European Maritime Safety Agency


# ANNUAL OVERVIEW OF MARINE CASUALTIES AND INCIDENTS 2019

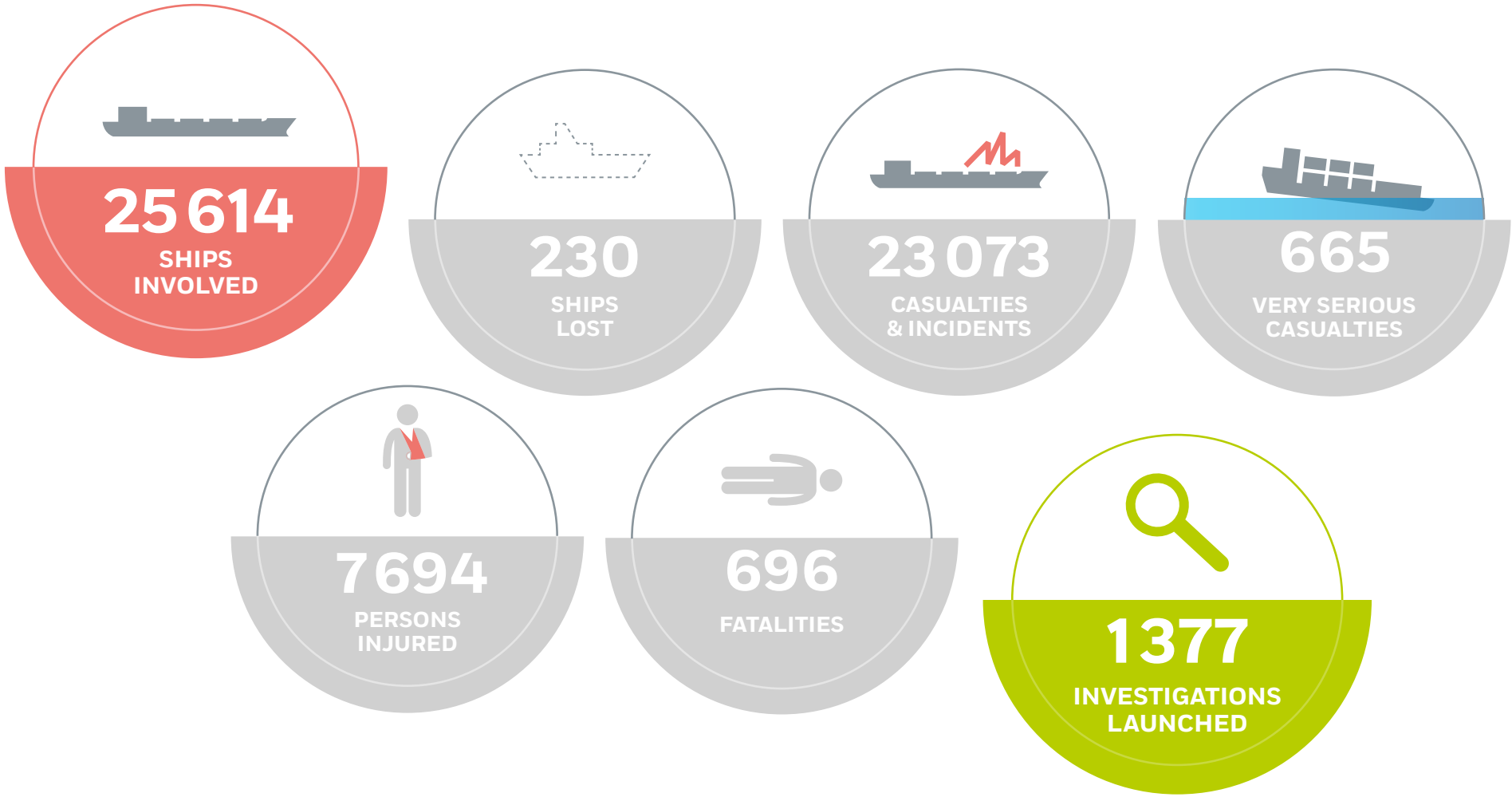
EMSA

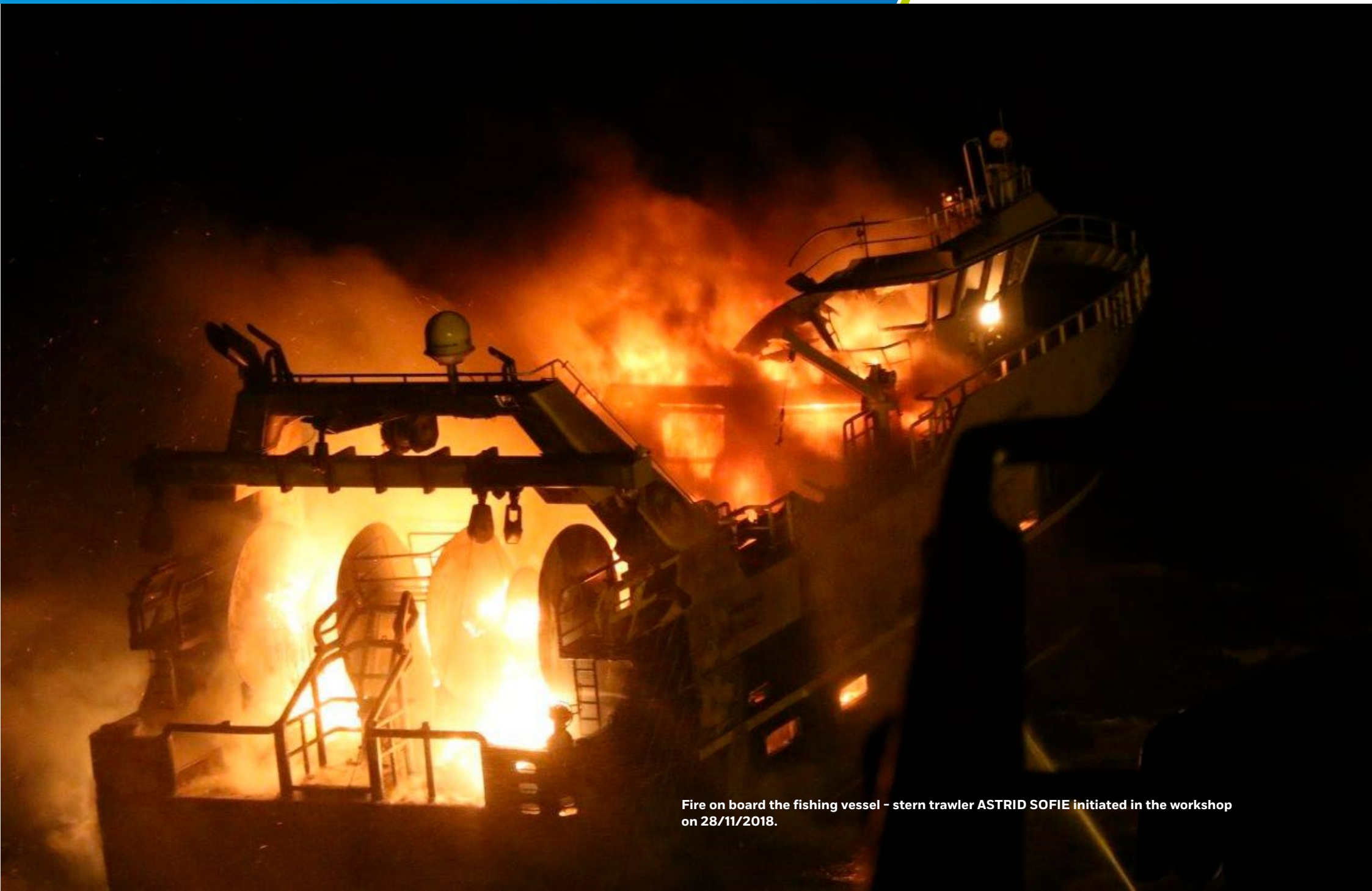

EMSA

# ANNUAL OVERVIEW OF MARINE CASUALTIES AND INCIDENTS 2019

EMSA

# KEY FIGURES FOR 2011-2018





**Fire on board the fishing vessel - stern trawler ASTRID SOFIE initiated in the workshop on 28/11/2018.**

# CONTENTS

CHAPTER 7

## 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, hereinafter referred as Directive:

"The purpose of the Directive 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 is not be used for determining liability or apportioning blame.

## DISCLAIMER

The marine casualty and incident data presented here is for information purposes. The statistics presented are extracted from data uploaded to the European Marine Casualty Information Platform (EMCIP) by the investigation bodies of the EU Member States. The publication reflects the information at the time the data was extracted (i.e. 05/08/2019). While every care has been taken in preparing the content of the report to avoid errors, the Agency assumes no responsibility for the accuracy and completeness of the statistics. EMSA shall not be liable for any kind of damages or other claims or demands incurred as a result of incorrect, insufficient/invalid data, or arising out of or in connection with the re-use of the content, to the extent permitted by European and national law. The information contained in this publication should not be construed as legal advice.

## ACKNOWLEDGEMENTS

EMSA wishes to acknowledge the contribution made by the EU Member States and the European Commission and to thank them for their support in conducting this work and in preparing the publication.

Photo credits: France/BEAmer, Norway/AIBN, Kystverket/Norwegian Coast Guard, United Kingdom/MAIB, Germany/BSU, Denmark/DMAIB, Croatia/AIN, Portugal/GAMA, WSA Tönning.

Front page: Benoit Emile/Marine Nationale/Défense.



The statistics, tables, graphs, charts and maps herein have been generated by EMSA based on the information contained in EMCIP.

## EXECUTIVE SUMMARY

With 3174 occurrences reported in 2018, the total number of occurrences recorded in the EMCIP database has grown to over 23000 representing an average of 3239 marine casualties or incidents per year over the past five years.

The number of very serious casualties had continuously decreased since 2014; however, in 2018 there was a further downturn with 95 occurrences. A similar diminution in the number of ships lost was noted, with 12 reports more as compared with 2017.

During the 2011-2018 period, 426 accidents resulted in a total of 696 lives lost. The decrease observed since 2015 was reversed in 2018. Crew have been the most impacted category of victims over this period with 566 fatalities. The number of fatalities recorded in 2018 is 53.

In 2018, there were 941 injured persons reported. This number has remained relatively steady in the last 4 years, 989 per year. Again, crew represent the main category of persons injured at sea (6062 during the 2011-2018 period).

Since 2015, the trend of occurrences involving all types of ships, except 'other ships', stabilised or slightly decreased.

In 2018, 1508 cargo ships were involved in marine casualties or incidents accidents that resulted in 36 fatalities and 3 ships lost.

With a total of almost 125, fishing vessels remain the category of ship with the highest number of ships lost over the 2011-2018 period. In 2018, the number of occurrences involving fishing vessels increased 40%; however, this did not correspond to an increase either on lives lost (11), or ships lost (12).

Almost half of the casualties that occurred on board a passenger ship involved a ro/ro passenger ship. There were 3 ships lost in 2018; the number of fatalities has nevertheless seen a decreasing trend, although 2 more lives were lost in 2018 than in 2017.

In 2018, 3 service ships were lost. While the number of fatalities is decreasing since 2015, the injuries followed the same trend since 2013.

In 2018, 167 'other ships' have been involved in a marine accident, mainly inland waterway passenger vessels, recreational motorboats and sailing boats. 4 ships were lost and only one fatality was reported.

More than half of the casualties with a ship (54.2%) were related to issues of a navigational nature, such as contacts, grounding/stranding and collisions. As concerns occurrences to person(s), 39.2% were attributed to slipping, stumbling and falling of persons.

The departure phase appeared to be the safest phase of a voyage and mid-water the most unsafe. It was noted that 78% of the casualties occurred in internal waters and territorial sea.

Human action represented 65.8% of accident events. 65% of the contributing factors were related to shipboard operations and 24.9% to shore management.

EU Member State investigation bodies have launched 1377 investigations over the 2011-2018 period and 1212 reports have the status finished. Almost 2000 safety recommendations were issued, 48% related to ship related procedures, in particular to safe working practices. 52% of the safety recommendations were addressed to the shipping companies or owners and 54.8% of them were agreed by the addresses.



Contact of container ship CMA CGM CENTAURUS with quay and shore cranes. Containers fall after impact

CHAPTER 1

# INTRODUCTION

Damaged forepeak and ballast water tanks of the liquified gas tanker PAZIFIK, after the grounding on a shoal (between the islands of Komodo and Banta) on 09/07/2018.

## 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 as well as response to marine 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 and maritime transport administrative simplification;
- monitoring the implementation of EU legislation through visits and inspections;
- improving cooperation with and between Member States;
- building capacity of national competent authorities;
- providing operational assistance, including developing, managing and maintaining integrated maritime services related to ships, ship monitoring and enforcement;
- carrying out operational preparedness, detection and response tasks with respect to pollution caused by ships and marine pollution by oil and gas installations; and
- at the request of the European Commission, providing technical operational assistance to non-EU countries around relevant sea basins.

EMSA, as a body of the European Union, 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.

[2] 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.

Following the entry into force of Directive 2009/18/EC 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.
- require to be notified of marine casualties 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 casualties depending upon their severity. Casualties which are classified as very serious shall be investigated; serious casualties shall be assessed in order to decide whether or not to undertake a safety investigation;
- publish investigation reports; and
- notify the European Commission of marine casualties and incidents via EMCIP.

EMCIP is populated with data by the competent national authorities. 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 EU Member States plus the EFTA States, Iceland and Norway to which the Directive applies.

## Scope

**EMSA has the obligation to provide a yearly overview of marine casualties and incidents under the Agency's founding Regulation (EC) No 1406/2002, as amended.**

This publication contains statistics on marine casualties and incidents that: involve ships flying a flag of one of the EU Member States; occur within EU Member States' territorial sea and internal waters as defined in UNCLOS ; or involve other substantial interests of the EU Member States.

Considering the date of the implementation of the Accident Investigation Directive in 2011, this publication covers the period from 1 January 2011 to 31 December 2018. The data can be subject to changes over time as EU Member States add or update information on older cases. For this reason, the figures extracted from the database on 5 August 2019 and presented in this publication are likely to be slightly different to those presented throughout the year in various fora or in the next editions to be published.

The figures are presented in this publication to provide 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. Should further information about specific cases be required, readers are invited to contact the national competent investigation bodies (whose contact details can be found in Appendix 4 of the publication).

## Content of the review

**This publication has been organised to cover the main aspects of maritime safety as given in the Directive and as included in EMSA's remit. In this edition, chapter 2 covers general figures and the activities of the EU investigative bodies. The following chapters focus on the main types of ships: cargo ships, fishing vessels, passenger vessels, service ships and other ships. Each chapter is divided into the following sections: some detailed ship types, nature of marine casualties and incidents, location, events and contributing factors and consequences.**

More information about on EMSA's activities related to marine accidents can be found at:

http://www.emsa.europa.eu/implementation-tasks/accident-investigation.html and https://portal.emsa.europa.eu/emcip-public/#/dashboard

A list of acronyms and definitions as well as extra information on the casualty categories used can be found in Appendix 1. Appendix 2 illustrates the data model and Appendix 3 contains the detailed list of ships used in EMCIP. The list of investigative bodies in the EU can be found in Appendix 4..

[2] United Nations Convention on the Law of the Sea.


**Grounding of the product carrier Hephaestus in ballast condition on 10/02/2018.**
**Crew members disembarked from the vessel directly on the rocky shore using the vessel's pilot ladder**

CHAPTER 2

# GENERAL INFORMATION MARINE CASUALTIES AND INCIDENTS

Damage to port side quarter of the general cargo CELTIC SPIRIT, which dragged its anchor in heavy weather and subsequently collided with two other vessels, also at anchor, causing shell plate damages, on 01/03/2018.

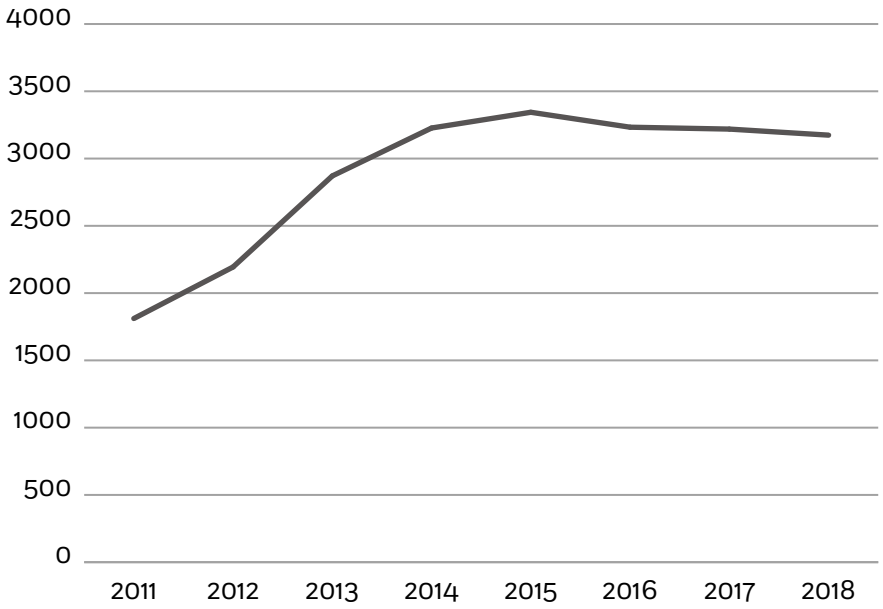
## KEY FIGURES 2018

| 3174 | 95 | 53 | 941 | 25 | 3515 | 188 |
|---|---|---|---|---|---|---|
| CASUALTIES & INCIDENTS | VERY SERIOUS CASUALTIES | FATALITIES | PERSONS INJURED | SHIPS LOST | SHIPS INVOLVED | INVESTIGATIONS |

## 2.1 NUMBER AND SEVERITY

**This section provides general information about the number of marine casualties and incidents and their severity.**

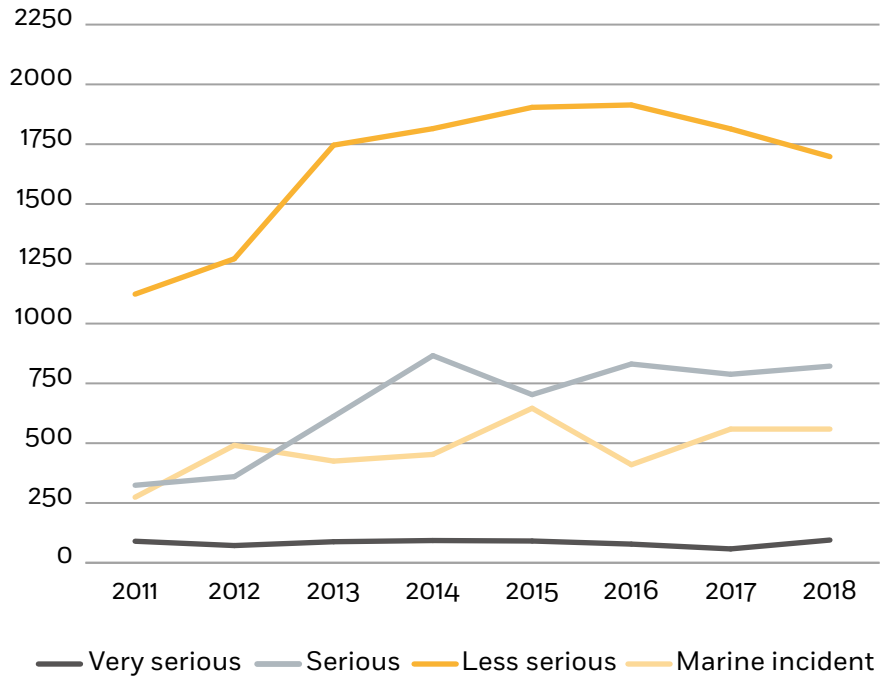
Figure 2.1: Number of reported marine casualties and incidents




**The total number of reported marine casualties and incidents is 23073.**

In the last 5 years, the average number of marine casualties or incidents recorded in EMCIP is 3239. However, comparisons with various sources suggest that under-reporting of marine casualties and incidents continues, with a total of 4000 occurrences per year being a best estimate.

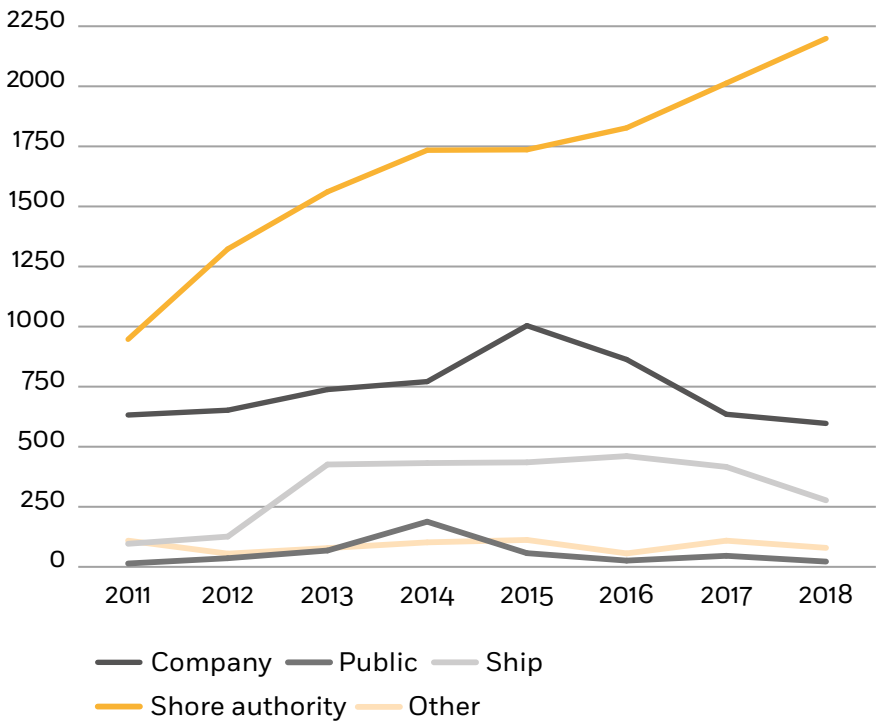
Figure 2.2: Number of marine casualties and incidents per severity of the occurrence




**The number of very serious casualties has been steady over the last five years. However, in relation to the average of the last 5 years an increase of 14.5% in 2018 was noted. Serious casualties also increase 2.5% in 2018.**

**In 2018, 3.0% of the reported marine casualties were very serious (95), 25.9% serious, 53.5% less serious and 17.6% were marine incidents.**

Figure 2.3: Notification entities



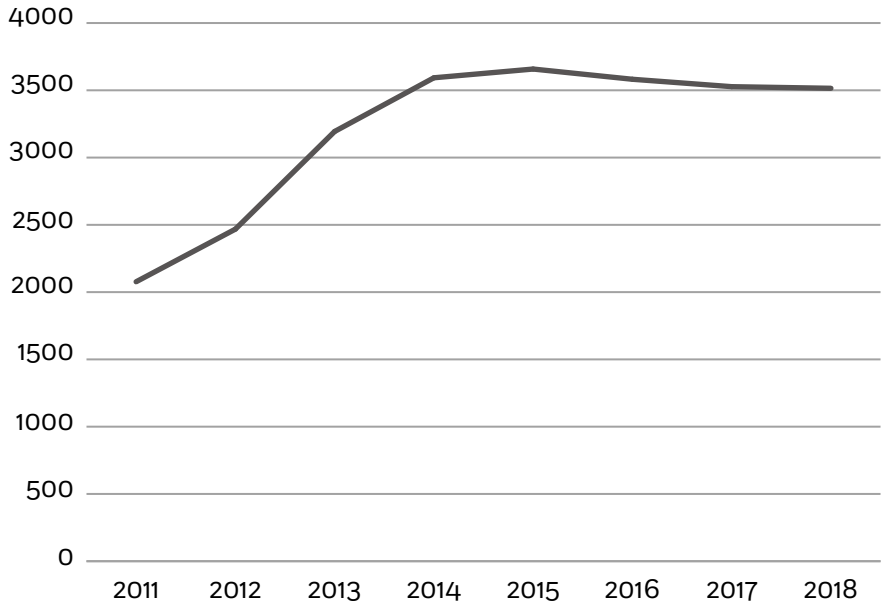

**In 2018, 69% of the marine casualties and incidents were reported to the investigation bodies firstly by the shore authorities.**

Marine casualties and incidents reported to the investigation bodies by the shore authorities have continued to increase over the 2011-2018 period.

## 2.2 MAIN SHIP TYPES

**This section focuses 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 ships.**

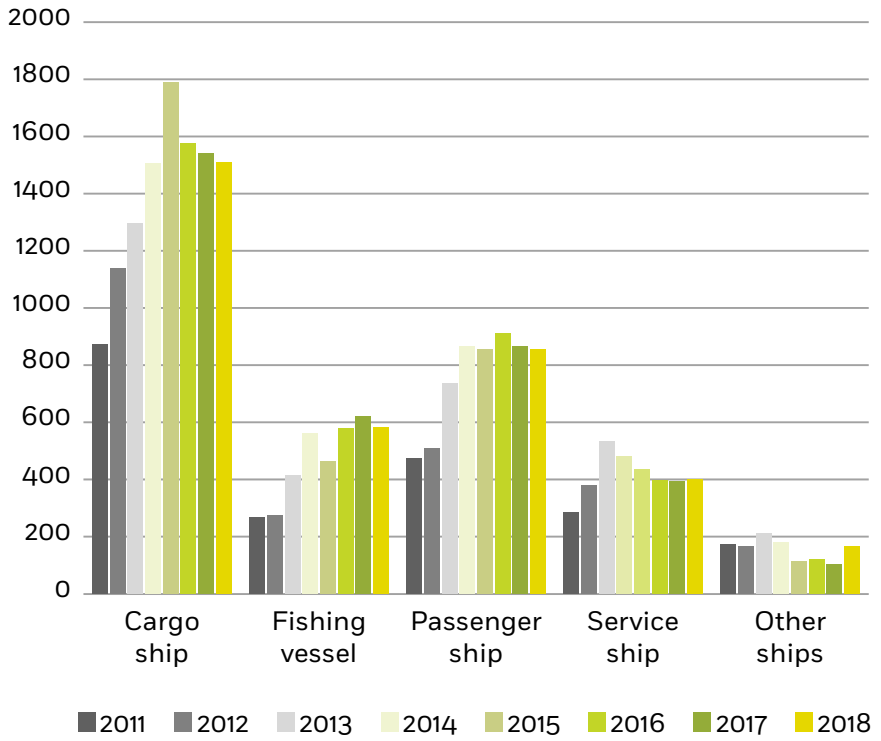
Figure 2.4: Number of ships involved in marine casualties or incidents




A casualty may involve more than one ship, in particular in the case of collisions between two or more ships.

**In the 23073 marine casualties and incidents that happened from 2011 to 2018, the total number of ships involved was 25614.**

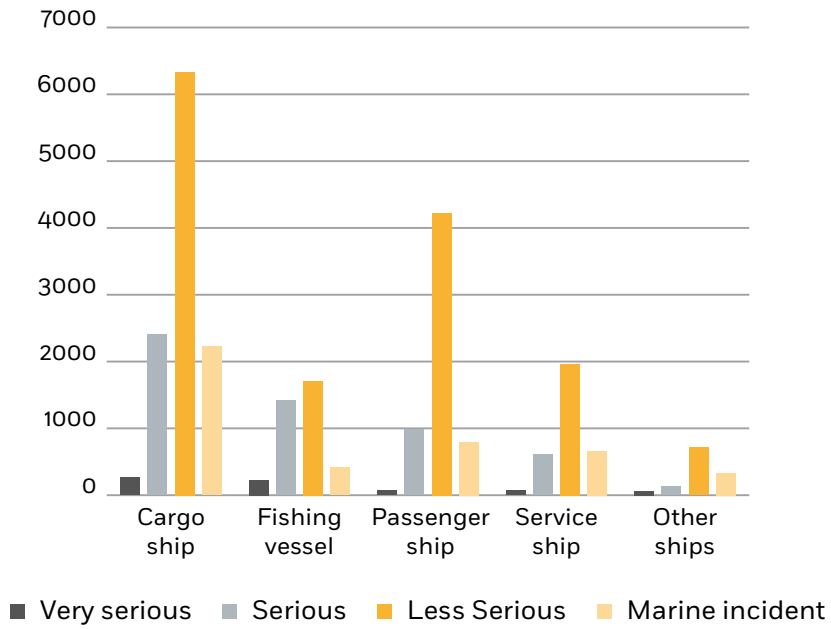
Figure 2.5: Distribution of ships involved by main category




**During the 2011-2018 period, general cargo ships were the main category involved in a marine casualty or incident (43.8%), followed by passenger ships (23.7%).**

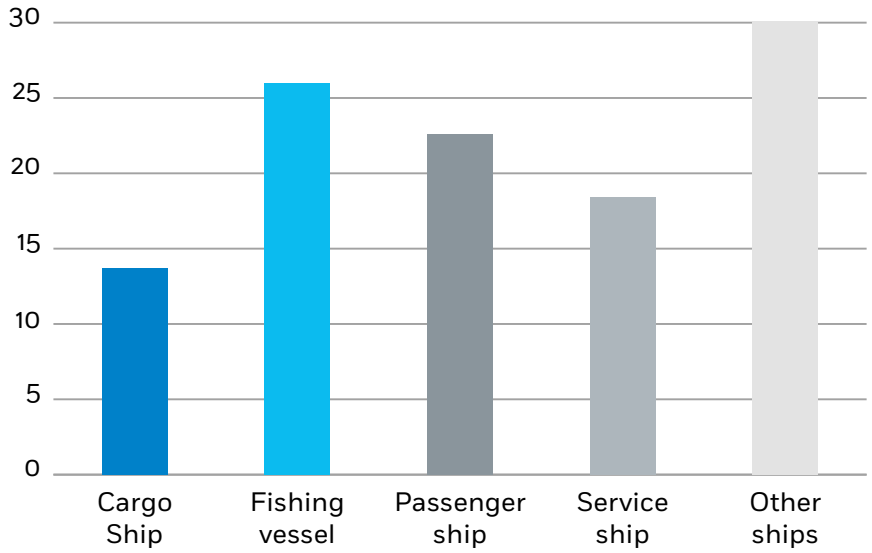
In 2018, the number of ships involved in a marine casualty or incident stabilised or slightly decreased in all ship categories, except other ships. The number of other ships involved increase almost 63.7% compared with 2017.

Figure 2.6: Distribution of ships involved by main category for 2011-2018




**The distribution of the occurrence severity for the ship is very similar for cargo ships, passenger ships and service ships. The rate of less serious casualties for fishing vessels is significantly low, in comparison to other ship categories (more than 10% less), which could indicate under reporting in this category.**

Figure 2.7: Average age of ships involved by main category for 2011-2018

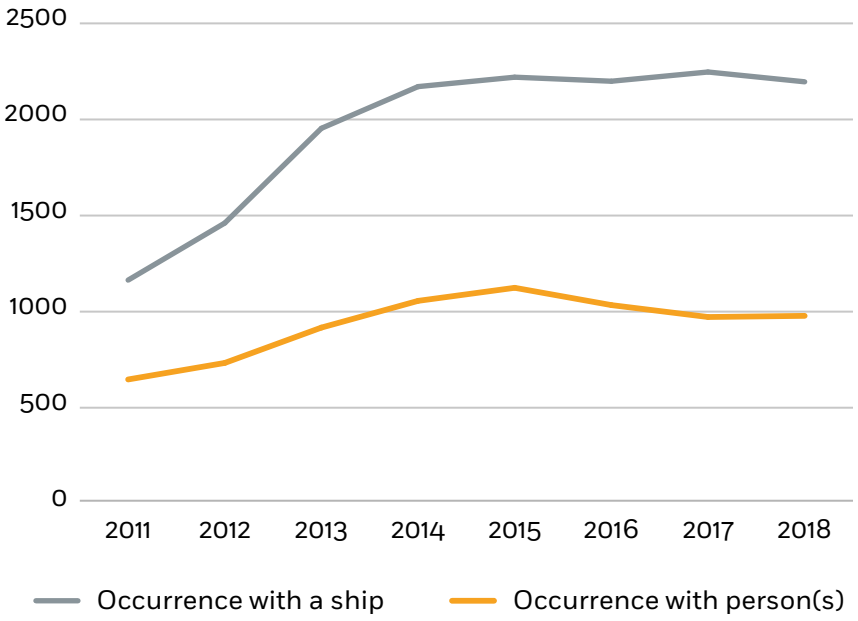



**The youngest category of ships involved in marine casualties was cargo ships with 13.7 years average. The oldest was 'other ships' with 30.1 years, as expected, considering that this category includes historical vessels.**

## 2.3 NATURE OF MARINE CASUALTIES AND INCIDENTS

**This section examines the different nature of marine casualties and incidents (occurrence with ship(s) and occurrence with person(s).**

Figure 2.8: Marine casualties and incidents by nature type

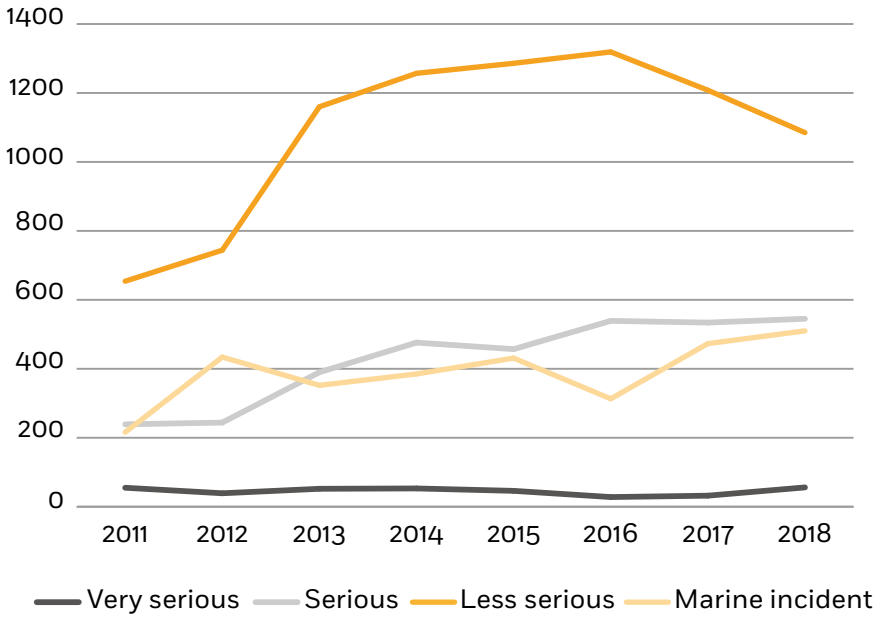



**A total of 15612 occurrences with a ship and 7461 occurrences with person(s) were recorded.**

The ratio 2/3 to 1/3 between occurrences with ship(s) and occurrence with person(s) has remained stable from 2011 to 2018. In 2018 there was a slight decrease of the casualties or incidents with a ship.

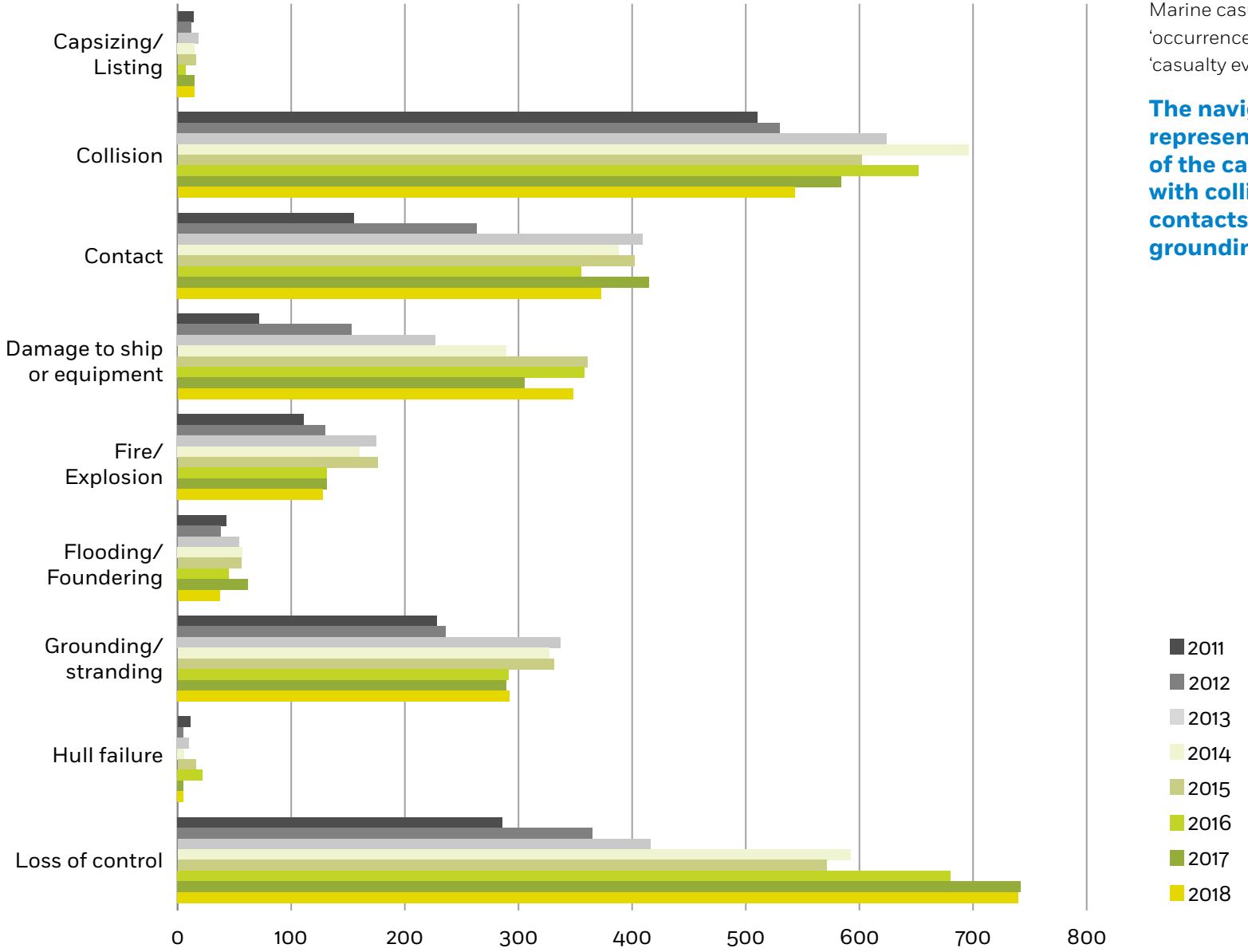
### 2.3.1 OCCURRENCE WITH SHIP(S)

Figure 2.9: Severity of occurrence with ship(s)




**From 2011 to 2018, 2.3% of casualties with a ship were very serious, 21.9% serious, 55.8% less serious and 19.9% marine incidents.**

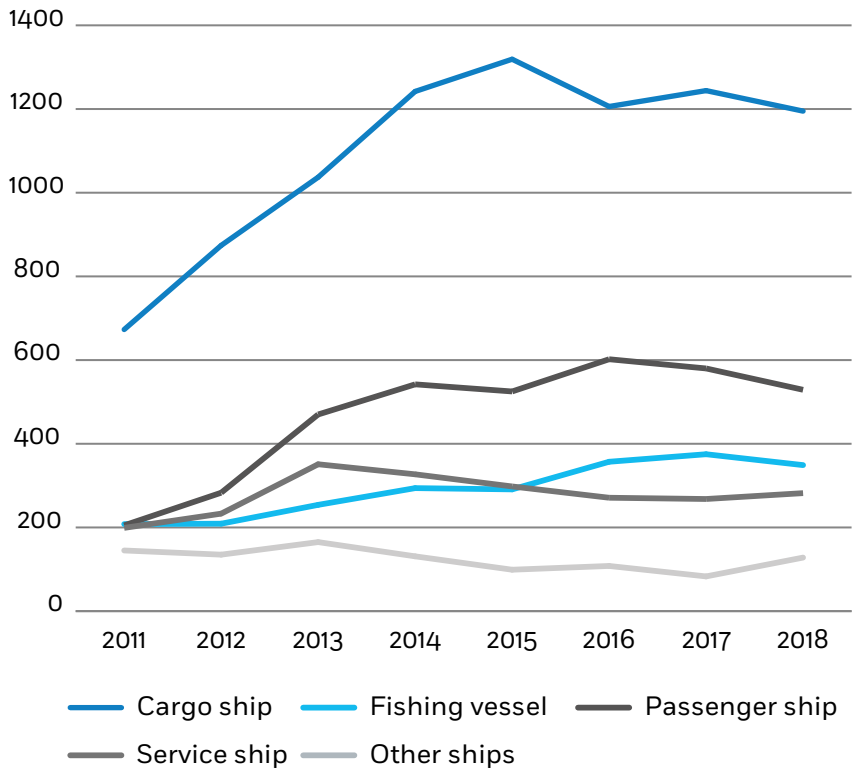
Figure 2.10: Distribution of casualty events with a ship




Marine casualties and incidents related to 'occurrence with ship(s)' are classified as 'casualty events'.

**The navigational casualties represent more than (54.4%) of the casualty events, with collisions (26.2%), contacts (15.3%) and grounding/stranding (12.9%).**

Figure 2.11: Distribution of ships involved in a 'occurrence with ship(s)' by ship category




**During the 2011-2018 period, cargo ship was the most frequent ship type involved in a 'occurrence with ship(s)' (48.6.%), followed by passenger ship (20.7%).**

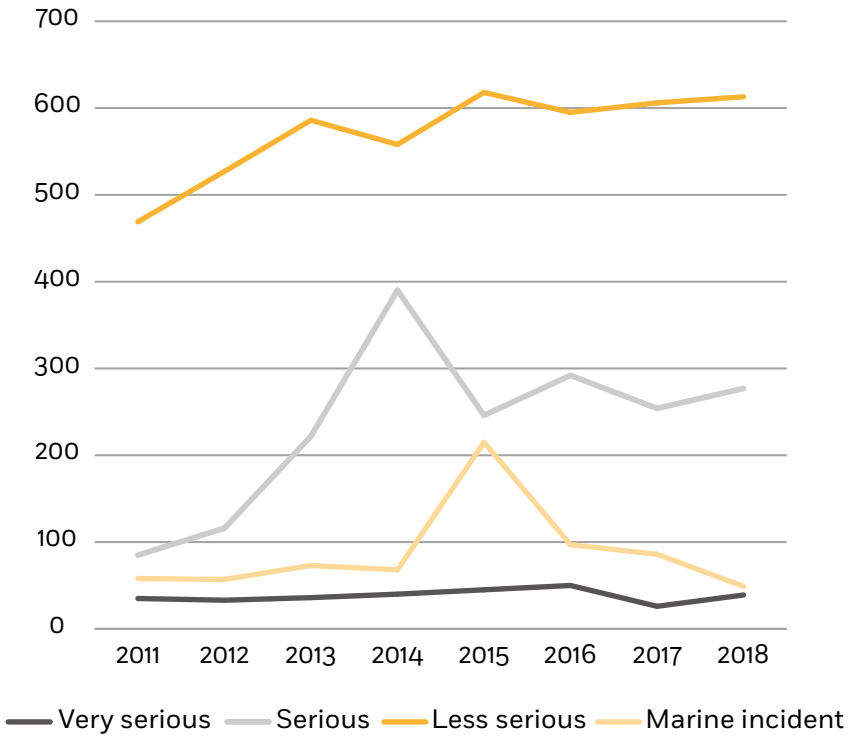
**18086 ships were involved in a 'occurrence with ship(s) occurrence with ship(s)'.**

For all categories, numbers are not changed considerably during the past five years.

## 2.3.2 OCCURRENCE WITH PERSON(S)

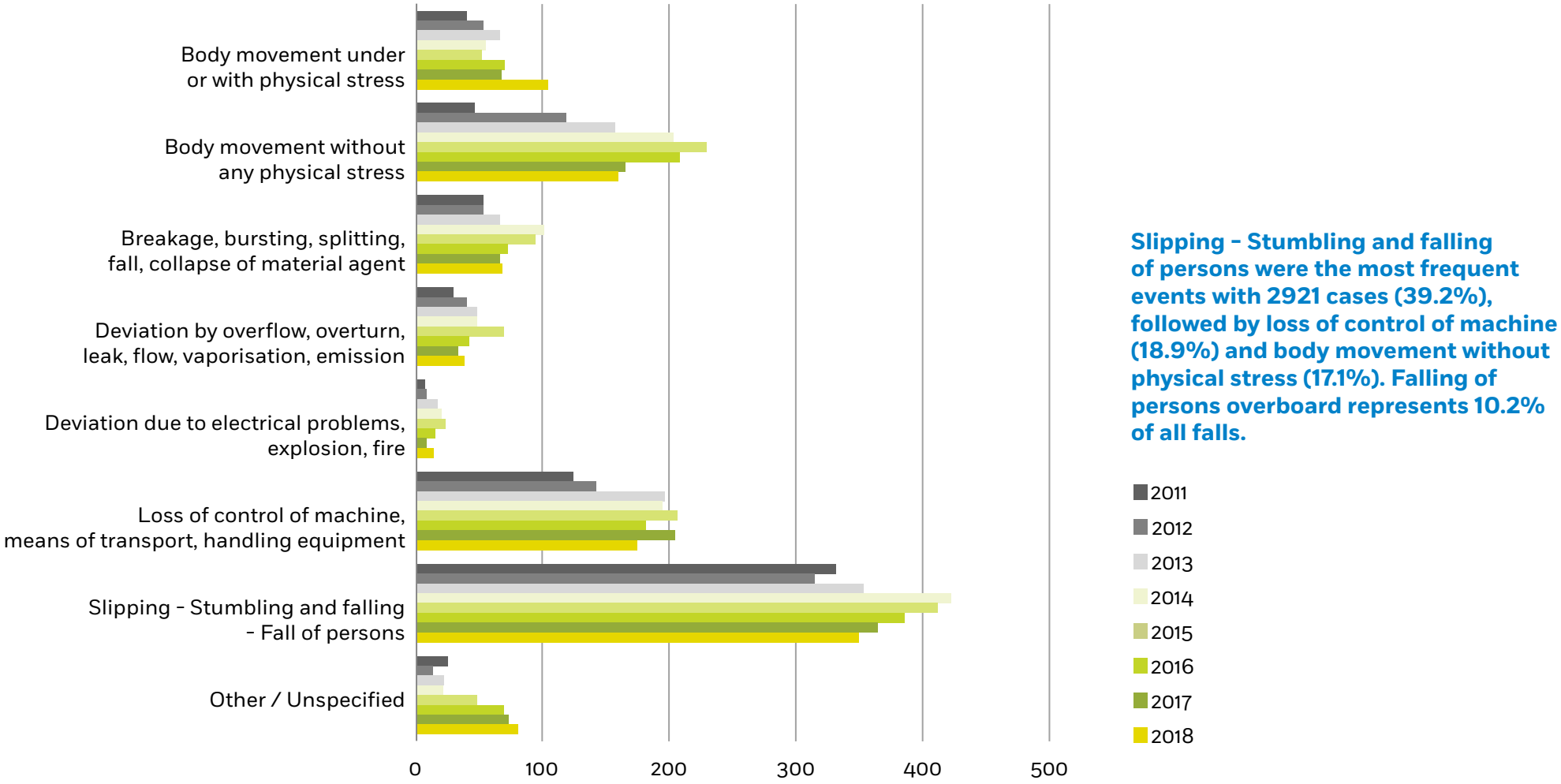
Marine casualties and incidents related to 'occurrence with person(s)' are classified as 'deviations'.

Figure 2.12: Type of severity in the case of an occurrence with person(s) accident



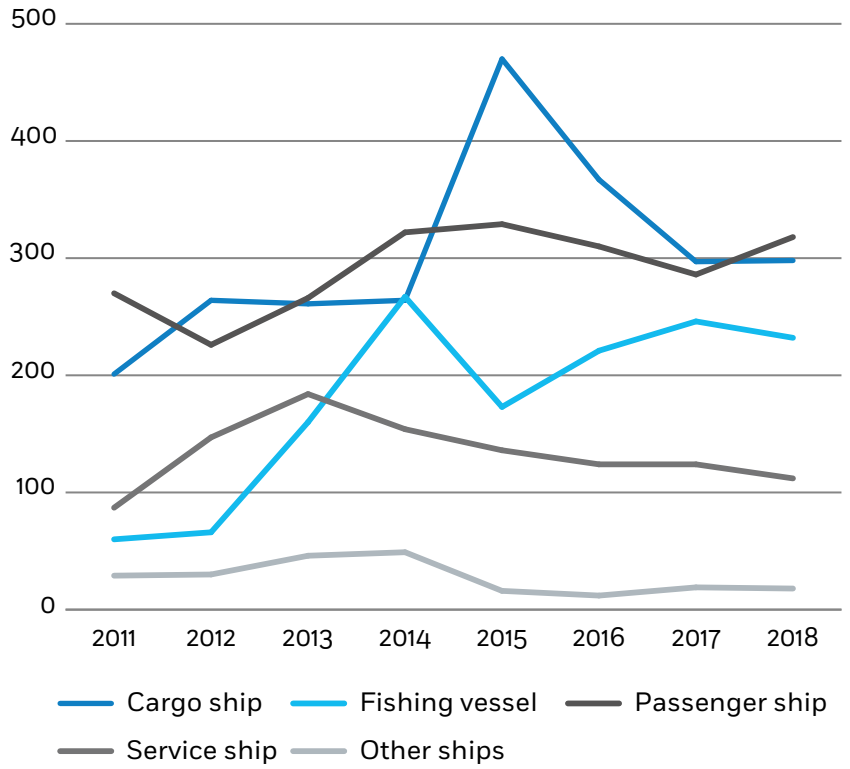

**From 2011 to 2018, 4.1% of the occurrence with person(s) were very serious, 25.2% serious, 61.3% less serious and 9.4% were categorised as marine incidents.**

Figure 2.13: Distribution of deviations




**Slipping - Stumbling and falling of persons were the most frequent events with 2921 cases (39.2%), followed by loss of control of machine (18.9%) and body movement without physical stress (17.1%). Falling of persons overboard represents 10.2% of all falls.**

Figure 2.14: Distribution of ships involved in an occurrence with person(s) by ship category




**Occurrence with person(s) on board of fishing vessels (1425) represents less 12% of the total than occurrence with person(s) on board of cargo (2422) and passenger ships (2327), both above 30%, which could indicate under reporting.**

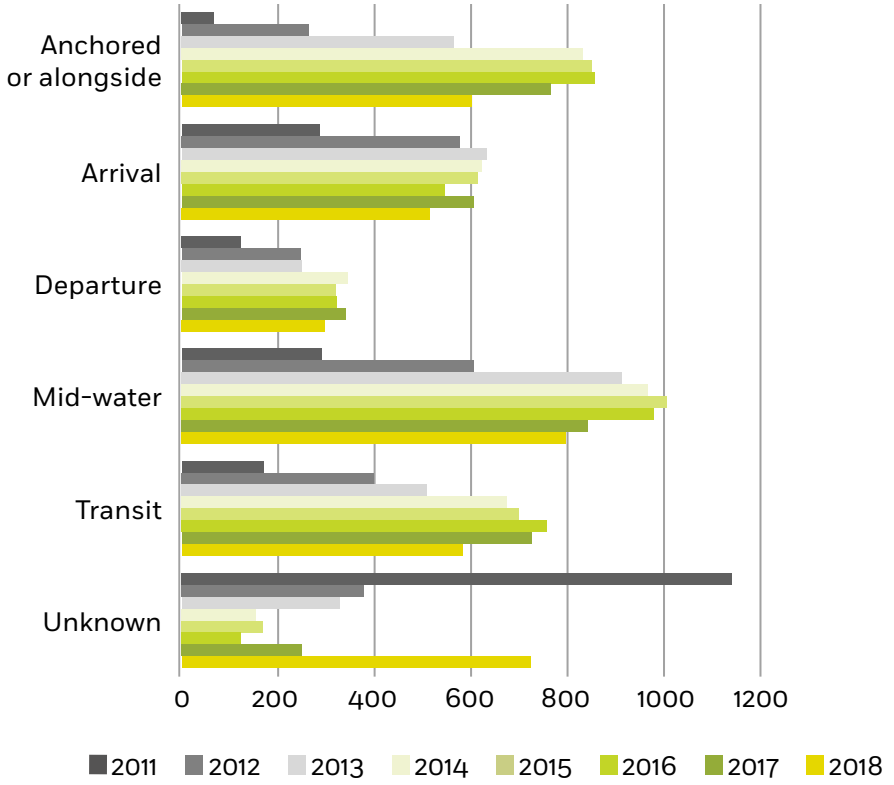
When comparing with 2017, there was a small reduction of occurrence with person(s) on board fishing vessels and service ships while it increased for the other categories.

