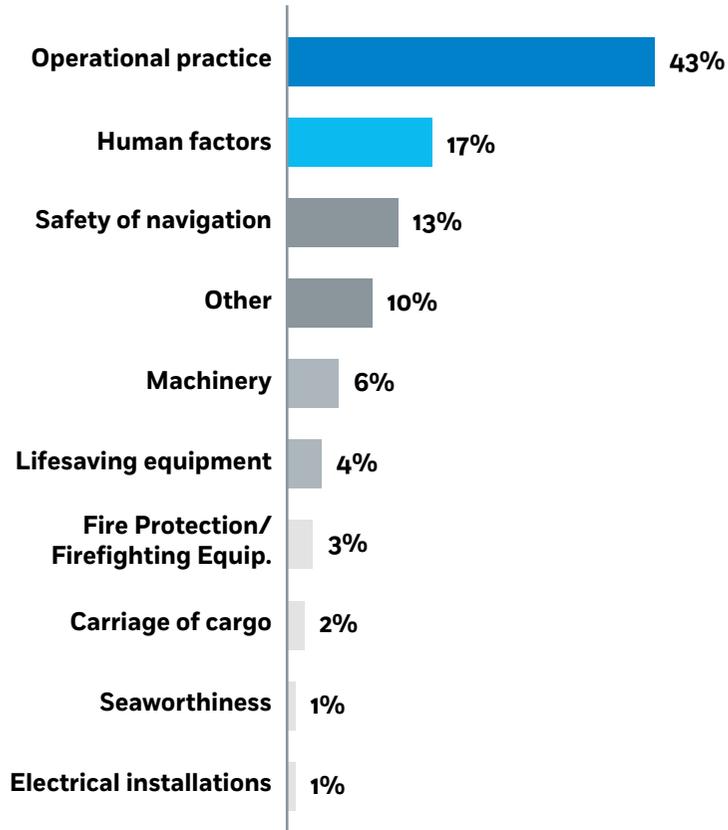


Figure 99: Distribution of investigation reports published by severity of occurrences 2011-2014



8.3 SAFETY RECOMMENDATIONS

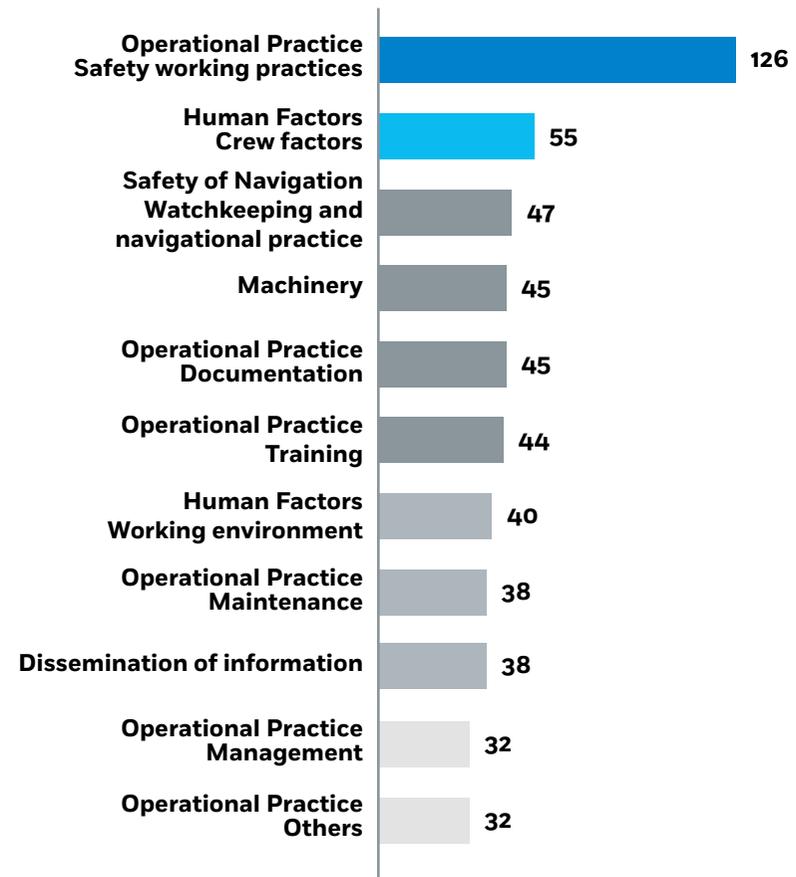
Figure 100: Distribution of safety recommendations issued per focus area 2011-2014



A **SAFETY RECOMMENDATION** is derived from the analysis and conclusions of the investigation and is related to particular subject areas, such as legislation, training, maintenance, etc.