## 2.4 LOCATION OF MARINE CASUALTIES AND INCIDENTS

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

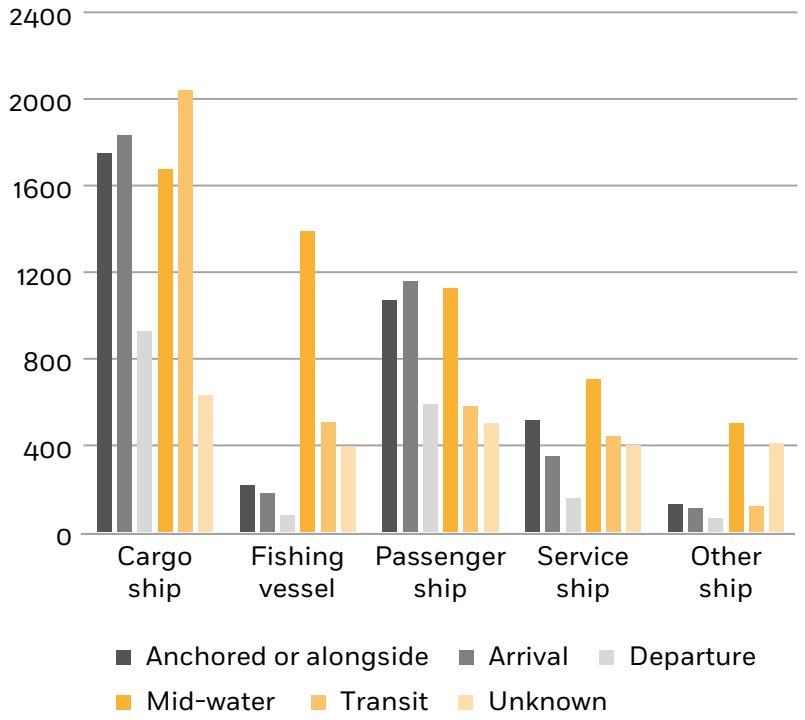
### 2.4.1 VOYAGE SEGMENTS

Figure 2.15: Distribution of voyage segments




**While the departure is the safest segment (8.7%) for all types of ship, the 'mid-water' is the least safe in general (25%).**

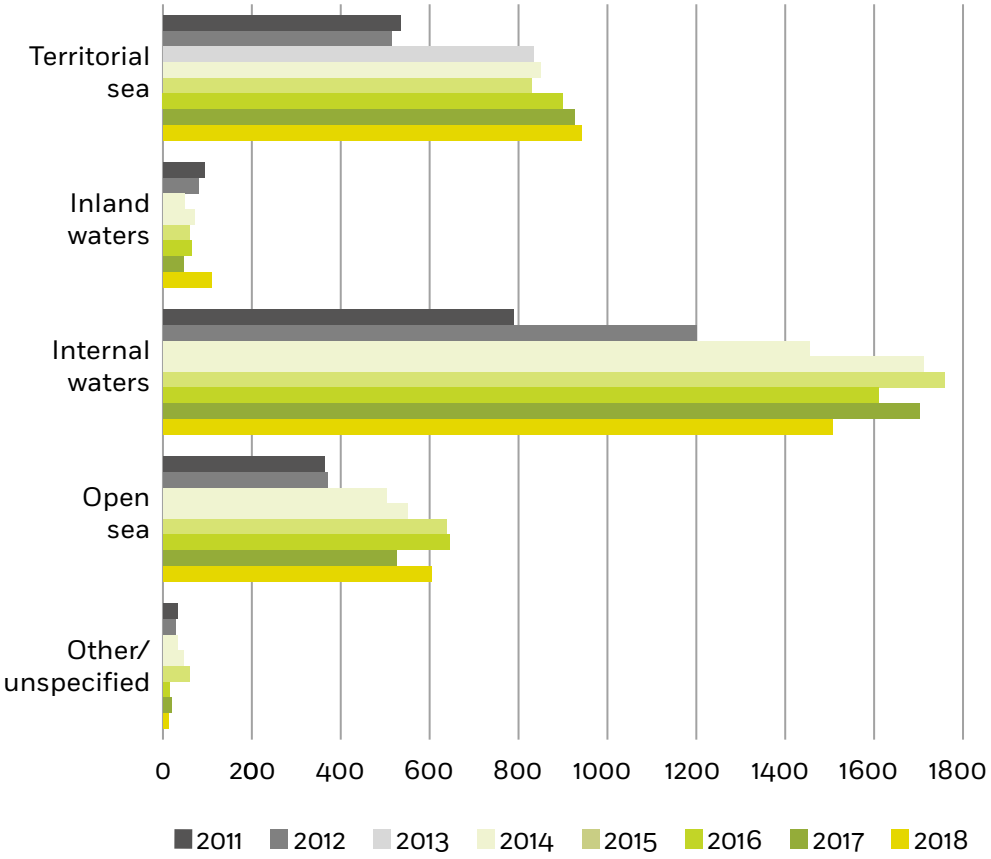
Figure 2.16: Distribution of voyage segments per ship type 2011-2018




**The most unsafe area for fishing vessels is by far the mid-water segment, while for cargo ships the distribution of accidents is similar among the phases "anchored", "arrival" and "mid-water", and the highest is the "transit" segment (22.6%).**

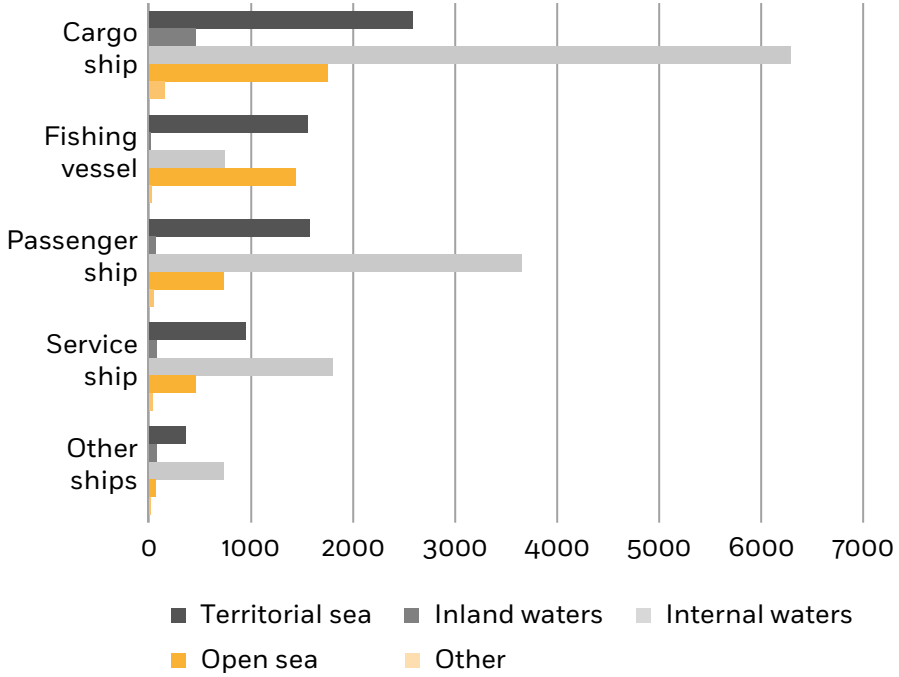
## 2.4.2 LOCATION

Figure 2.17: Distribution by location of marine casualties and incidents




**50.9% of the marine casualties or incidents took place in internal waters while the sub-category port area represented 41.7%. Territorial sea and open sea made up 27.4% and 18.2% of the total, respectively.**

Figure 2.18: Location of marine casualties and incidents per ship type for 2011-2018




**All types of ships, except fishing vessels, have the highest numbers of casualties and incidents within internal waters, followed by territorial sea. The main sea areas for fishing vessels were territorial sea 41.3% and open sea 38.2% of total for this ship type.**

## 2.4.3 REGIONAL DISTRIBUTION

**This section provides information on the geographical location of the marine casualties and incidents reported.**

**Figure 2.19: Global ocean and sea distribution of marine casualties and incidents for 2011-2018**

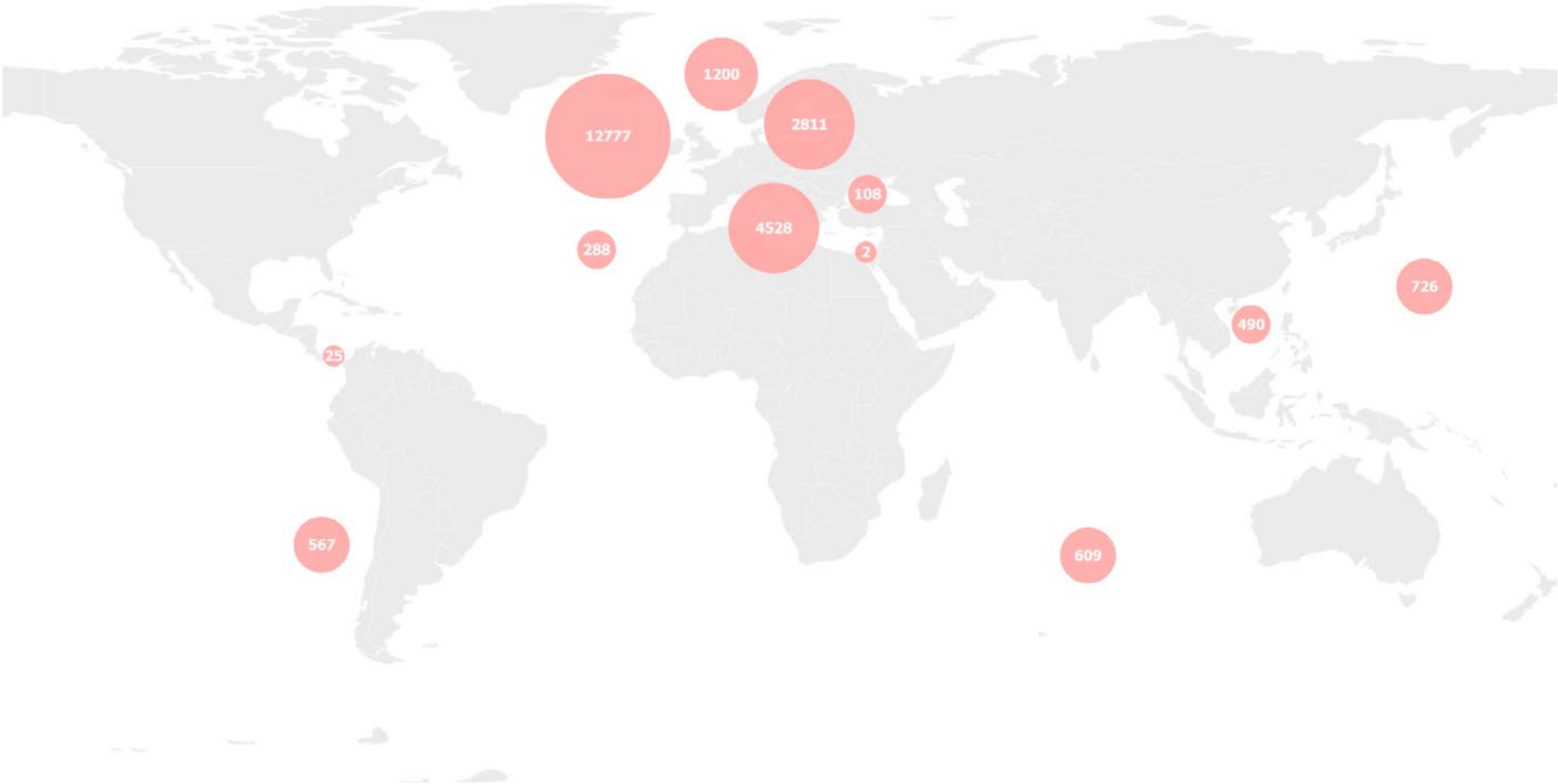
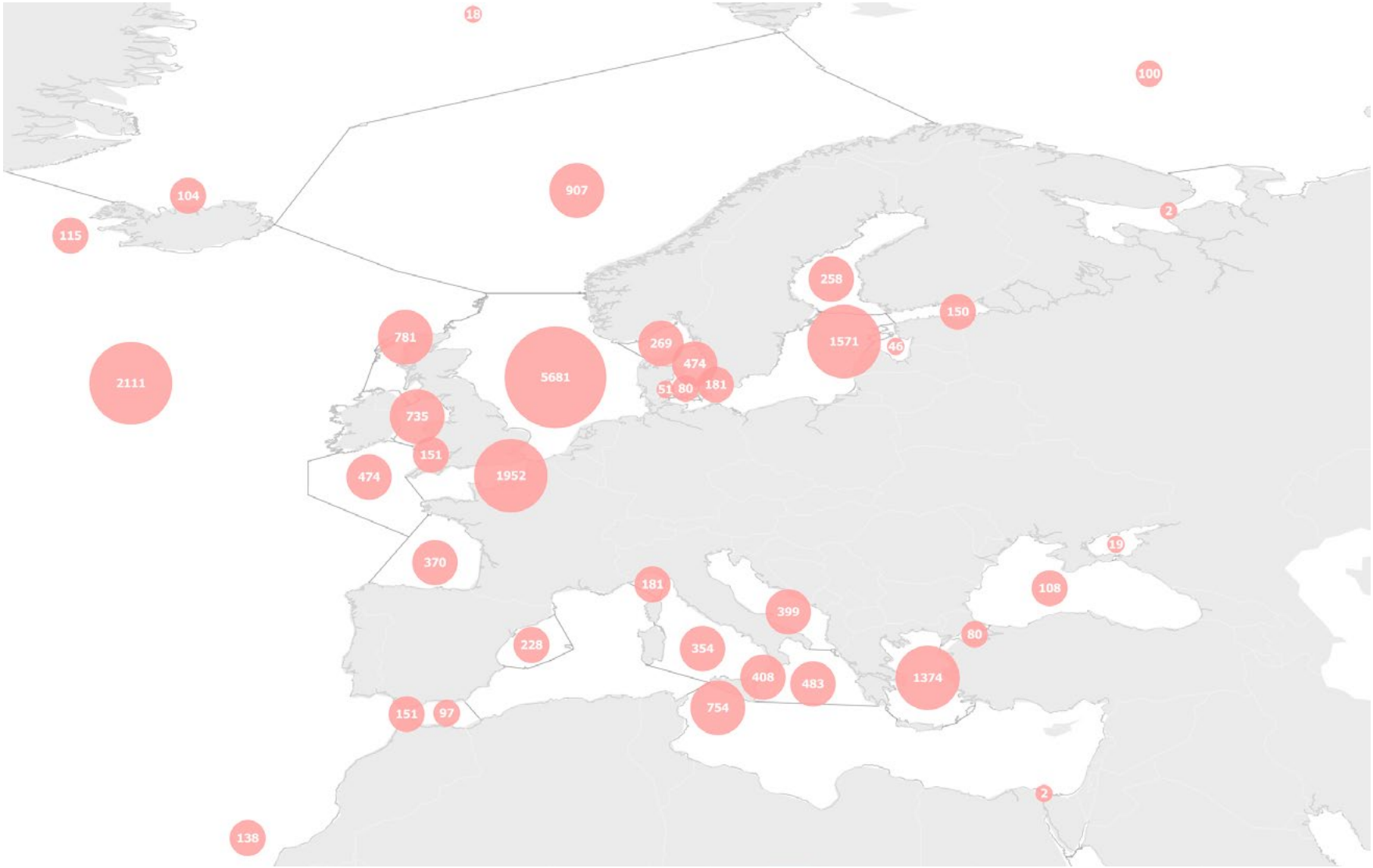


Figure 2.20: Distribution within sub-sea areas around EU waters for 2011-2018

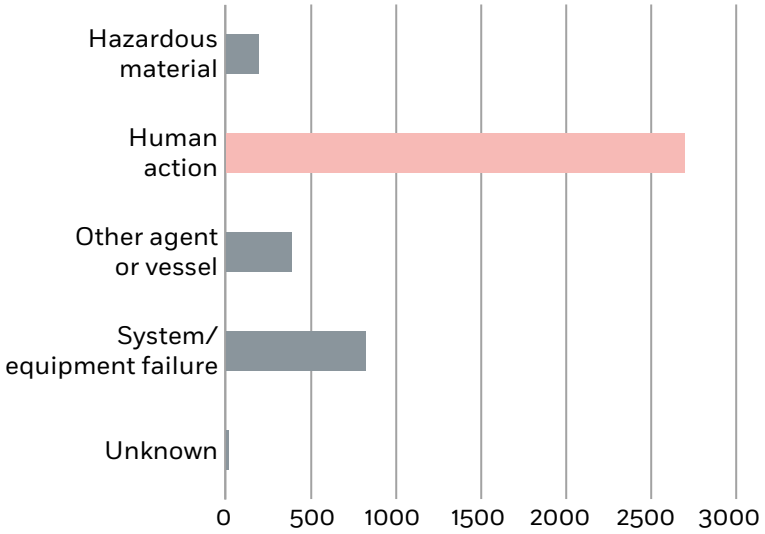


## 2.5 EVENTS AND CONTRIBUTING FACTORS

Investigators look for the root causes of the casualty or incident. Such causes are made up of 'accident events' and 'contributing factors'. The reporting scheme used in EMCIP follows this approach. A detailed model of EMCIP can be found in Appendix 2.

### 2.5.1 ACCIDENT EVENTS

**Figure 2.21: Distribution of accident events for 2011 - 2018**



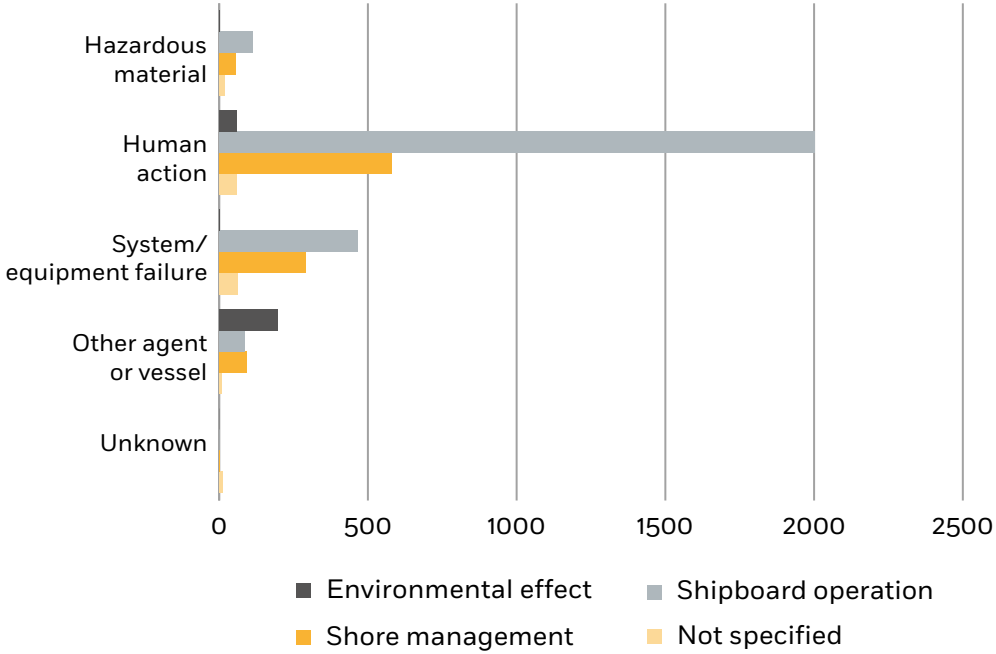

**From a total of 4104 accident events analysed during the investigations, 65.8% were attributed to a human actions' category and 20% to system/ equipment failures.**

A casualty event can have associated one or more accident events.

### 2.5.2 CONTRIBUTING FACTORS

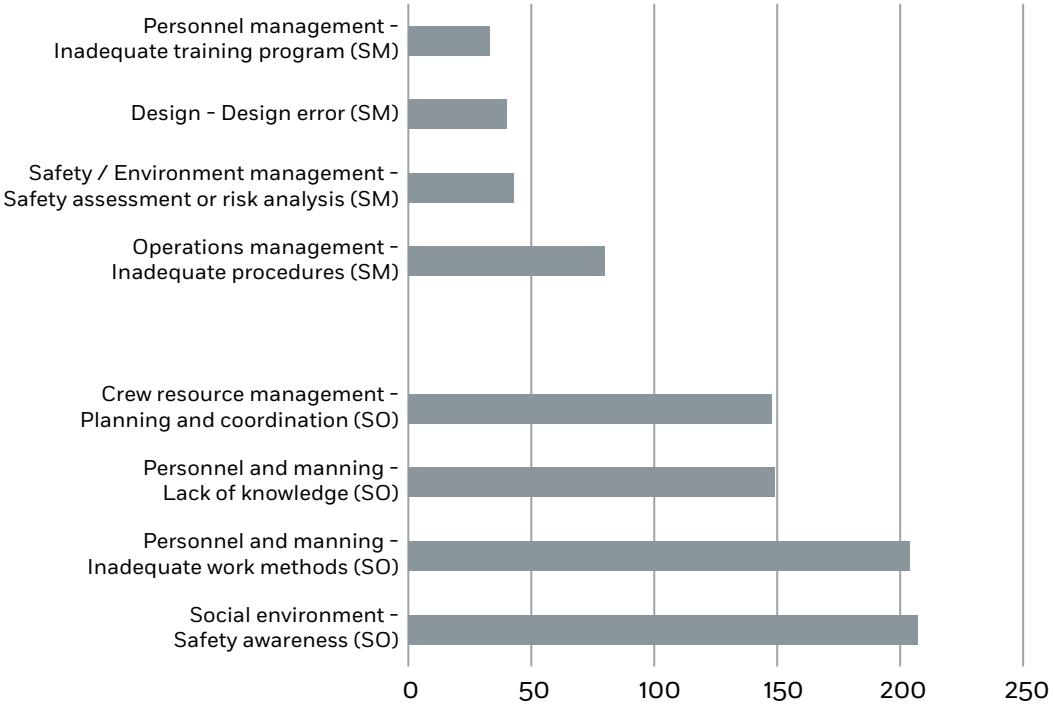
Contributing factors are separated by main categories that contributed to an accident event or worsened its consequence.

**Figure 2.22: Relationship between accident events and the main contributing factors for 2011 - 2018**




**Contributing factors related to "Shipboard operations" represented the main group with 2666, 65% of the total, with 2003 related to the accident event "Human action".**

Figure 2.23: Contributing Factors related to 'Human action' for 2011 - 2018




**This figure shows the contributing factors related to accident event 'Human action' most reported. Under the main groups Ship board operations (SO) and Shore management (SM), Social environment - Safety awareness (207) and 'Operations management - Inadequate procedures' (80) were the 2 sub-groups most reported, respectively.**

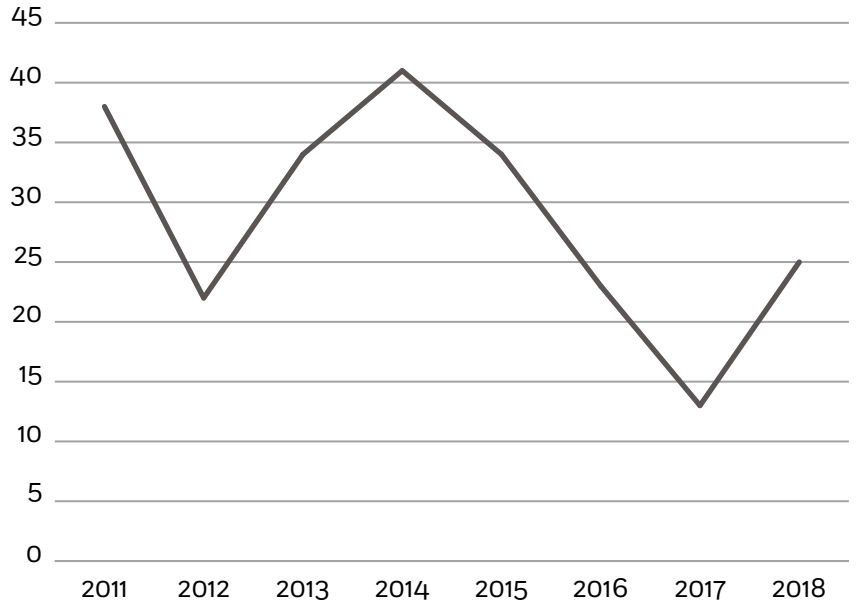
The main groups of safety recommendations are classified under: SO – Ship board operations; SM – Shore management, and; EE – Environmental effect.

## 2.6 CONSEQUENCES

**This section contains information about the consequences of casualties to ships, persons and the environment.**

### 2.6.1 CONSEQUENCES TO SHIP

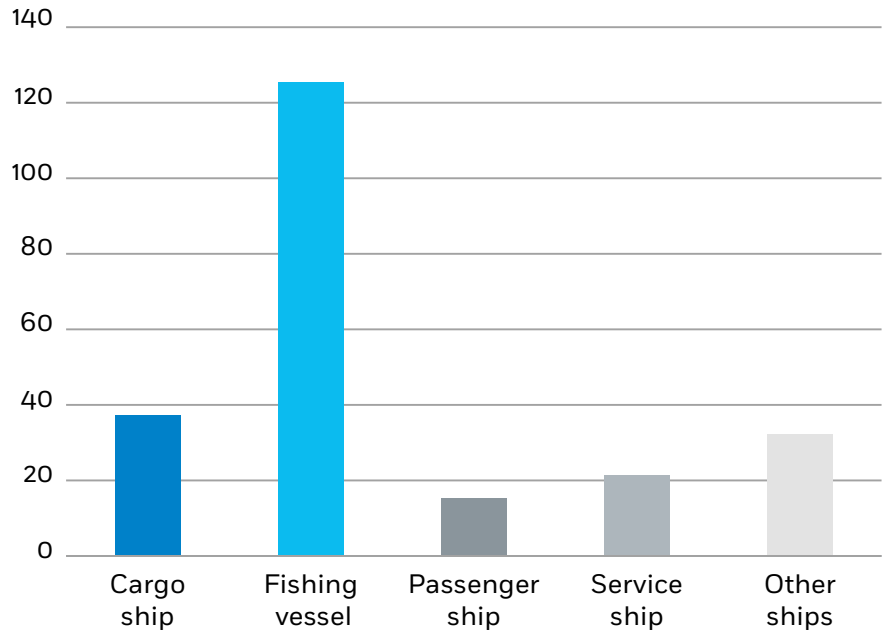
Figure 2.24: Number of ships lost




**A total of 230 ships were lost over the 2011-2018 period.**

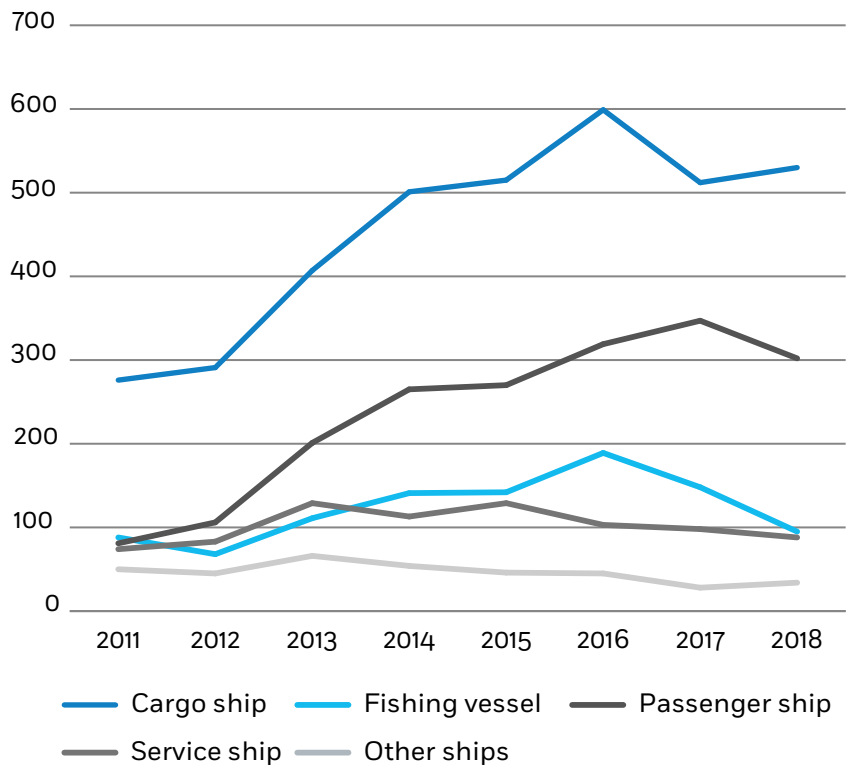
**The number of ships lost more than doubled in 2018 when compared with 2017, however there is a downtrend over the reference period.**

Figure 2.25: Distribution of ships lost per ship category for 2011 – 2018




**Fishing vessel is the category with the most ships lost, with a total of almost 125 vessels followed by cargo ships with 37.**

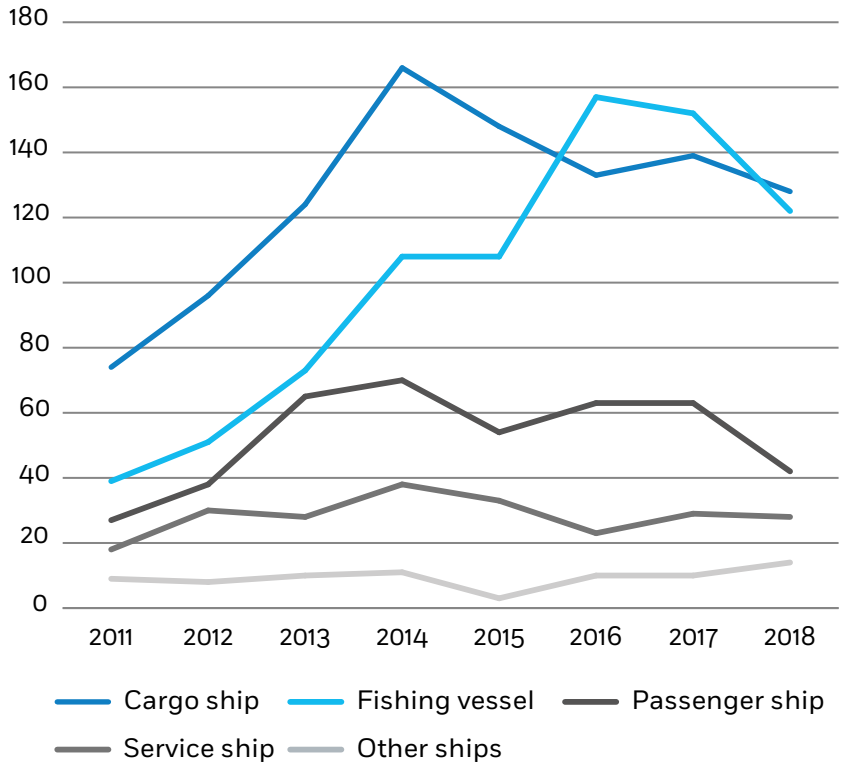
Figure 2.26: Number of ships damaged




**7689 ships reported some damage, the largest category being cargo ships (47.2%).**

In 2018 the number of damaged ships has increased for cargo ships and slightly for service ships while for the other categories there was a reduction.

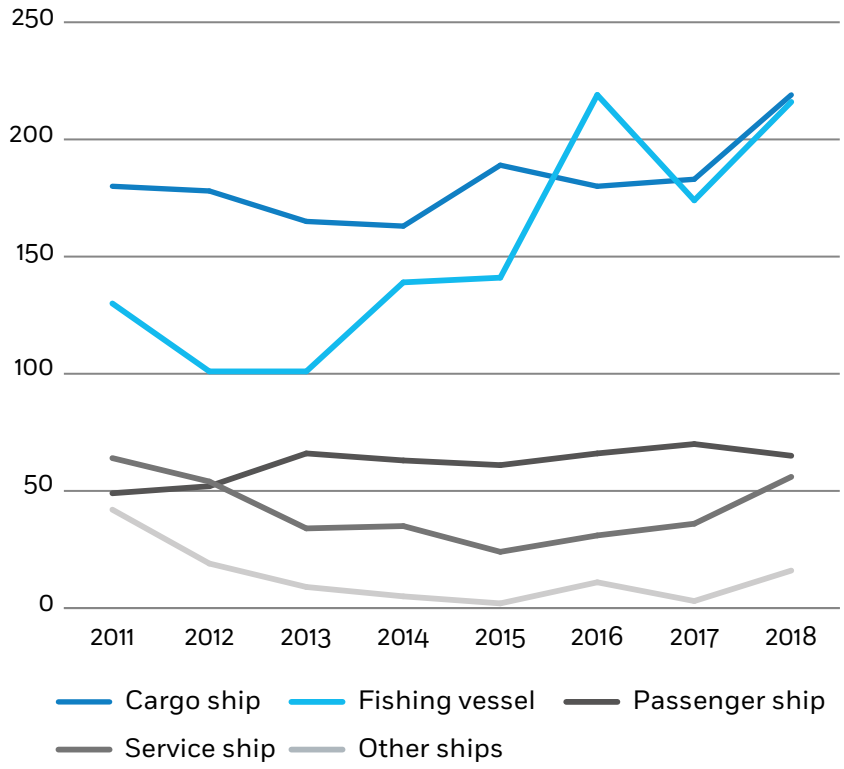
Figure 2.27: Number of ships considered unfit to proceed




**A total of 2542 ships were reported to be unfit to proceed.**

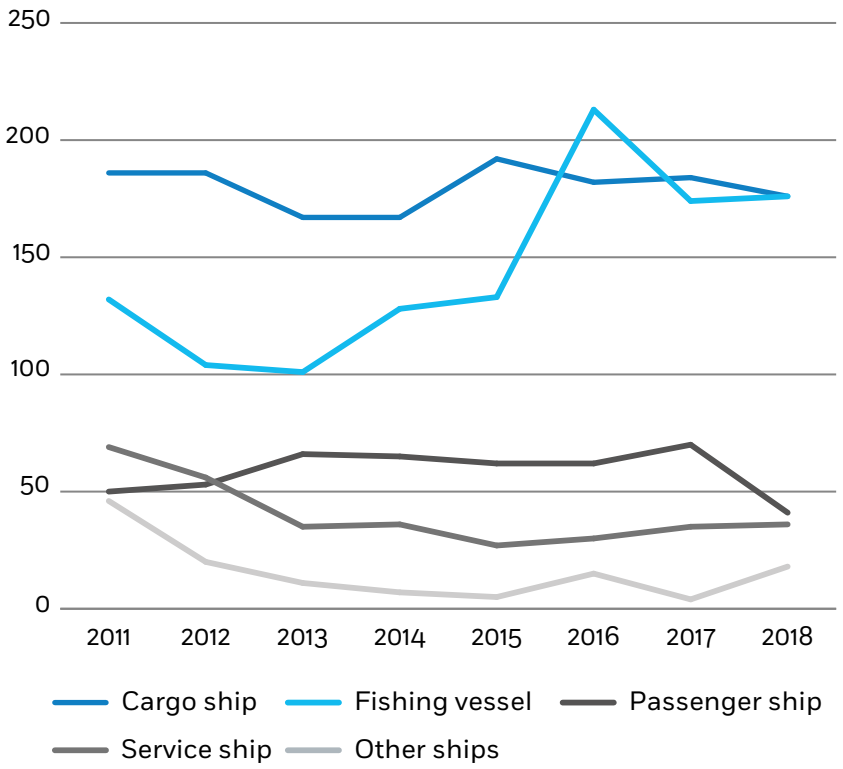
**Fishing vessels, passenger and cargo ships considered unfit to proceed, after a marine casualty, had a significant reduction in 2018 in comparison with the figures of 2017.**

Figure 2.28: Number of ships with required or provided shore assistance



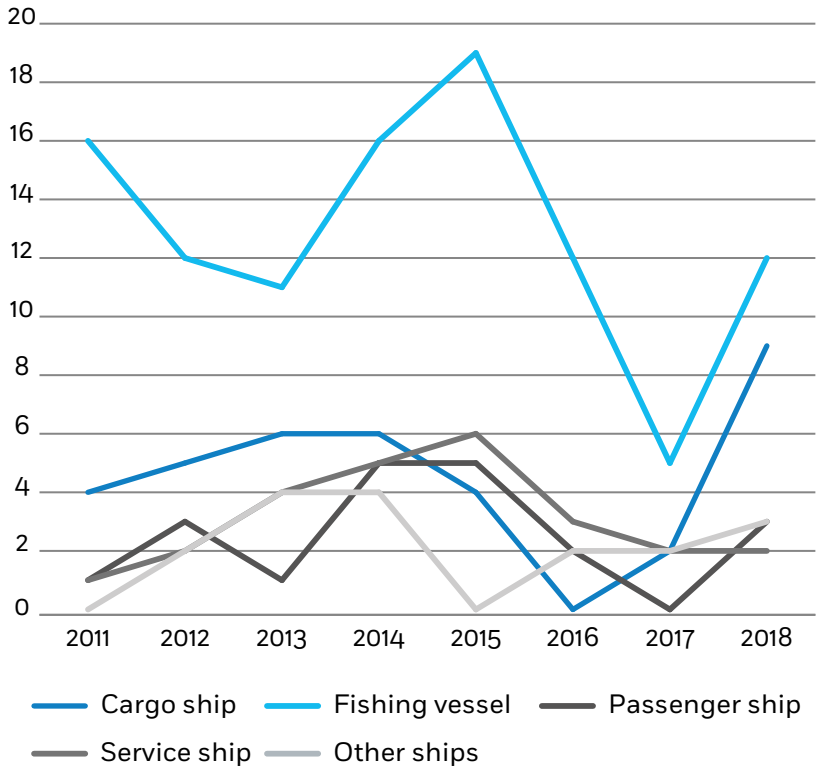

**Shore assistance was provided/considered necessary or required for 3611 ships over the 2011-2018 period. In 2018 cargo ships and fishing vessels had the similar number of assistances (above 210).**

Figure 2.29: Number of ships with required or provided towage




**Towage was provided/ considered necessary or required for 3520 ships over the 2011-2018 period. In 2018 cargo ships and fishing vessels had the similar number of 176 towages.**

Figure 2.30: Number of abandoned ships 2011 - 2018



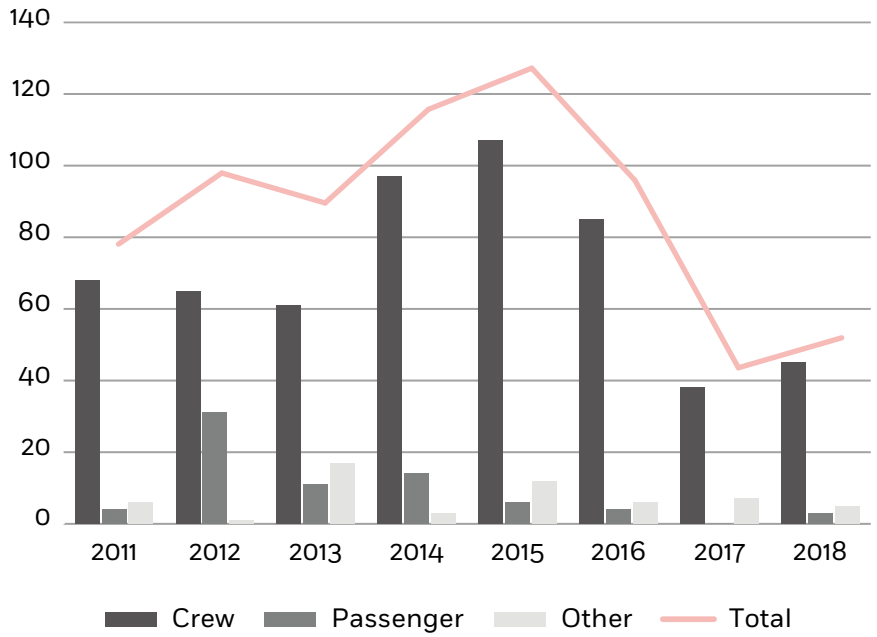

**A total of 201 ships were abandoned. Of these, 103 were fishing vessels.**

**In 2018, abandoned ships (29) increased for most of the ship types when compared with 2017 (11). Fishing vessels more than doubled the figures in the same period.**

## 2 6.2 CONSEQUENCES TO PERSONS

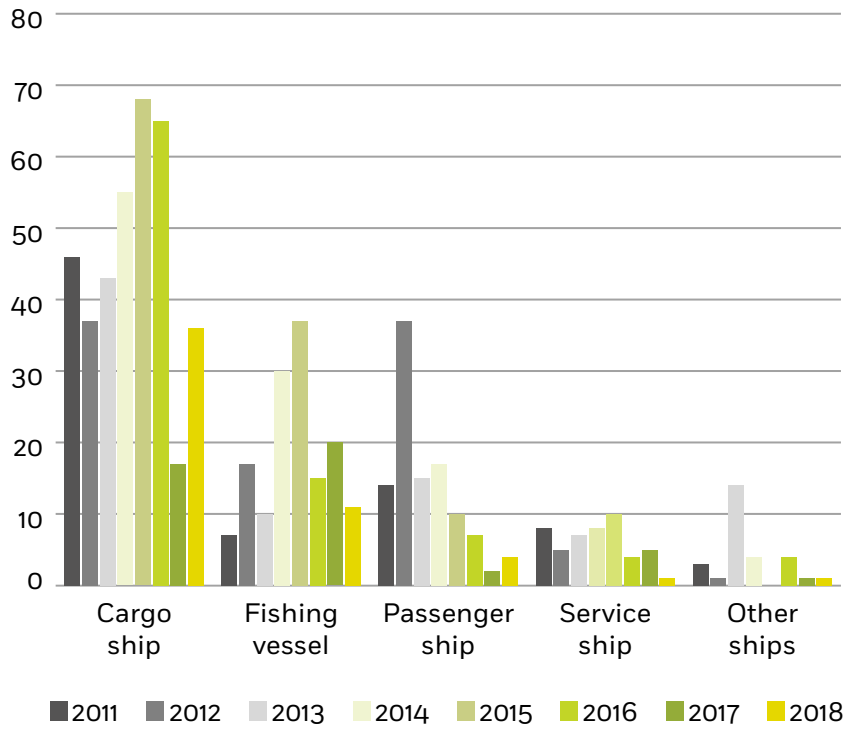
### 2.6.2.1 FATALITIES

Figure 2.31: Distribution of fatalities by categories of person



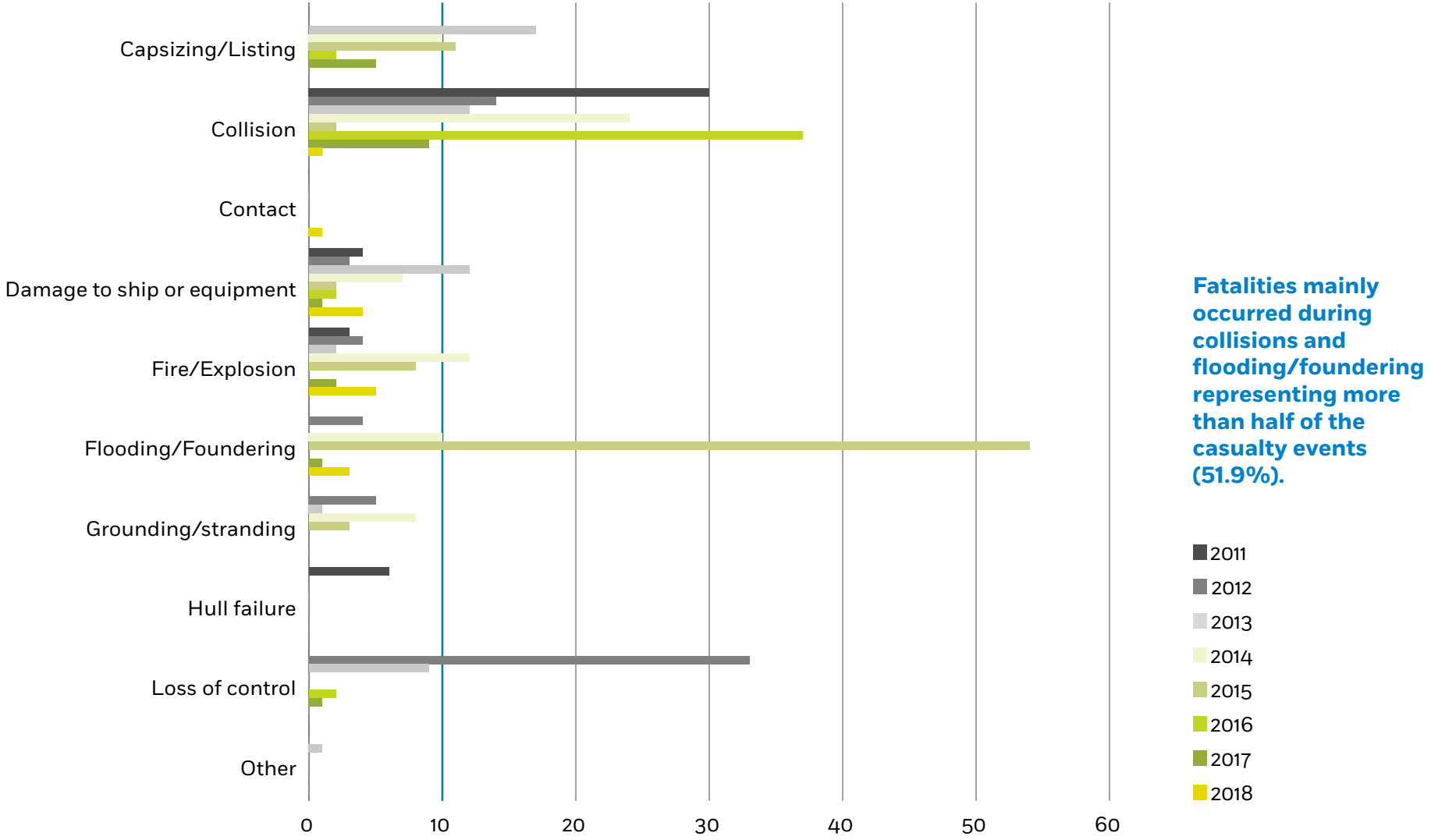

**Over the 2011-2018 period, 426 accidents led to a total of 696 lives lost, with a very significant decrease since 2015 which was however somewhat reversed in 2018. With 566 fatalities, crew is the most affected category of persons.**

Figure 2.32: Distribution of fatalities by ship category



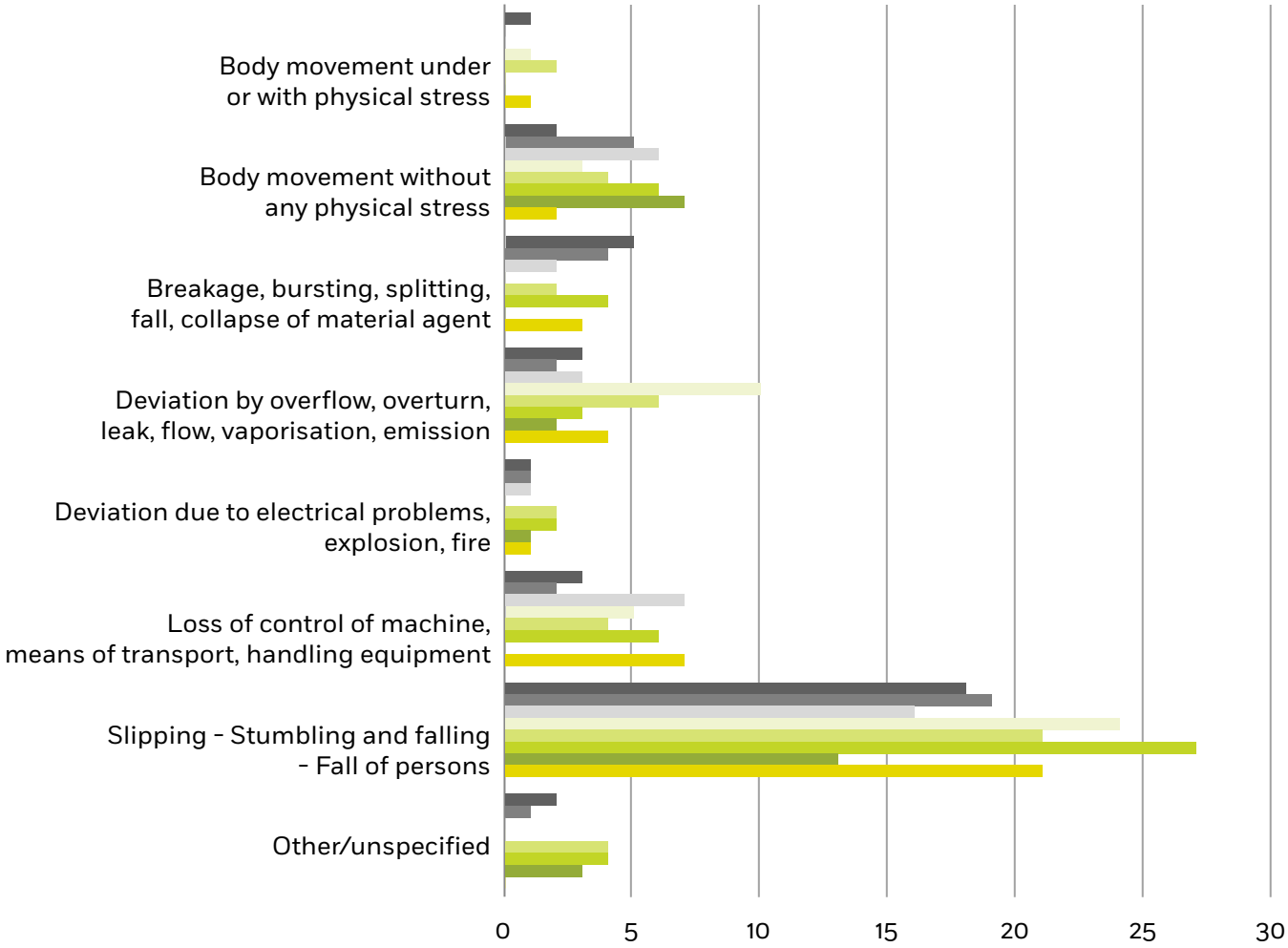

**The evolution of fatalities per ship type has been irregular over 2011 - 2018 period. While it was stable for service ships, the year 2015 was the worst for fishing vessels and cargo ships and the year 2012 was the worst for passenger ships influenced by the Costa Concordia accident.**