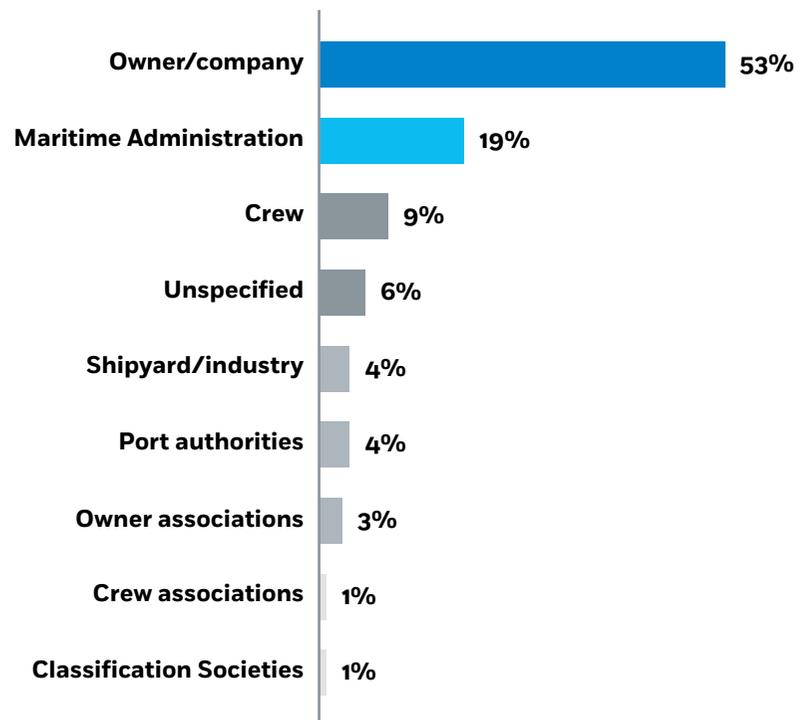
A total of 600 safety recommendations have been issued. Each safety recommendation could be related to one or more focus areas. As shown in figure 105, they covered a range of 10 focus areas, the main one being operational practices (353 from a total of 821 quoted focus areas).

Figure 101: Distribution of main sub-focus area quoted more than 30 times 2011-2014



Safety recommendations are fairly evenly spread among the 11 most quoted sub-focus areas, apart from operational practice – safety working practice that was quoted 126 times.

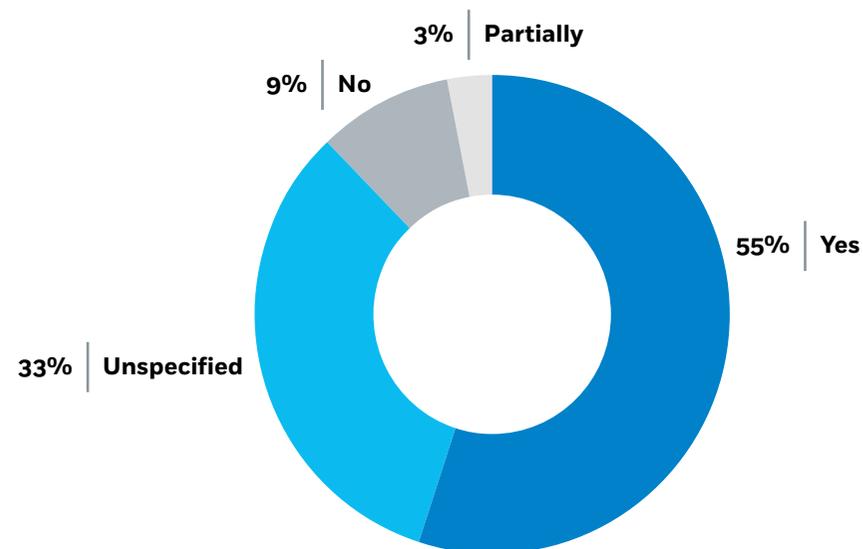
Figure 102: Addressees of safety recommendations



Safety recommendations are addressed to those best placed to implement them, such as ship owners, maritime authorities, etc.