Figure 2.33: Distribution of fatalities by casualty events




**Fatalities mainly occurred during collisions and flooding/foundering representing more than half of the casualty events (51.9%).**

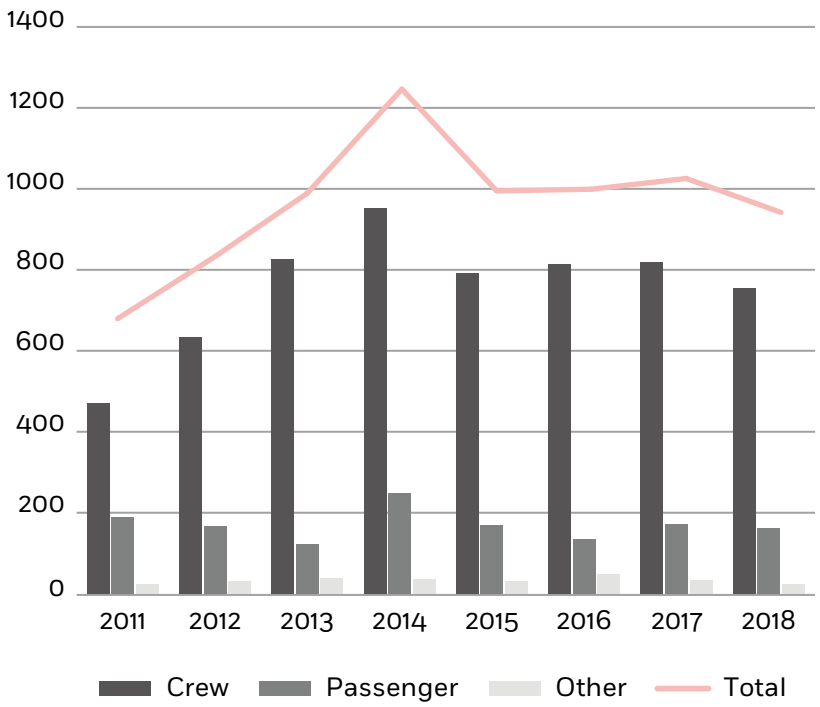
Figure 2.34: Distribution of fatalities by deviation




**Slipping/falling of persons is the main deviation caused 159 (51.6%). The subcategory "fall overboard" was responsible for 92 fatalities.**

## 2.6.2.2 INJURIES

Figure 2.35: Distribution of injuries by category of person

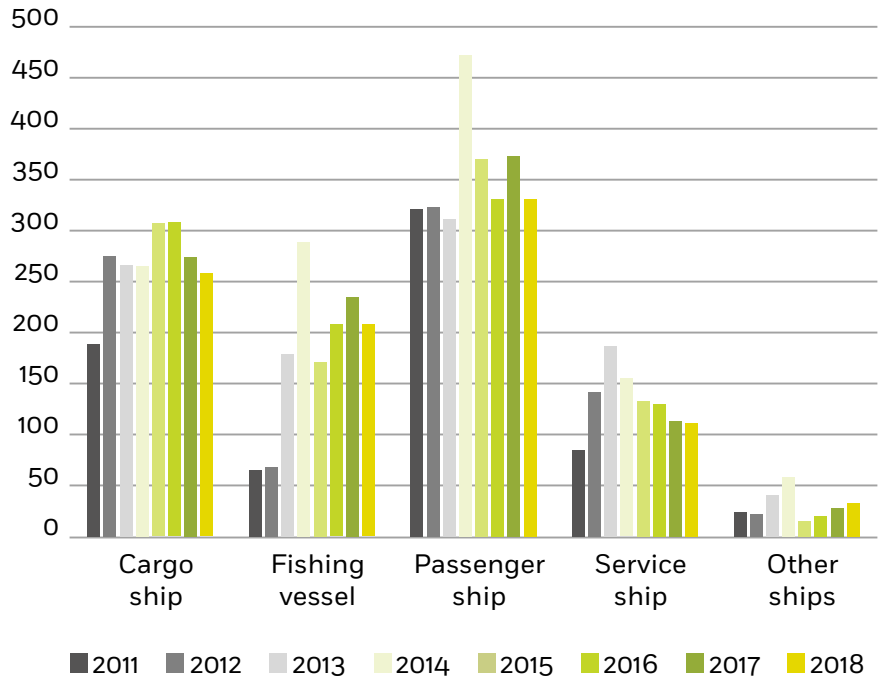



**Among the total of 23073 occurrences from 2011 to 2018, 6773 accidents resulted in a total of 7694 injured persons.**

**The number of injured persons is almost constant since 2015 with an average of 989 per year.**

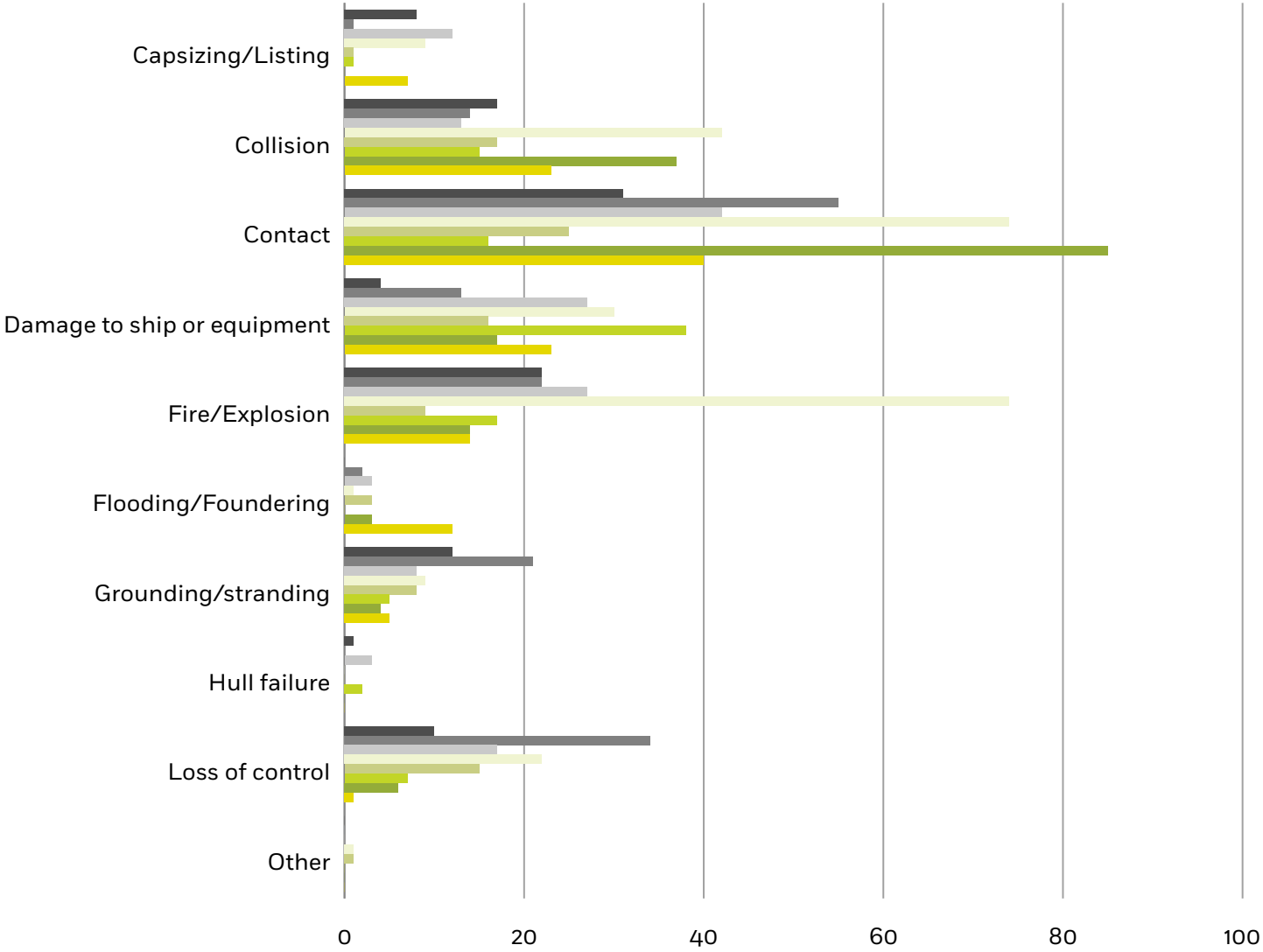
**Crew represent the main category of persons injured at sea (78.8% of the total during the 2011-2018 period).**

Figure 2.36: Distribution of injured people by ship type



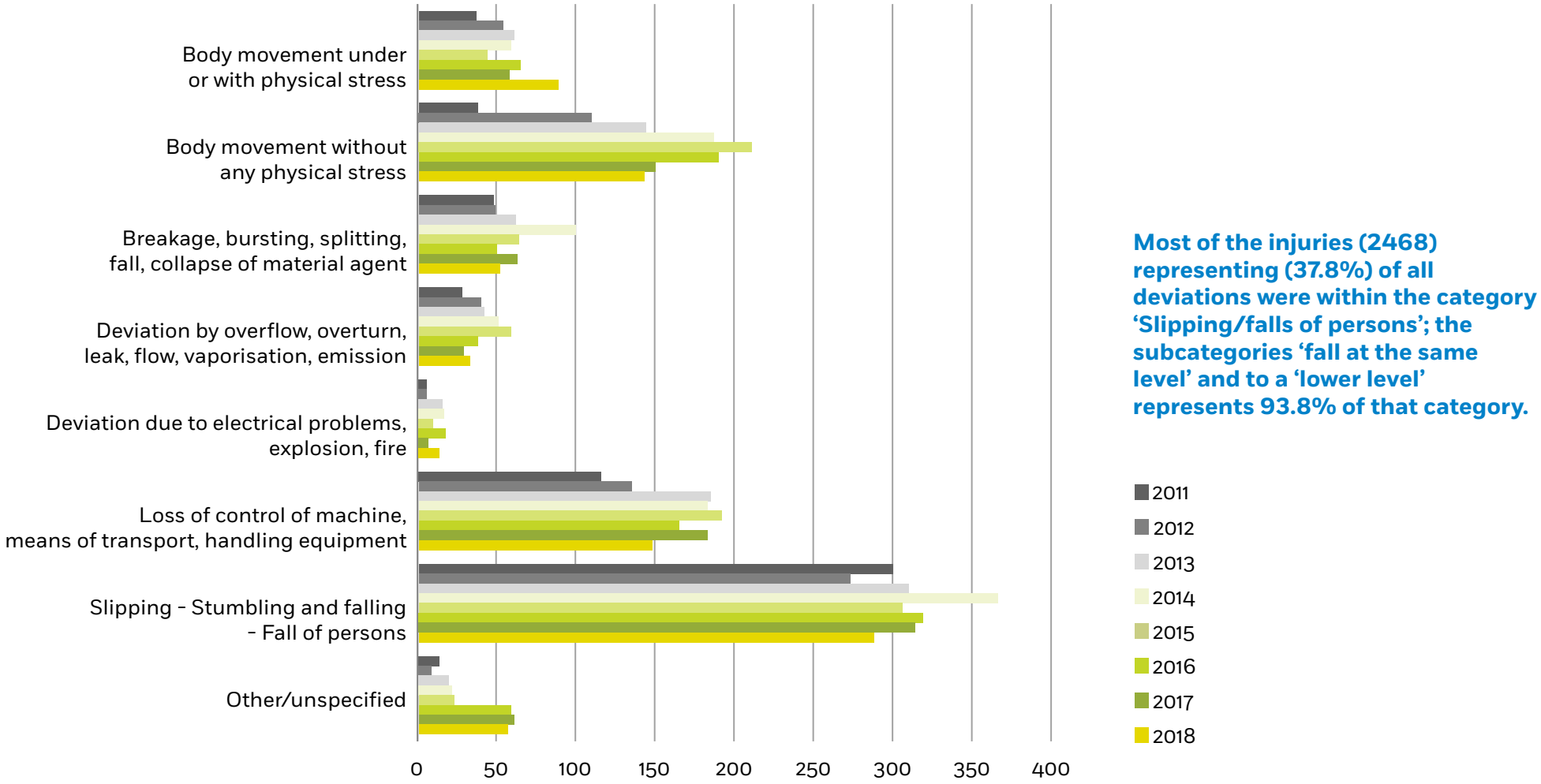

**2832 persons were injured on board passenger vessels. An average of 351 passengers were injured in the last 5 years, being 2014 an atypical year.**

Figure 2.37: Distribution of injuries by casualty event




**52.9% of the injuries took place during navigational events (contact, collision and grounding/standing). Fire also represents a significant value (17.0%).**

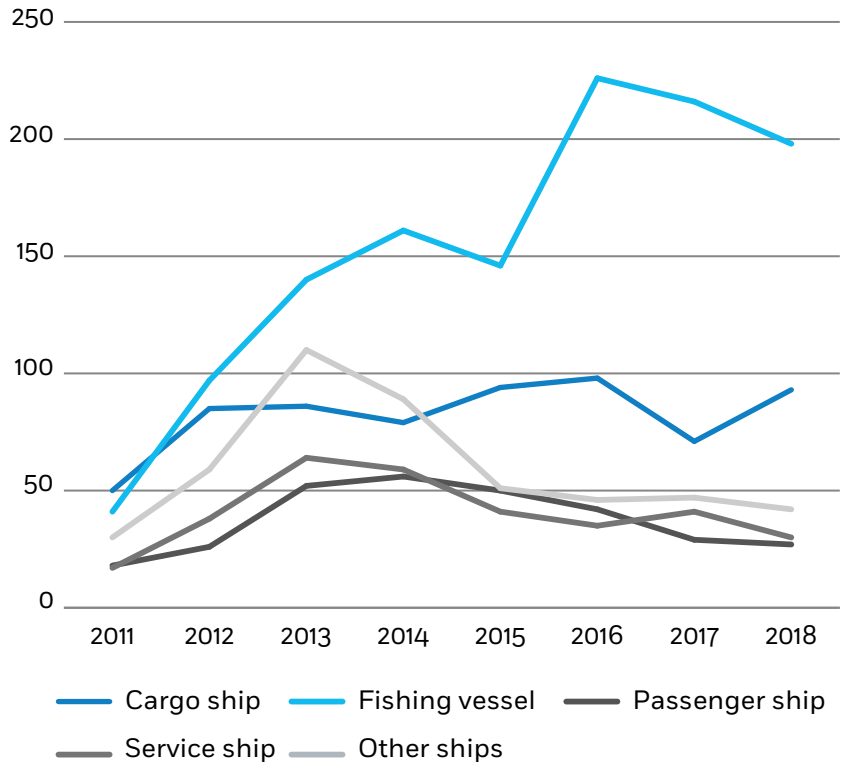
Figure 2.38: Distribution of injuries by deviation




**Most of the injuries (2468) representing (37.8%) of all deviations were within the category 'Slipping/falls of persons'; the subcategories 'fall at the same level' and to a 'lower level' represents 93.8% of that category.**

## 2.6.3 OTHER CONSEQUENCES

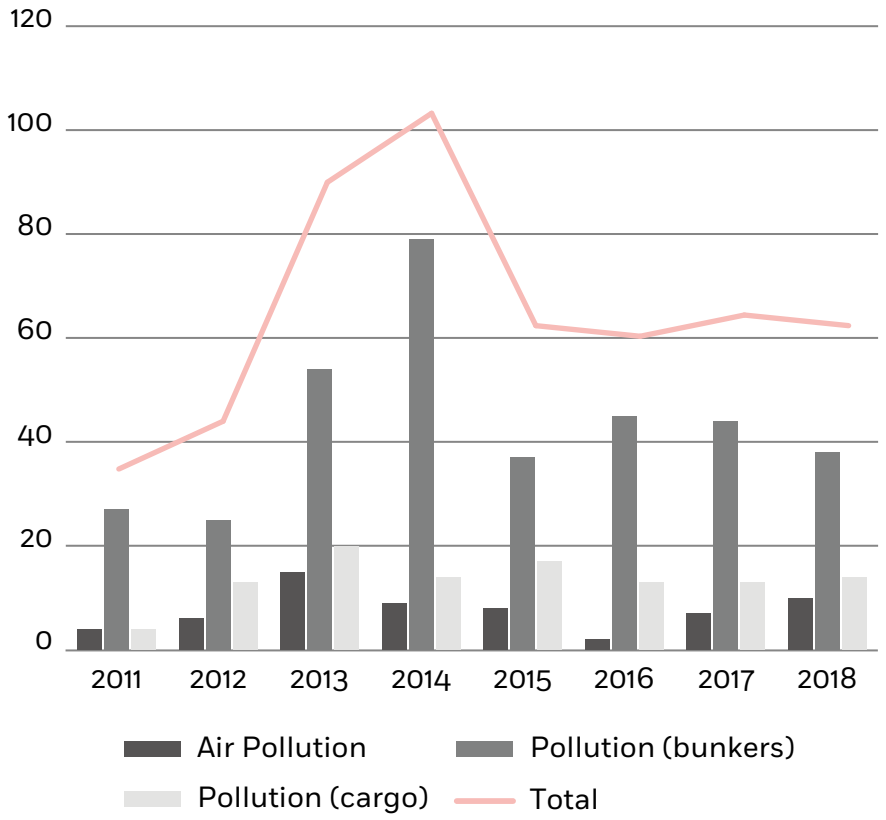
Figure 2.39: Distribution of Search and Rescue (SAR) operations by ship type




**2655 ships needed a SAR operation, of which 1225 were fishing vessels.**

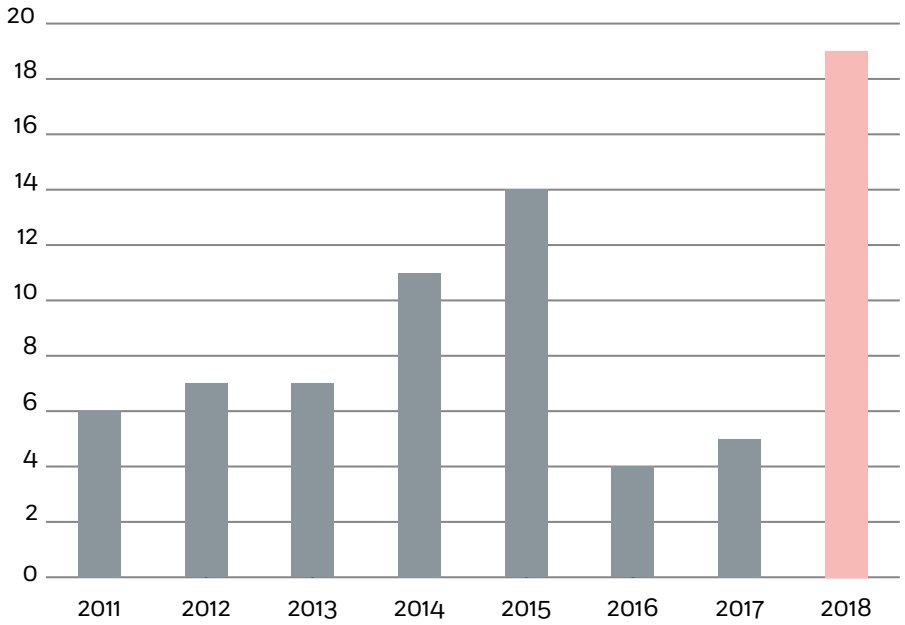
**71% of the SAR operations related to ship casualties and 29% to occurrence with person(s).**

Figure 2.40: Types of pollution




**In the period of 2011 – 2018, 518 cases of pollution were reported. Among them, 457 affected the sea, while 61 were air pollution. Sea pollution by the release of ship's bunkers (fuel) and other pollutants (e.g. cargo residues, lubricating or hydraulic oils) corresponded to two thirds of the cases (349).**

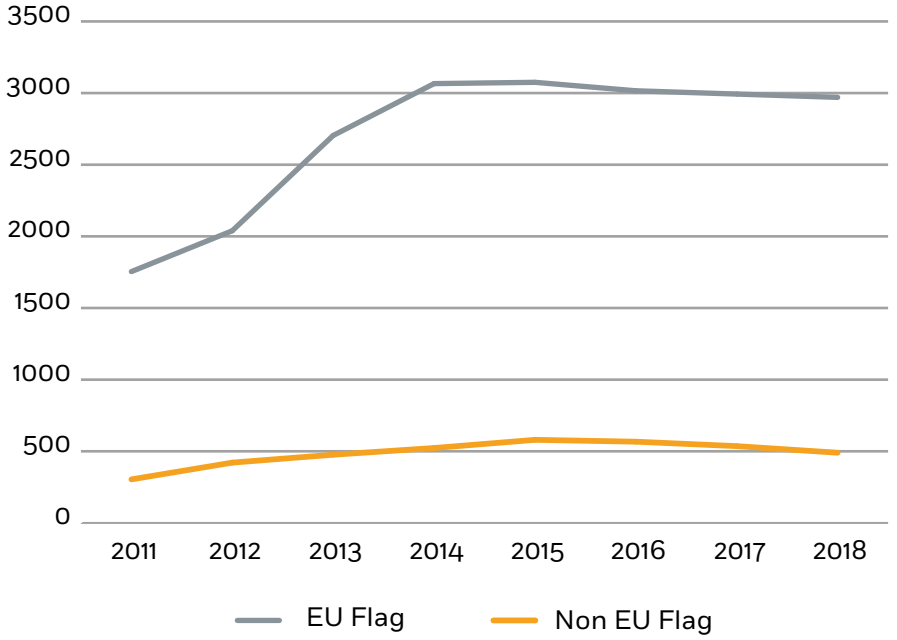
Figure 2.41: Distribution of oil pollution responses




**Oil pollution response was deployed mainly after grounding/ stranding (18 cases), or loss of containment (15 cases) and collisions (11 cases). A significant increase in 2018 when compared with the last 2 years.**

## 2.7 INVOLVEMENT OF EU STATES AS FLAG STATE, COASTAL STATE OR SUBSTANTIALLY INTERESTED STATE

Figure 2.42: Distribution of ship flags



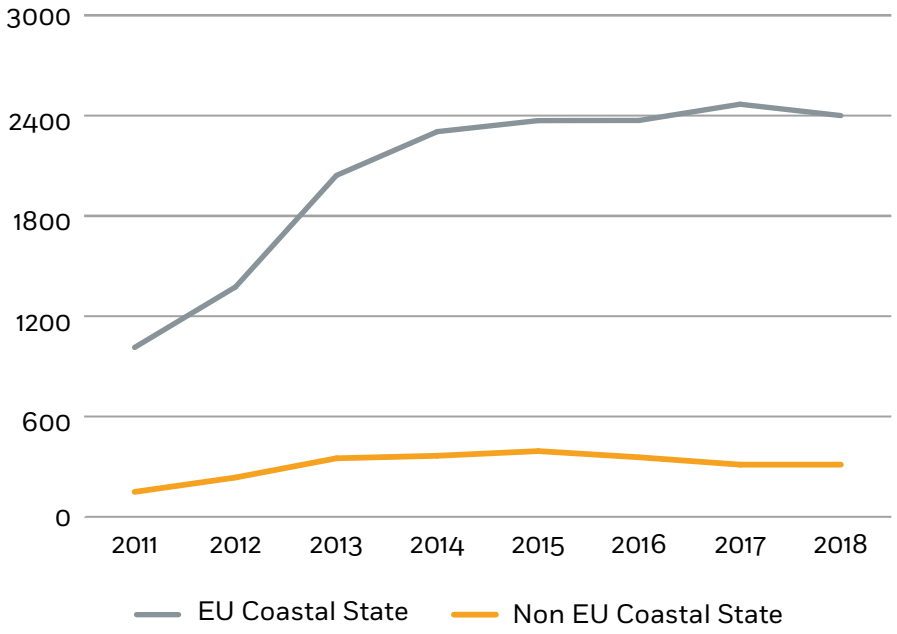

**21617 ships flagged under an EU/EEA Member State were involved in a marine casualty or incident.**

28 EU/EEA Member States were involved as flag of the ship over the 2011–2018 period.

3897 ships flagged under a non-EU/EEA Member State were involved in a marine casualty or incident corresponding to 111 non-EU/EEA flags.

The higher ratio of EU/EEA flag States affected by a marine casualty or incident in comparison with non-EU/EEA flag States is due to the scope (geographical and in terms of vessels and accidents) of Directive. Marine casualties and incidents on-board ships flagged in non-EU/EEA countries which do not involving substantial EU/EEA interests, and which do not occur in EU/EEA waters are not within the scope of the Directive and therefore not reported to EMCIP.

**Figure 2.43: Distribution of coastal States**



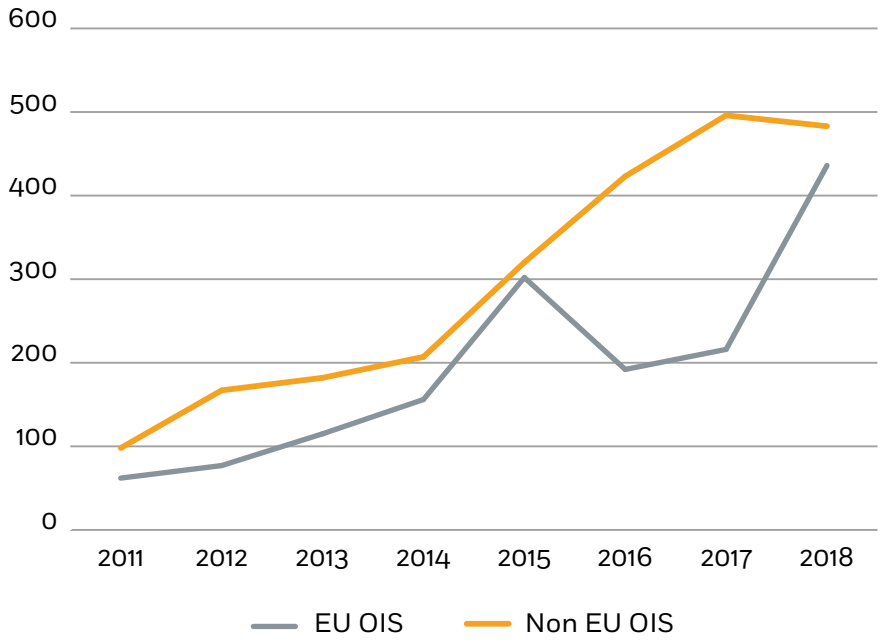

**In 18765 cases, at least one coastal State was reported to be affected by a marine casualty or incident. Considering the total number of marine casualties or incidents accidents (23073), this means that 81.4% occurred in territorial sea or internal waters.**

The grand total of incidents where a coastal State was affected was 18815, as more than one Coastal State can be affected by the same marine casualty or incident.

25 EU Member States were involved as a coastal State 16343 times.
143 non-EU countries were reported as coastal State 2472 times.

As with EU/EEA flag ships, there is a higher ratio of EU/EEA coastal States affected by a marine casualty or incident in comparison with non-EU coastal States. Again, it should be noted that marine casualties and incidents in territorial sea of non-EU countries and not involving EU flagged vessels or substantial EU interests are not covered by the AI Directive.

**Figure 2.44: Distribution of substantially interested States (OIS) other than flag or coastal States**




**In 3932 marine casualties and incidents, at least one other substantially interested State (OIS) was reported. Considering the total number of marine casualties and incidents (23073), a State different from the flag or the coastal State was involved in 17% of marine casualties and incidents.**

**The significant increase of substantially interested states could be explained by a more accurate identification of entities other than the flag State or the coastal State, as well as a better knowledge of the EU and international legislation on casualty investigation by such entities.**

Substantially interested States were registered, bearing in mind that a single occurrence can involve more than one substantially interested State.

25 EU/EEA Member States were involved as substantially interested States (OIS) 1556 times.

119 non-EU/EEA countries were substantially interested States (OIS) 2376 times.

**Note: OIS – Other Substantially Interested States, neither flag nor coastal State.**

## 2.8 SAFETY INVESTIGATIONS

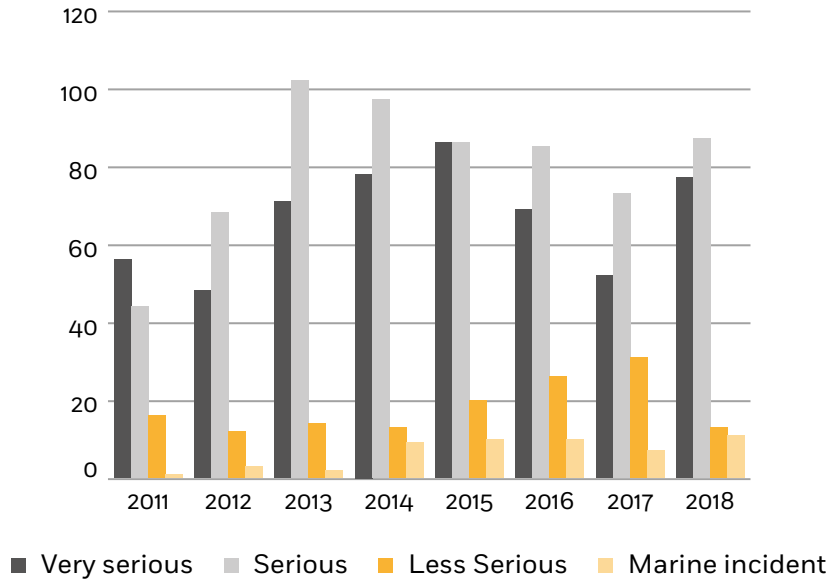
**This section describes the activities undertaken by the investigative bodies of EU/EEA Member States regarding the investigations performed, reports published, and safety recommendations issued.**

Art. 2.4 of Reg.(EC) 1406/2002 as amended provides that the Agency shall carry out analysis of safety investigation reports with a view to identifying added value at Union level in terms of any relevant lessons to be drawn.

Therefore, based on the content of the investigation reports EMSA has carried out two analysis studies on: marine casualties and incidents involving, respectively, Fishing vessels and Ro-Ro vessels.

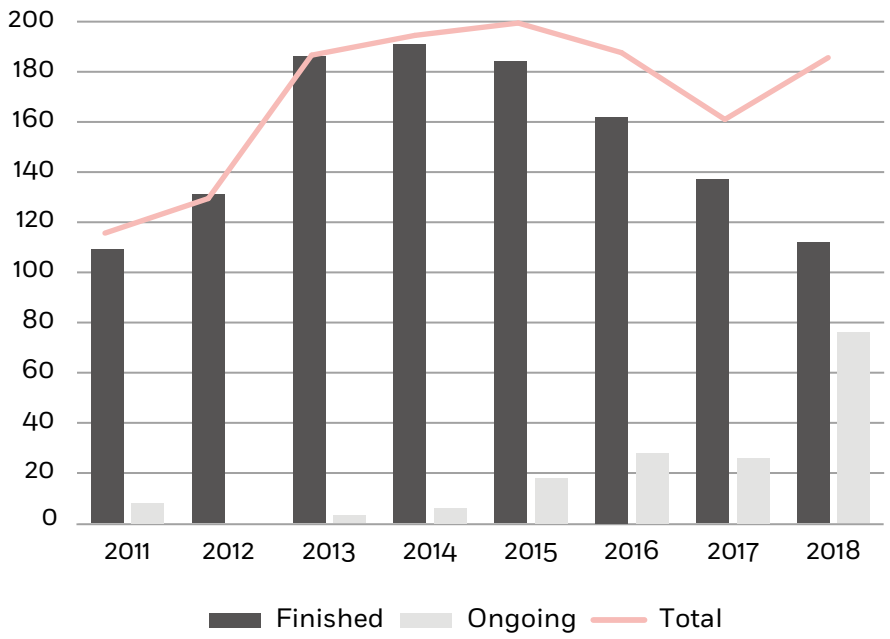
These studies are available on the EMSA website at: http://emsa.europa.eu/publications/technical-reports-studies-and-plans/item/3388-safety-analysis-of-data-reported-in-emcip-analysis-on-marine-casualties-and-incidents-involving-ro-ro-vessels.htmlitem/3388-safety-analysis-of-data-reported-in-emcip-analysis-on-marine-casualties-and-incidents-involving-ro-ro-vessels.html

Figure 2.45: Number of investigations launched by severity of marine casualties and incidents




**A total of 1377 investigations were launched, during 2011 - 2018 period, 39% of these being related to very serious casualties and 46.6% to serious casualties.**

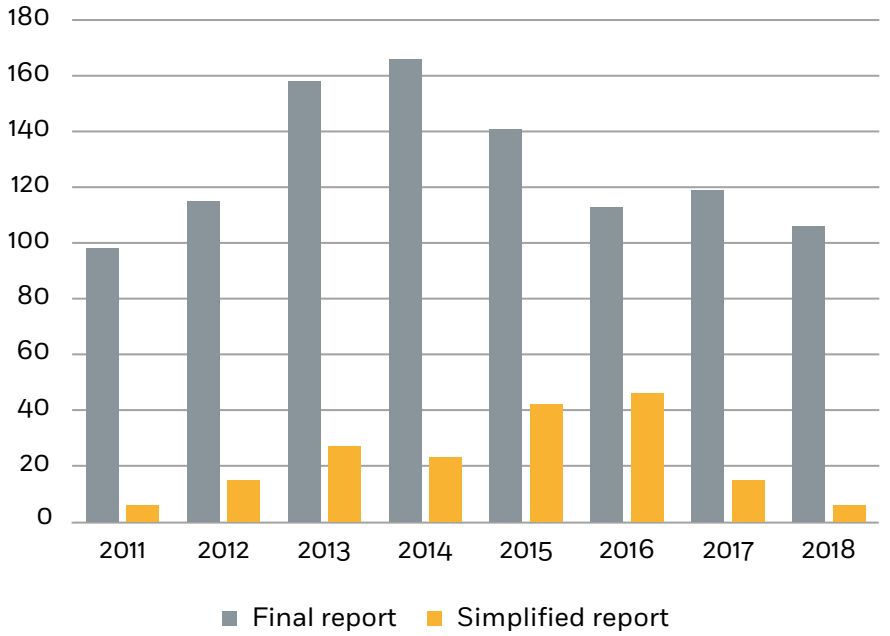
Figure 2.46: Status of investigations launched




**1212 investigations were reported by the investigative bodies as being concluded. In 2018, the number of investigations launched increased due to the recent reporting activities of an investigative body.**

## 2.9 INVESTIGATION REPORTS

Figure 2.47: Number of investigation reports per type

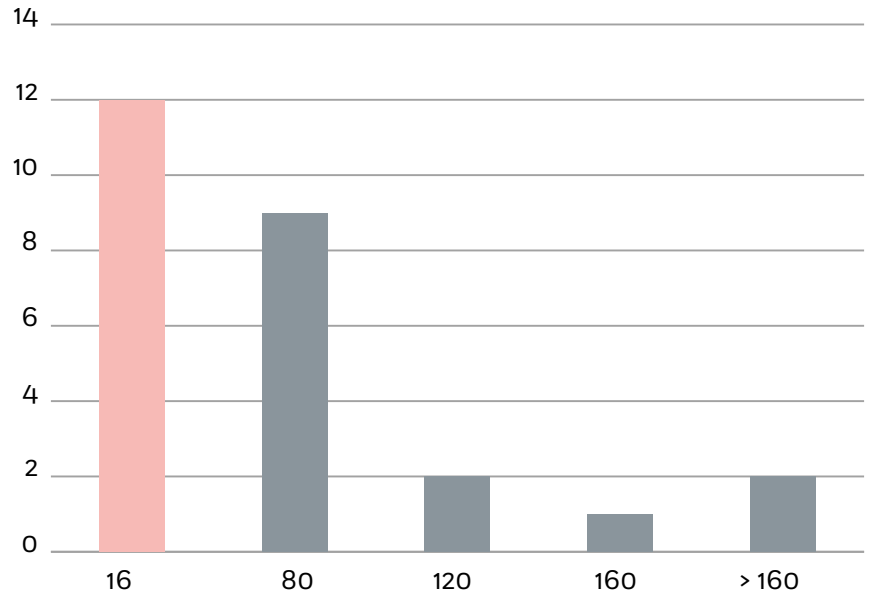



**1016 reports were classified as final and 180 as simplified, in occurrences with status finished. The type of report, whether final or simplified, is decided by the investigative bodies depending on the severity of the casualty and/or the potential to prevent future casualties.**

A list of all investigation reports published in EMCIP as per Article 17 of the Accident Investigation Directive 2009/18/EC can be found on the EMCIP Portal at the following address:

https://portal.emsa.europa.eu/emcip-public/#/dashboard

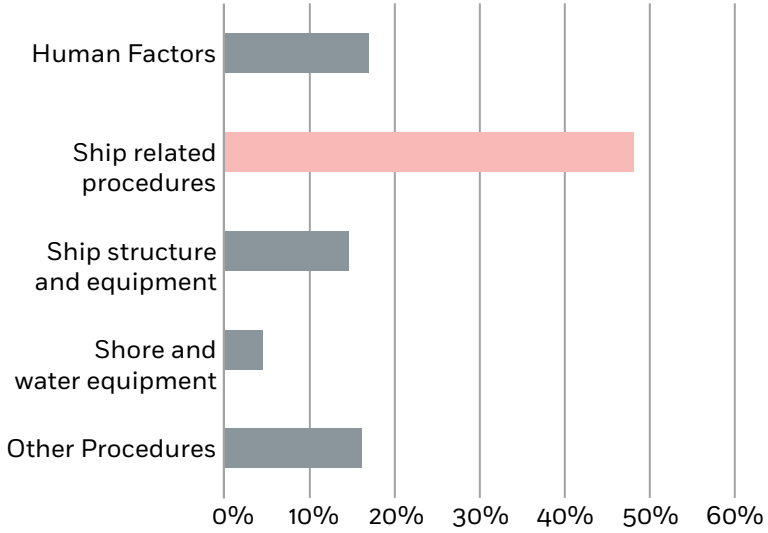
Figure 2.48: Number of final reports published by Member States for 2011-2018




**On average 12 Member States have published 2 or less than 2 final reports a year. More than two thirds of final reports were published by six Member States.**

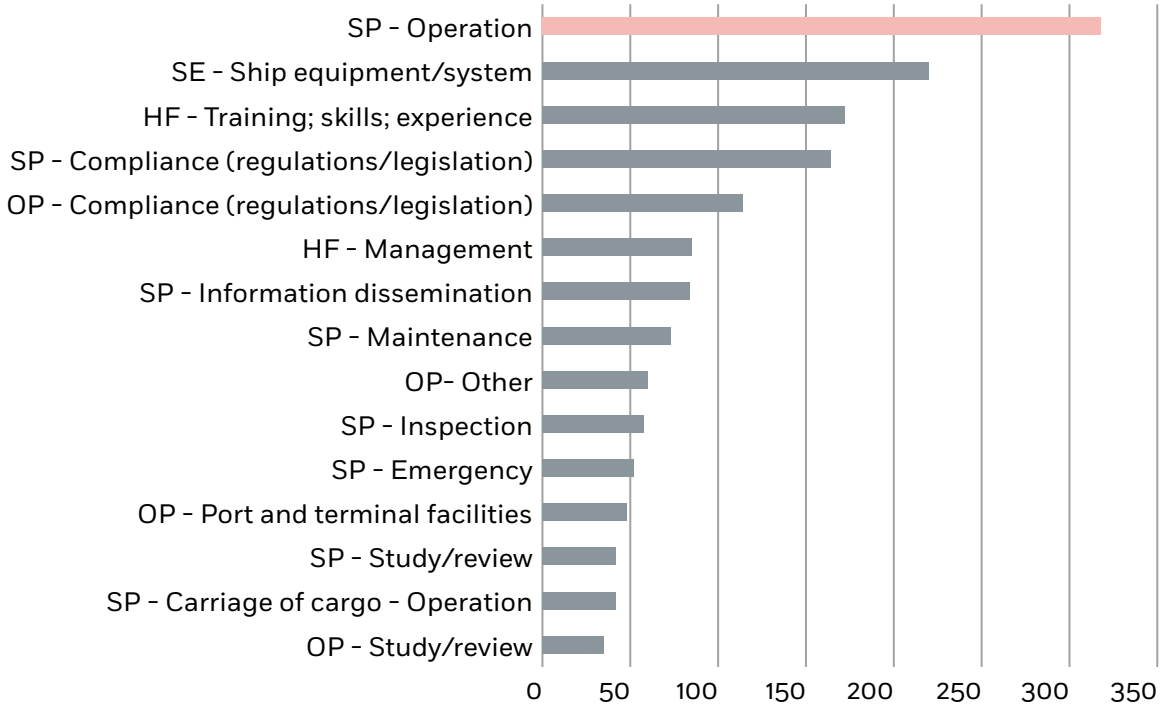
## 2.10 SAFETY RECOMMENDATIONS

Figure 2.49: Distribution of safety recommendations issued per focus area for 2011-2018




**Ship related procedures, related to operational practices, is the main safety recommendation coding area (48%), followed by human factors (17%).**

**Figure 2.50: Distribution of sub-category areas quoted more than 30 times for 2011-2018**

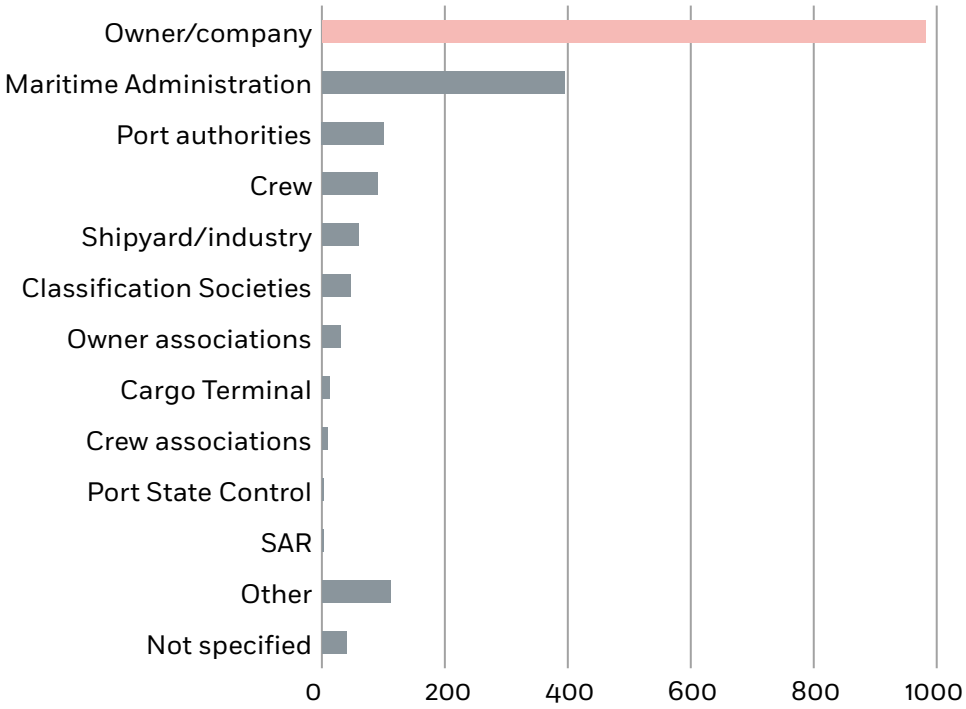



HF: Human factors; OP: Other procedures
SE: Ship structure and equipment; SP: Ship related procedures

**Among 53 possible sub-categories of safety recommendations, the figure above represents the ones quoted more than 30 times (from 2% to 17% each). Ship related procedures related to ship operation is the most quoted with 17%.**

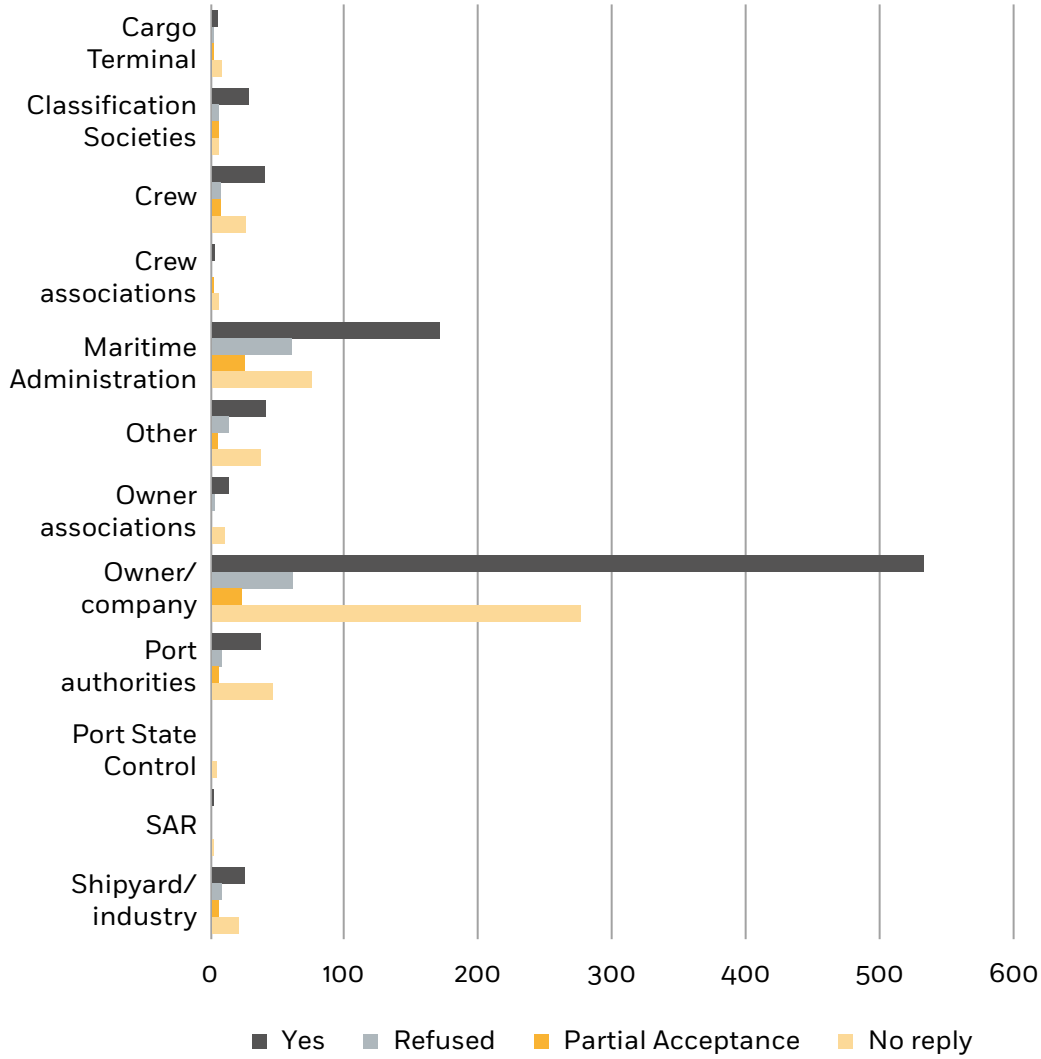

**Investigator examining the watertight integrity of cable penetrations through bulkheads of a recovered sunken recreational craft used for commercial purposes.**

Figure 2.51: Addressees of safety recommendations for 2011-2018




**Ship owners/companies was the category of addressees that received most safety recommendations (52.2%), followed by maritime administration (20.9%), other (5.9%) and port authorities (5.4%).**

Figure 2.52: Responses to safety recommendations for 2011-2018




**59.2% of safety recommendations were considered positively (full or partial acceptance), while 40.8% were refused or no answer was provided to the investigative body.**

# CHAPTER 3
# CARGO SHIPS

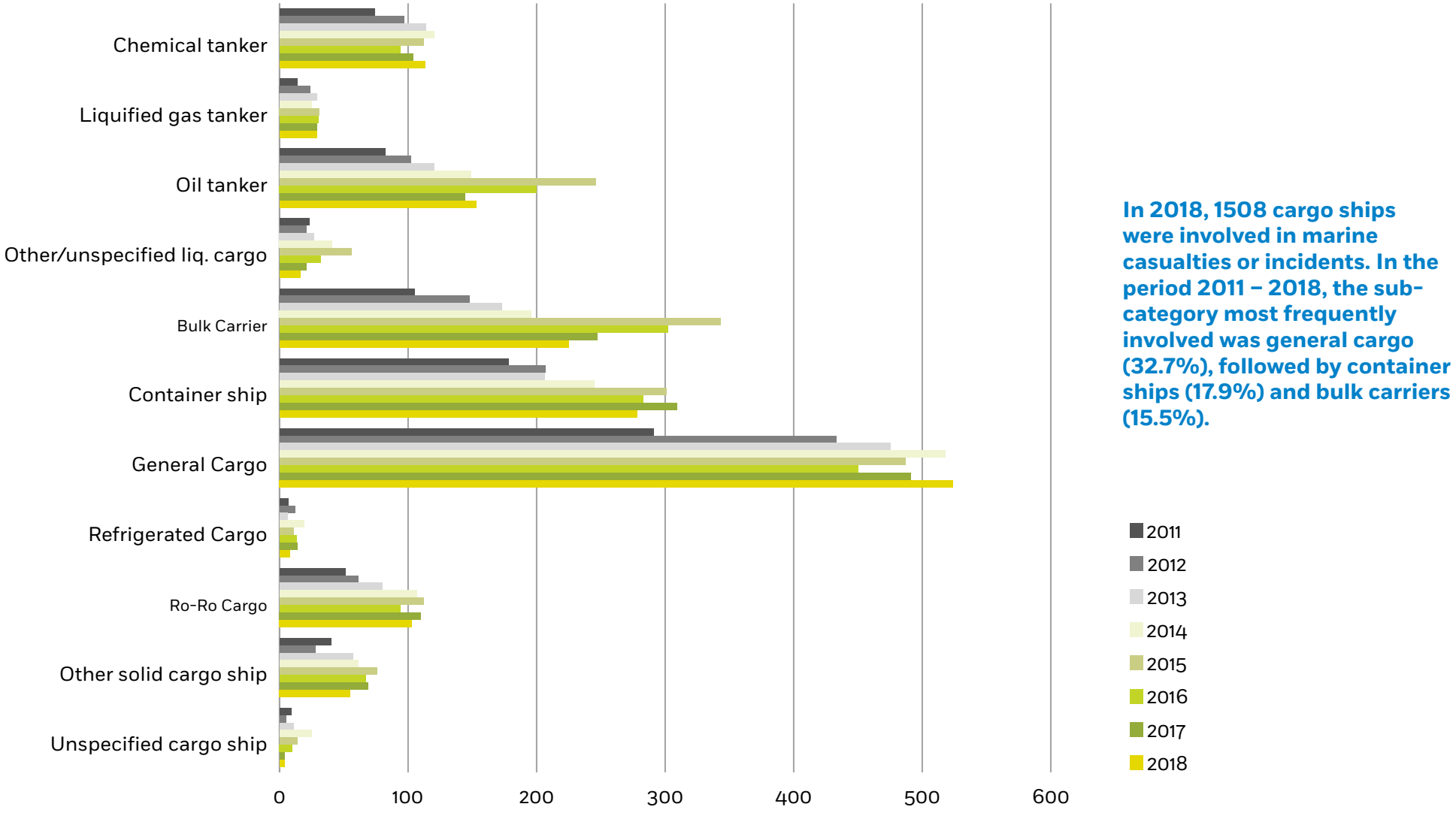

Grounding of the general cargo vessel PRISCILLA on 18/07/2018.

## KEY FIGURES 2018

| 1422 | 48 | 36 | 258 | 3 | 1508 |
|---|---|---|---|---|---|
| CASUALTIES & INCIDENTS | VERY SERIOUS CASUALTIES | FATALITIES | PERSONS INJURED | SHIPS LOST | SHIPS INVOLVED |

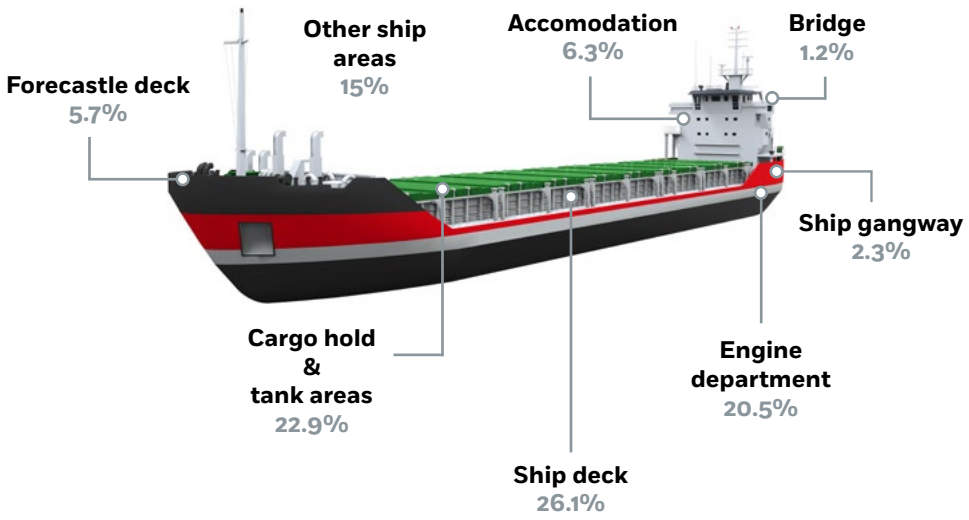
## 3.1 DETAILED DISTRIBUTION

Figure 3.1: Distribution of cargo ship types involved



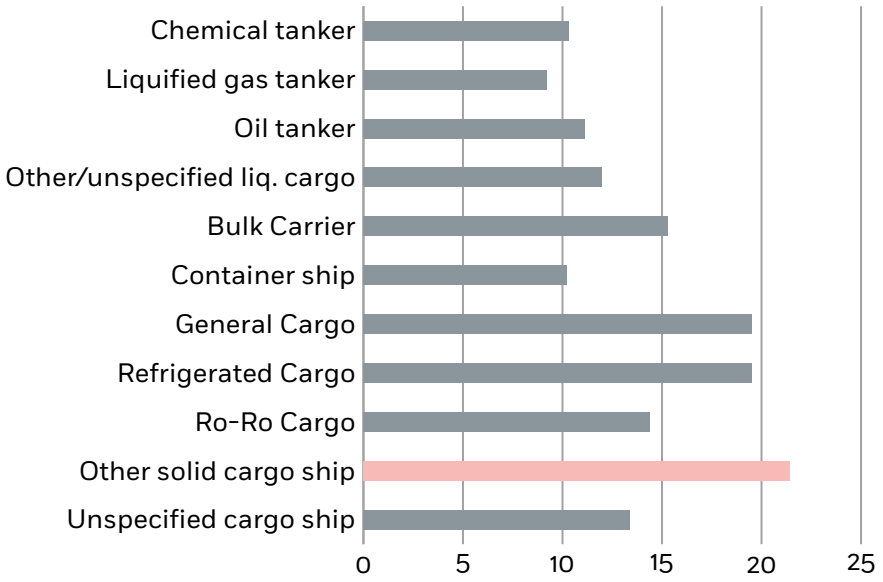

**In 2018, 1508 cargo ships were involved in marine casualties or incidents. In the period 2011 – 2018, the sub-category most frequently involved was general cargo (32.7%), followed by container ships (17.9%) and bulk carriers (15.5%).**

Figure 3.2: Main places of occurrence with person(s) on board cargo ships for 2011-2018



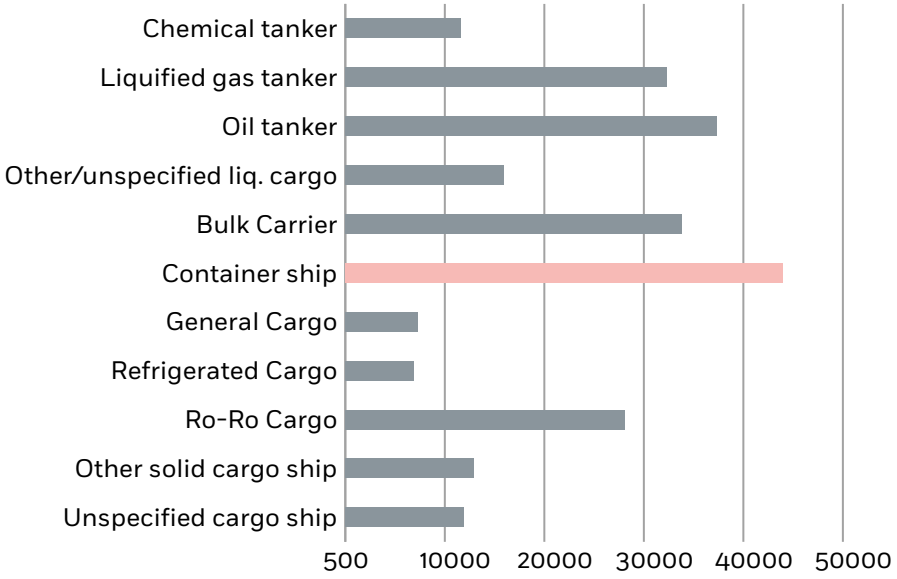

**The main location of marine casualties and incidents was ship decks (31.8%), followed by cargo hold and tank areas (22.9%) and engine department (20.5%).**

Figure 3.3: Average age by type of cargo ships involved for 2011-2018



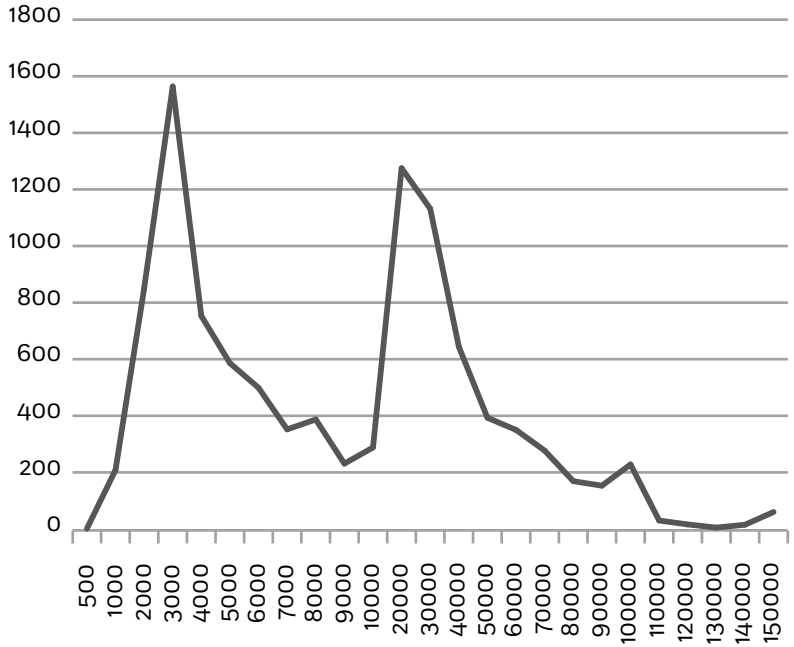

**The youngest ship category is liquified gas tankers (9.2 years) while the oldest is other solid cargo ship (21.4 years).**

Figure 3.4: Average gross tonnage (GT) per cargo ship type involved for 2011-2018




**Refrigerated Cargo ships (6907) and general cargo ships (7249) had the lowest average GT, while container ships represented the highest average GT of 44000.**

Figure 3.5: GT>=500 distribution of cargo ships involved for 2011-2018

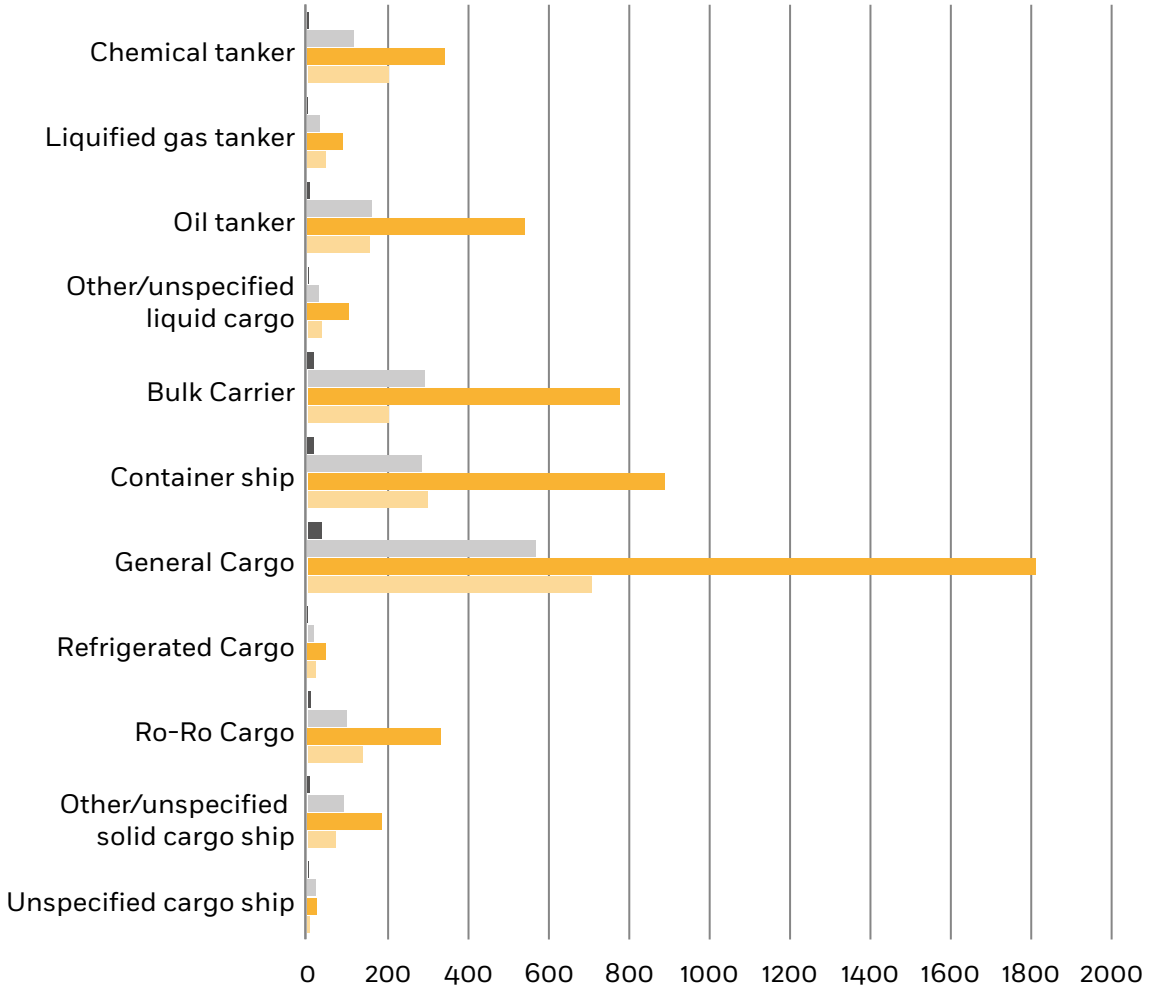



**The average gross tonnage (GT) of cargo ships involved in marine casualties is 21873. There are two peaks, between GT average intervals of 2000 - 3000 and 10000 - 30000.**

## 3.2 NATURE OF MARINE CASUALTIES AND INCIDENTS

### 3.2.1 OCCURRENCE WITH SHIP(S)

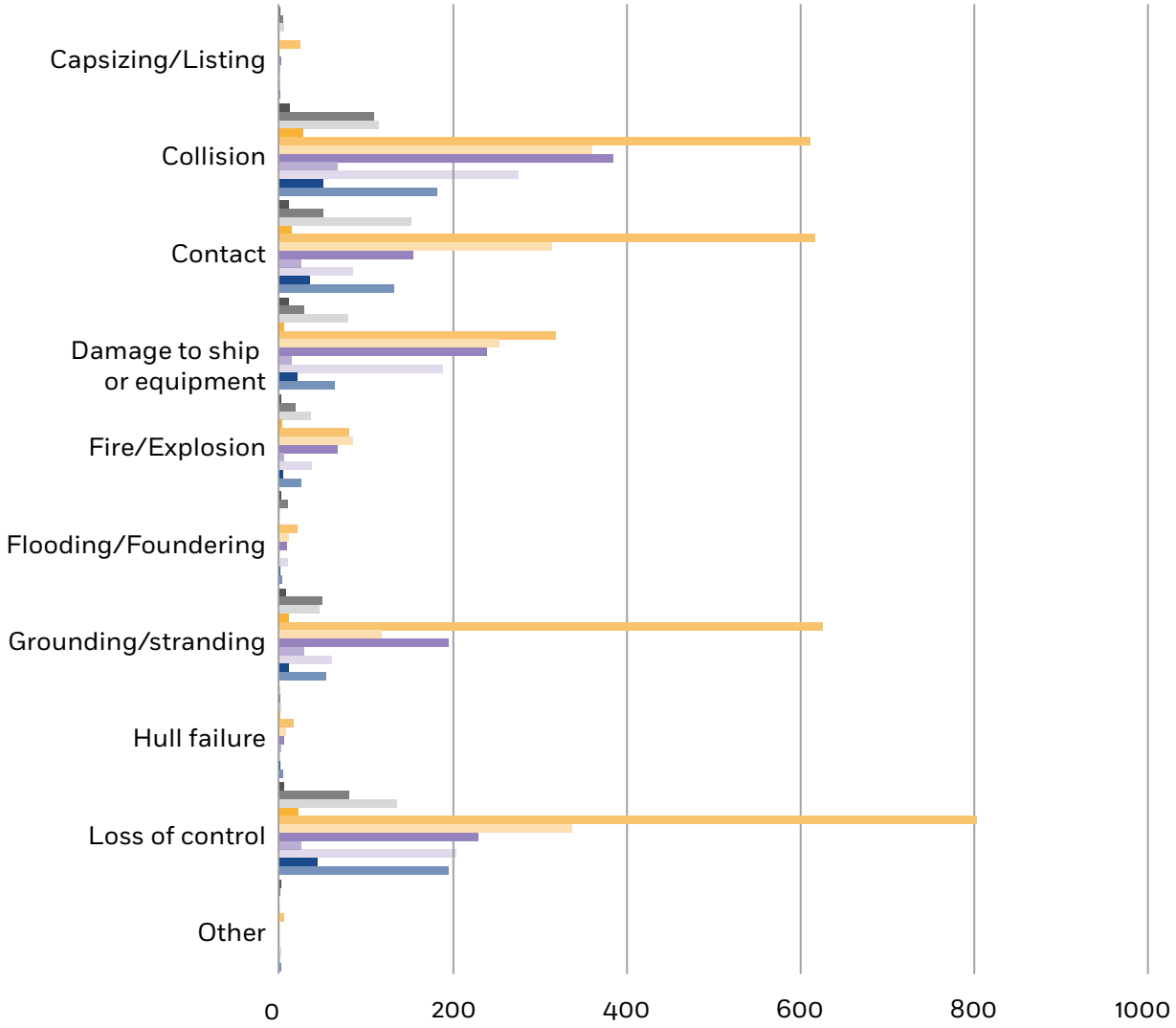
**Figure 3.6: Distribution of severity per cargo ship type for 2011-2018**




**General cargo ships, containers and bulk carriers are accountable for 70.3% of the very serious casualties related to the ship and for 67.4% of the serious.**

**35.5% of the casualties and incidents were related to general cargo ships.**

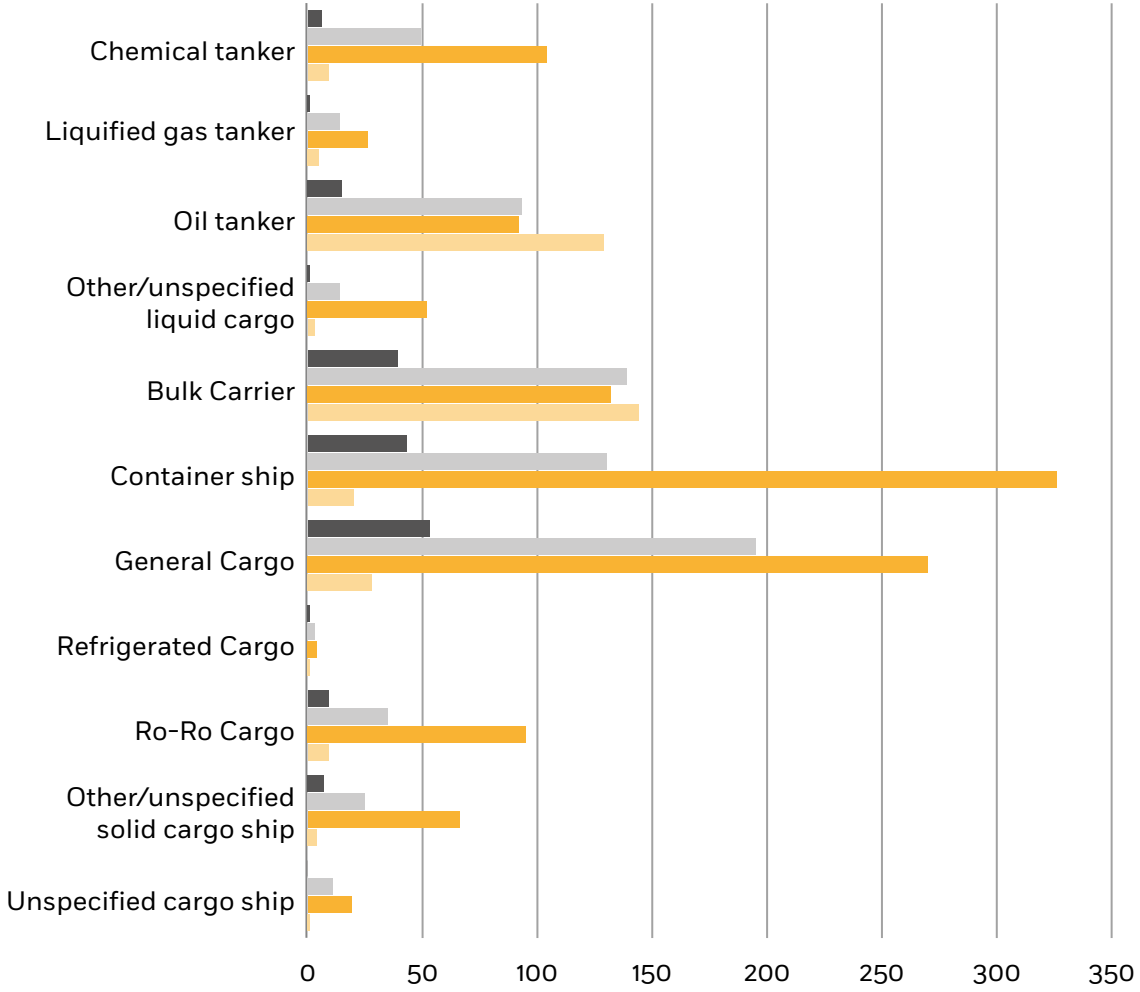
Figure 3.7: Distribution of casualty events per cargo ship type for 2011-2018




**Collisions represents 24.9% of the events followed by loss of control (23.6%) and contacts (18.1%). Navigation events represents more than 56.6% of casualties or incidents to cargo ships.**

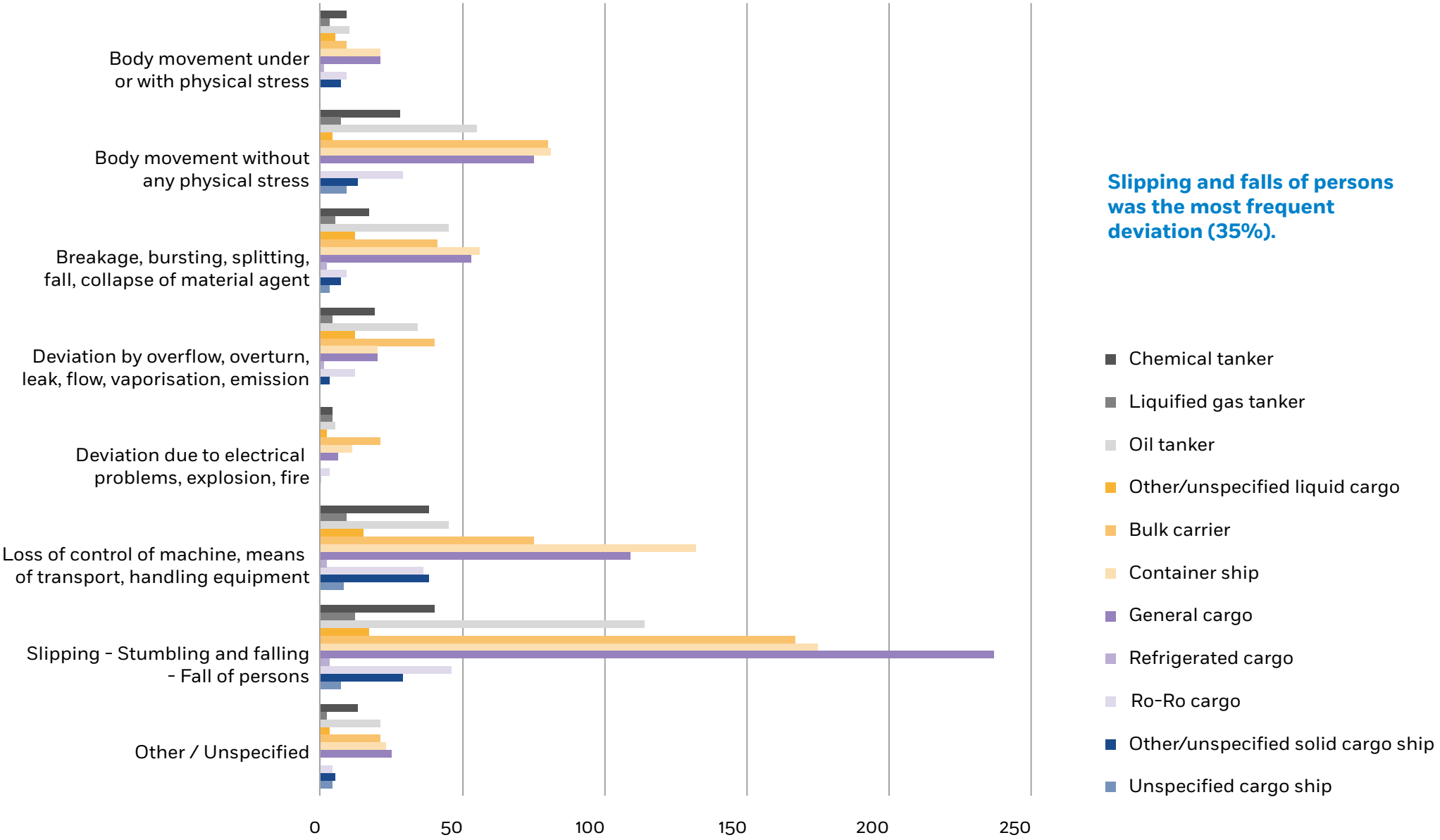
### 3.2.2 OCCURRENCE WITH PERSON(S)

**Figure 3.8: Severity of occurrence with person(s) per cargo ship type for 2011-2018**




**Most of the very serious occurrence with person(s) (175) occurs in general cargo ships (30.3%), containers (24.6%) and bulk carriers (22.3%).**

Figure 3.9: Distribution of deviations per cargo ship type for 2011-2018



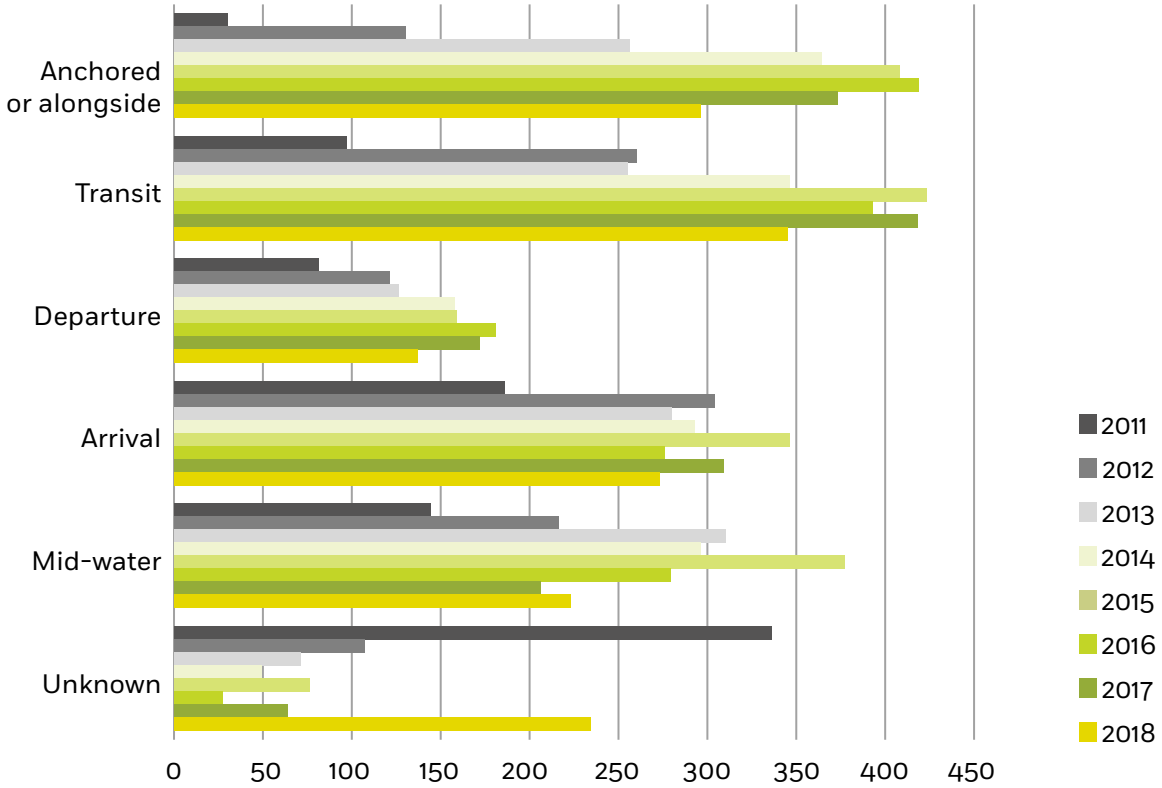

**Slipping and falls of persons was the most frequent deviation (35%).**

## 3.3 LOCATION OF MARINE CASUALTIES AND INCIDENTS

**This section provides information about the location of cargo ships when marine casualties or incidents occurred.**

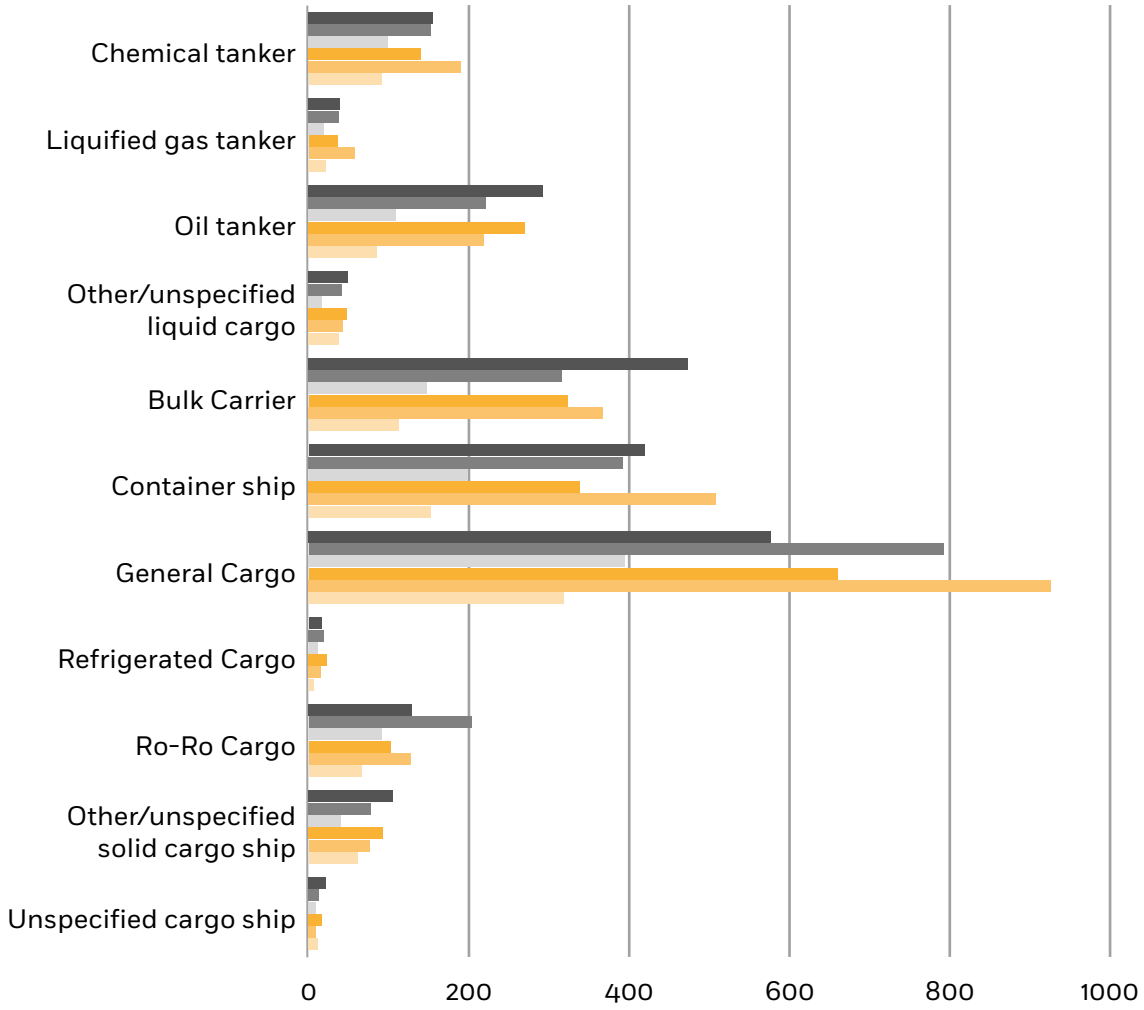
### 3.3.1 VOYAGE SEGMENTS

**Figure 3.10: Distribution by voyage segment**




**The departure phase remained the safest voyage segment over the period (10.1% of the cases). The transit (22.6%), arrival (20.2%) and anchored (20.3%) are the phases where more marine casualties and incidents took place.**

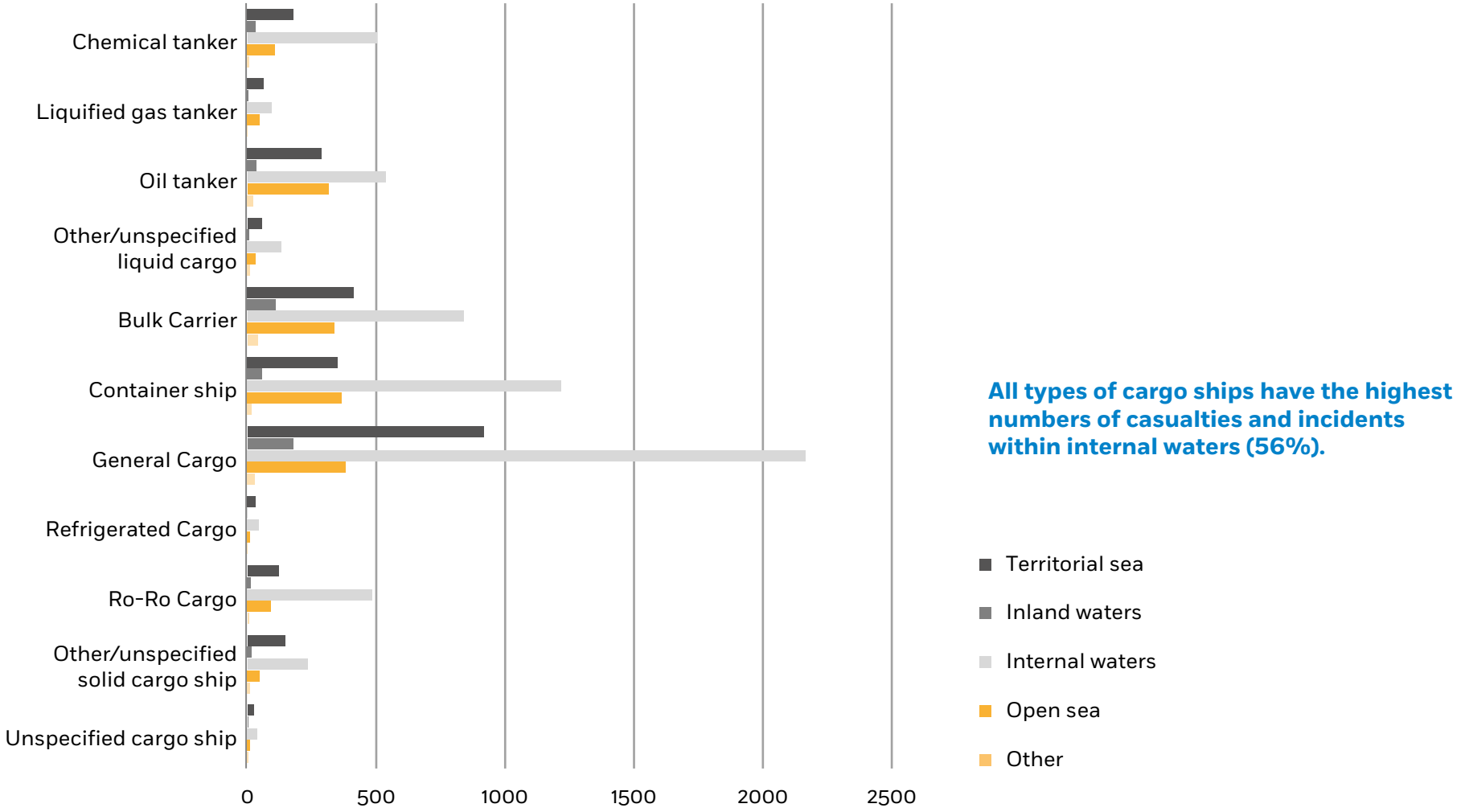
Figure 3.11: Distribution by voyage segment per cargo ship type for 2011-2018




**For general cargo and container ships, the segment "transit" is the phase where most marine casualties and incidents took place. For oil tankers and bulk carriers, the less safe segment is when the ship is "anchored" or "alongside".**

### 3.3.2 LOCATION

**Figure 3.12: Distribution by location of marine casualties and incidents per cargo ship type for 2011-2018**




**All types of cargo ships have the highest numbers of casualties and incidents within internal waters (56%).**

## 3.3.3 REGIONAL DISTRIBUTION

**Figure 3.13: Global ocean and sea distribution of marine casualties and incidents for 2011-2018**

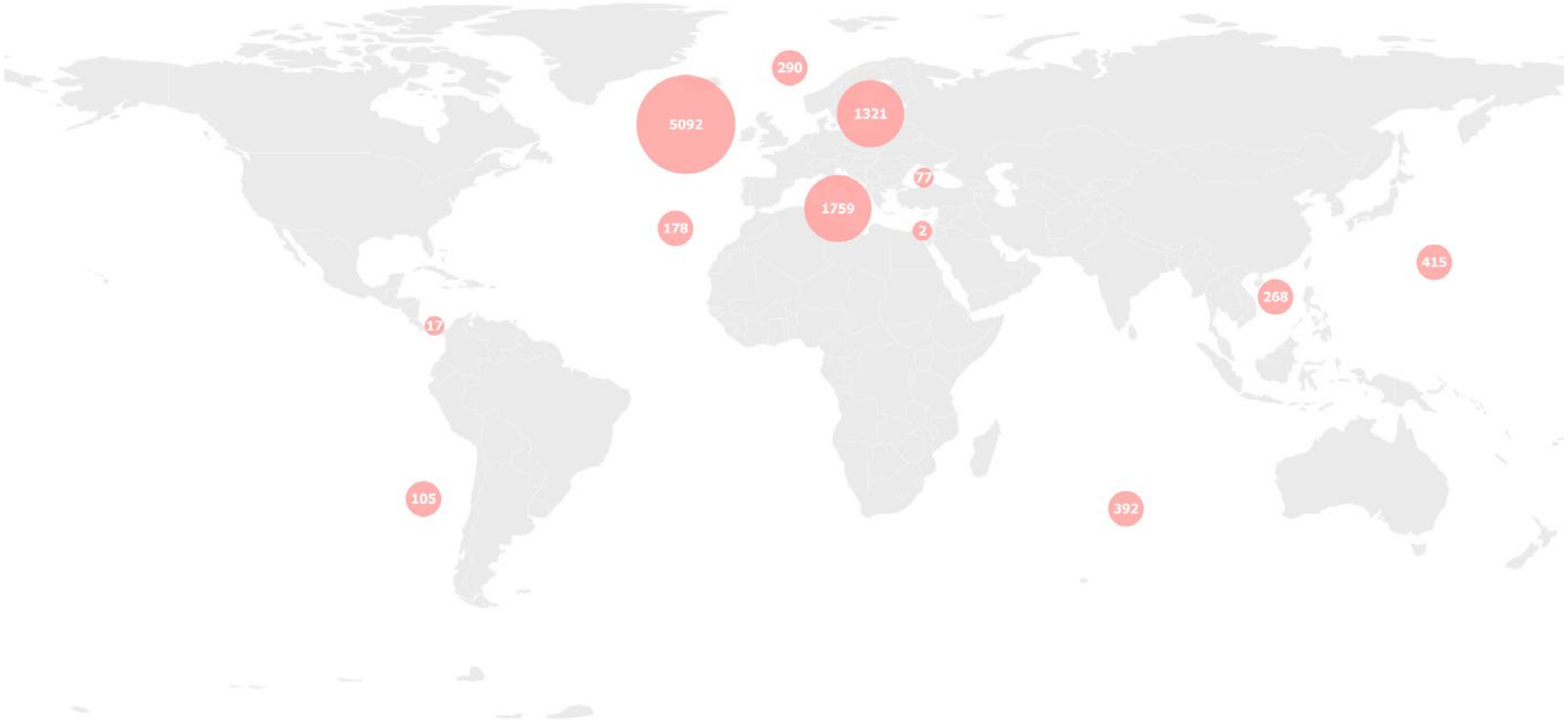
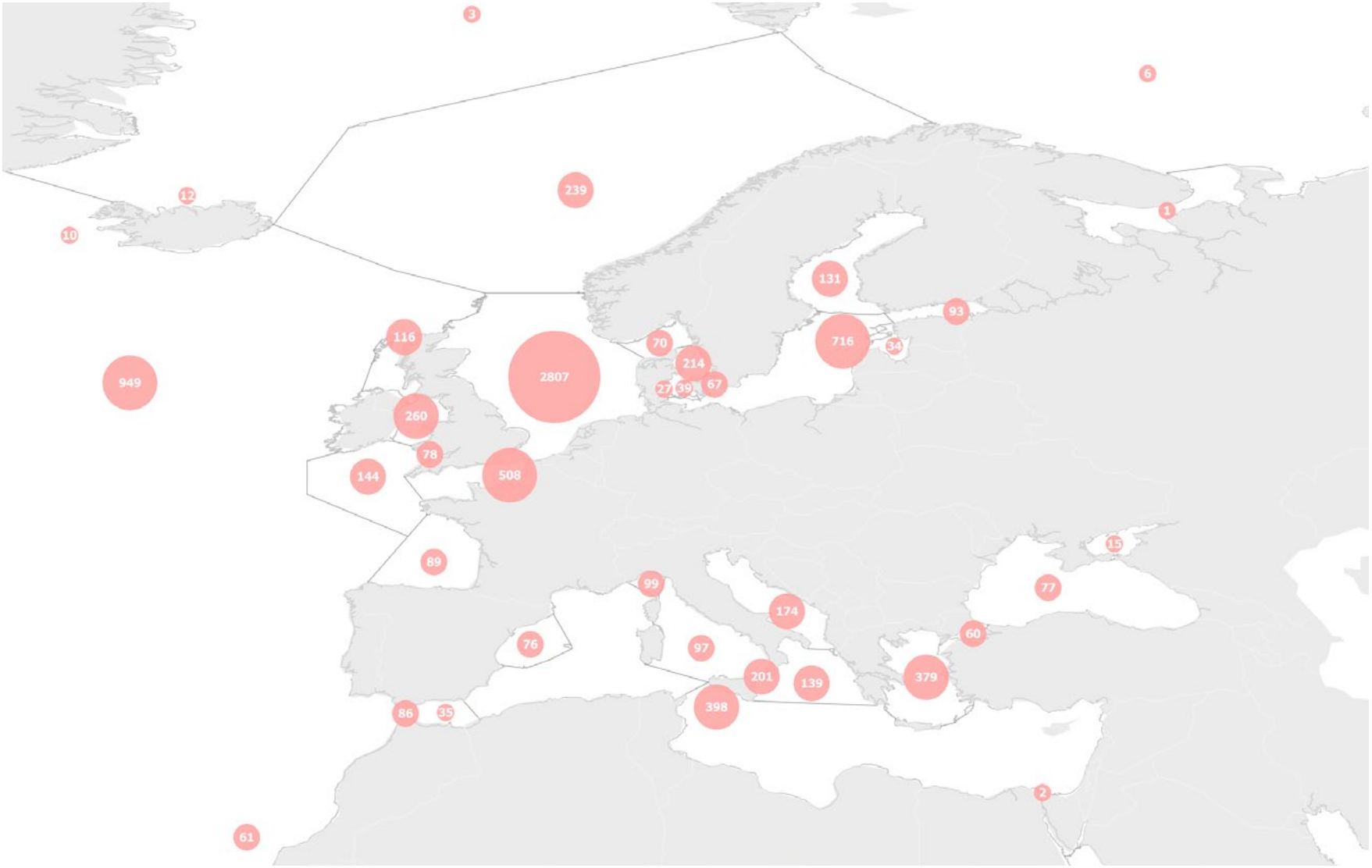
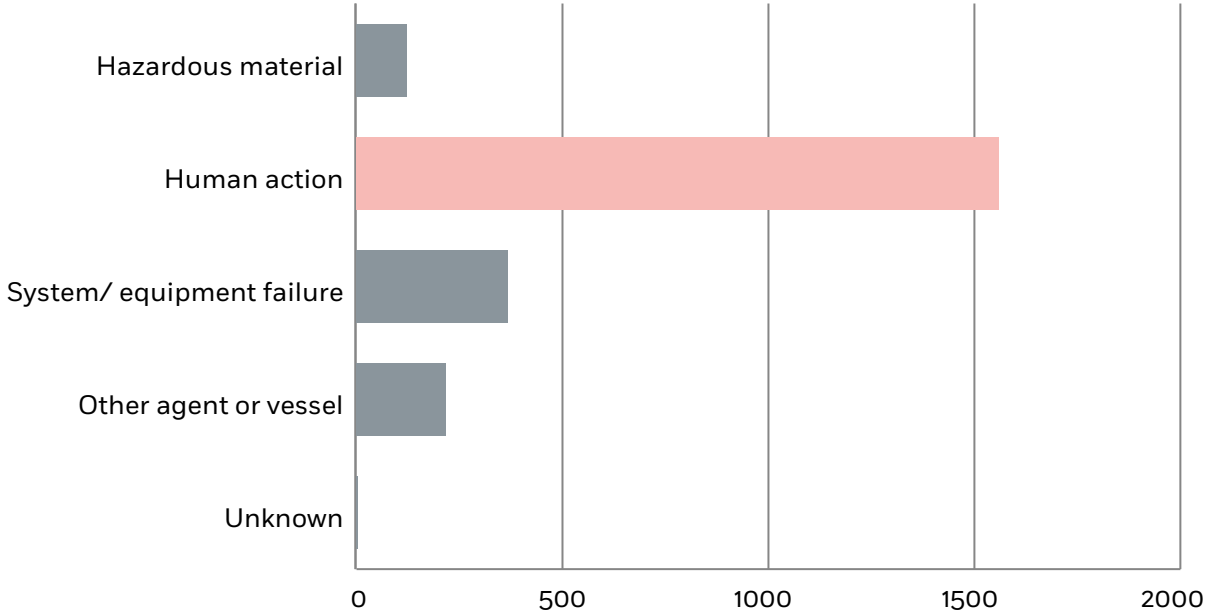


**Figure 3.14: Distribution of marine casualties and incidents within sub-sea areas around EU waters for 2011-2018**



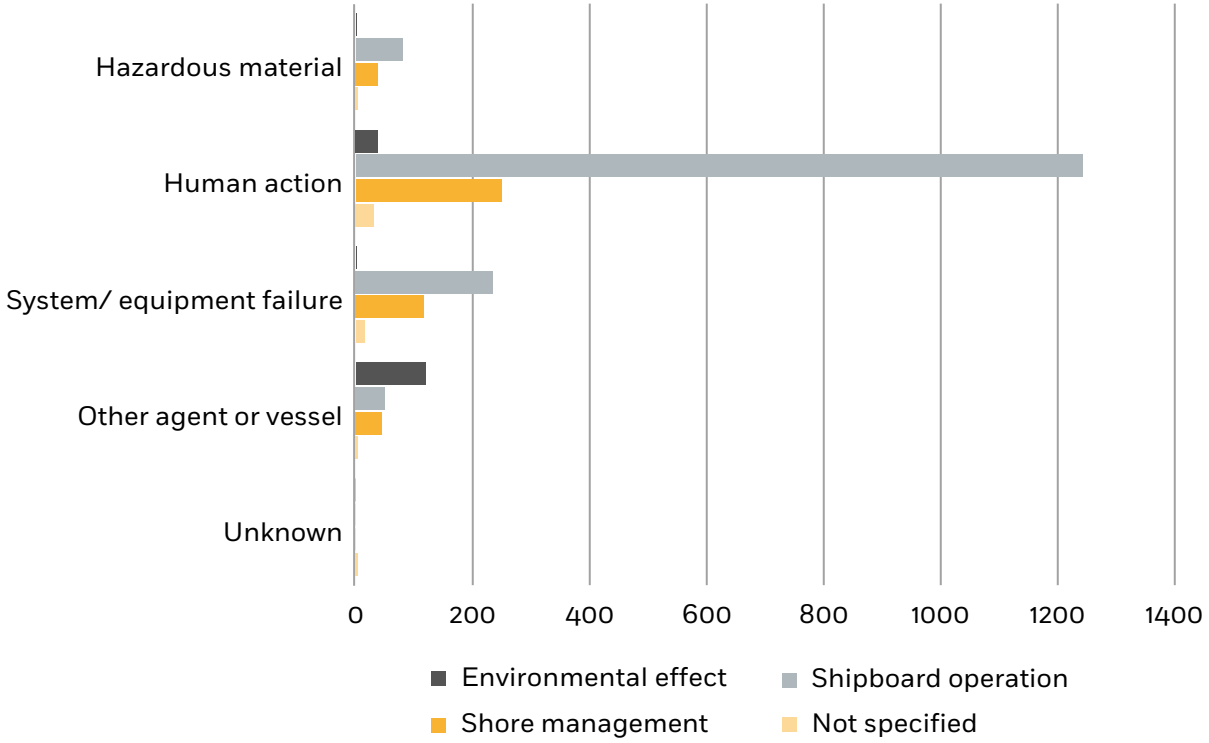
## 3.4 ACCIDENT EVENTS AND CONTRIBUTING FACTORS

Figure 3.15: Accident events 2011-2018



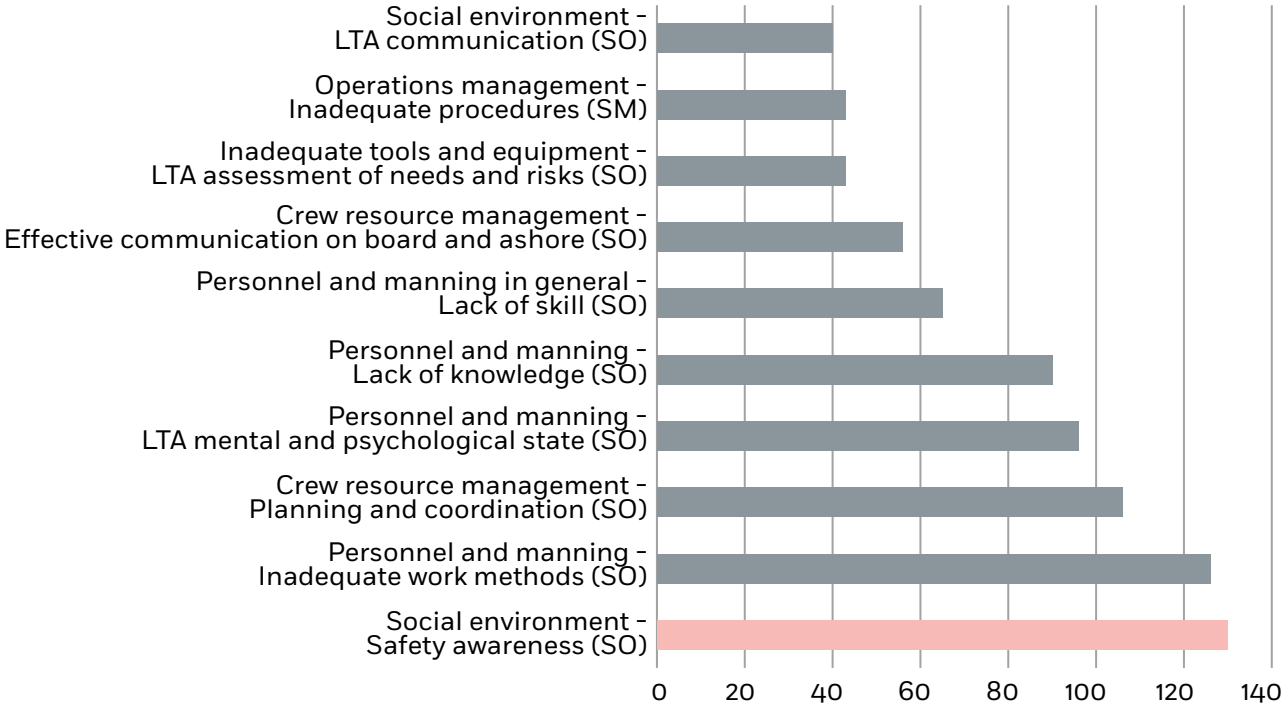

**Among 2273 accident events related to cargo ships, human actions were quoted most often (68.6%), followed by equipment failure (16.2%).**

**Figure 3.16: Relationship between Accident Events and the main Contributing Factors for 2011-2018**




**In a large majority of all accident events, shipboard operation appeared to be the most significant contributing factor (70.7%), being significant in the accident event 'Human action' (79.6%).**

Figure 3.17: Contributing Factors related to 'Human action' for 2011-2018




**This figure shows the 10 most reported contributing factors related to 'Human action'. Social environment - safety awareness (130), personnel and manning - Inadequate work methods (126) and crew resource management - planning and coordination (106) represent the highest figures, all of them under the main group SO.**

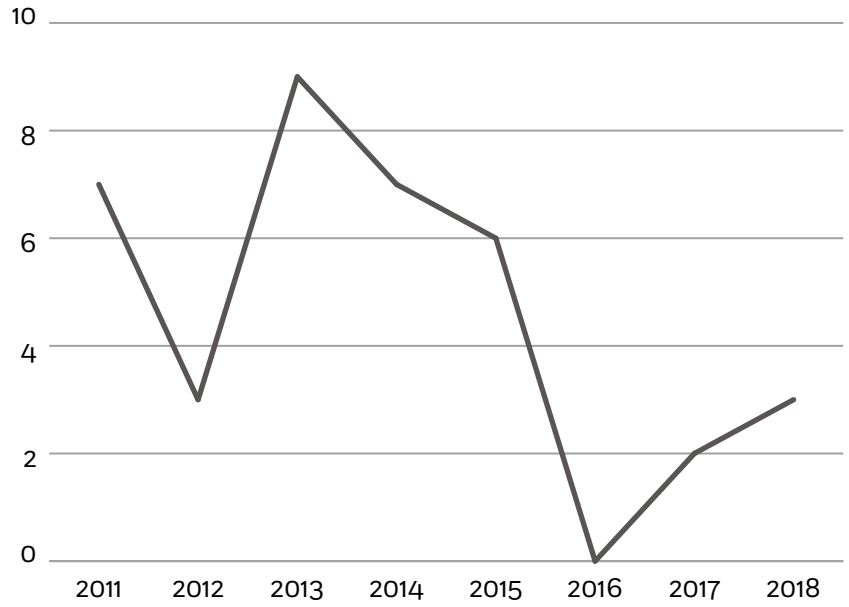
The main groups of safety recommendations are classified under: SO – Ship board operations; SM – Shore management, and; EE – Environmental effect.