From a total of 639 addressees that were issued at least one safety recommendation, 341 were the owners or the companies of the ships involved in the accidents and 118 were maritime administrations.

Figure 103: Responses to safety recommendations



Member States shall ensure that safety recommendations are duly taken into account by the addressees and, where appropriate, be given an adequate follow-up in accordance with Community and International law.

The majority of safety recommendations were considered positively. However 78 were still rejected by the addressees.

APPENDICES



APPENDIX 1

ACRONYMS

AI body: accident investigation body

EMSA: European Maritime Safety Agency

EMCIP: European Marine Casualty Information Platform

EU: European Union

EC: European Commission

IMO: International Maritime Organization

SAR: Search and Rescue



Capsizing, AMT EXPLORER, 3/7/2014.

DEFINITIONS: IMO CODE, DIRECTIVE 2009/18/EC, EMCIP TAXONOMY

Specific terms used in this publication are also used for marine safety investigation purposes and have the following meanings:

1. **Casualty events** are unwanted events in which there was some kind of energy release with impact on people and/or ship including its equipment and its cargo or environment. They are classified in:

- **Capsizing/Listing** is a casualty where the ship no longer floats in the right-side-up mode due to: negative initial stability (negative metacentric height), or transversal shift of the centre of gravity, or the impact of external forces.
 - **Capsizing** when the ship is tipped over until disabled.
 - **Listing** when the ship has a permanent heel or angle of loll.

- **Collision** - a casualty caused by ships striking or being struck by another ship, regardless of whether the ships are underway, anchored or moored. This type of casualty event does not include ships striking underwater wrecks. The collision can be **with other ship** or **with multiple ships** or **ship not underway**.

- **Contact** - a casualty caused by ships striking or being struck by an external object. The objects can be: **Floating object (cargo, ice, other or unknown)**; **Fixed object**, but not the sea bottom; or **Flying object**.

- **Damage to equipment** - damage to equipment, system or the ship not covered by any of the other casualty type.

- **Grounding/stranding** - a moving navigating ship, either under command, under **Power**, or not under command, **Drift(ing)**, striking the sea bottom, shore or underwater wrecks.

- **Fire/explosion** - an uncontrolled ignition of flammable chemicals and other

materials on board of a ship:

- **Fire** is the uncontrolled process of combustion characterised by heat or smoke or flame or any combination of these.
- **Explosion** is an uncontrolled release of energy which causes a pressure discontinuity or blast wave.

■ **Flooding/foudering** is a casualty event when the ship is taking water on board.

- **Foundering** will be considered when the vessel has sunk. Foundering should only be regarded as the first casualty event if we do not know the details of the flooding which caused the vessel to founder. In the chain of events foundering can be the last casualty event in this case there is the need to add accidental events.
- **Flooding** – refers to a casualty when a vessel takes water on board and can be:

- **Progressive** if the water flow is gradual.
- **Massive** if the water flow is extensive.

■ **Hull failure** - a failure affecting the general structural strength of the ship.

■ **Loss of control** - a total or temporary loss of the ability to operate or manoeuvre the ship, failure of electric power, or to contain on board cargo or other substances:

- **Loss of electrical power** is the loss of the electrical supply to the ship or facility;
- **Loss of propulsion power** is the loss of propulsion because of machinery failure;
- **Loss of directional control** is the loss of the ability to steer the ship;
- **Loss of containment** is an accidental spill or damage or loss of cargo or other substances carried on board a ship.

■ **Missing** - a casualty to a ship whose fate is undetermined with no information having been received on the loss and whereabouts after a reasonable period of time.

■ **Non-accidental events** are intentional events as a result of illegal or hostile acts therefore they are not marine casualties or incidents. They are:

- **Acts of war**, any act, against a ship or the people on board, by a State that would effectively terminate the normal international law of peacetime and activate the international law of war
 - **Criminal acts**, any crime, including an act, omission, or possession under the laws of a State or local government, which poses a substantial threat to people on board of a ship or to property (e.g. terrorism, sabotage, piracy)
 - **Illegal discharge** is an intentional discharge of polluting substances, oil or other noxious substances, from ships, and
 - **other**, other intentional act that incur loss of or damage to a ship or environmental damage or harm to people on board.
- Non-accidental events are not considered as marine casualties or incidents and are not covered by the scope of the accident investigation Directive (2009/18/EC).

2. A **Coastal State** means a State in whose territory, including its territorial sea, a marine casualty or marine incident occurs.

3. Occupational accidents are grouped under **Deviations**, which consist in the description of the event deviating from normality leading to the accident:

■ Deviation due to electrical problems, explosion, fire - Not specified

- Electrical problem due to equipment failure - leading to indirect contact
- Electrical problem - leading to direct contact
- Explosion
- Fire, flare up
- Other Deviations not listed above

■ Deviation by overflow, overturn, leak, flow, vaporisation, emission

- Solid state - overflowing, overturning
- Liquid state - leaking, oozing, flowing, splashing, spraying
- Gaseous state - vaporisation, aerosol formation, gas formation
- Pulverulent material - smoke generation, dust/particles in suspension/ emission of
- Other Deviations not listed above

■ Breakage, bursting, splitting, slipping, fall, collapse of Material Agent

- Breakage of material - at joint, at seams
- Breakage, bursting - causing splinters (wood, glass, metal, stone, plastic, others)
- Slip, fall, collapse of Material Agent - from above (falling on the victim)
- Slip, fall, collapse of Material Agent - from below (dragging the victim down)
- Slip, fall, collapse of Material Agent - on the same level
- Other deviations not listed above

■ Loss of control (total or partial) of machine, means of transport or handling equipment, handheld tool, object, animal

- Loss of control (total or partial) - of machine (including unwanted start-up) or of the material being worked by the machine
- Loss of control (total or partial) - of means of transport or handling equipment, (motorised or not)
- Loss of control (total or partial) - of hand-held tool (motorised or not) or of the material being worked by the tool
- Loss of control (total or partial) - of object (being carried, moved, handled, etc.)
- Loss of control (total or partial) - of animal
- Other Deviations not listed above

■ Slipping - Stumbling and falling - Fall of persons

- Fall of person - to a lower level
- Slipping - Stumbling and falling - Fall of person - on the same level
- Fall overboard of person
- Other deviations not listed above

■ Body movement without any physical stress (generally leading to an external injury)

- Walking on a sharp object
- Kneeling on, sitting on, leaning against
- Being caught or carried away, by something or by momentum
- Uncoordinated movements, spurious or untimely actions
- Other Deviations not listed above

■ Body movement under or with physical stress (generally leading to an internal injury)

- Lifting, carrying, standing up
- Pushing, pulling
- Putting down, bending down
- Twisting, turning
- Treading badly, twisting leg or ankle, slipping without falling
- Other Deviations not listed above

■ Shock, fright, violence, aggression, threat, presence

- Shock, fright
- Violence, aggression, threat - between company employees subjected to the employer's authority
- Violence, aggression, threat - from people external to the company towards victims performing their duties
- Aggression, jostle - by animal

- Presence of the victim or of a third person in itself creating a danger for oneself and possibly others
- Other Deviations not listed above

■ Other Deviations not listed above in this classification.

4. **Flag State** means a State whose flag a ship is entitled to fly.

5. A **marine casualty** means an event, or a sequence of events, that has resulted in any of the following which has occurred directly in connection with the operations of a ship:

1. The death of, or serious injury to, a person
2. The loss of a person from a ship
3. The loss, presumed loss or abandonment of a ship
4. Material damage to a ship
5. The stranding or disabling of a ship, or the involvement of a ship in a collision
6. Material damage to marine infrastructure external to a ship, that could seriously endanger the safety of the ship, another ship or an individual or
7. Severe damage to the environment, or the potential for severe damage to the environment, brought about by the damage of a ship or ships.

However, a marine casualty does not include a deliberate act or omission, with the intention to cause harm to the safety of a ship, an individual or the environment.