**LTA – Less than adequate.**

## 3.5 CONSEQUENCES

### 3.5.1 CONSEQUENCES TO SHIPS

Figure 3.18: Cargo ships lost

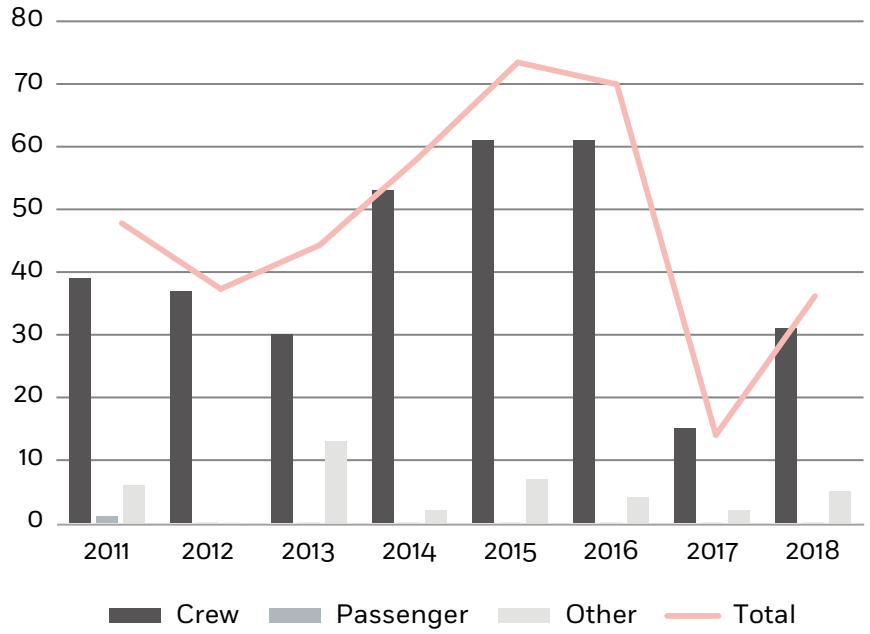



**Among cargo ships that were lost (37), 56.8% were general cargo, followed by containers and bulk carriers with 13.5% each.**

### 3.5.2 CONSEQUENCES TO PERSONS

#### 3.5.2.1 FATALITIES

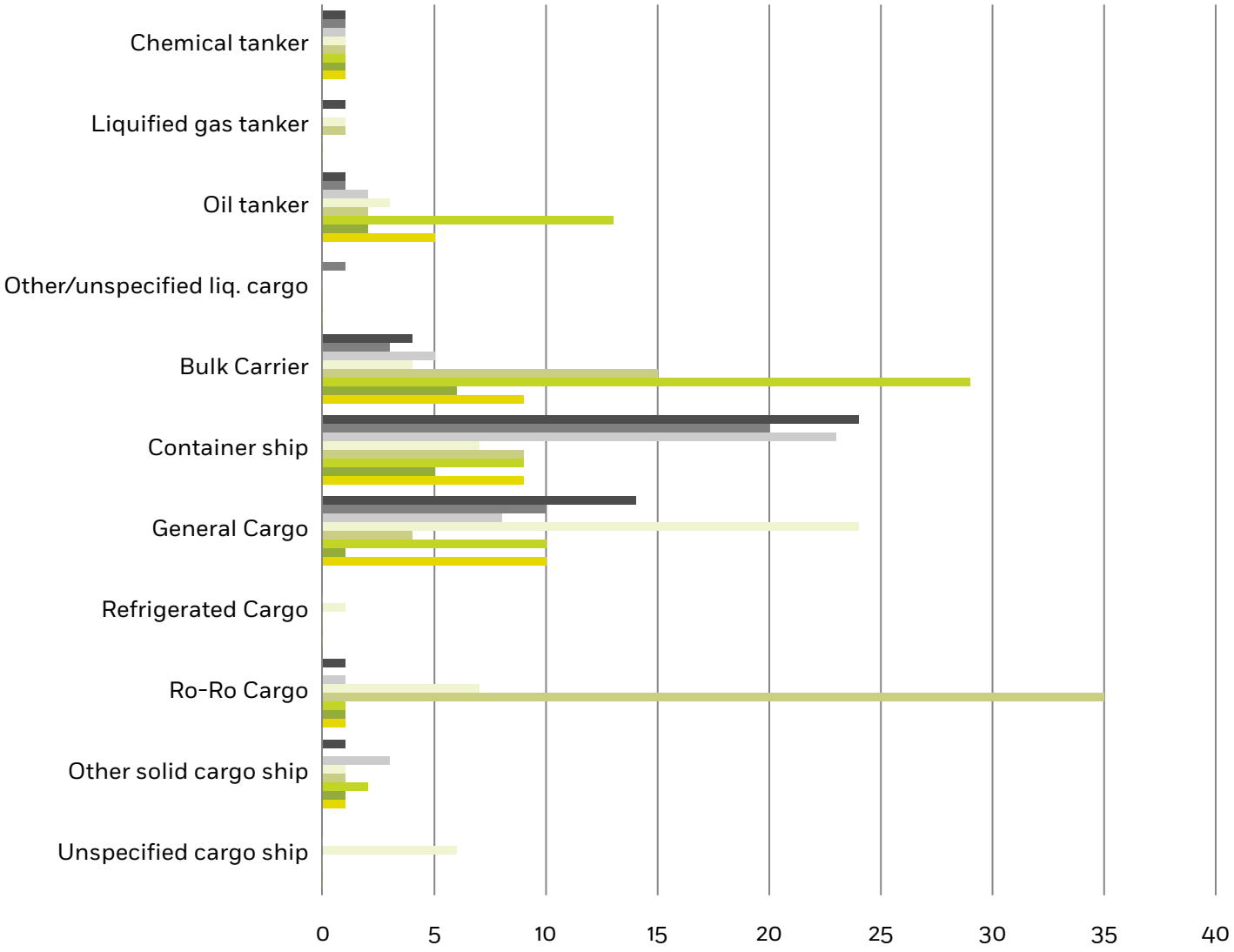
Figure 3.19: Number of fatalities




**In 2018, the number of fatalities on board cargo ships doubled when compared with 2017.**

**Fatalities of crew represented 89.1% of cases.**

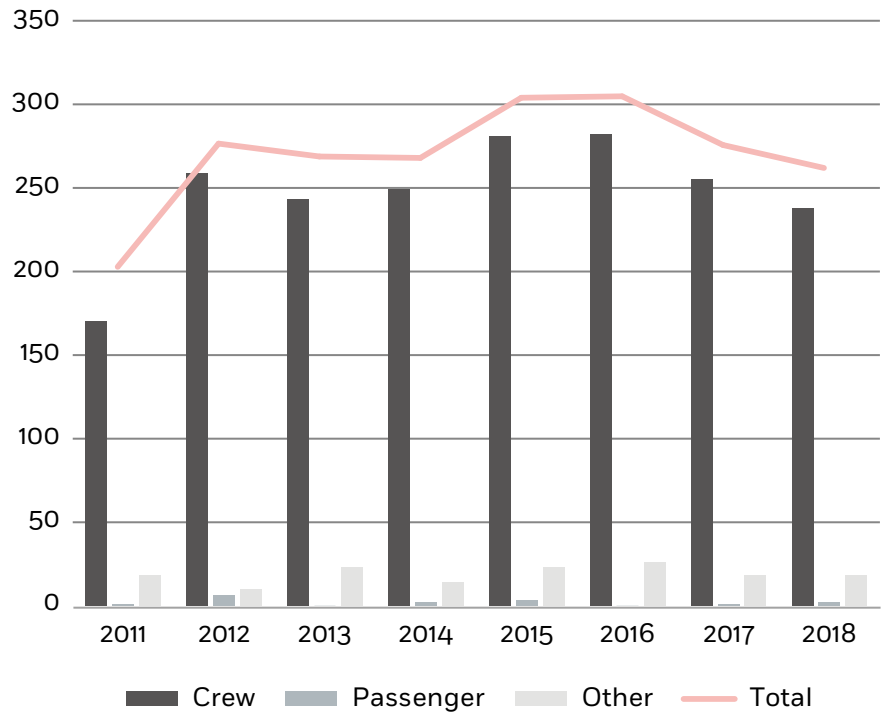
Figure 3.20: Distribution of fatalities per cargo ship type



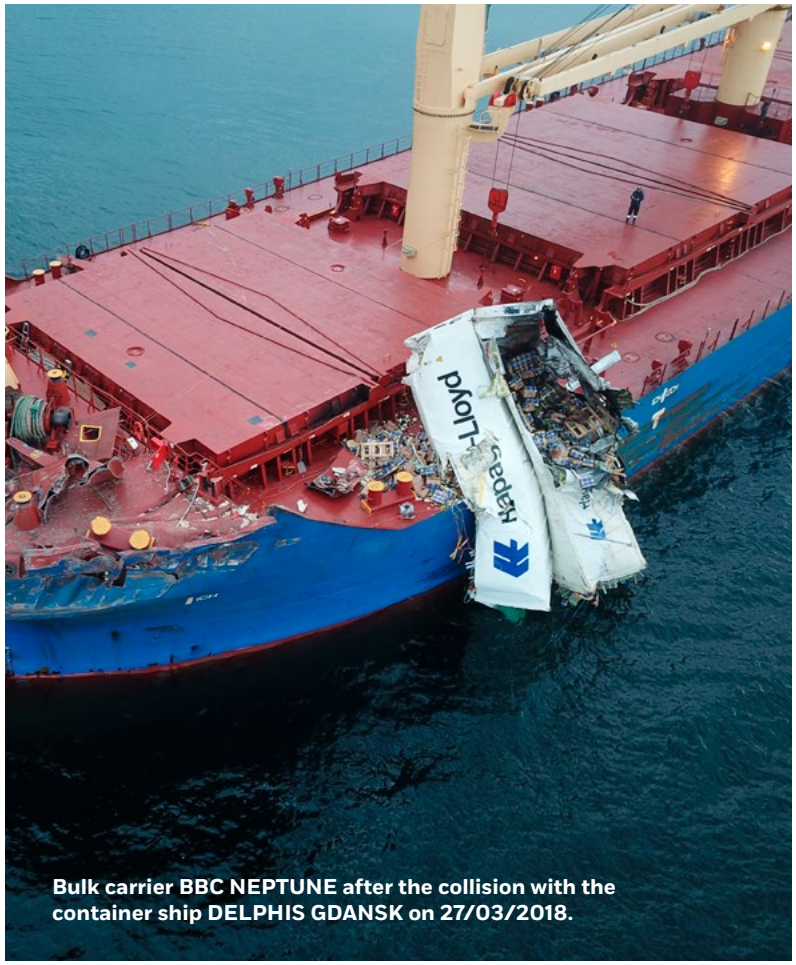

**A higher number of fatalities occurred on board of containers, general cargo and bulk carriers a total of 71.4% across the period. The number of fatalities was very high on board of ro-ro cargo ships in 2015, due to the sinking of El Faro on 02/10/2015 with 33 victims.**

### 3.5.2.2 INJURIES

**Figure 3.21: Number of injuries**

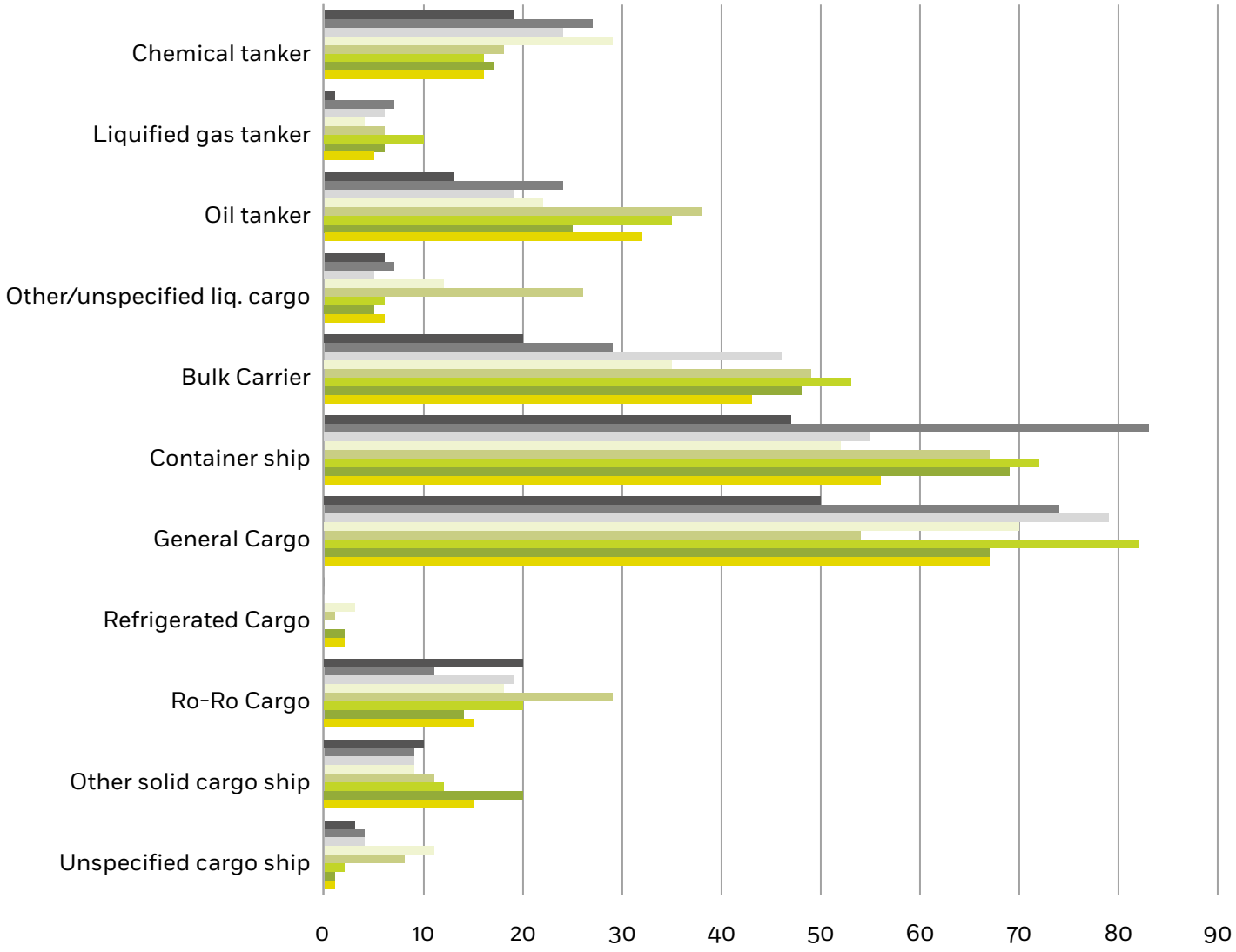



**The number of crew members injured decreased in the last 2 years. Due to the nature of the ship type, crew member is the category of person with more injuries (92.3%).**



**Bulk carrier BBC NEPTUNE after the collision with the container ship DELPHIS GDANSK on 27/03/2018.**

Figure 3.22: Distribution of injuries by cargo ship type




**While 25.4% of injuries happened on board general cargo ships, container ships also accounted for 23.4%.**

CHAPTER 4

# FISHING VESSELS


**Fishing vessel NORTHGUIDER ran aground while under power on 28/12/2018, all crew abandon vessel by helicopter due to the deterioration weather conditions.**

## KEY FIGURES 2018

| 567 | 30 | 11 | 208 | 12 | 584 |
|---|---|---|---|---|---|
| CASUALTIES & INCIDENTS | VERY SERIOUS CASUALTIES | FATALITIES | PERSONS INJURED | SHIPS LOST | SHIPS INVOLVED |

## 4.1 DETAILED DISTRIBUTION

**The Directive only applies to marine casualties and incidents involving fishing vessels with a length of more than 15 metres. Fishing vessels of less than 15 metres fall within the scope of the directive only when they are involved in an occurrence together with a ship which is covered by the Directive.**

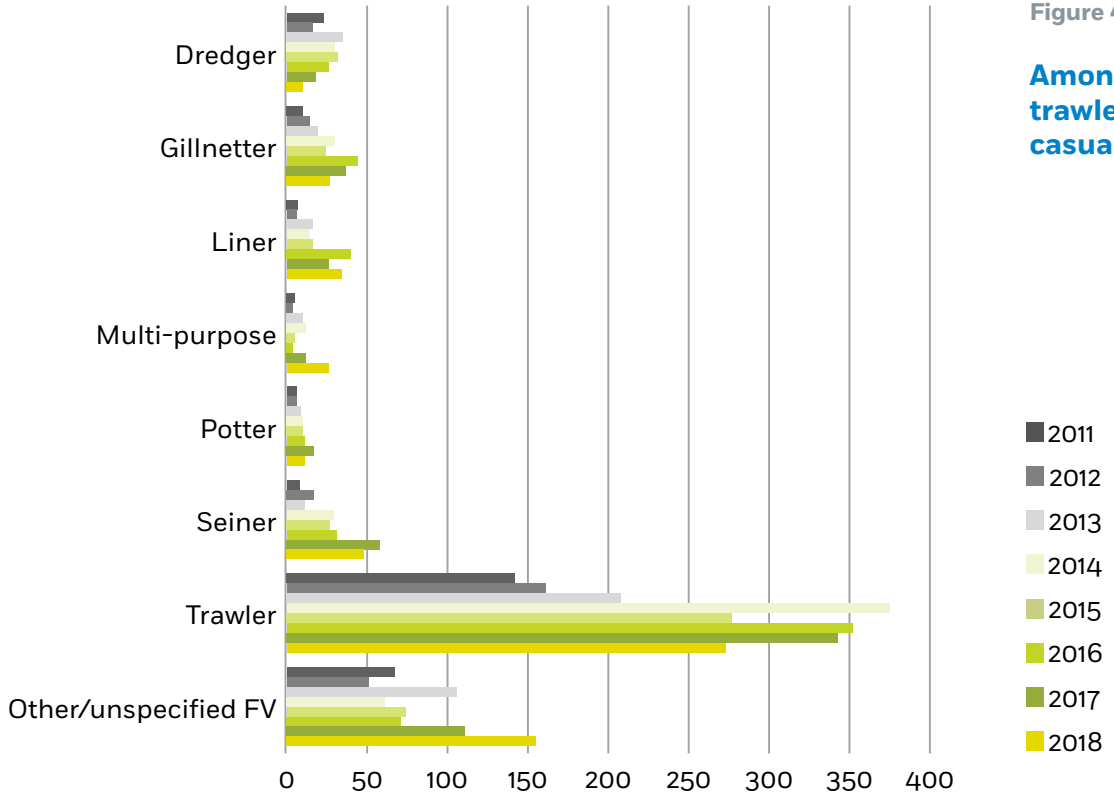
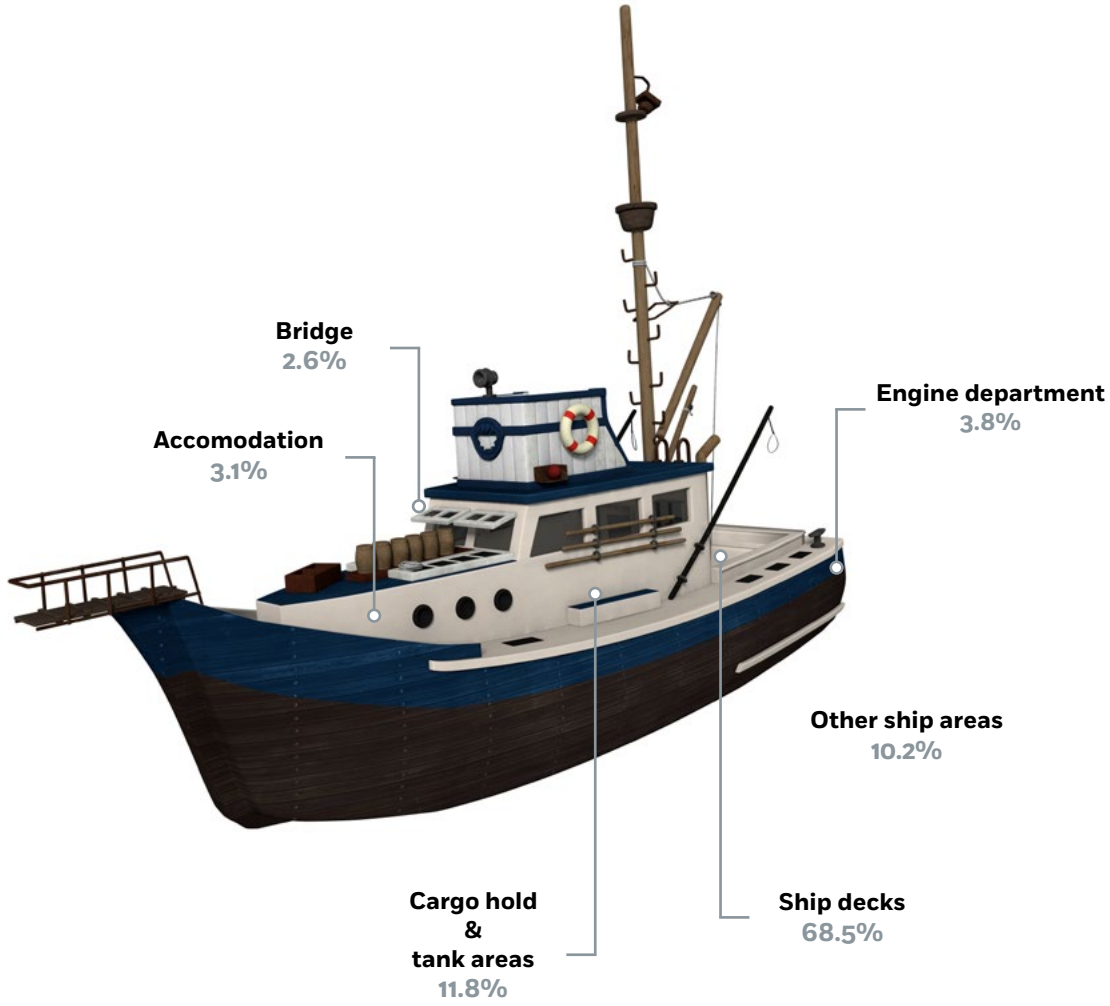



Figure 4.1: Distribution of fishing vessel types involved

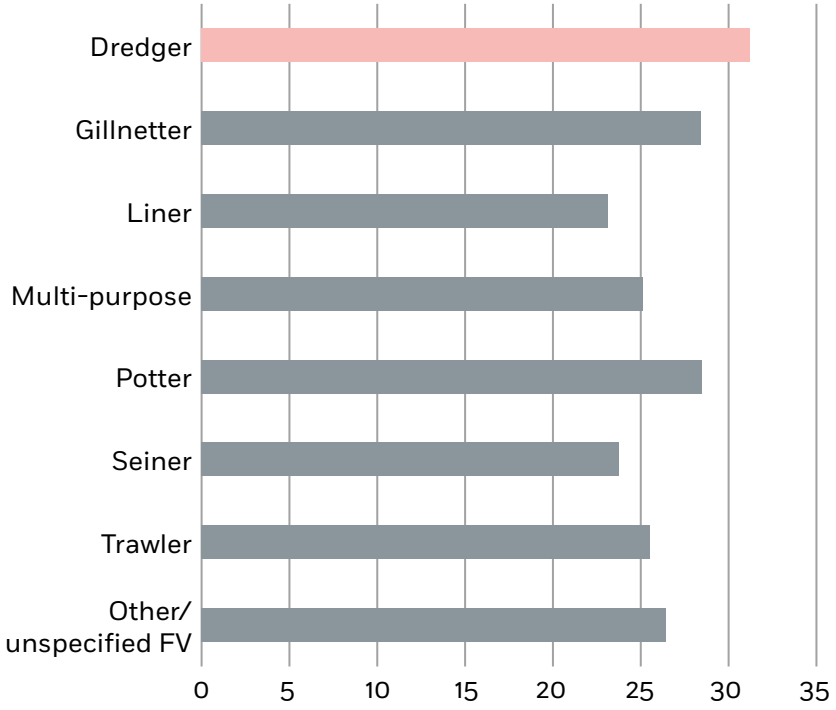
**Among fishing vessels involved, the subcategory trawlers represented 56.6% of the marine casualties and incidents.**

Figure 4.2: Main places of occurrence with person(s) on board fishing vessels 2011-2018



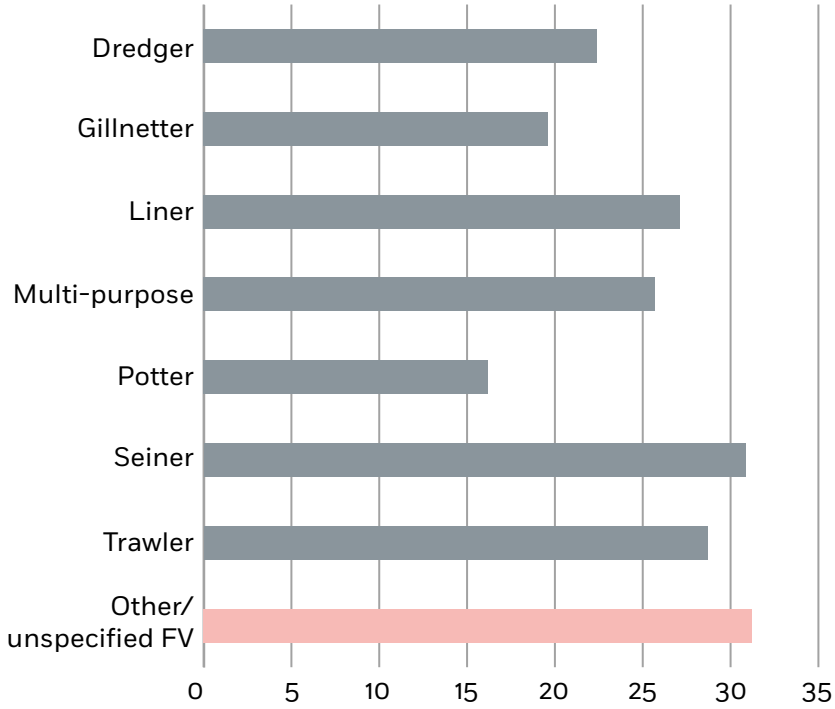

**The most quoted location of marine casualties and incidents was ship decks (68.5%) in line with the nature of the operations on board of fishing vessels.**

Figure 4.3: Average age by type of fishing vessels involved for 2011-2018



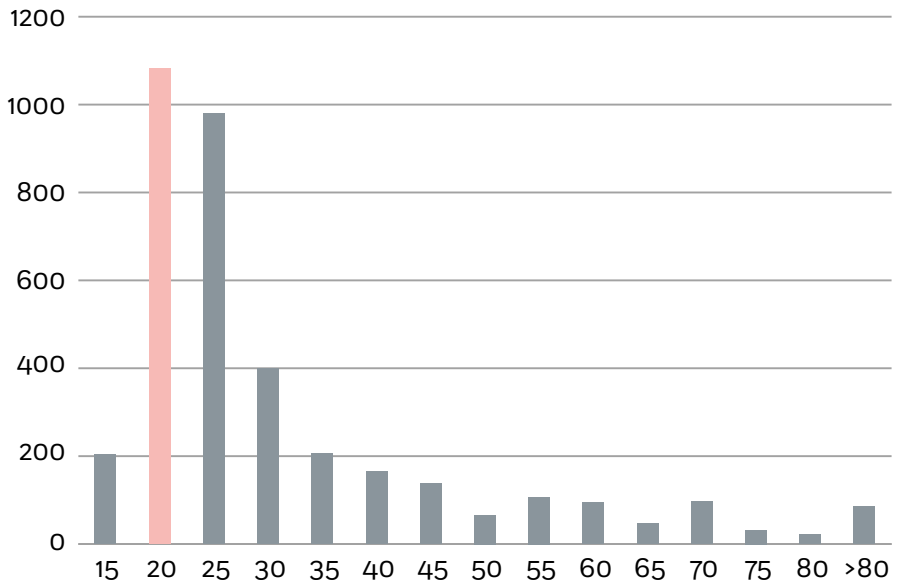

**The youngest ship category is liner (23.1y) while the oldest is dredgers (31.2y).**

Figure 4.4: Average length of fishing vessels involved by main category for 2011-2018




**All types of fishing vessels had an average length overall between 16.2m and 31.2m.**

Figure 4.5: Length distribution of fishing vessels involved for 2011-2018



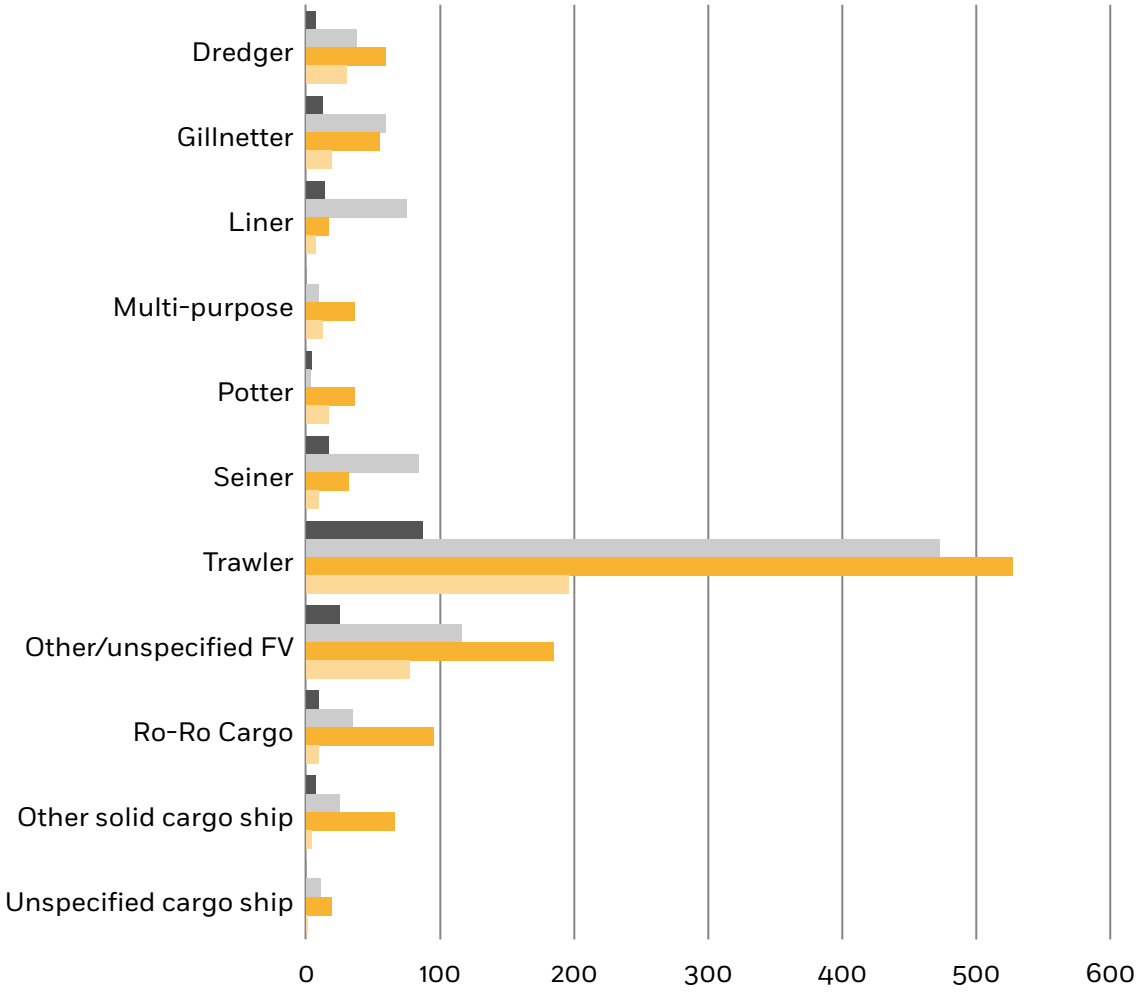

**The average length overall of fishing vessels involved in a marine casualty or incident was 29.5m. Most fishing vessels fell within 15 -25m segment corresponding to 55.4% of the total.**

Note: e.g. value shown under 20m (1083) means that the number of ships with the length overall from >15m to 20m.

## 4.2 NATURE OF MARINE CASUALTIES AND INCIDENTS

### 4.2.1 OCCURRENCE WITH SHIP(S)

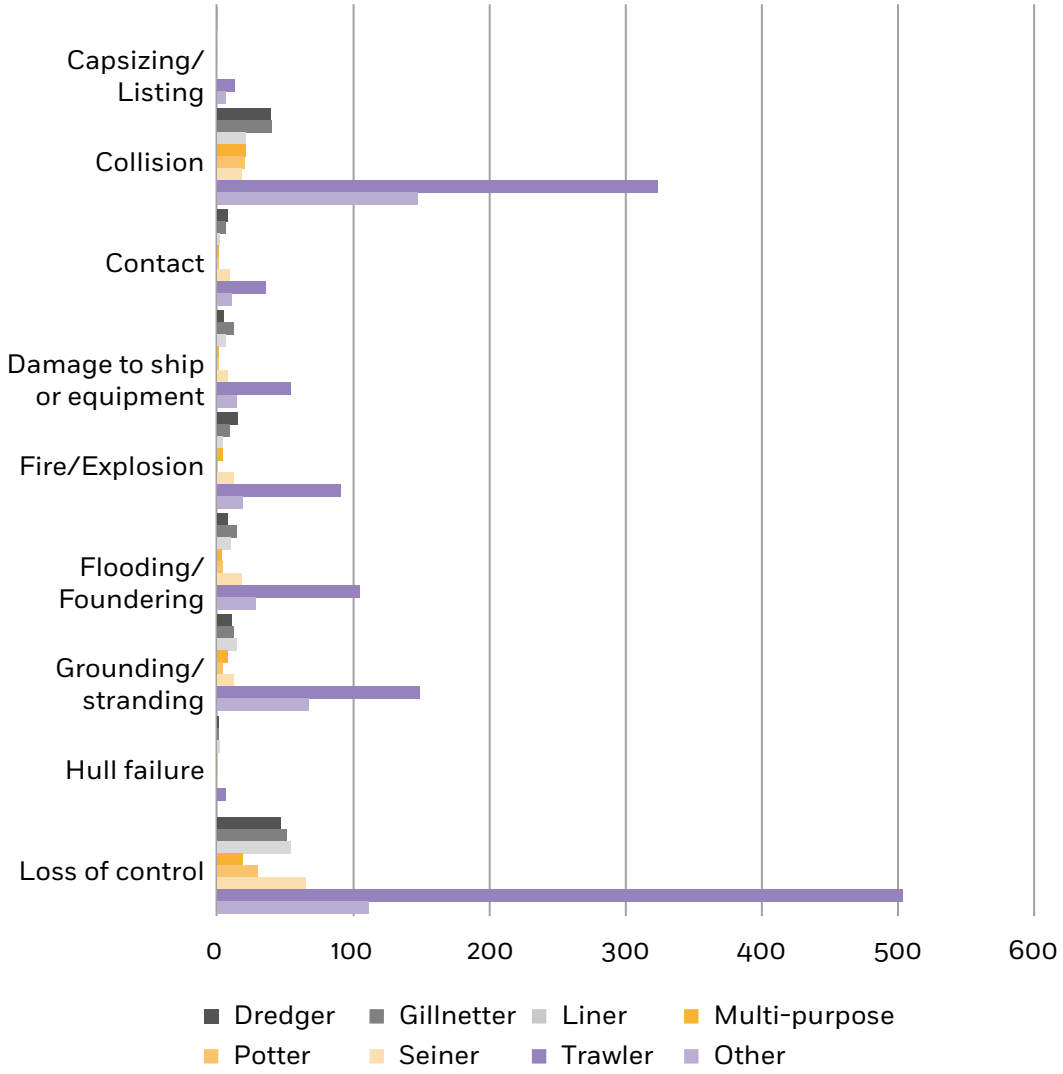
Figure 4.6: Distribution of severities per fishing vessel type for 2011-2018




**Among all fishing vessels, 54.9% of the casualties with a ship involved a trawler.**

**Among all fishing vessels, 52.4% of the very serious casualties involved trawlers. Within trawlers category, the sub-category trawler stern contributes with 69%.**

Figure 4.7: Distribution of casualty events per fishing vessel type for 2011-2018

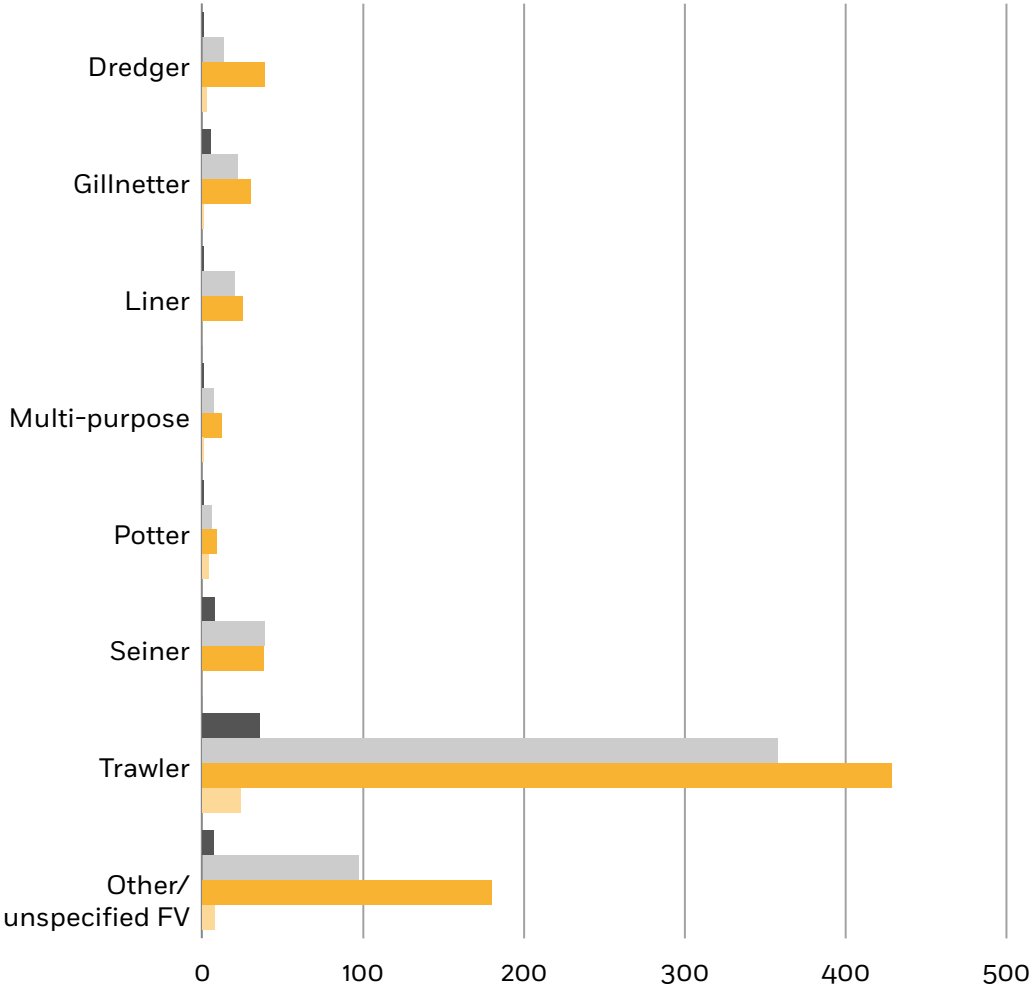



**Loss of control (37.7%) was the most quoted category, in particular the sub-category loss of propulsion power with (29.7%). Collision also had a significant value (27.0%).**


Engine room fire on board of seiner fishing vessel while on passage on 05/09/2018

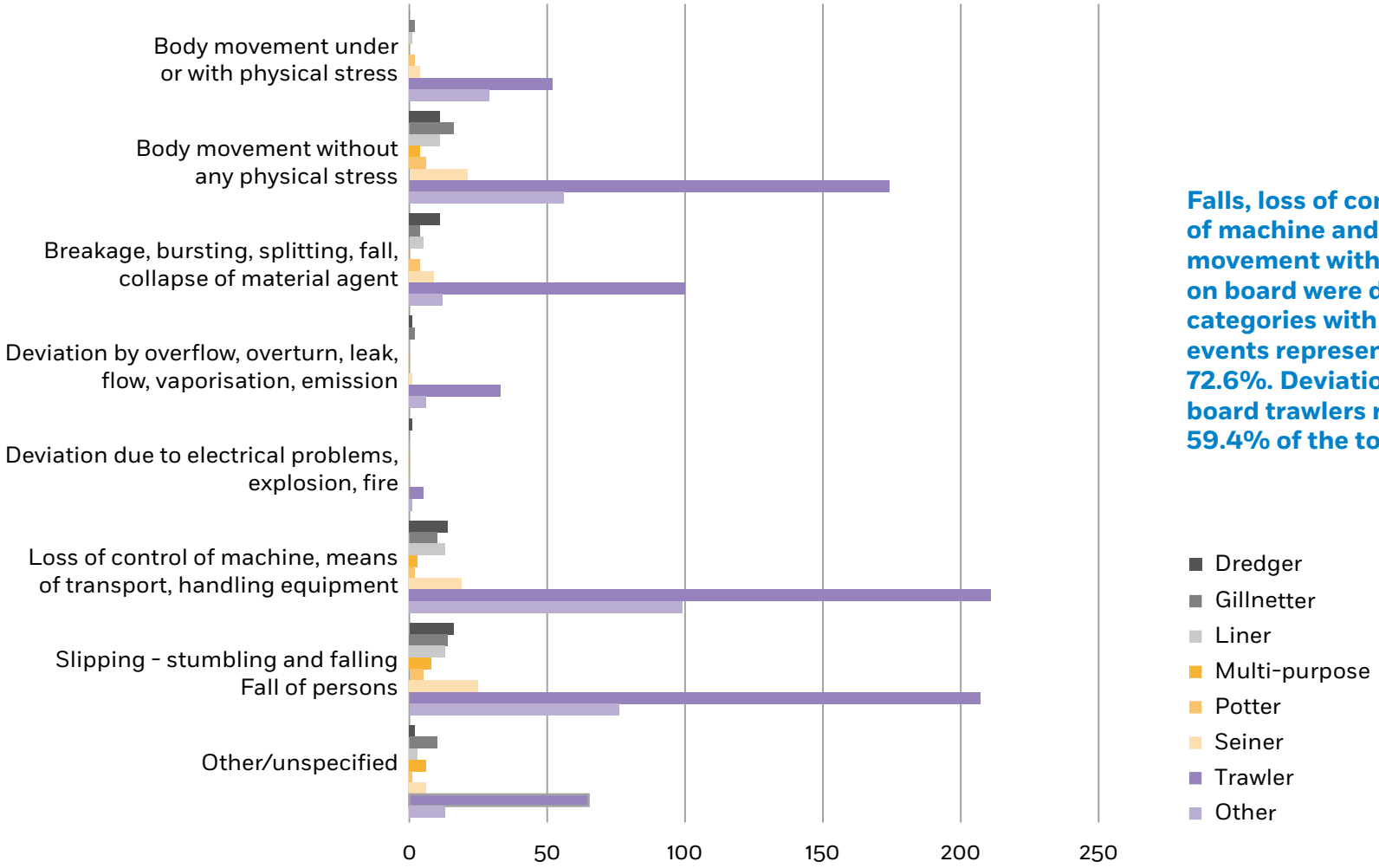
## 4.2.2 OCCURRENCE WITH PERSON(S)

**Figure 4.8: Severity of occurrence with person(s) per fishing vessel type for 2011-2018**




**60% of the very serious occurrences with person(s) (36) took place on board trawlers. The sub-category stern trawler is responsible for 21 (58.3%) very serious accidents.**

Figure 4.9: Distribution of deviations per fishing vessel type for 2011-2018



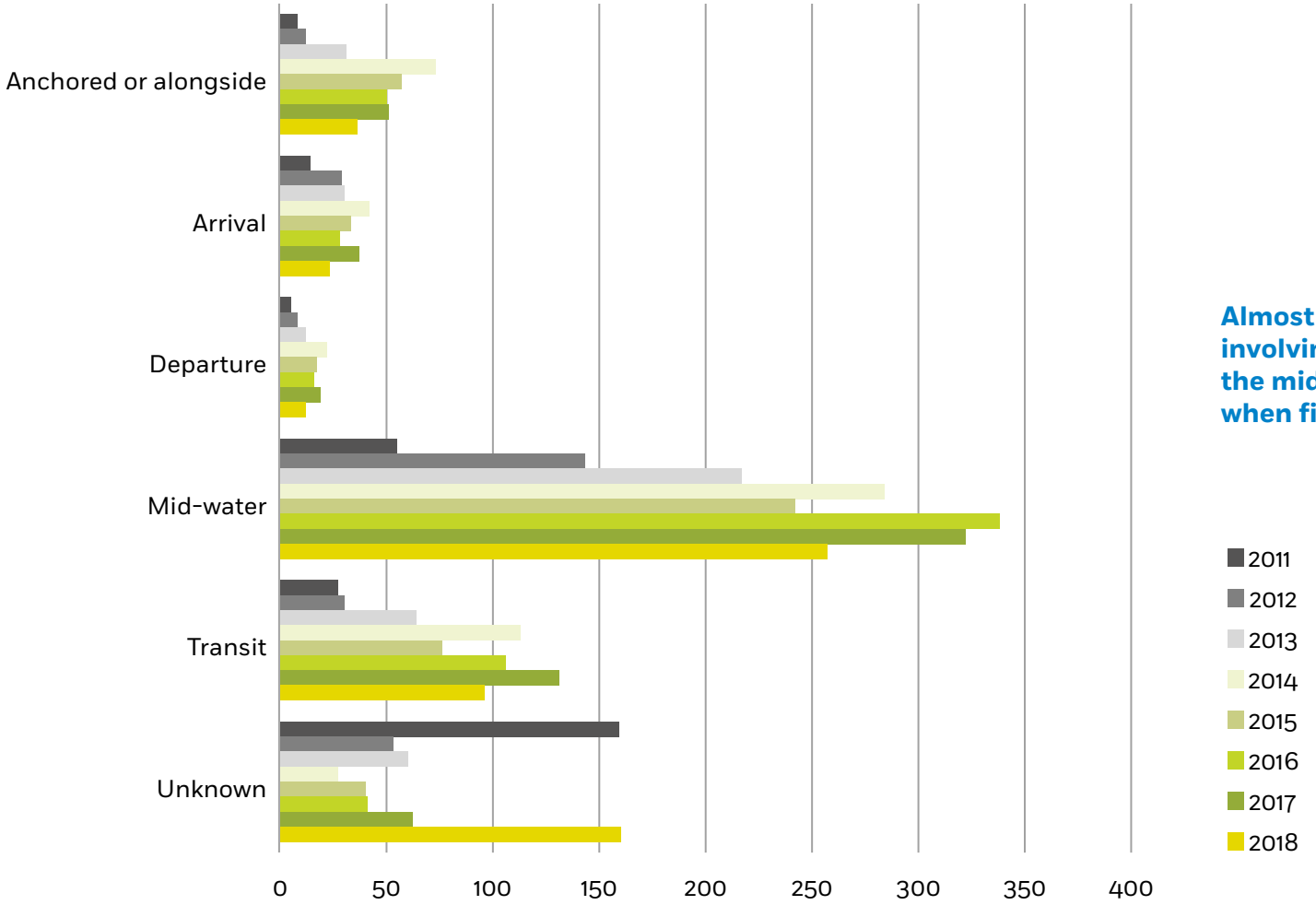

**Falls, loss of control of machine and body movement without stress on board were deviation categories with more events representing 72.6%. Deviations on board trawlers represents 59.4% of the total.**

## 4.3 LOCATION OF MARINE CASUALTIES AND INCIDENTS

**This section provides information about the location of the fishing vessels when marine casualties or incidents occurred.**

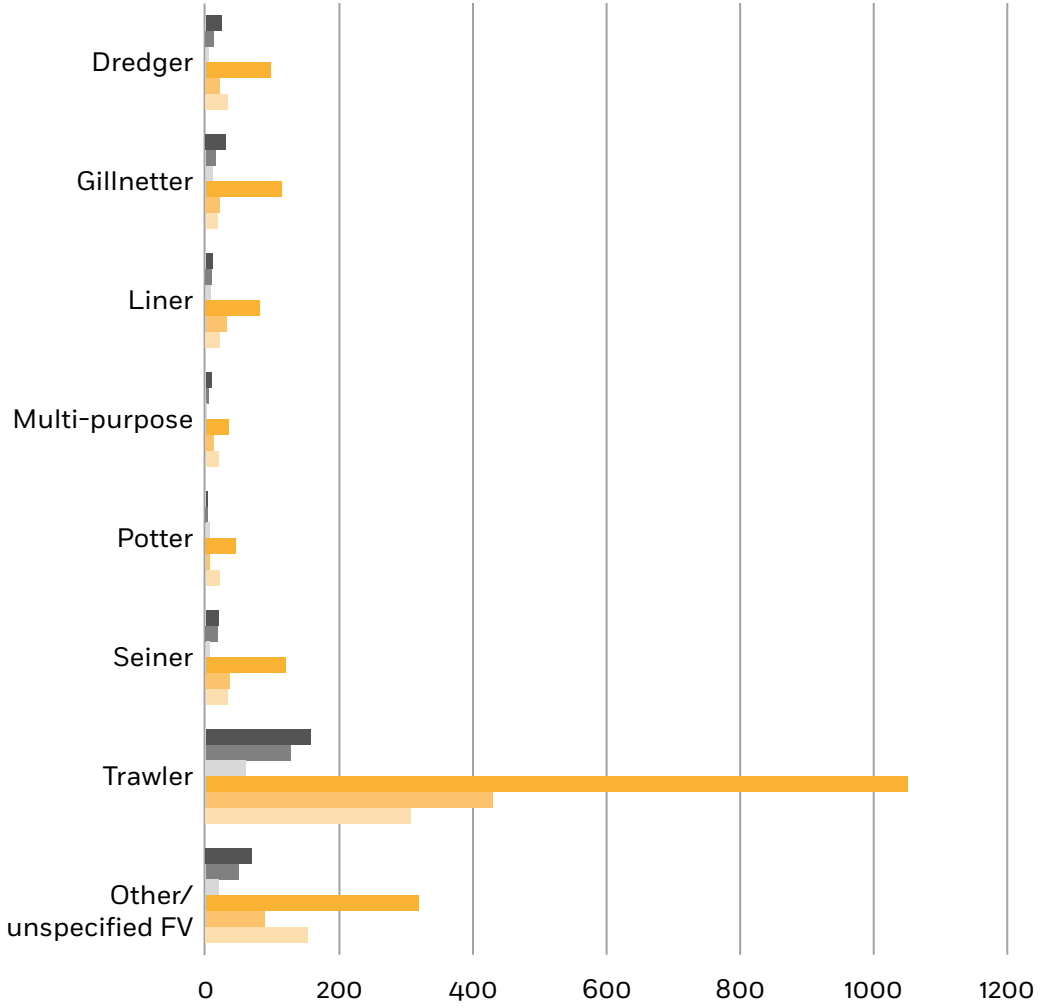
### 4.3.1 VOYAGE SEGMENTS

Figure 4.10: Distribution by voyage segment




**Almost 50% of casualties or incidents involving fishing vessels occurred during the mid-water phase of the voyage, when fishing operations take place.**

Figure 4.11: Distribution by voyage segment per fishing vessel type for 2011-2018

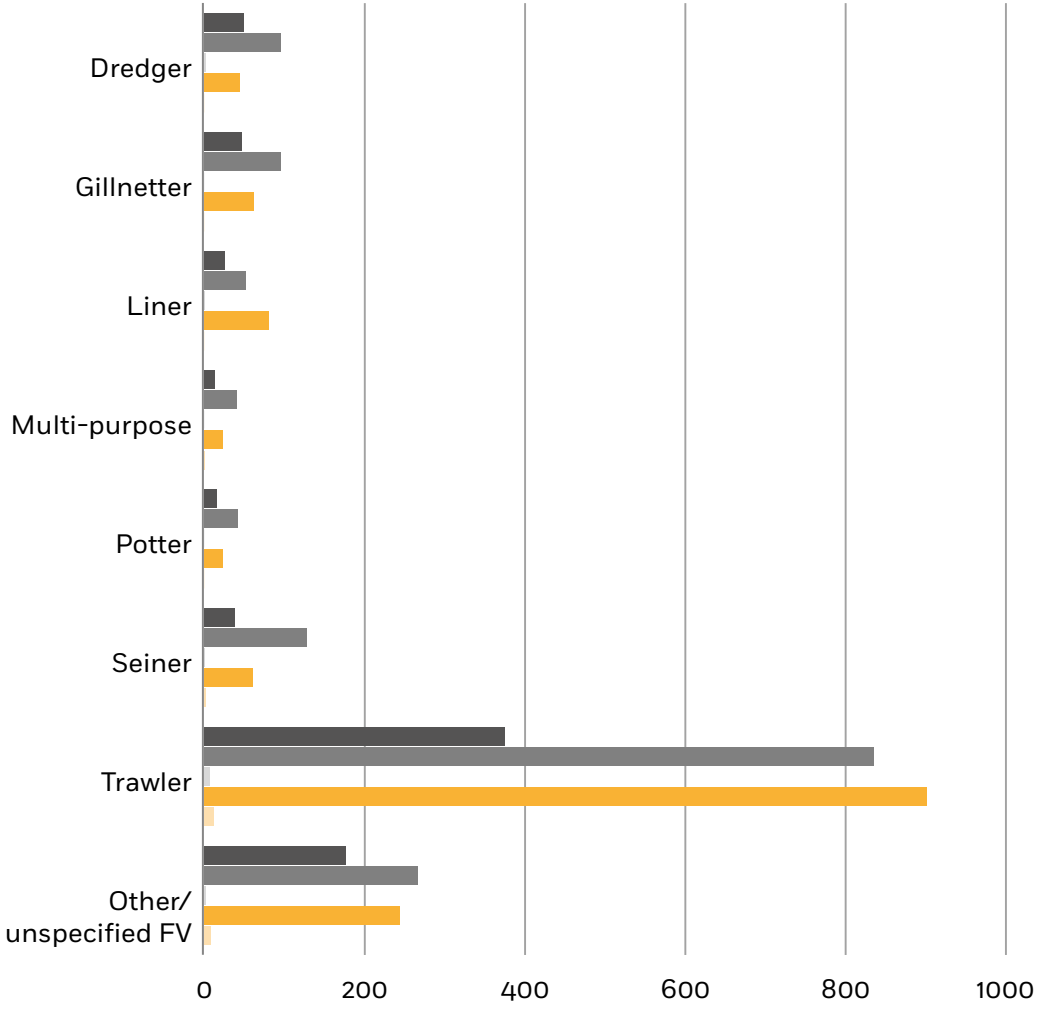



**A predominance of accidents for all types of fishing vessels is in the mid-water part of the voyage.**

- Anchored or alongside
- Arrival
- Departure
- Mid-water
- Transit
- Unknown

## 4.3.2 LOCATION

**Figure 4.12: Distribution by location of the marine casualties and incidents per fishing vessel type for 2011-2018**




**For trawlers and liners, accidents mostly took place in open sea. For other fishing vessels the most frequent was territorial sea .**

## 4.3.3 REGIONAL DISTRIBUTION

**Figure 4.13: Global ocean and sea distribution for of marine casualties and incidents 2011-2018**

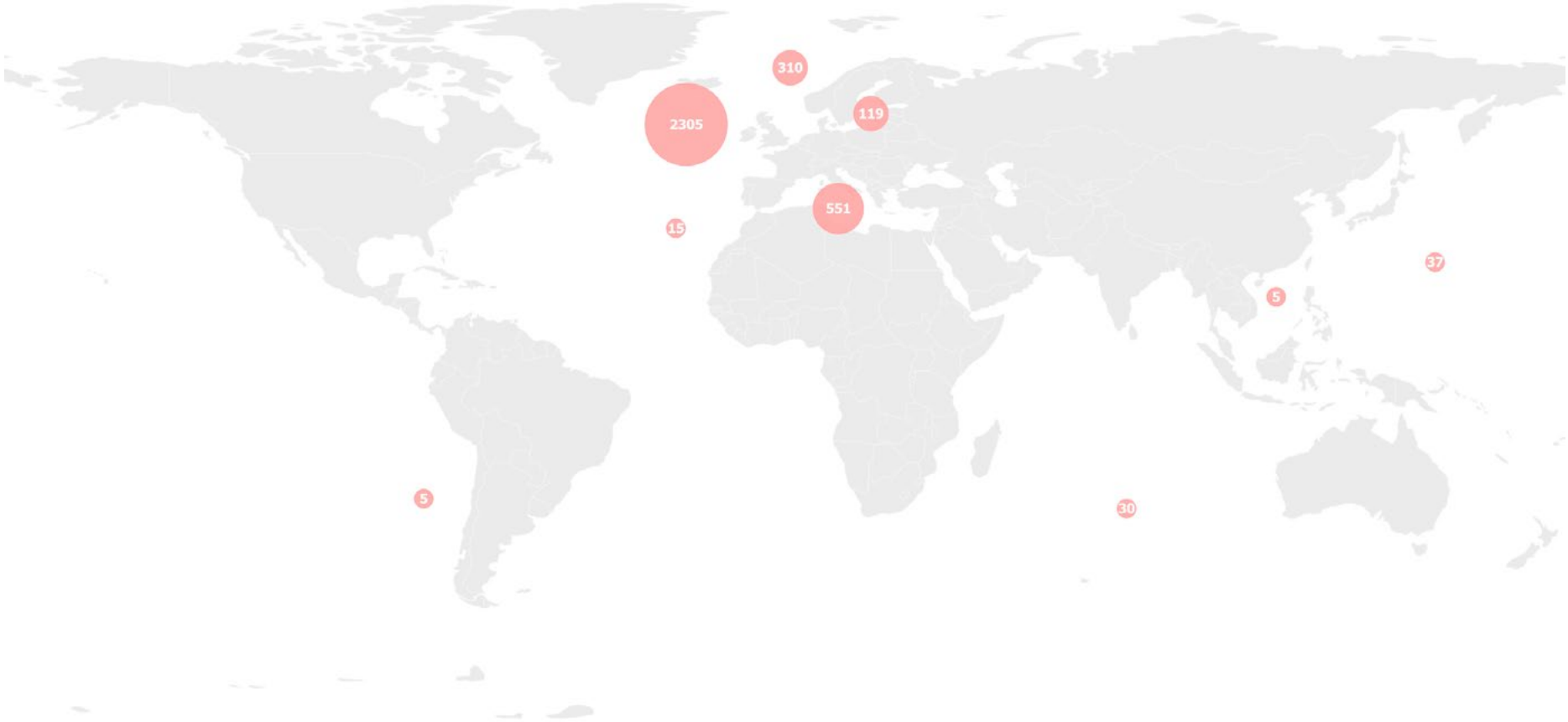
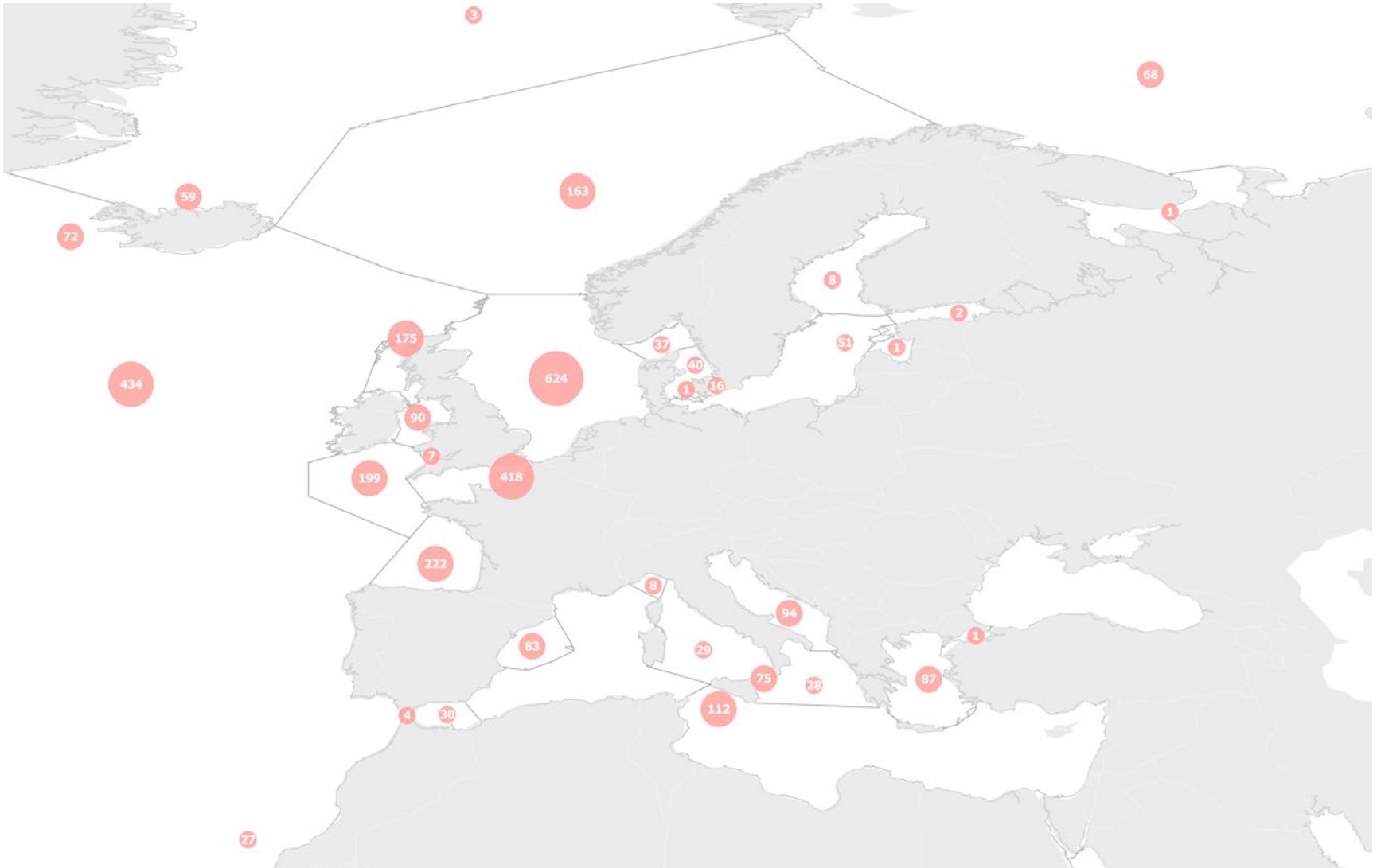
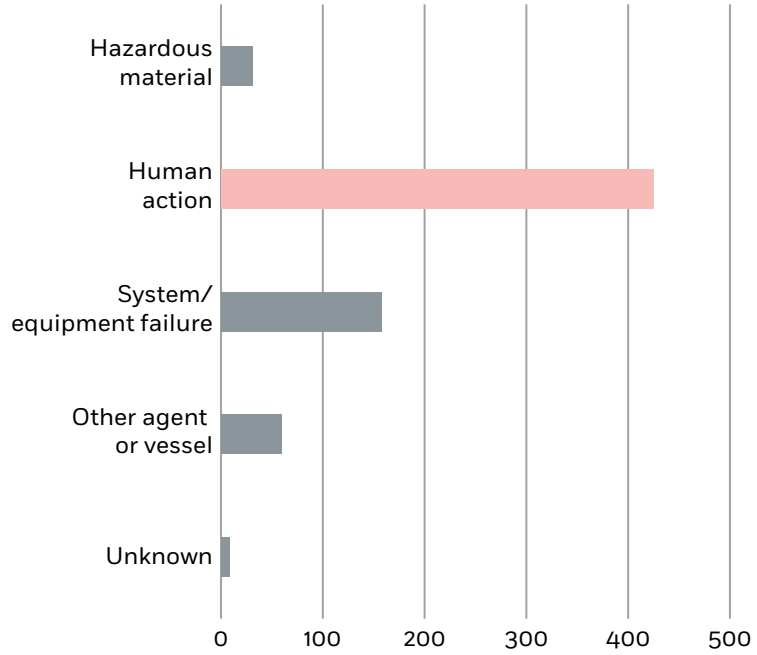


Figure 4.14: Distribution of marine casualties and incidents within sub-sea areas around EU waters for 2011-2018



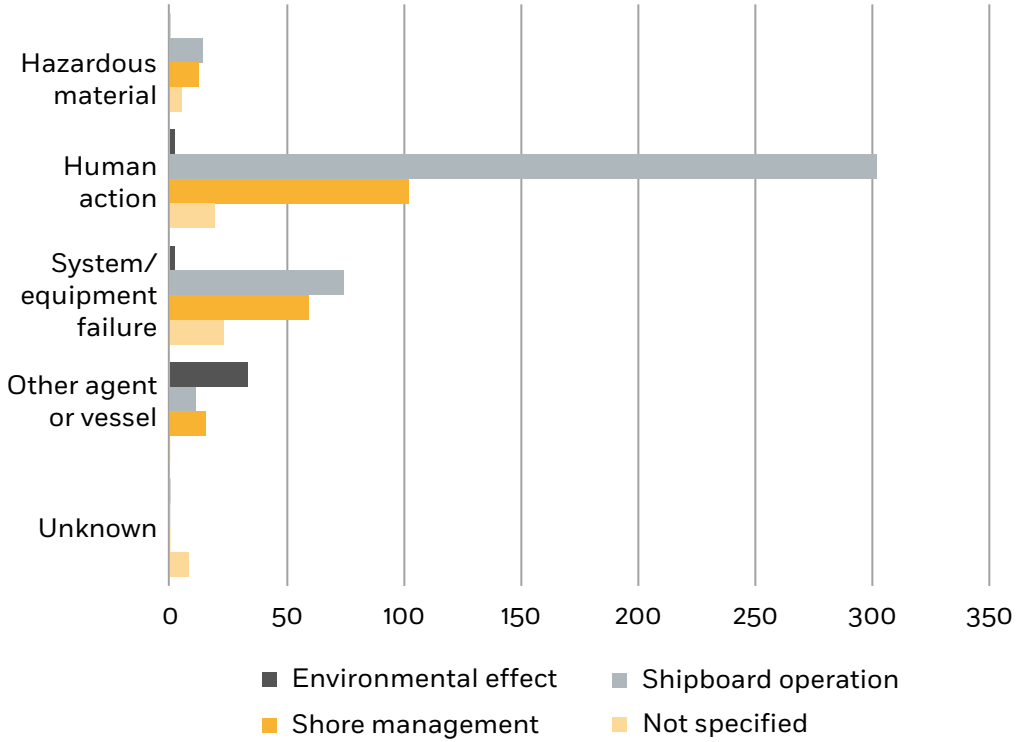
## 4.4 ACCIDENT EVENTS AND CONTRIBUTING FACTORS

Figure 4.15: Accident events for 2011-2018




**From a total of 681 accident events analysed during the investigations, 62.4% were attributed to a Human Action and 23.2% to System/equipment failure.**

Figure 4.16: Relationship between Accident Events and the main Contributing Factors for 2011-2018




**Shipboard operation category was the most quoted contributing factor with 58.9% of the total. Within the accident event "Human action", Shore operation is 3 times higher than Shore management.**

Figure 4.17 Contributing Factors related to 'Human action' for 2011-2018


**This figure shows the 7 most reported contributing factors related to 'Human action'. Social environment - Safety awareness (30), Personnel and manning - Inadequate work methods (25), Personnel and manning - Lack of knowledge (24) represent the highest figures, all under the main group ship board operations.**

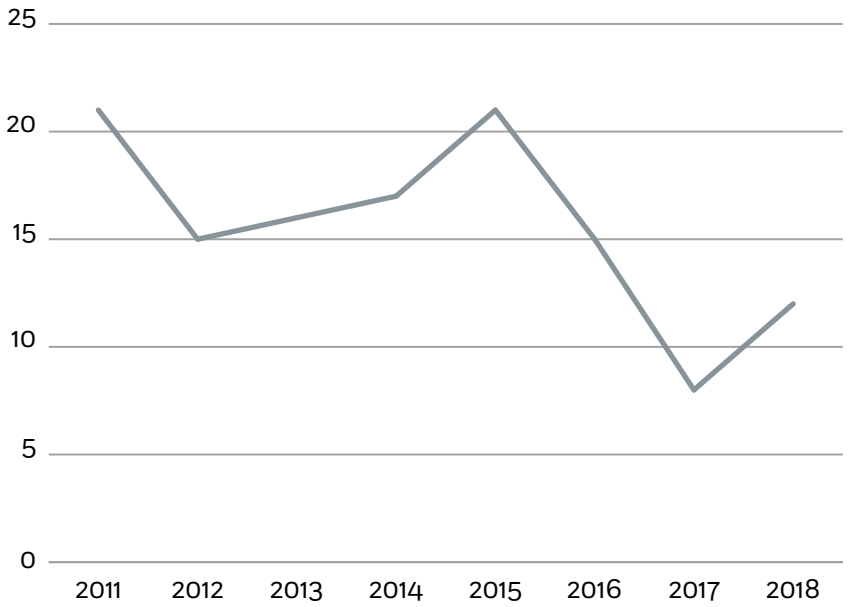
The main groups of safety recommendations are classified under: SO – Ship board operations; SM – Shore management; EE – Environmental effect.

**LTA – Less than adequate.**

## 4.5 CONSEQUENCES

### 4.5.1 CONSEQUENCES TO SHIPS

Figure 4.18: Fishing vessels lost



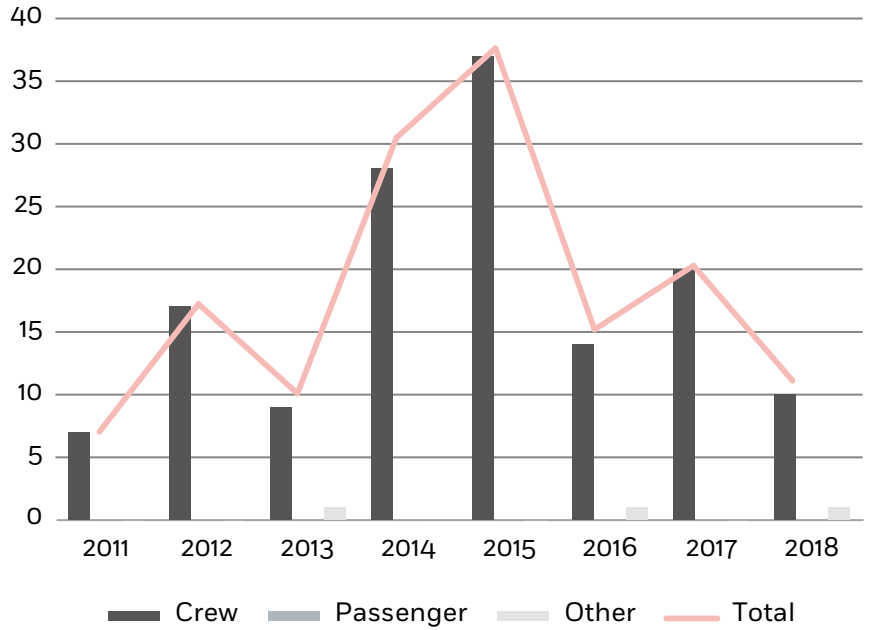

**In 2018 there was an uptick in comparison with 2017, however overall the trend indicates a decrease tendency.**

**56% of the fishing vessels lost are trawlers in particular stern trawlers.**

### 4.5.2 CONSEQUENCES TO PERSONS

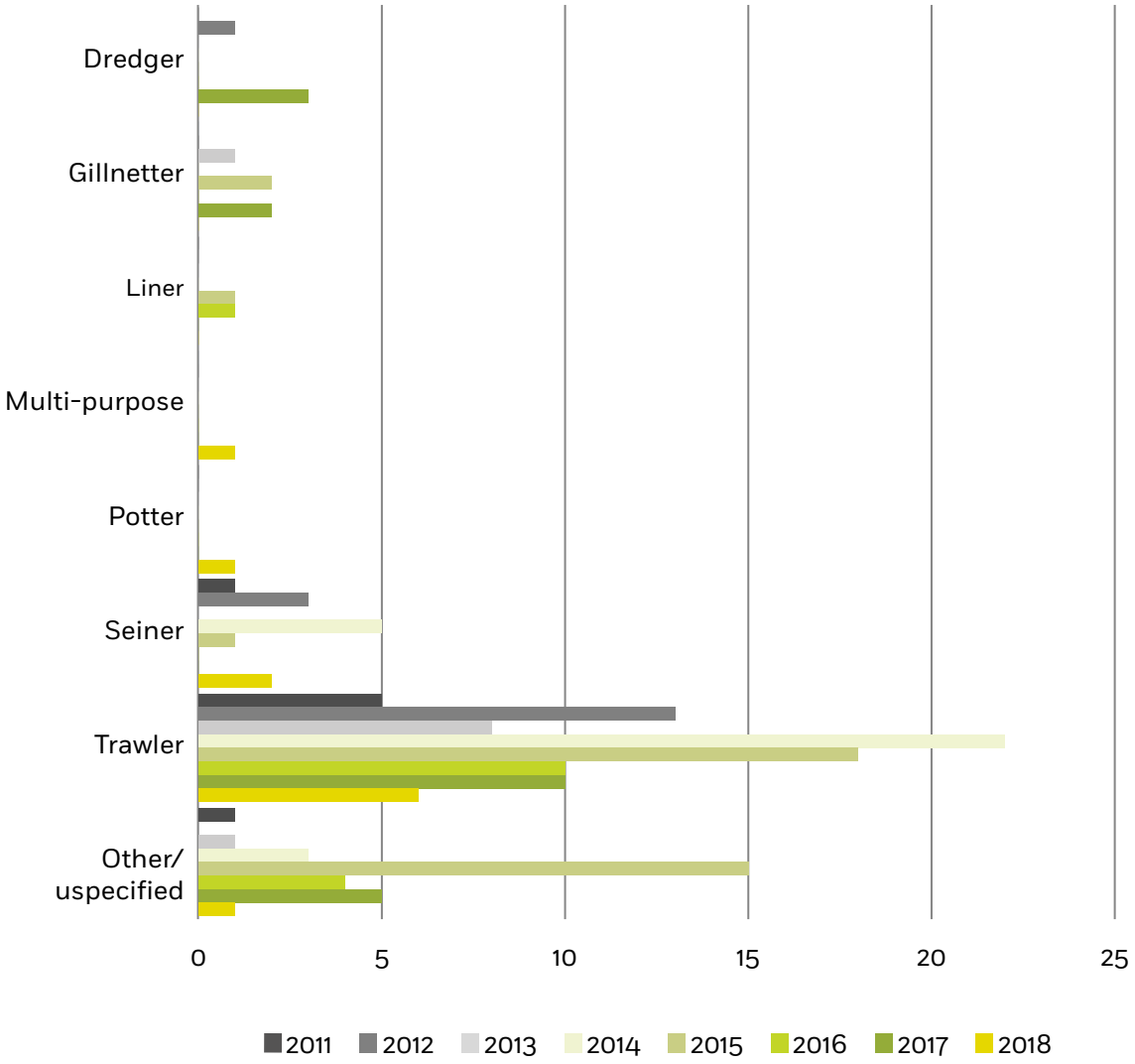
### 4 5.2.1 FATALITIES

Figure 4.19: Number of fatalities




**In 2018 the number of fatalities on board fishing vessels decreased when comparing with 2017. Since 2015 the number of fatalities has a descending trend.**

Figure 4.20: Distribution of fatalities by fishing vessel type




**63.4.% of the fatalities occurred on board trawlers where stern trawlers correspond to 50% of the total in this subcategory.**

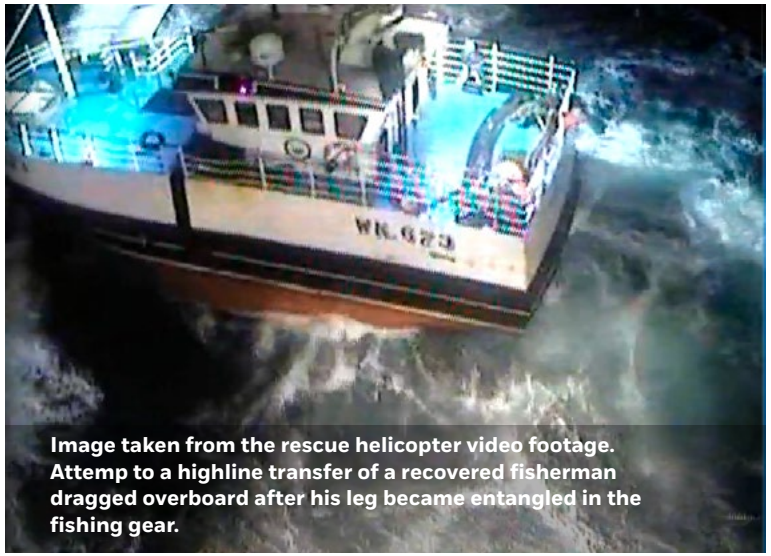
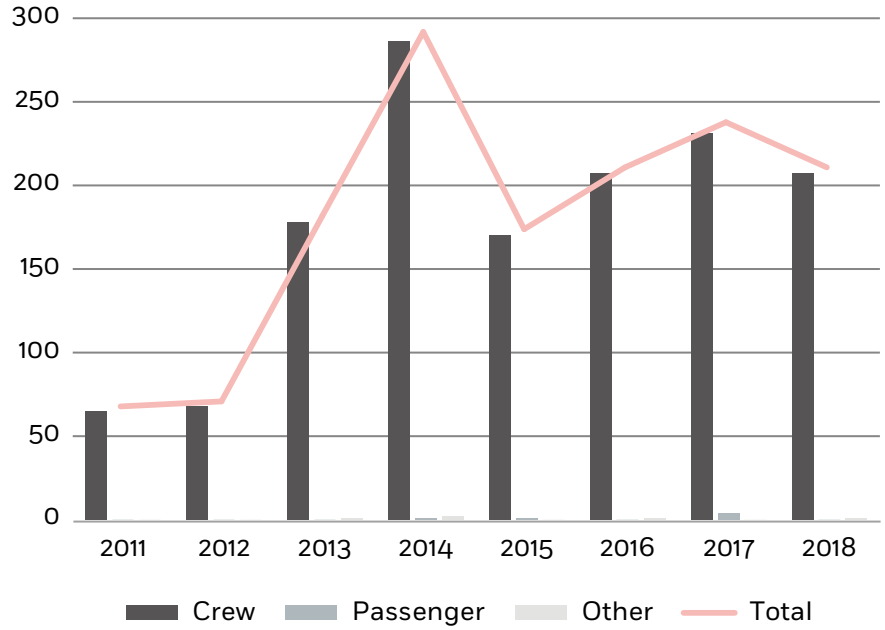


Image taken from the rescue helicopter video footage. Attemp to a highline transfer of a recovered fisherman dragged overboard after his leg became entangled in the fishing gear.

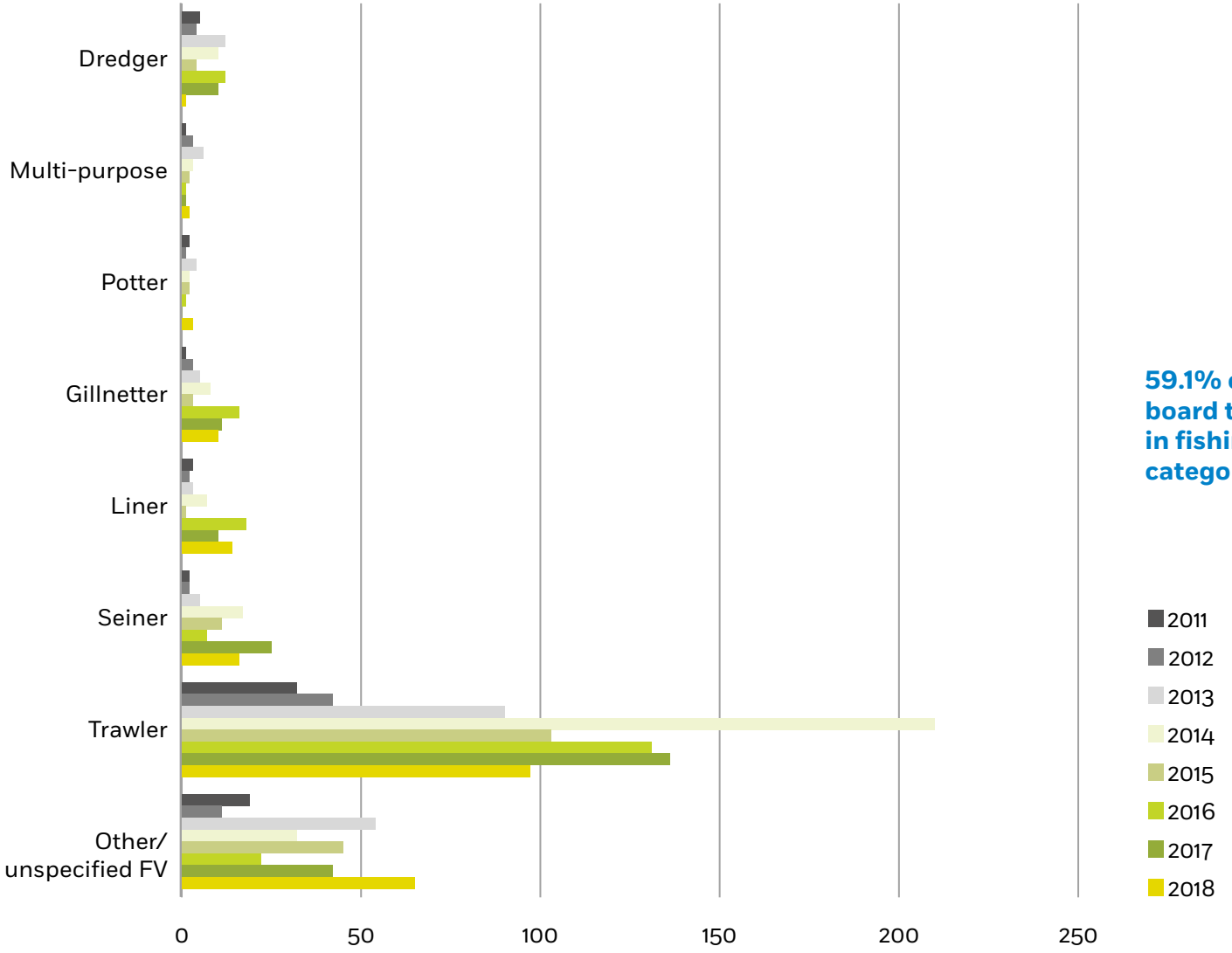
### 4.5.2.2 INJURIES

**Figure 4.21: Number of injuries**




**The average of injured fishermen over the last 5 years is around 220. In 2018, injuries decreased slightly as compared with 2017.**

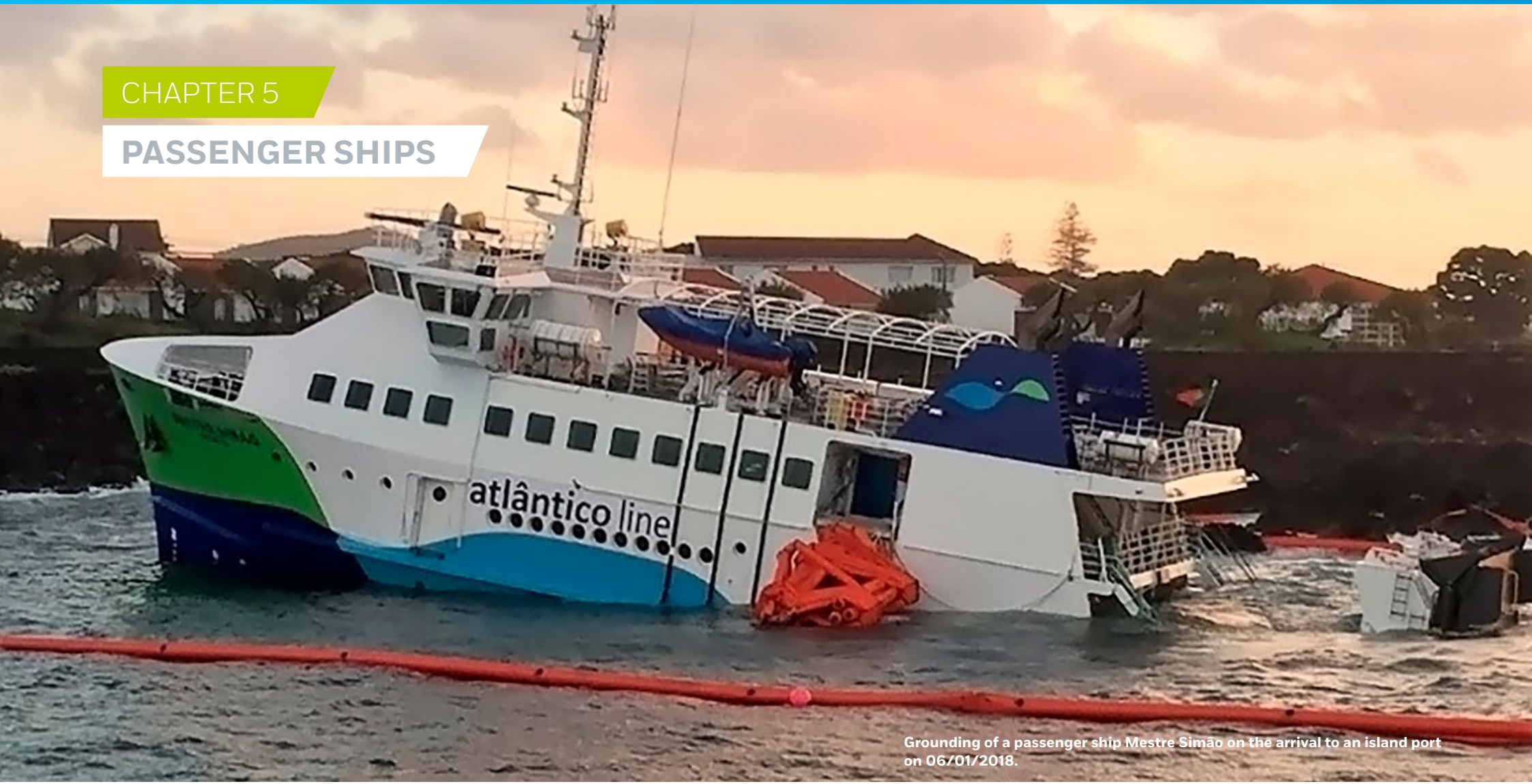
Figure 4.22: Distribution of injuries by fishing vessel type




**59.1% of the injuries took place on-board trawlers followed by 20.4% in fishing vessels where the sub-category was not specified.**

CHAPTER 5

# PASSENGER SHIPS




Grounding of a passenger ship Mestre Simão on the arrival to an island port on 06/01/2018.

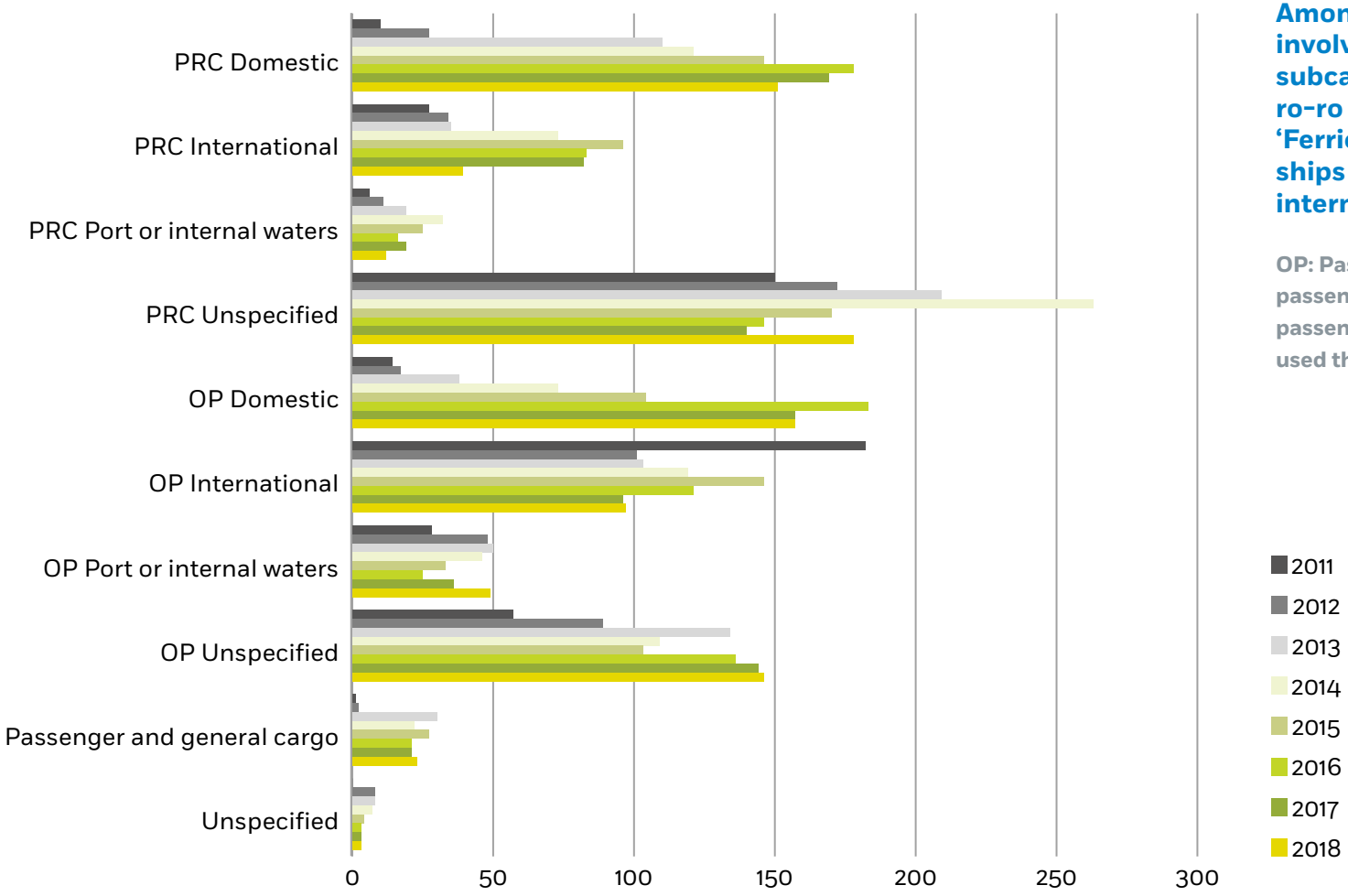
## KEY FIGURES 2018

| 832 | 13 | 4 | 331 | 3 | 856 |
|---|---|---|---|---|---|
| CASUALTIES & INCIDENTS | VERY SERIOUS CASUALTIES | FATALITIES | PERSONS INJURED | SHIPS LOST | SHIPS INVOLVED |

## 5.1 DETAILED DISTRIBUTION

**The directive does not apply to marine casualties and incidents involving only inland waterway passenger vessels operating in inland waterways. Such ships are considered within the scope of the directive when they are involved in an occurrence together with a ship which is covered by the directive.**

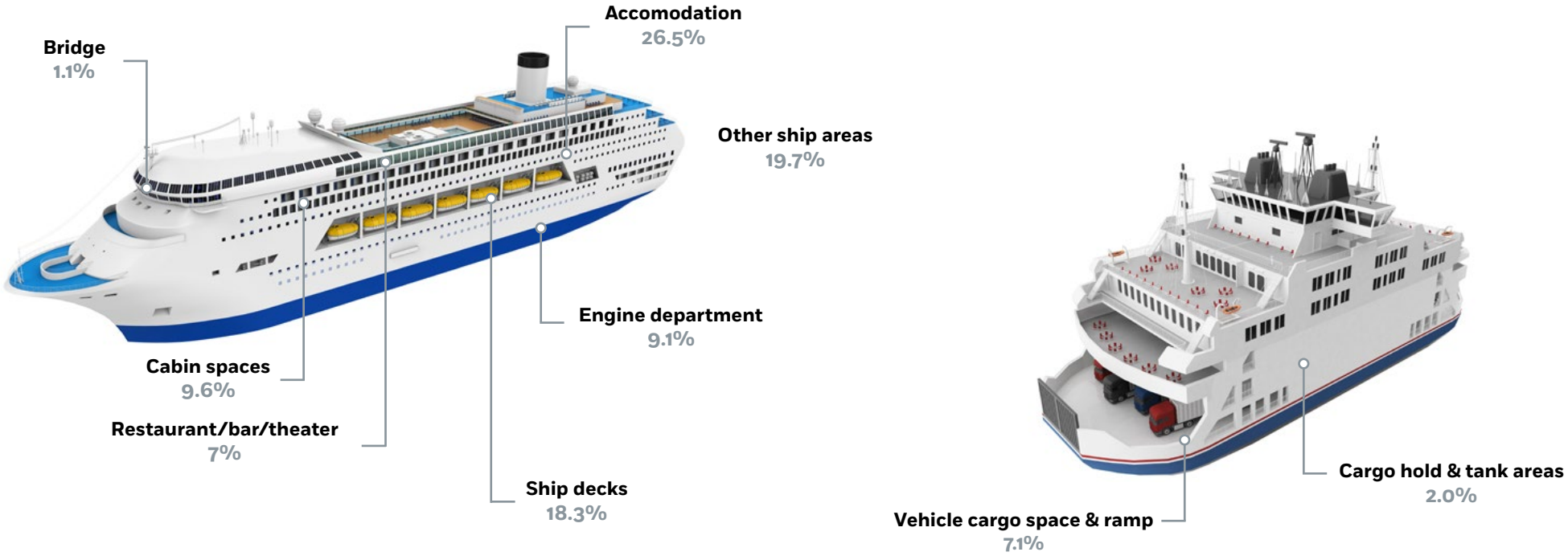
Figure 5.1: Distribution of passenger ship types involved




**Among the passenger ships involved, the most quoted subcategory was 'passenger and ro-ro cargo' ships (also known as 'Ferries') with 48.6% followed by ships carrying only passengers on international voyage (15.9%).**

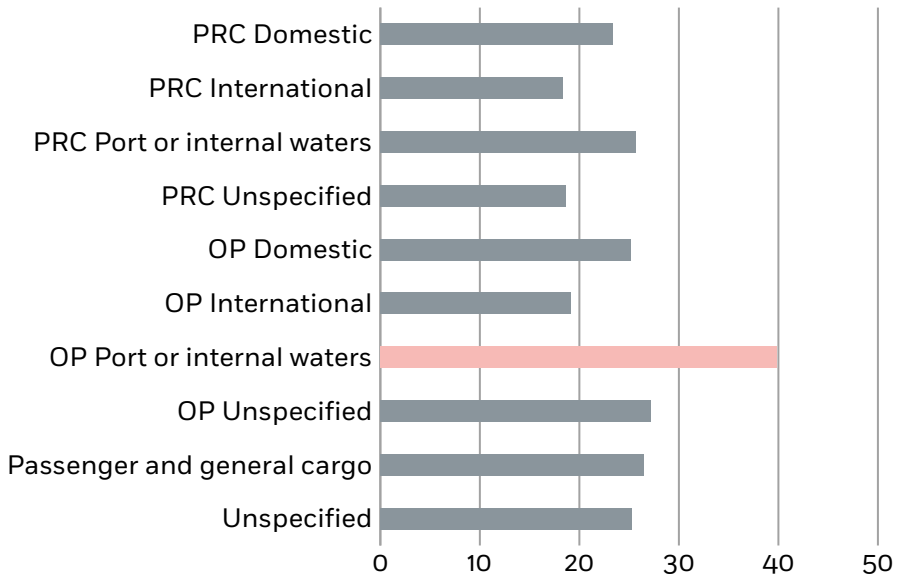
OP: Passenger ship carrying only passengers PRC: Passenger ship carrying passengers and ro-ro cargo (acronyms used throughout chapter).