6. A **marine incident** means an event, or sequence of events, other than a marine casualty, which has occurred directly in connection with the operations of a ship that endangered, or, if not corrected, would endanger the safety of the ship, its occupants or any other person or the environment.

However, a marine incident does not include a deliberate act or omission, with the intention to cause harm to the safety of a ship, an individual or the environment.

7. A **marine safety investigation** means an investigation or inquiry into a marine casualty or marine incident, conducted with the objective of preventing marine casualties and marine incidents in the future. The investigation includes the collection and analysis of evidence, the identification of causal factors and the making of safety recommendations as necessary.

8. A **marine safety investigation report** means a report that contains:

1. A summary outlining the basic facts of the marine casualty or marine incident and stating whether any deaths, injuries or pollution occurred as a result
2. The identity of the Flag State, owners, operators, the company as identified in the safety management certificate, and the classification society (subject to any national laws concerning privacy)
3. Where relevant the details of the dimensions and engines of any ship involved, together with a description of the crew, work routine and other matters, such as time served on the ship
4. A narrative detailing the circumstances of the marine casualty or marine incident
5. Analysis and comment on the causal factors including any mechanical, human and organisational factors
6. A discussion of the marine safety investigation's findings, including the identification of safety issues, and the marine safety investigation's conclusions, and
7. Where appropriate, recommendations with a view to preventing future marine casualties and marine incidents.

9. **Marine safety investigation authority** means an authority in a State, responsible for conducting investigations in accordance with the IMO Code. Within an EU Member State, in accordance with the EU Directive, such an authority is called an accident investigation body.

10. A **material damage** in relation to a marine casualty means:

1. Damage that:

- Significantly affects the structural integrity, performance or operational characteristics of marine infrastructure or a ship, and
- Requires major repair or replacement of a major component or components, or

2. Destruction of the marine infrastructure or ship.

11. An **occupational accident** type means the mode in which a person (crewmember, passenger or other person) was injured or killed, which can be:

- Accident
- Accident not related to ship operations
- Illness
- Suicide/homicide
- Unknown

Illness, suicide and homicides are not covered by the scope of the Directive 2009/18/EC.

12. The term **serious casualty** shall be understood in accordance with the updated definition contained in Circular MSC-MEPC.3/Circ.3 of the IMO Maritime Safety Committee and Marine Environment protection Committee of 18 December 2008; it says:

Serious casualties are casualties to ships which do not qualify as very serious casualties and which involve a fire, explosion, collision, grounding, contact, heavy weather damage, ice damage, hull cracking, or suspected hull defect, etc., resulting in:

- Immobilisation of main engines, extensive accommodation damage, severe

structural damage, such as penetration of the hull under water, etc., rendering the ship unfit to proceed*, or

- Pollution (regardless of quantity), and/or
- A breakdown necessitating towage or shore assistance.

* The ship is in a condition, which does not correspond substantially with the applicable conventions, presenting a danger to the ship and the persons on board or an unreasonable threat of harm to the marine environment.

13. A **serious injury** means an injury which is sustained by a person, resulting in incapacitation where the person is unable to function normally for more than 72 hours, commencing within seven days from the date when the injury was suffered.

14. A **severe damage to the environment** means damage to the environment which, as evaluated by the State(s) affected, or the Flag State, as appropriate, produces a major deleterious effect upon the environment.

15. **Substantially interested State** means a State:

1. Which is the Flag State of a ship involved in a marine casualty or marine incident, or
2. Which is the Coastal State involved in a marine casualty or marine incident, or
3. Whose environment was severely or significantly damaged by a marine casualty (including the environment of its waters and territories recognised under international law), or
4. Where the consequences of a marine casualty or marine incident caused, or threatened, serious harm to that State or to artificial islands, installations, or structures over which it is entitled to exercise jurisdiction, or
5. Where, as a result of a marine casualty, nationals of that State lost their lives or received serious injuries, or
6. That has important information at its disposal that the marine safety investigating State(s) consider useful to the investigation, or
7. That for some other reason establishes an interest that is considered significant by the marine safety investigating State(s).