Figure 5.2: Main places of occurrence with person(s) on board passenger ships for 2011-2018



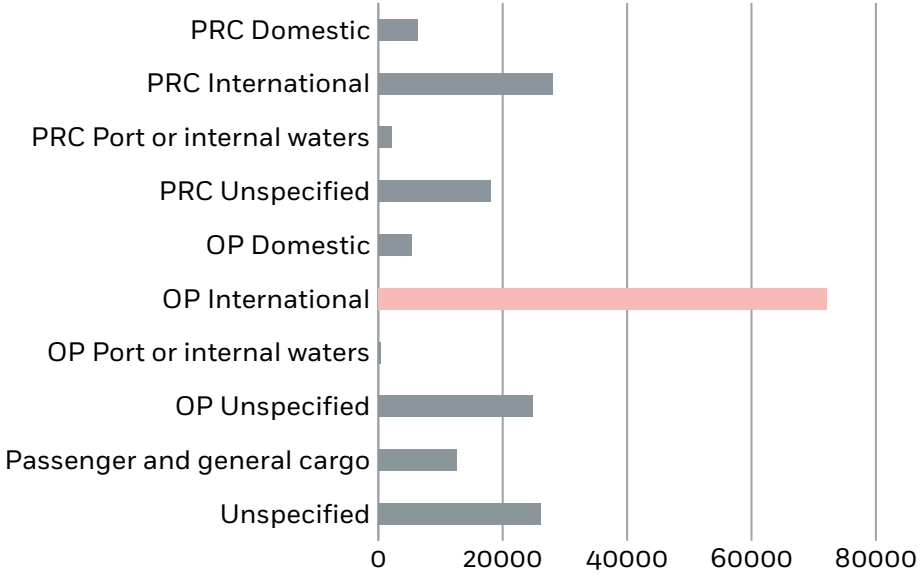

**The most quoted location of marine casualties and incidents was accommodation (26%) with 576 cases followed by other ship areas (19.7%) and ship decks (18.3%).**

Figure 5.3: Average age by type of passenger ships involved for 2011-2018



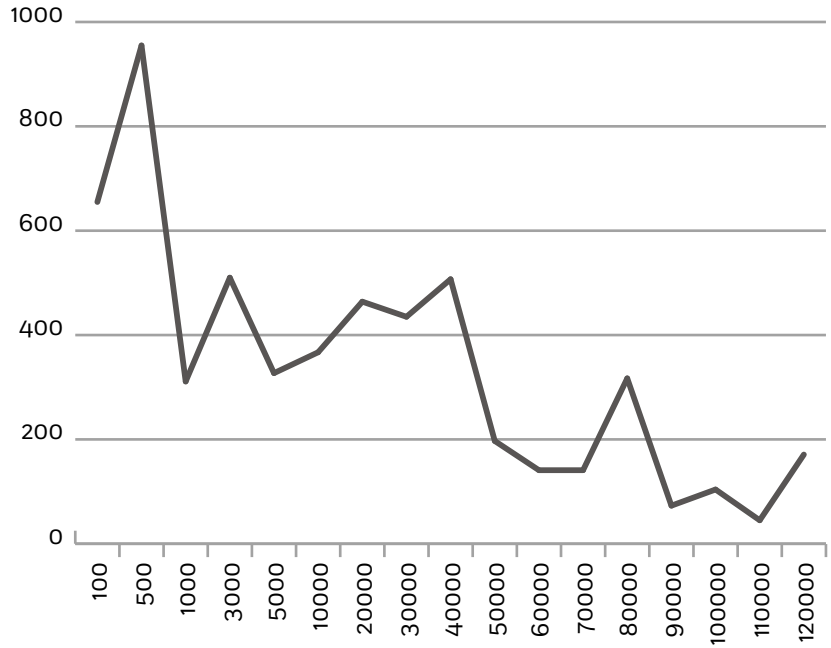

**The youngest category is passenger ro-ro cargo engaged in international voyages (18.3y) while the oldest is ships carrying only passengers in port or internal waters (39.8y).**

Figure 5.4: Average GT per passenger ship type for 2011-2018




**Passenger ships carrying only passengers on international voyages represented the highest GT average of 72100, while passenger ships of the same category operating in port or internal waters had the lowest GT average of 467.**

Figure 5.5: GT distribution of passenger ships involved for 2011-2018

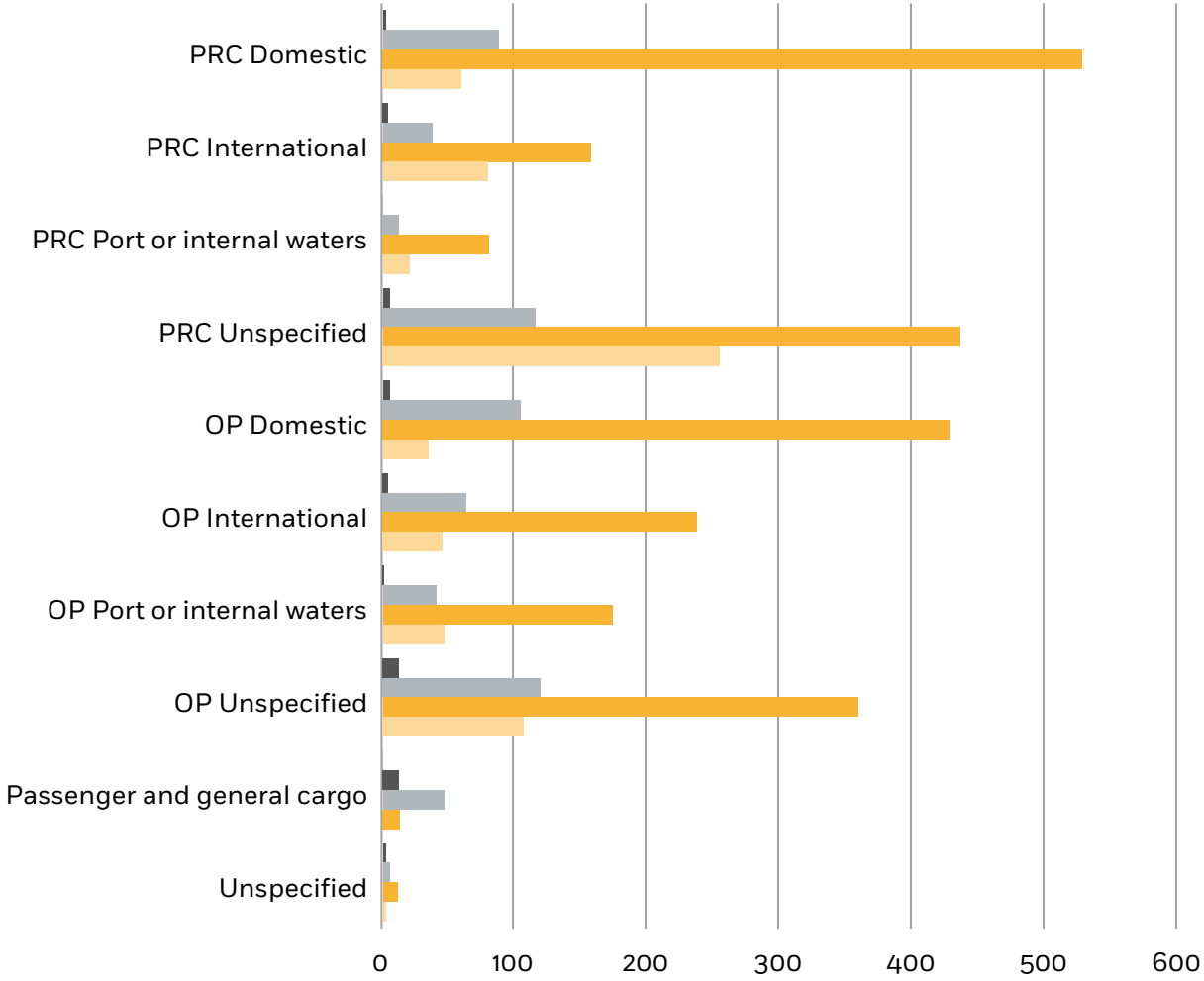



**The average gross tonnage of passenger ships involved in marine casualties is 25422.**

## 5.2 NATURE OF MARINE CASUALTIES AND INCIDENTS

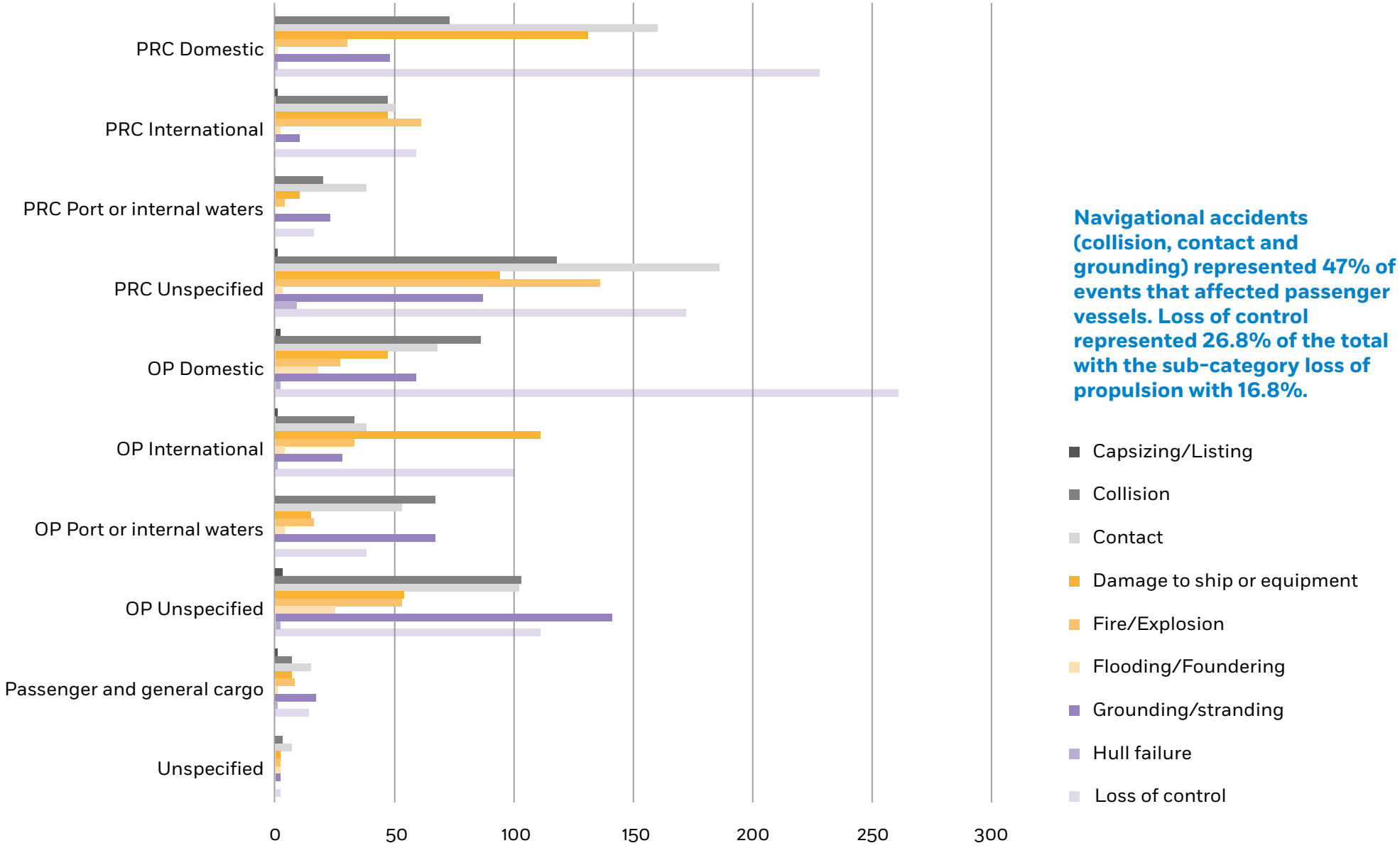
### 5.2.1 OCCURRENCE WITH SHIP(S)

Figure 5.6: Distribution of severities by passenger ship type for 2011-2018




**The rate of passenger ships involved in a very serious occurrence with ship(s) remained low (0.9%), the serious casualties are (15.9.%).**

Figure 5.7: Distribution of casualty events per passenger ship type for 2011-2018




**Navigational accidents (collision, contact and grounding) represented 47% of events that affected passenger vessels. Loss of control represented 26.8% of the total with the sub-category loss of propulsion with 16.8%.**

## 5.2.2 OCCURRENCE WITH PERSON(S)

**Figure 5.8: Severity of occurrence with person(s) per passenger ship type for 2011-2018**

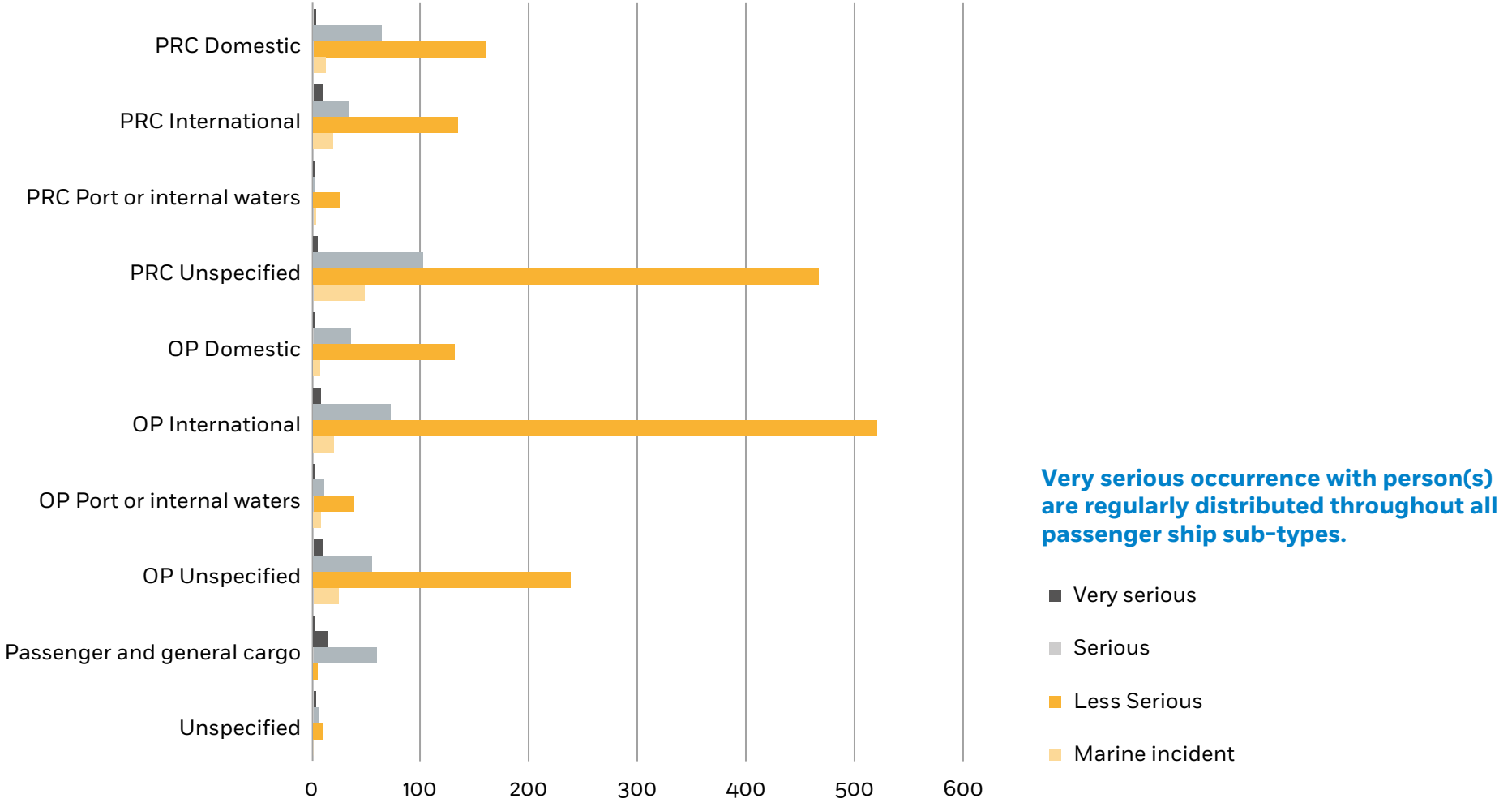
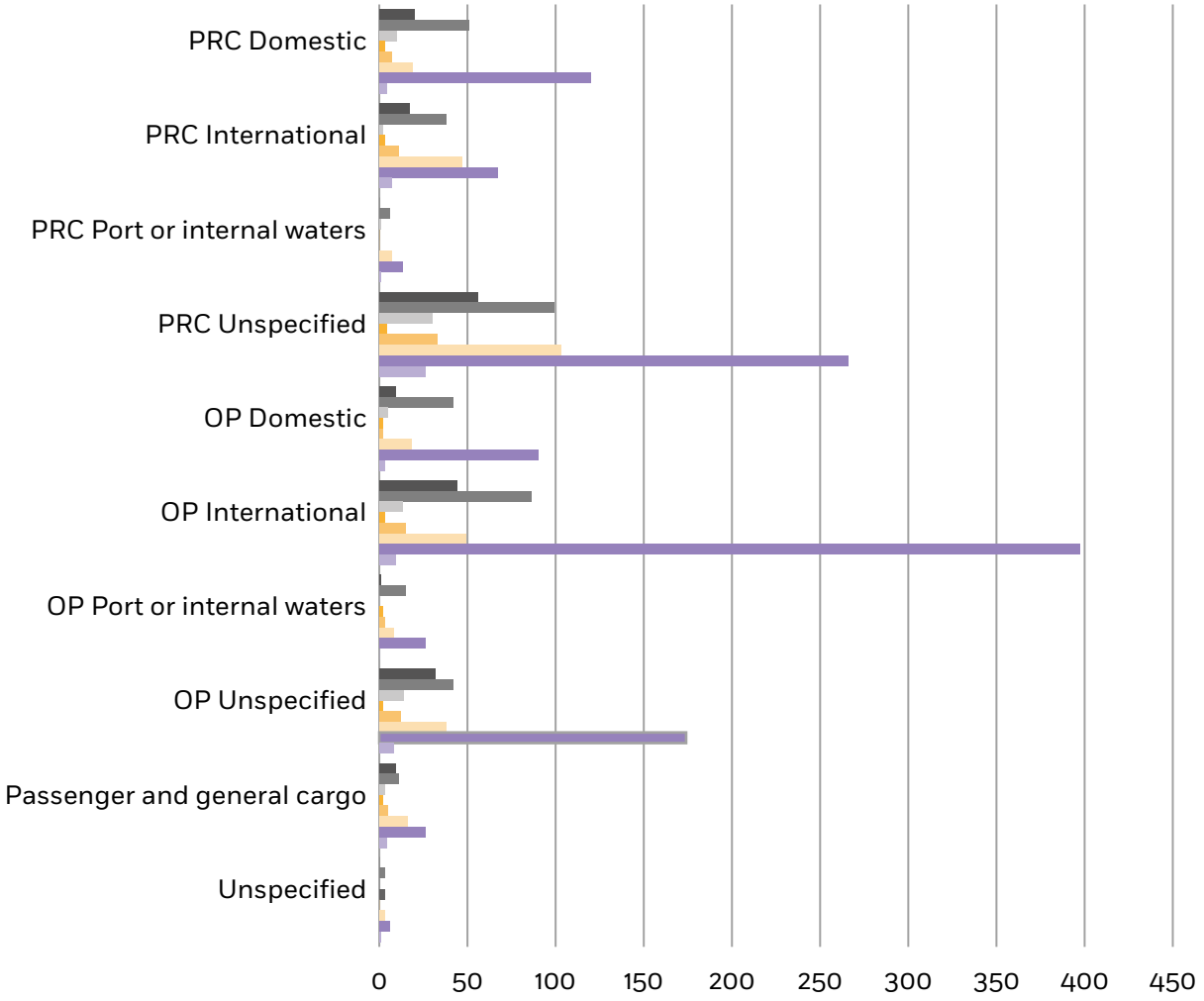


Figure 5.9: Distribution of deviations per passenger ship type for 2011-2018




**Slipping and falling of person is the most significant deviation (42.9%) on board passenger ships with passenger ship - international representing 26.5% of all deviations.**

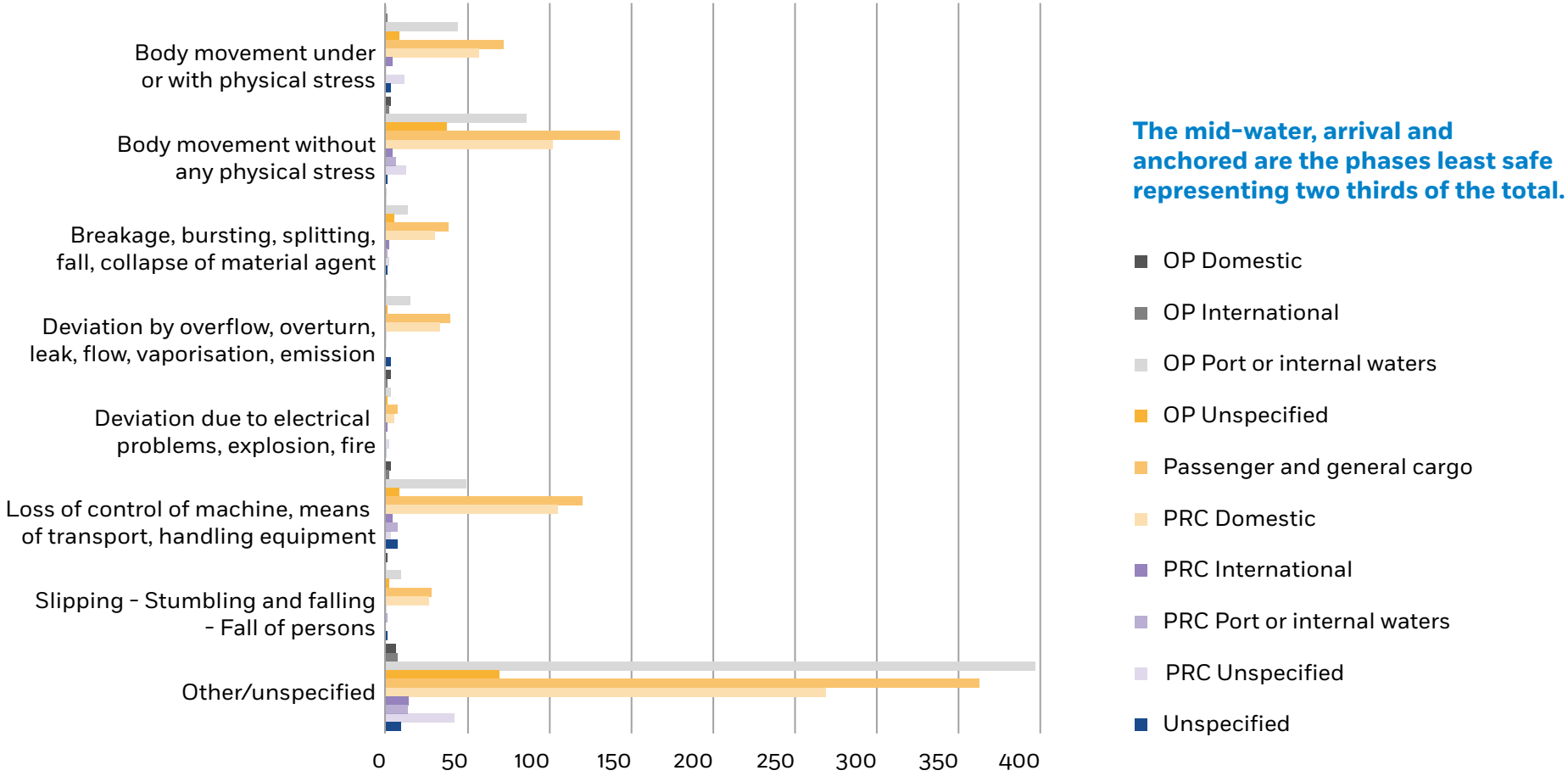
- Body movement under or with physical stress
- Body movement without any physical stress
- Breakage, bursting, splitting, fall, collapse of Material Agent
- Deviation by overflow, overturn, leak, flow, vaporisation, emission
- Deviation due to electrical problems, explosion, fire
- Loss of control of machine, means of transport, handling equipment
- Slipping - Stumbling and falling - Fall of persons
- Other/unspecified

## 5.3 LOCATION OF MARINE CASUALTIES AND INCIDENTS

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

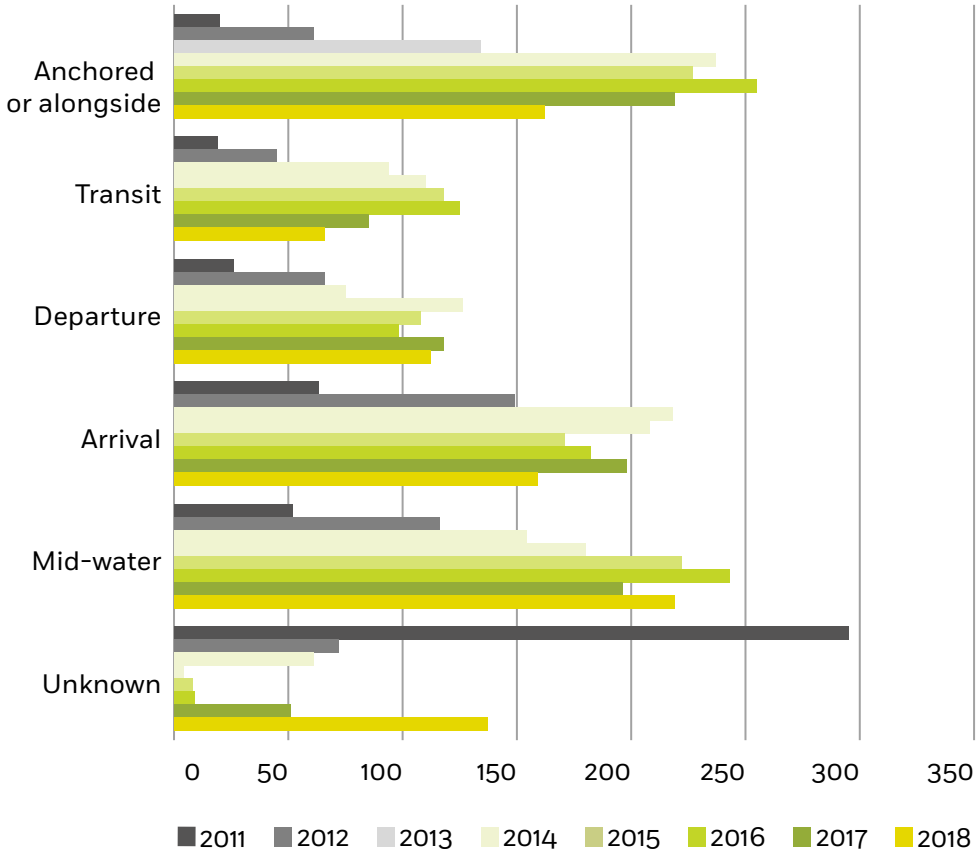
### 5.3.1 VOYAGE SEGMENTS

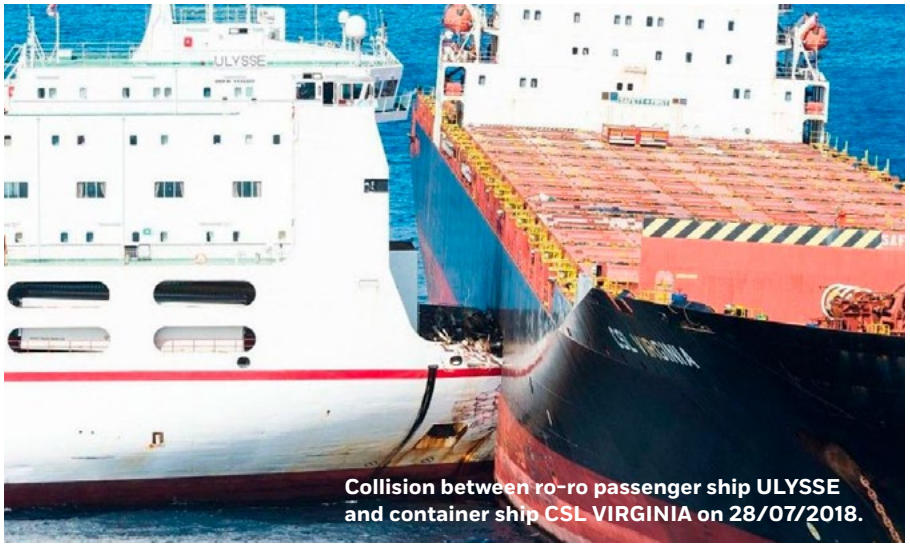
Figure 5.10: Distribution by voyage segment for 2011-2018




**The mid-water, arrival and anchored are the phases least safe representing two thirds of the total.**

Figure 5.11: Distribution by voyage segment per passenger ship type for 2011-2018



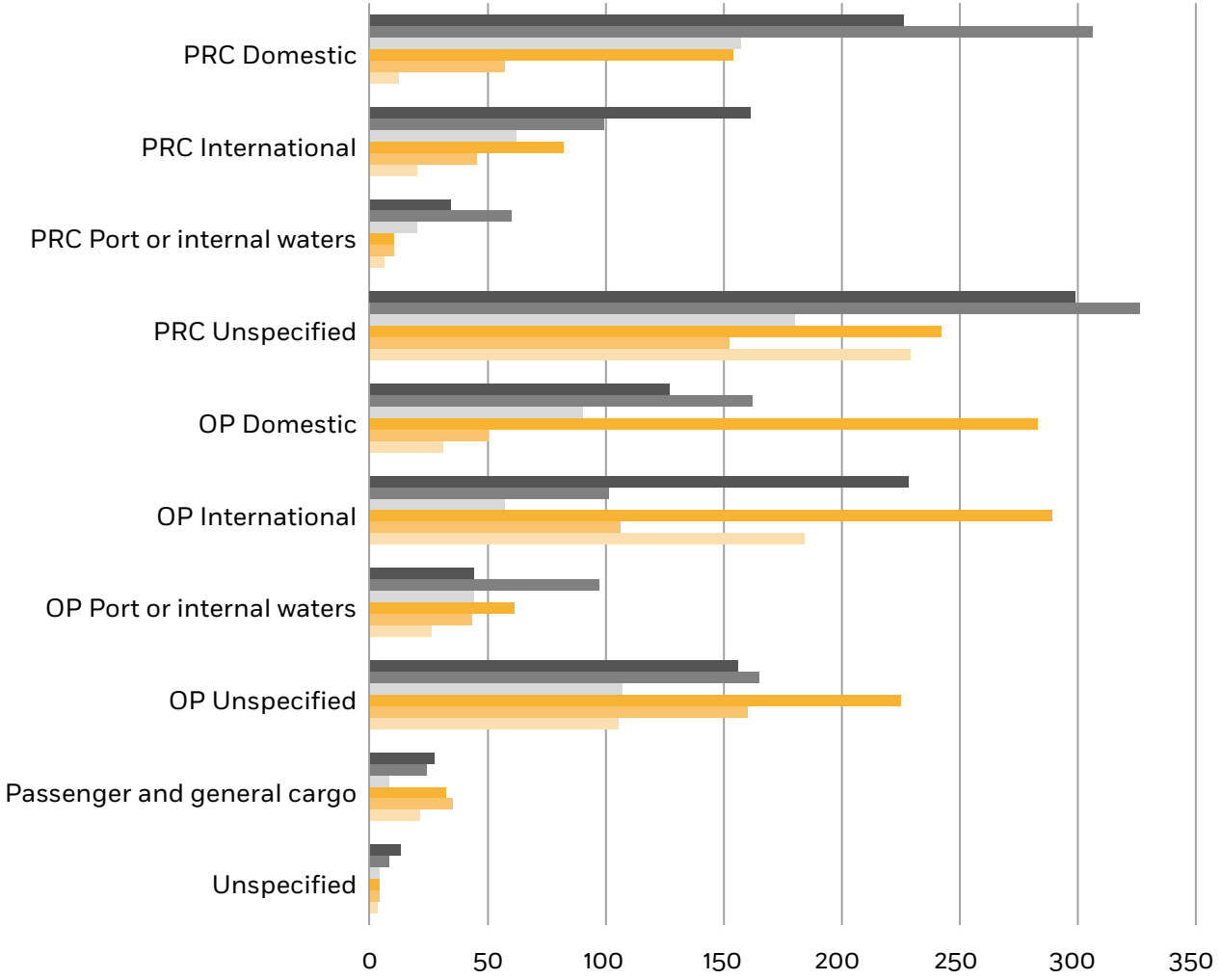




Collision between ro-ro passenger ship ULYSSE and container ship CSL VIRGINIA on 28/07/2018.

**Ro-ro passengers (PRC) in domestic voyages and ro-ro passengers with sub-category not specified are the ship types with more casualties and incidents during the arrival phase.**

## 5.3.2 LOCATION

**Figure 5.12: Distribution by location per passenger ship type for 2011-2018**




**For all types of passenger ships, except ships carrying only passengers in international voyages, casualties took place in internal waters (60.2% of all cases).**

## 5.3.3 REGIONAL DISTRIBUTION

**Figure 5.13: Global ocean and sea distribution for 2011-2018**

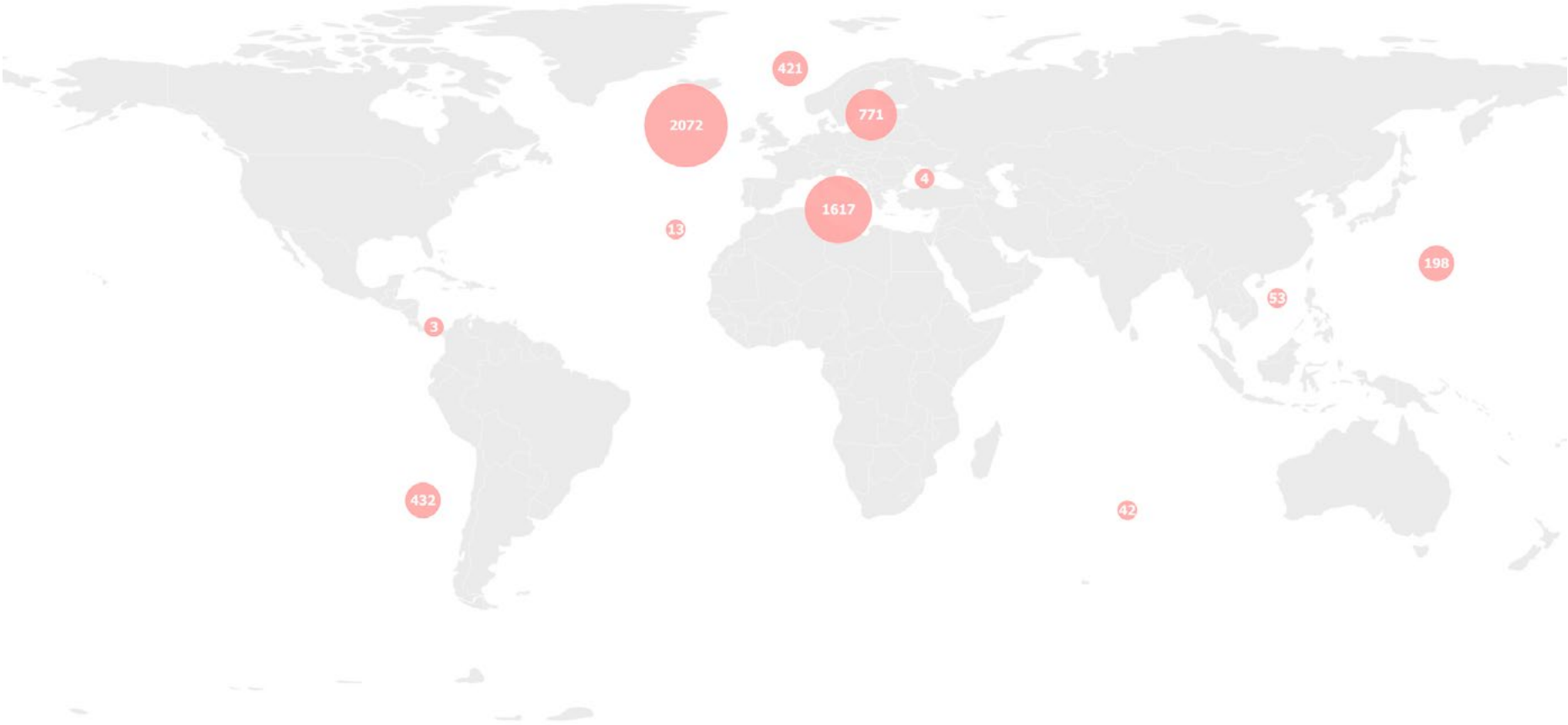
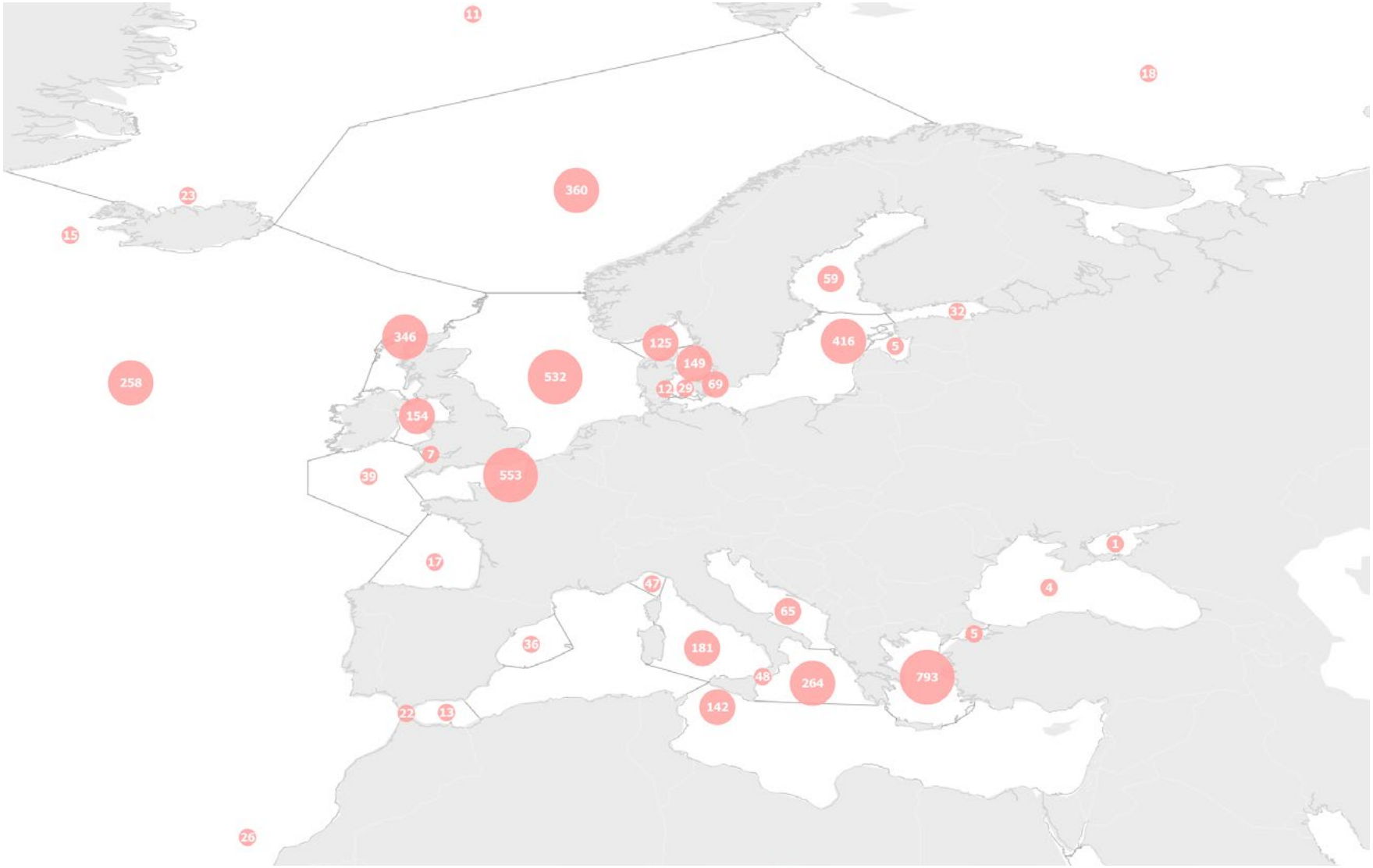
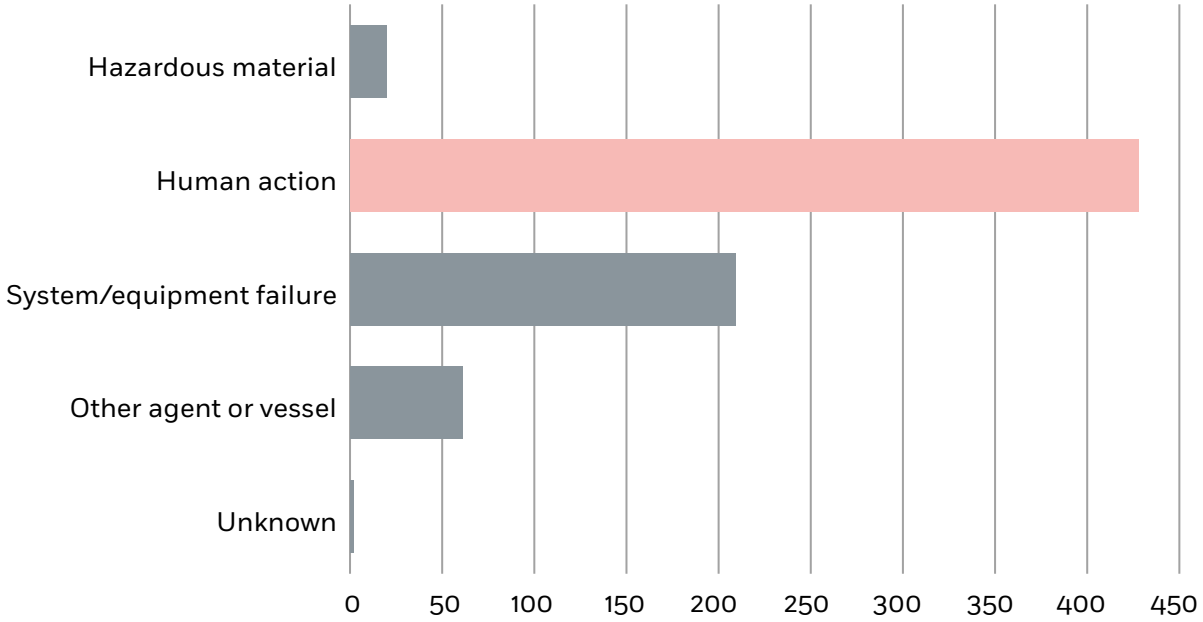


Figure 5.14: Distribution of marine casualties and incidents within sub-sea areas around EU waters for 2011-2018



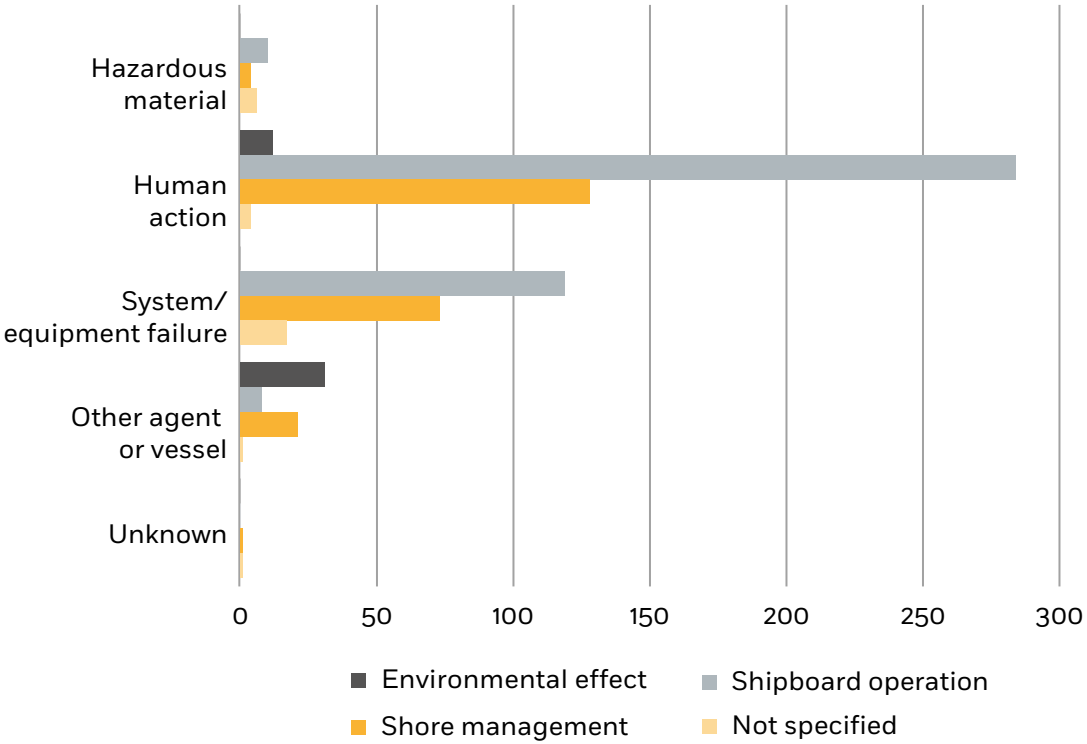
## 5.4 ACCIDENT EVENTS AND CONTRIBUTING FACTORS

Figure 5.15: Accident events for 2011-2018




**From a total of 720 accident events analysed during the investigations 59.4% were attributed to a Human action and 29% to System/equipment failure.**

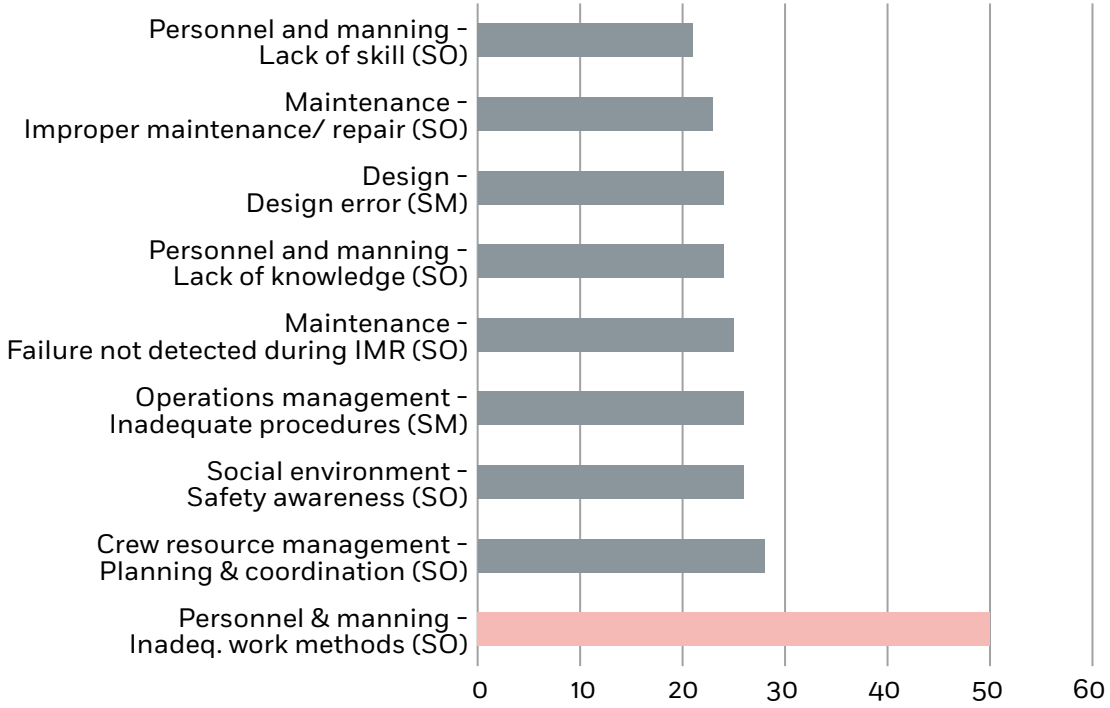
Figure 5.16: Relationship between accident events and the main contributing factors for 2011-2018




**Shipboard operation category was the most quoted contributing factor with 58.5% of the total. Within the accident event "Human action", Shipboard operation is 2.2 times higher than Shore management.**

Damage of main engine No. 2 of the ro-ro passenger ship REGINA SEAWAYS on 02/10/2018.

Figure 5.17: Contributing factors related to 'Human action' for 2011-2018




**This figure shows the 6 most reported contributing factors related to 'Human action'. Personnel and manning - Inadequate work methods (43), Crew resource management - Planning & coordination (26), Social environment - Safety awareness (21) represent the highest figures.**

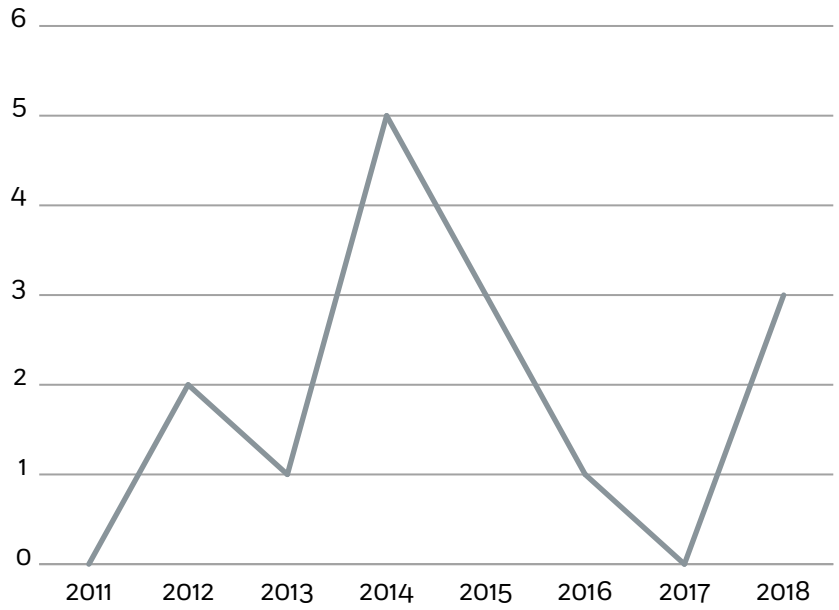
The main groups of safety recommendations are classified under: SO – Ship board operations; SM – Shore management, and; EE – Environmental effect.