16. **Territorial sea** is defined by section 1 of Part II of the United Nations Convention on the Law of the Sea, which says:

The sovereignty of a Coastal State extends, beyond its land territory and internal waters and, in the case of an archipelagic State, its archipelagic waters, to an adjacent belt of sea, described as the territorial sea.

17. A **very serious marine casualty** means a marine casualty involving the total loss of the ship or a death or severe damage to the environment.

Other definitions could be found within the:

IMO Code for the Investigation of Marine Casualties and Incidents shall mean the Code for the investigation of Marine Casualties and Incidents annexed to resolution A.849(20) of the IMO Assembly of 27 November 1997. + RESOLUTION MSC.255(84) (adopted on 16 May 2008) ADOPTION OF THE CODE OF THE INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES FOR A SAFETY INVESTIGATION INTO A MARINE CASUALTY OR MARINE INCIDENT (CASUALTY INVESTIGATION CODE)

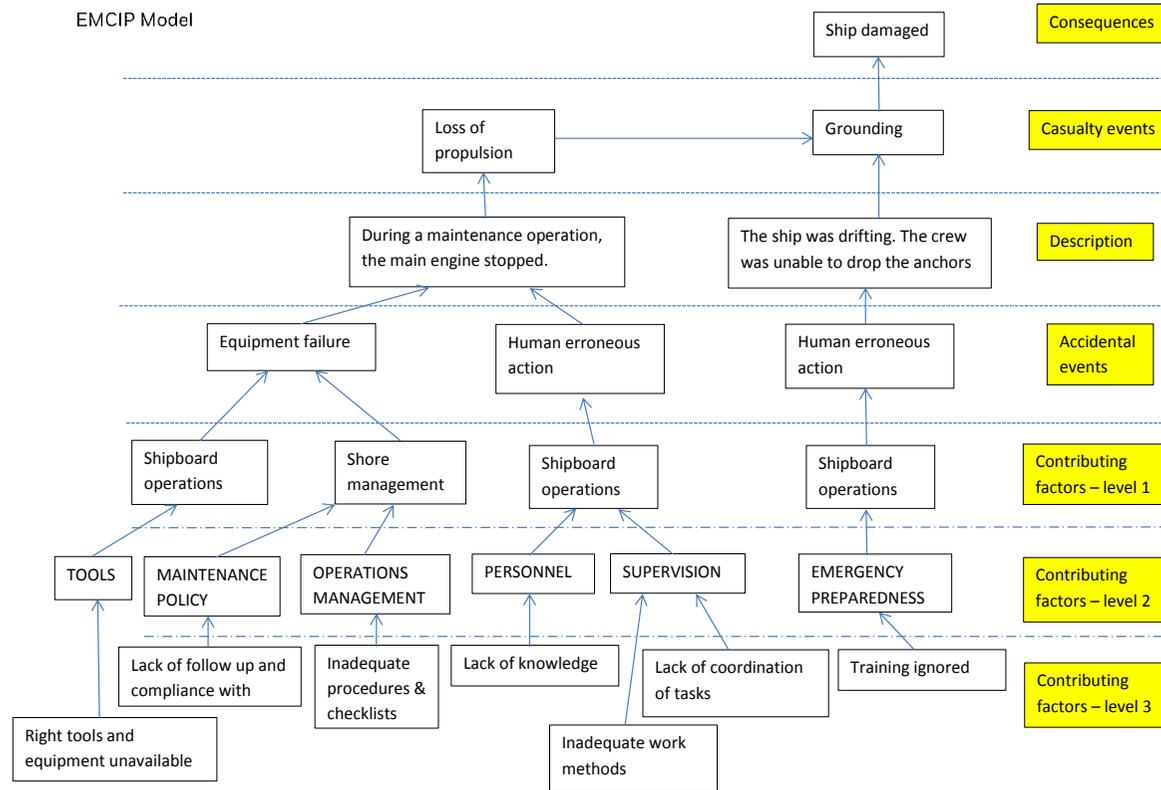
+ RESOLUTION A.1075(28) adopted on 24 February 2014

The scope of the accident investigation Directive 2009/18/EC can be found in its Article 2.

Other information can be found on:

<http://emsa.europa.eu> or on emcipportal.jrc.ec.europa.eu

APPENDIX 2



In order to report in a common way the information resulting from marine casualties, a codification of the various specific information was defined. Such codification also provides practical advice for a systematic investigation of marine casualties and incidents and allows the development of effective analysis and preventive action. It covers the different elements that connect the consequences of an accident to its root causes. Such a model is not only implemented at European level, but also at international level through the IMO resolution A.1075 (28). To support this model, a specific taxonomy related to marine casualties and incidents, composed of 630 fields, has been developed in the EMCIP database to store the various information collected during the investigation.

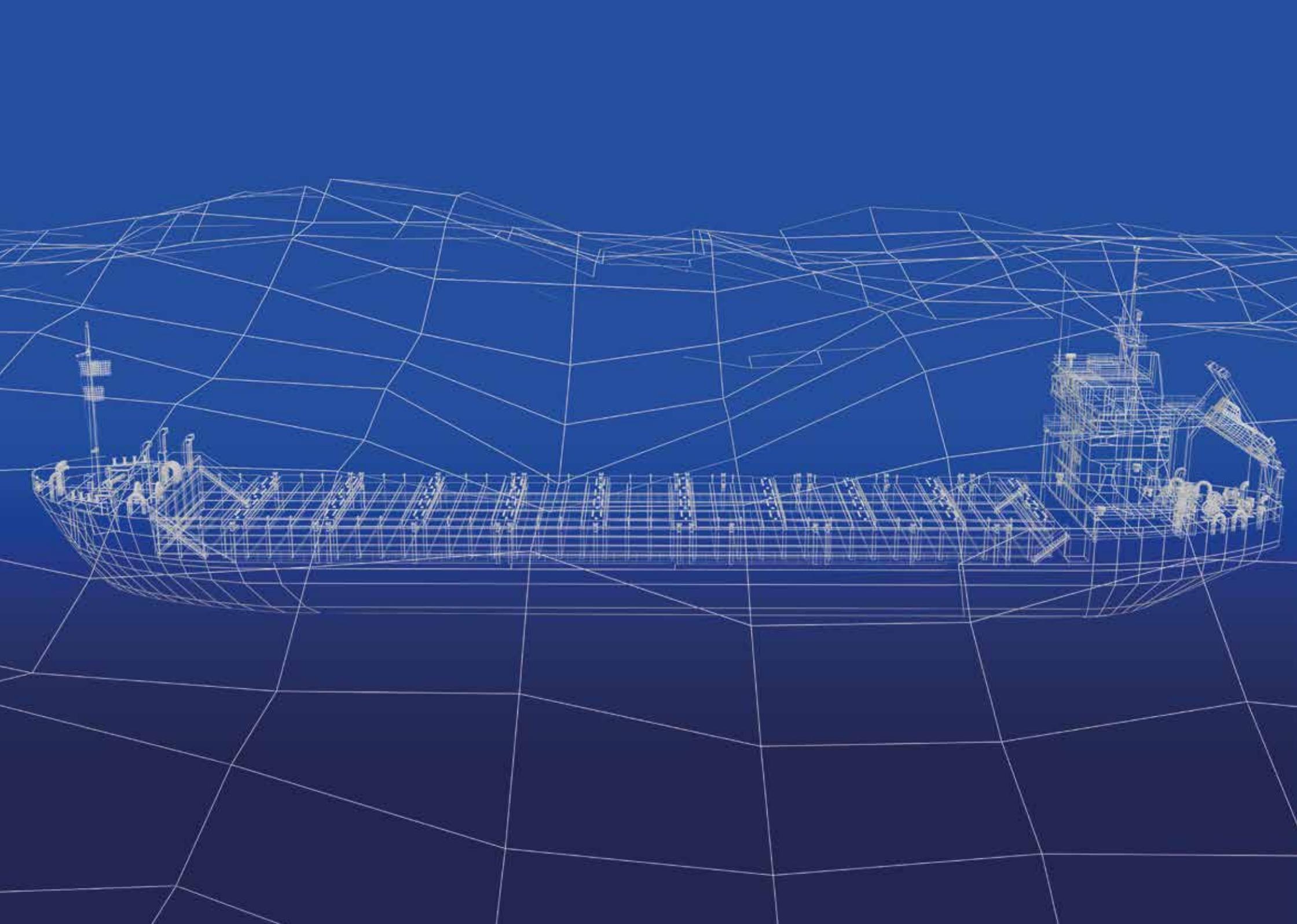
Safety recommendations issued by the accident investigation bodies aim at cutting the links between the contributing factors, accidental events and casualty events. When safety issues have been properly identified during a safety investigation, and followed by relevant safety recommendations, a proper consideration by the addressee should prevent similar accidents from happening again.

APPENDIX 3

LIST OF NATIONAL ACCIDENT INVESTIGATION BODIES

Member State	Name of the national accident investigation body	Acronym	Website
Austria	Austrian Safety Investigation Authority		www.bmvit.gv.at
Belgium	FPS Transport and Mobility Conseil d'Enquete Maritime		www.mobilite.belgium.be
Bulgaria	Directorate for Aircraft, Maritime and Railway Accident Investigation		www.mtitc.government.bg
Croatia	Air, Maritime and Railway Traffic Accident Investigation Agency		www.azi.hr
Cyprus	Marine Accidents and Incidents Investigation service	MAIS	www.shipping.gov.cy
Czech Republic	Ministry of Transport, Czech Maritime Administration Navigation Department		www.mdcz.cz
Denmark	Danish Maritime Accident Investigation Board	DMAIB	www.dmaib.com
Estonia	Estonian Safety Investigation Bureau	ESIB	www.vta.ee
Finland	Safety Investigation Authority of Finland	SIA	www.onnettomuustutkinta.fi
France	Marine Accident Investigation Office	BEAmer	www.beamer-france.org
Germany	Federal Bureau of Maritime Casualty Investigation	BSU	www.bsu-bund.de
Greece	Hellenic Bureau Marine Casualties Investigation	HBMCI	www.hbmci.gov.gr
Hungary	Hungarian Transportation Safety Bureau	TSB	www.kbsz.hu
Iceland	Icelandic Marine Accident Investigation Board		www.rns.is
Ireland	Marine Casualty Investigation Board	MCIB	www.mcib.ie
Italy	Direzione Generale Investigazioni Ferroviarie e Marittime	DIGIFEMA	www.mit.gov.it
Latvia	Transport Accident and Incident Investigation Bureau	TAIIB	www.taiib.gov.lv
Lithuania	Transport Accident and Incident Investigation		www.sumin.lt
Luxembourg	Administration of Technical Investigations	AET	www.mt.public.lu
Malta	Marine Safety Investigation Unit	MSIU	https://mti.gov.mt
The Netherlands	Dutch Safety Board	DSB	http://www.ivw.nl
Norway	Accident Investigation Board of Norway	AIBN	www.aibn.no
Poland	State Commission on Maritime Accident Investigation	PKBWM	www.mir.gov.pl

Member State	Name of the national accident investigation body	Acronym	Website
Portugal	Maritime Accidents Investigation and Prevention Office	GPIAM	www.gpiam.mamaot.gov.pt
Romania	Marine Accidents Investigation Department		www.mt.ro
Slovenia	Maritime Accident & Incidents Investigation Services		www.telecom.gov.sk
Spain	Standing Commission for Maritime Accident and Incident Investigation	CIAIM	www.ciaim.es
Sweden	Swedish Accident Investigation Authority	SAIA	www.havkom.se
United Kingdom	Marine Accident Investigation Branch	MAIB	www.maib.gov.uk
United Kingdom / Gibraltar	Marine Accident Investigation Compliance Officer	MAICO	www.gibraltarship.com



ABOUT THE EUROPEAN MARITIME SAFETY AGENCY

The European Maritime Safety Agency is one of the European Union's decentralised agencies. Based in Lisbon, the Agency provides technical, operational and scientific assistance to the European member States in the fields of maritime safety, maritime security, prevention of, and response to, pollution caused by ships as well as response to marine pollution caused by oil and gas installations. The Agency contributes to the overall efficiency of maritime traffic and maritime transport.

Get in touch for more information

European Maritime Safety Agency

Praça Europa 4
1249-206 Lisboa Portugal

Tel +351 21 1209 200 / Fax +351 21 1209 210
www.emsa.europa.eu / Twitter EMSA_Lisbon