**LTA – Less than adequate.**

## 5.5 CONSEQUENCES

### 5.5.1 CONSEQUENCES TO SHIPS

Figure 5.18: Passenger ships lost



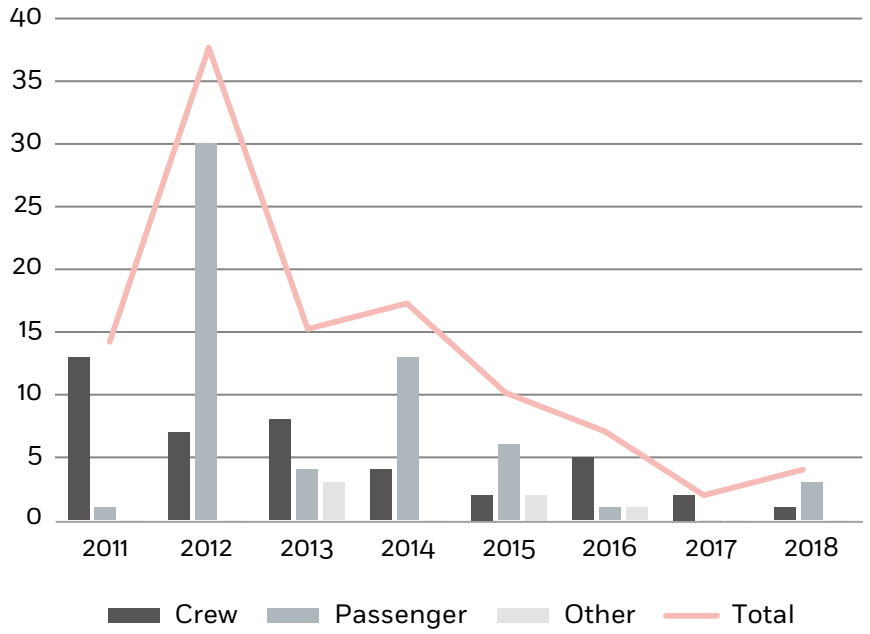

**Among the 13 passenger ships that were lost, eleven were passenger ships 'carrying only passengers'.**

**Since 2014, the number of passenger ships lost has been on the decrease and it was noted that no passenger ships were lost in 2017, however in 2018, 3 ships were lost.**

### 5.5.2 CONSEQUENCES TO PERSONS

#### 5.5.2.1 FATALITIES

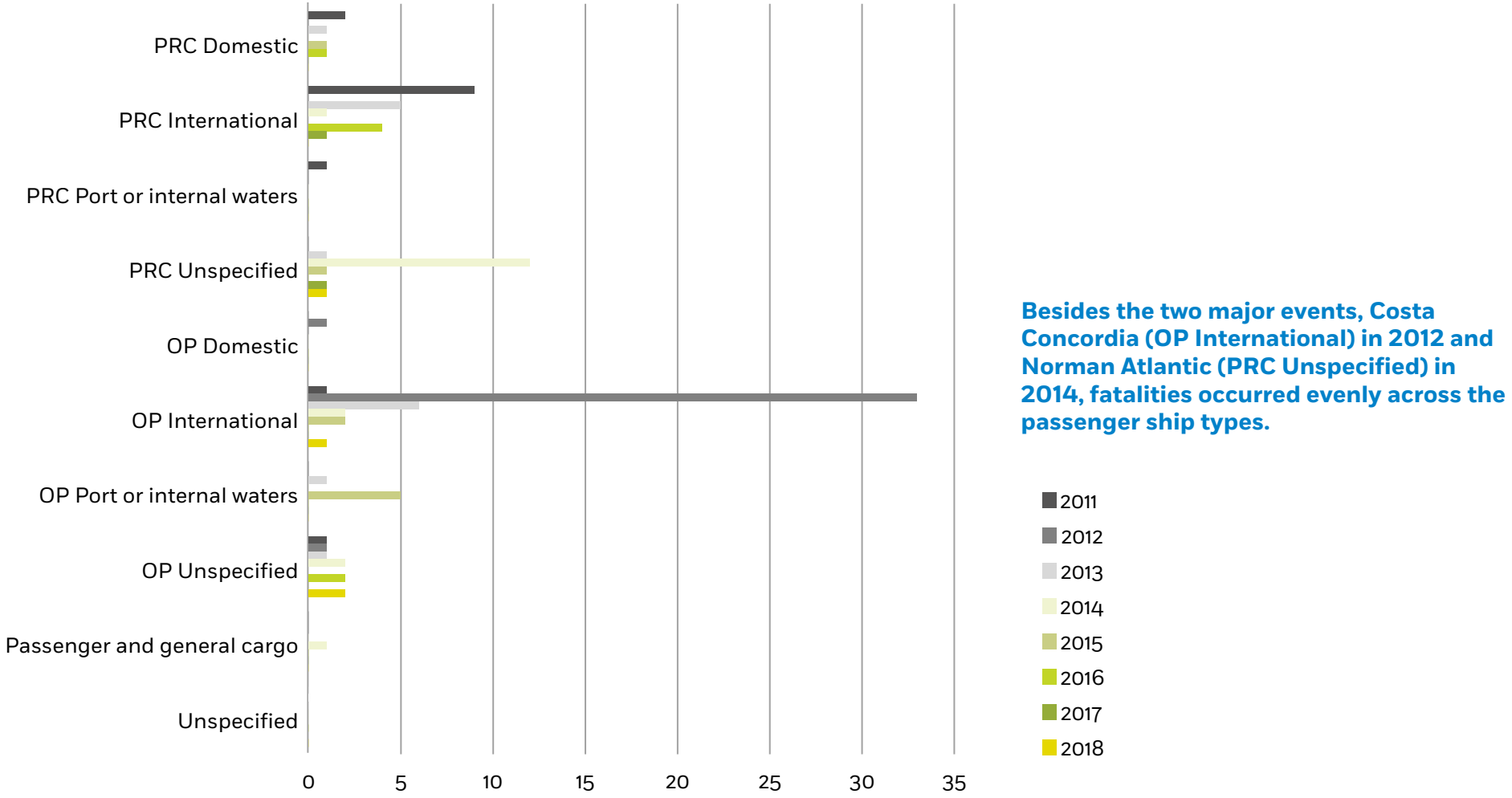
Figure 5.19: Number of fatalities




**Since the year 2012, the number of fatalities on board of passenger ships tends to decrease.**

**60.4% of the victims were passengers and 33.7% crew members.**

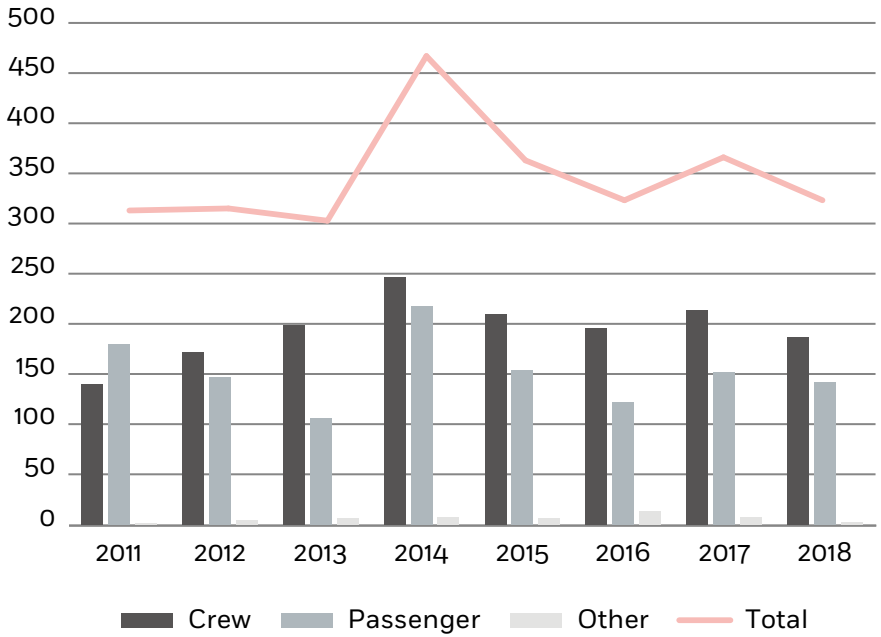
Figure 5.20: Distribution of fatalities per passenger ship type




**Besides the two major events, Costa Concordia (OP International) in 2012 and Norman Atlantic (PRC Unspecified) in 2014, fatalities occurred evenly across the passenger ship types.**

### 5.5.2.2 INJURIES

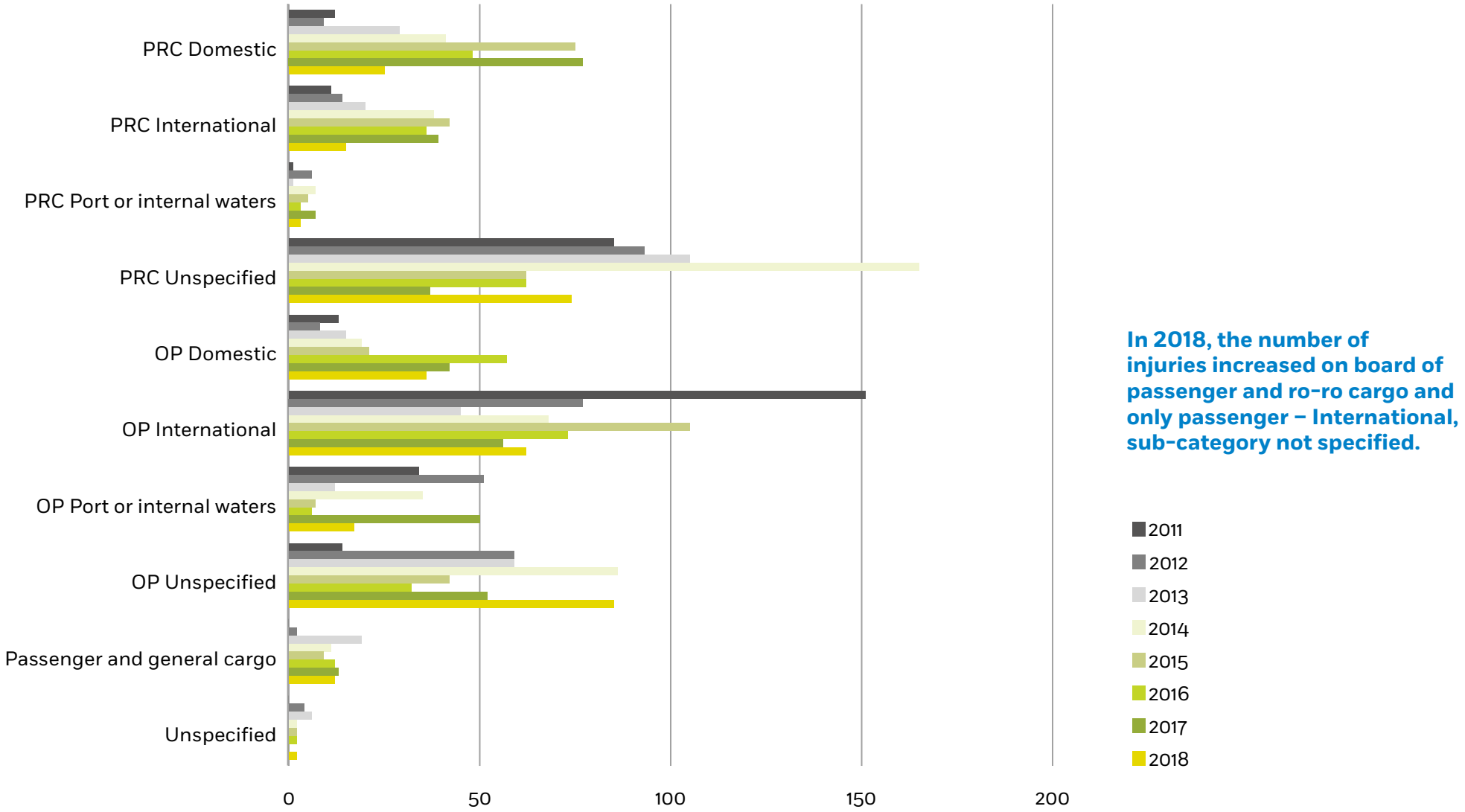
**Figure 5.21: Number of injuries**




**In the last three years the number of injuries on board of passenger ships is stable around 345.**

**Injuries happened mainly to seafarers (55.3%).**

Figure 5.22: Distribution of injuries per passenger ship type

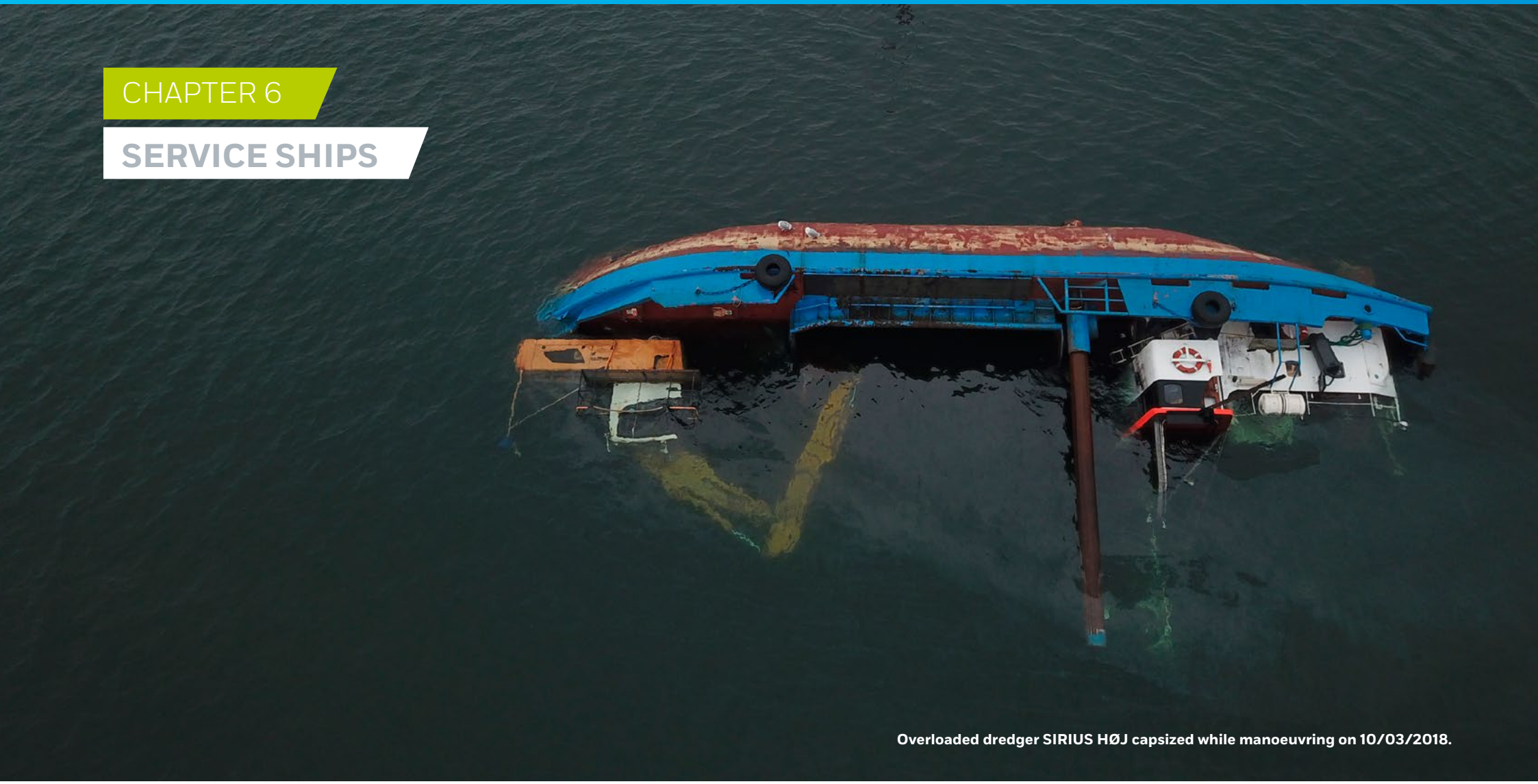



**In 2018, the number of injuries increased on board of passenger and ro-ro cargo and only passenger – International, sub-category not specified.**


**Damage of main engine No. 2 followed by a fire on board of the ro-ro passenger ship REGINA SEAWAYS on 02/10/2018. Fire was extinguished by the crew and she could proceed with engine No. 1.**

CHAPTER 6

# SERVICE SHIPS



Overloaded dredger SIRIUS HØJ capsized while manoeuvring on 10/03/2018.

## KEY FIGURES 2018

| 390 | 6 | 1 | 111 | 3 | 401 |
|---|---|---|---|---|---|
| CASUALTIES & INCIDENTS | VERY SERIOUS CASUALTIES | FATALITIES | PERSONS INJURED | SHIPS LOST | SHIPS INVOLVED |

## 6.1 DETAILED DISTRIBUTION

**The directive does not apply to marine casualties and incidents involving only ships of war and troop ships and other ships owned or operated by a Member State and used only on government non-commercial service and fixed offshore drilling units. 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.**

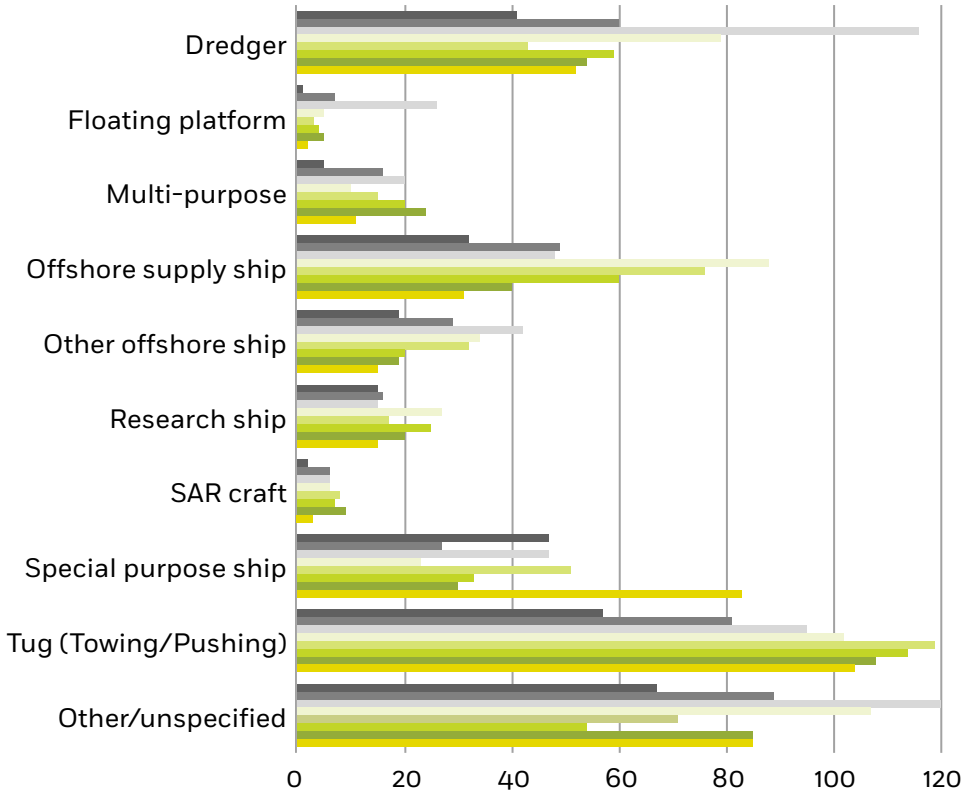
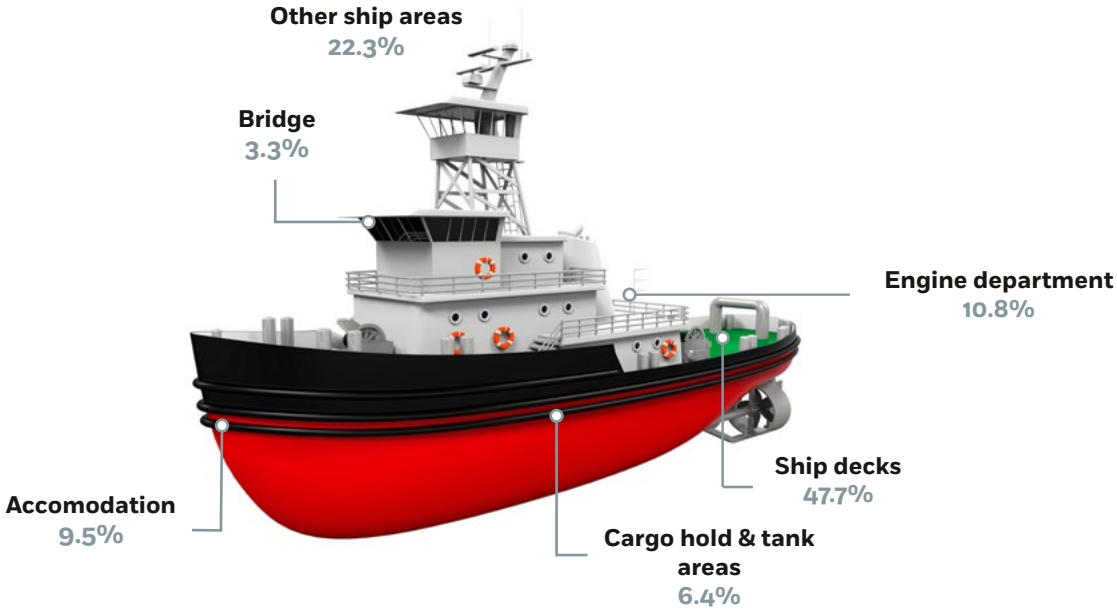



Figure 6.1: Distribution of service ship types involved

**Among the service ships involved in a marine casually or incident, the most quoted subcategory was tugs (towing/pushing) (23.6%), followed by dredgers (15.2%) and offshore supply ships (12.9%).**

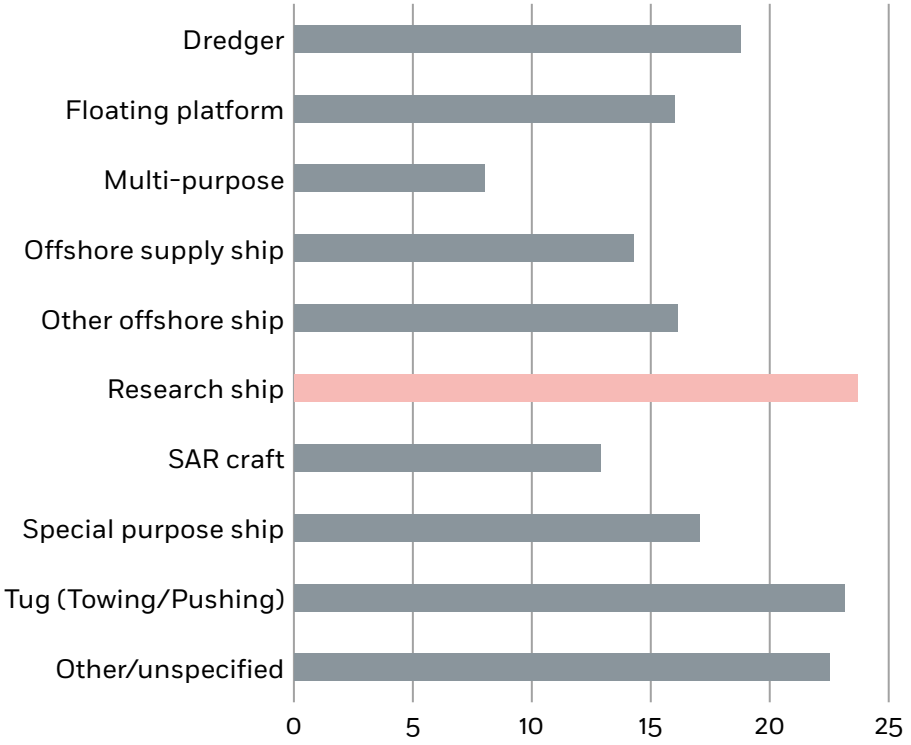
**The number of service ships involved in 2018 was 401 compared with 394 in 2017.**

Figure 6.2: Main places of occurrence with person(s) onboard service ships for 2011-2018



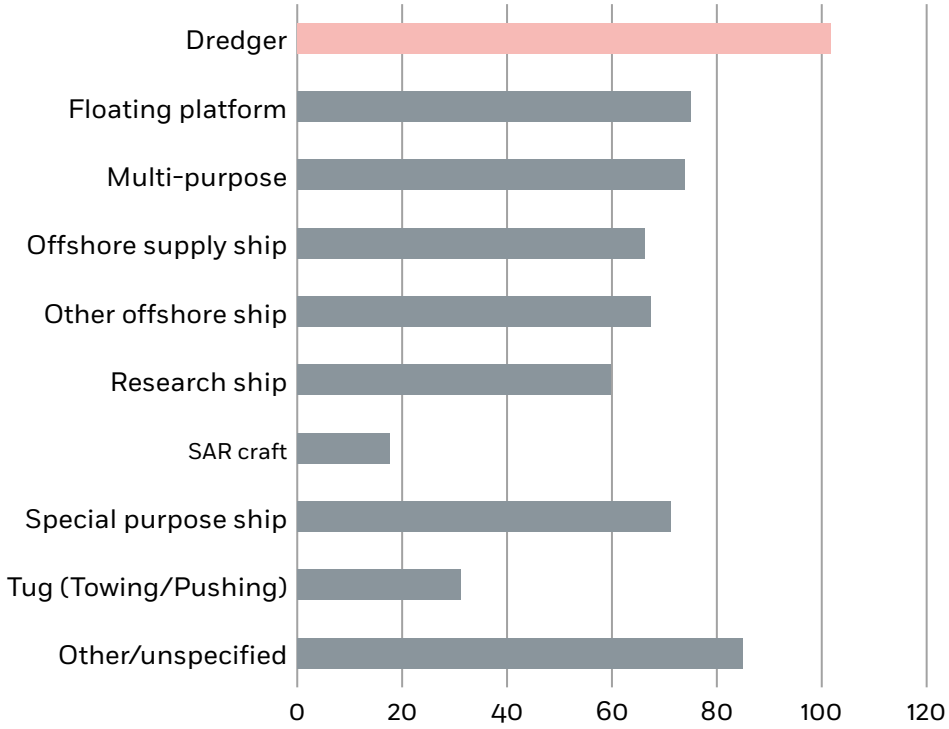

**The main location of marine casualties and incidents was ship decks (47.7%) corresponding to 459 cases, followed other ship areas (22.3%).**

Figure 6.3: Average age by type of service ship involved for 2011-2018



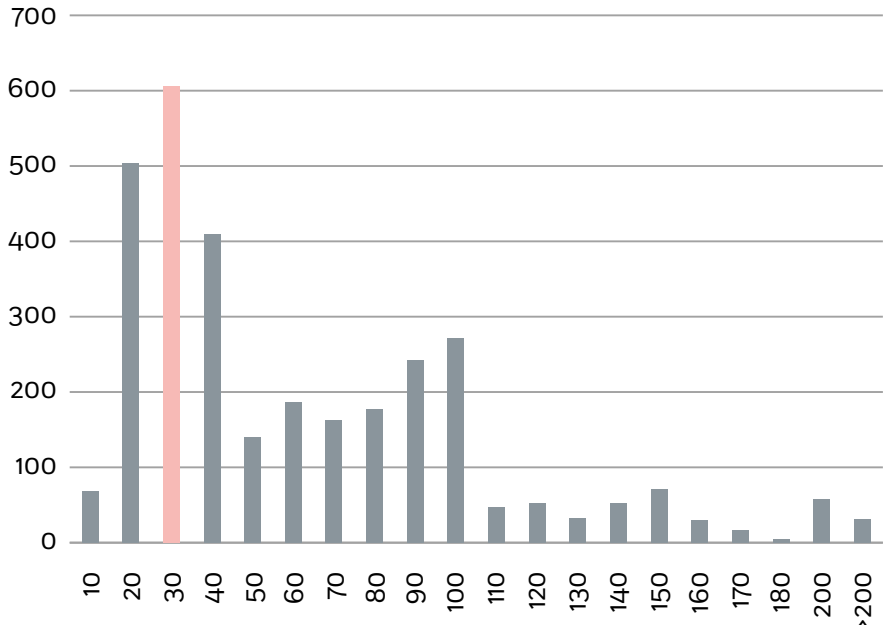

**The youngest ship category is multi-purpose ship (8y) while the oldest is research ship (23.7y).**

Figure 6.4: Average length of service ships involved by main category for 2011-2018




**The ships with the shortest length were search and rescue craft and the longest dredgers.**

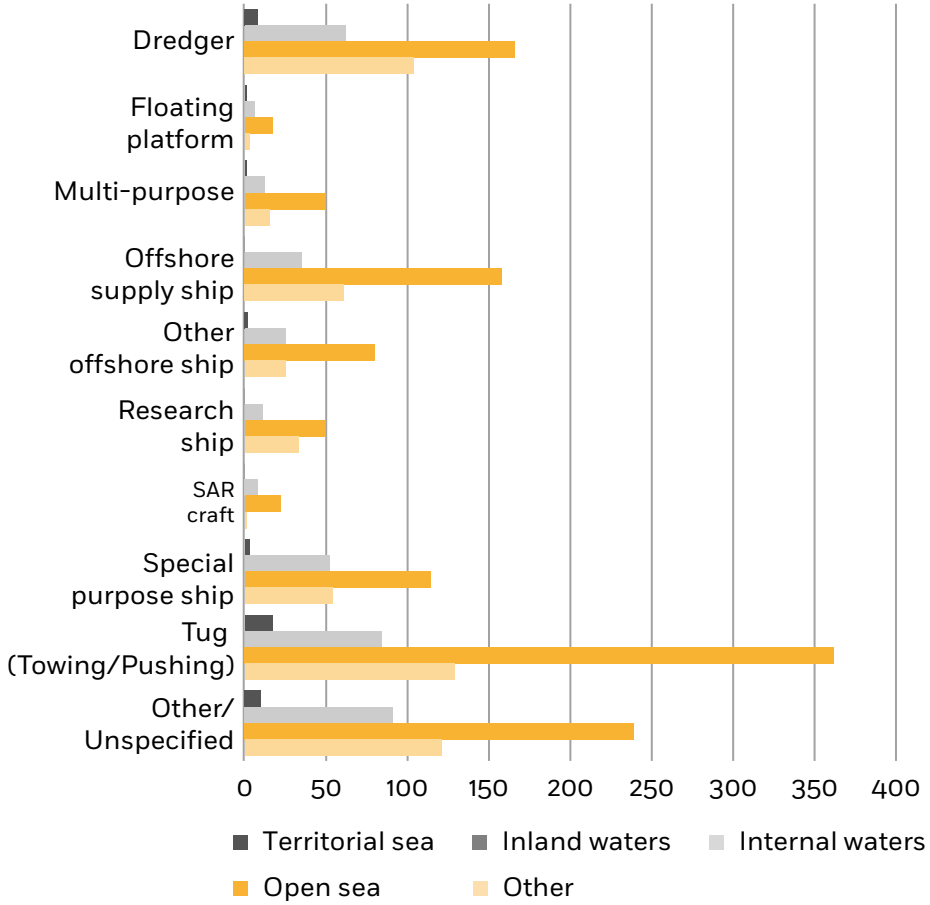
Figure 6.5: Length distribution of service ships involved for 2011-2018




**The average length of service ships involved was 58.1m. A peak of marine casualties or incidents within the length overall segment of 20m - 40m.**

## 6.2 NATURE OF MARINE CASUALTIES AND INCIDENTS

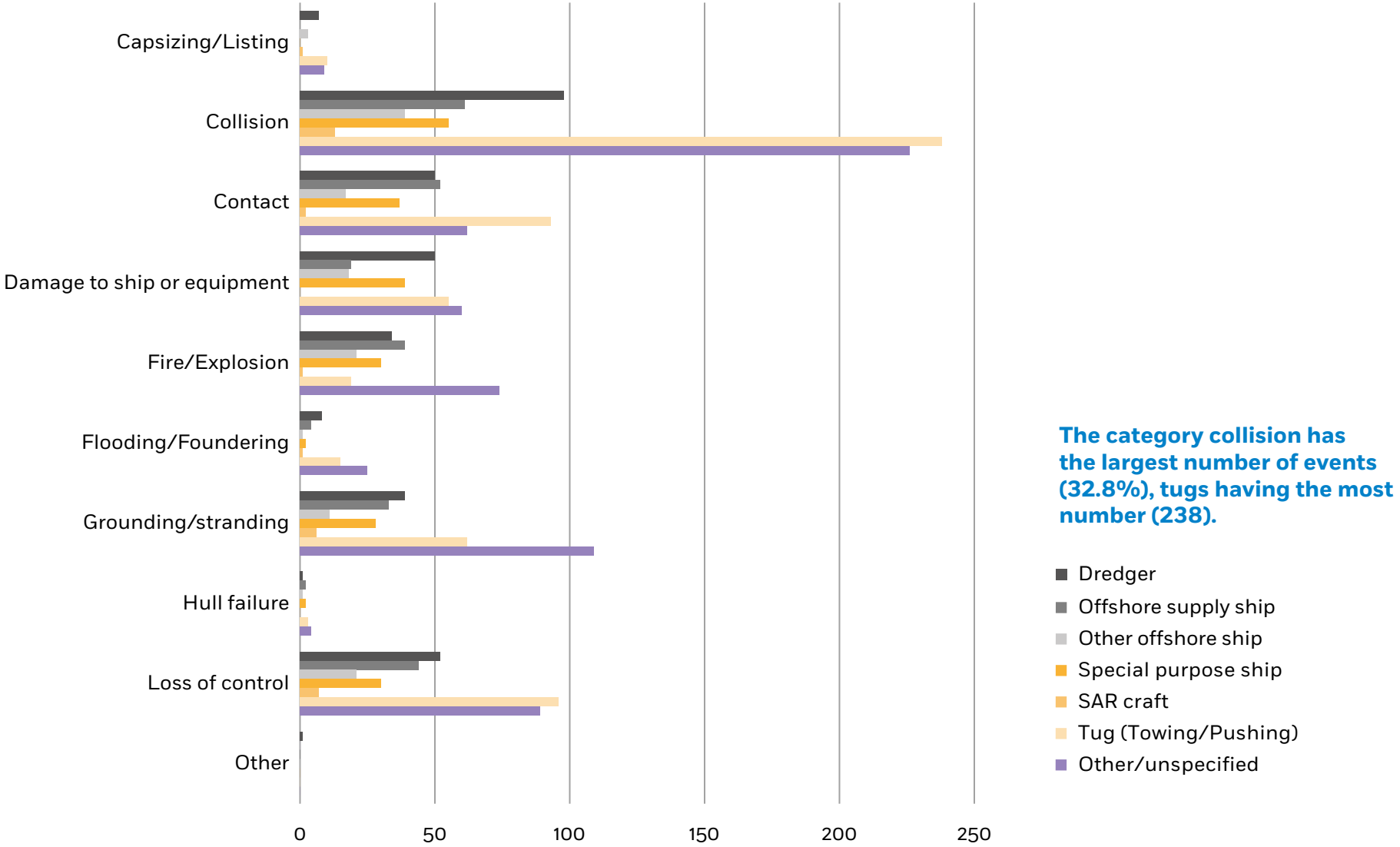
Figure 6.6: Distribution of severity by service ship type for 2011-2018




**Tugs and dredgers have the highest number of very serious casualties with a ship, 40.5% and 19% respectively.**

## 6.2.1 OCCURRENCE WITH SHIP(S)

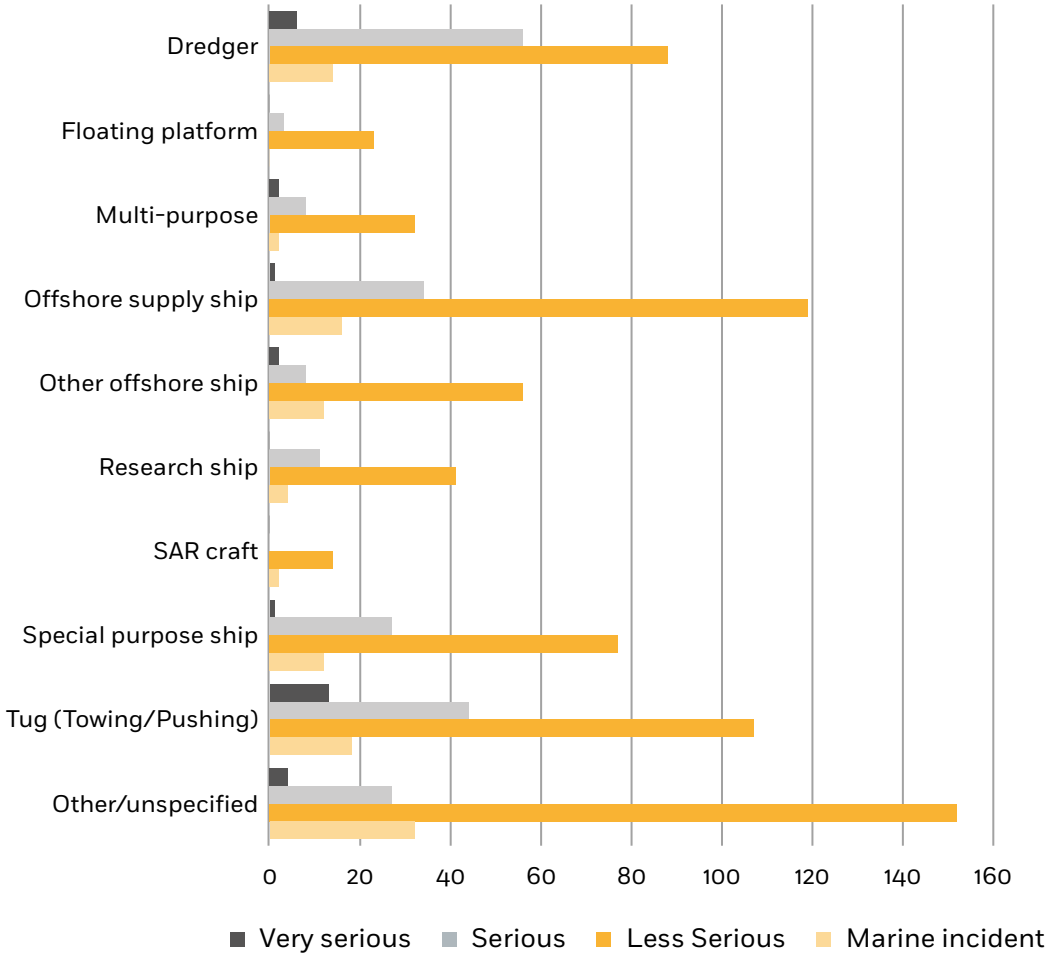
**Figure 6.7: Distribution of casualty events per service ship type for 2011-2018**

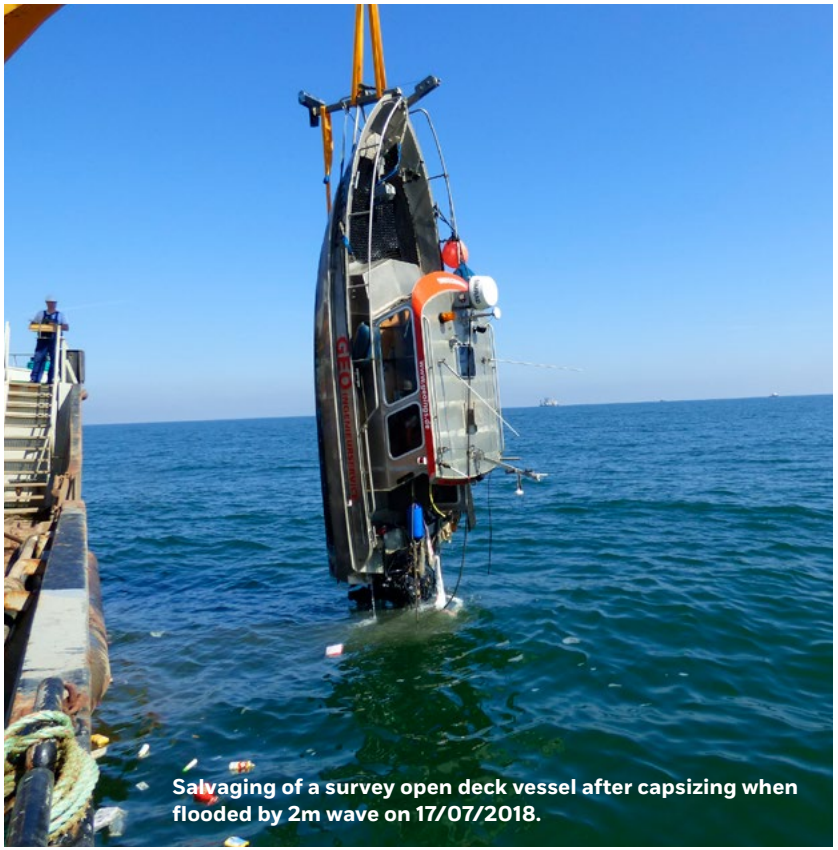



**The category collision has the largest number of events (32.8%), tugs having the most number (238).**

## 6.2.2 OCCURRENCE WITH PERSON(S)

**Figure 6.8: Severity of occurrence with person(s) per service ship type for 2011-2018**

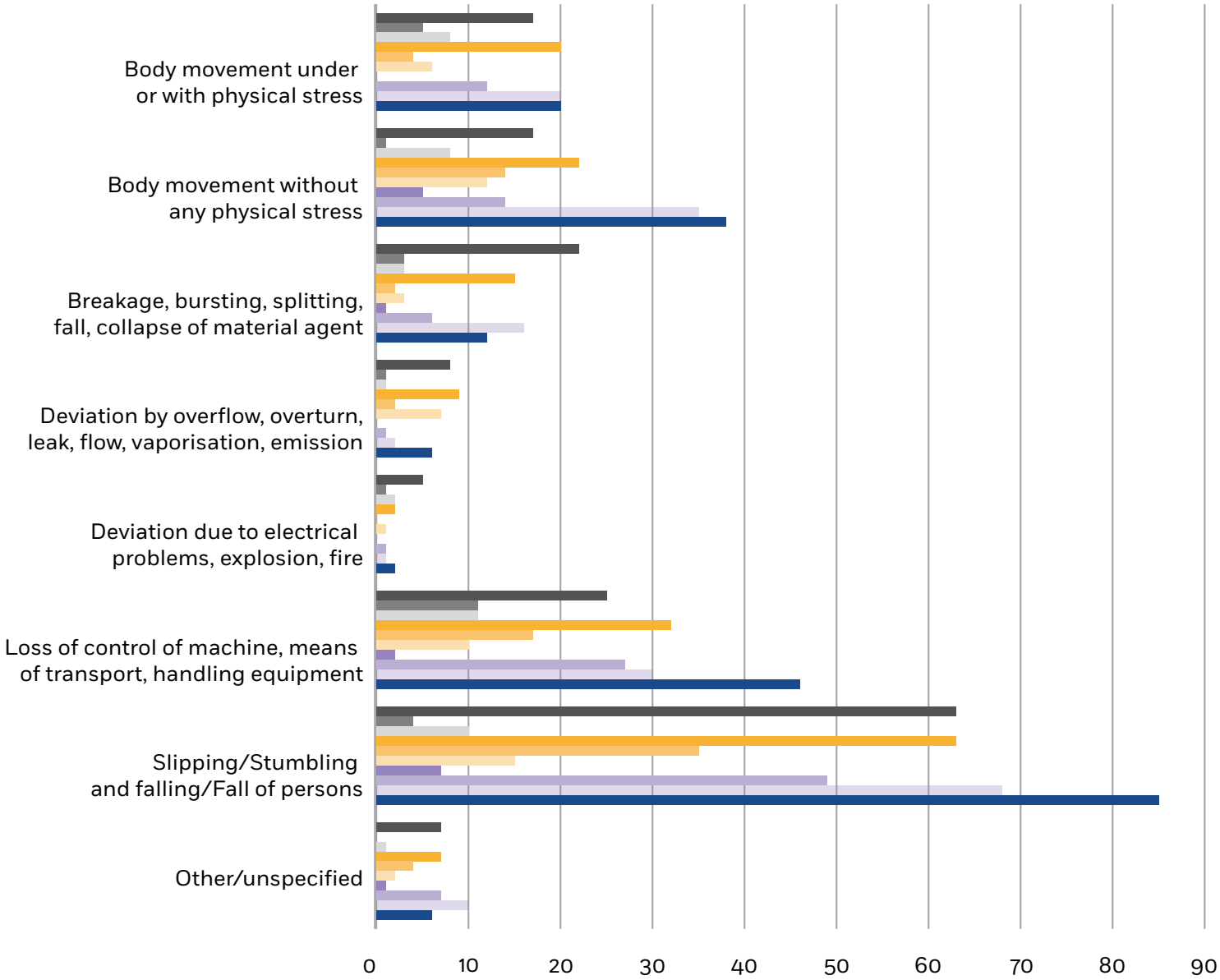


Salvaging of a survey open deck vessel after capsizing when flooded by 2m wave on 17/07/2018.

**The majority of the very serious (65.5%) and serious (45.9%) occurrence with person(s) occurred on board tug and dredgers.**

Figure 6.9: Distribution of deviations per service ship type for 2011-2018




**Falls on board tugs, offshore supply ship and dredgers represent almost half of the total (48.5%). Deviations falls of persons and loss of control of machine are (57.1%).**

## 6.3 LOCATION OF MARINE CASUALTIES AND INCIDENTS

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

### 6.3.1 VOYAGE SEGMENTS

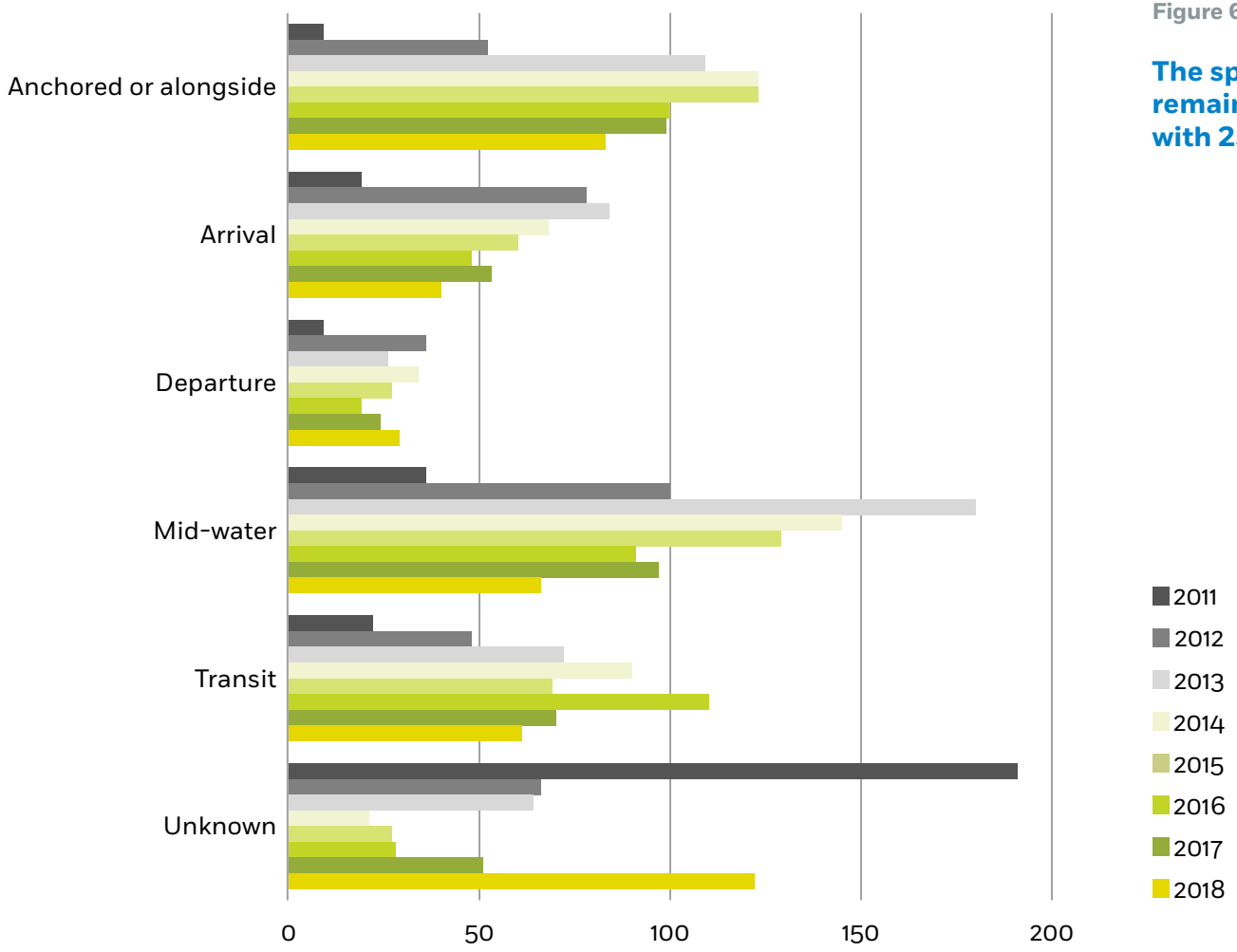
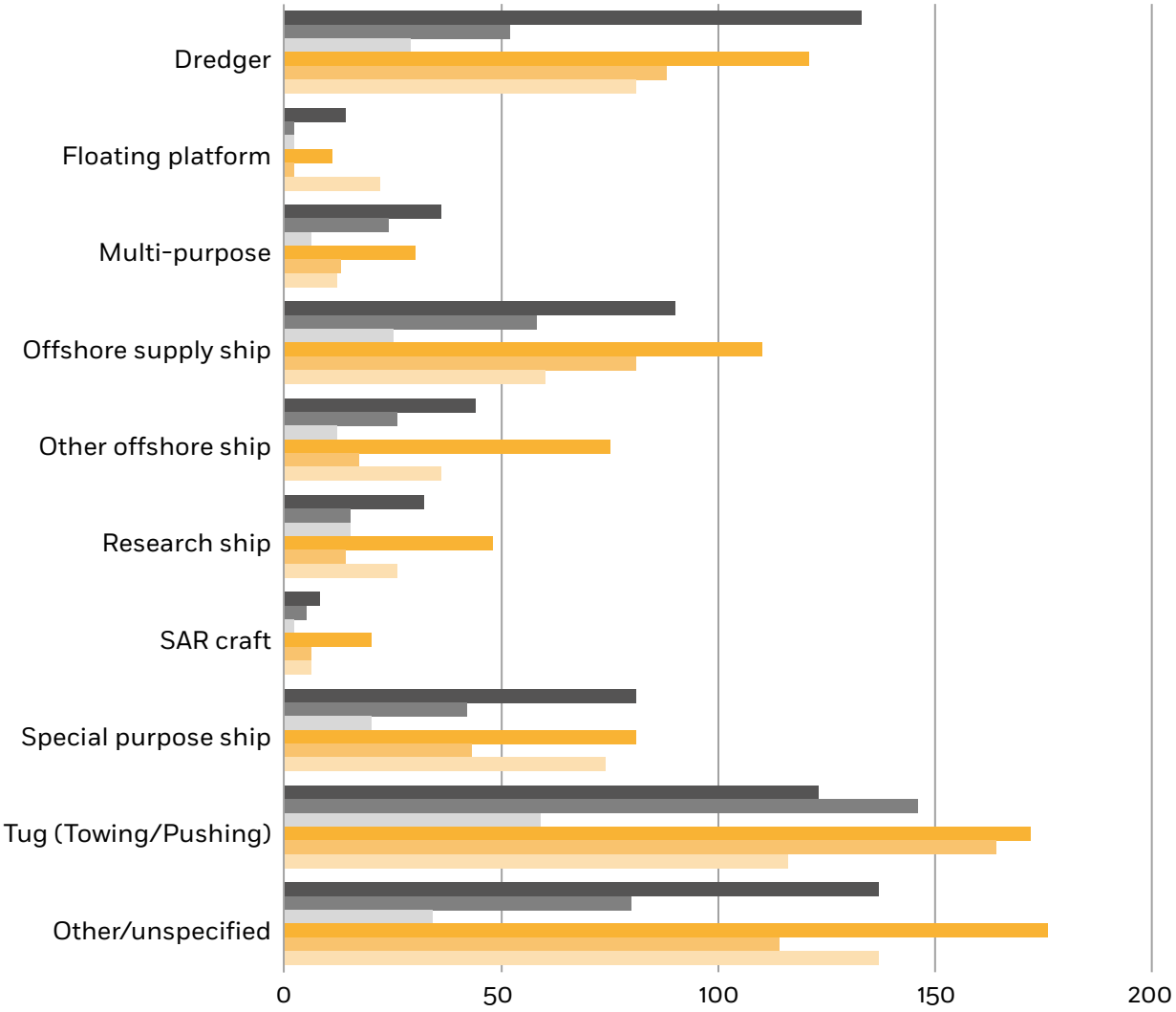



Figure 6.10: Distribution by voyage segment

**The specified segment "mid-water" remains the least safe voyage phase with 25.5% of the total.**

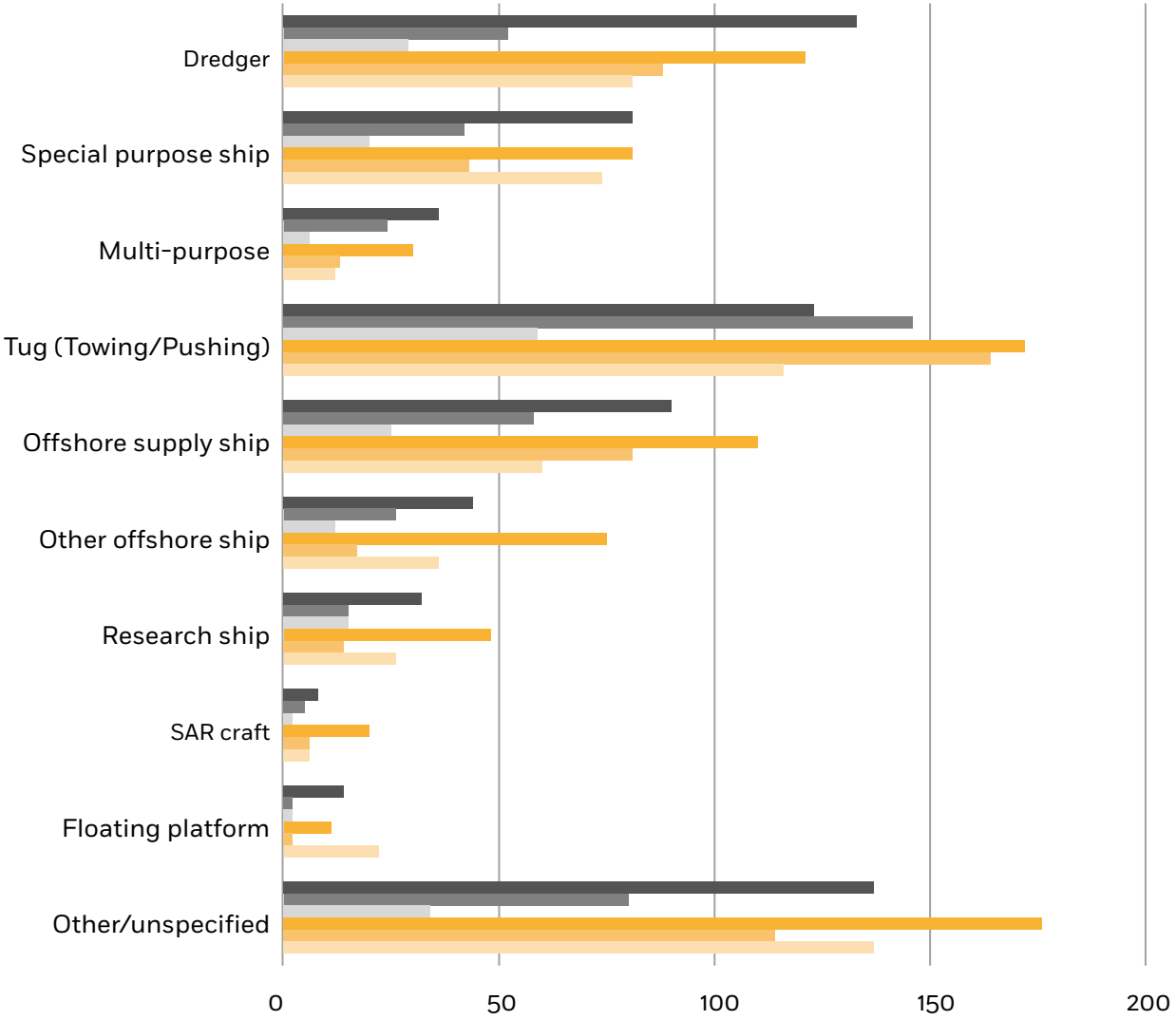
Figure 6.11: Distribution by voyage segment per service ship type for 2011-2018




**Apart from dredgers that had casualties mainly when anchored or alongside, all other types of service ships had casualties during the mid-water phase of the voyage.**

## 6.3.2 LOCATION

**Figure 6.12: Distribution by location of the marine casualties and incidents per service ship type for 2011-2018**




**Internal waters were by far the main location of accidents 54.4% with the sub-category port area representing 39.2% of the total.**

## 6.3.3 REGIONAL DISTRIBUTION

**Figure 6.13: Global ocean and sea distribution for of marine casualties and incidents 2011-2018**

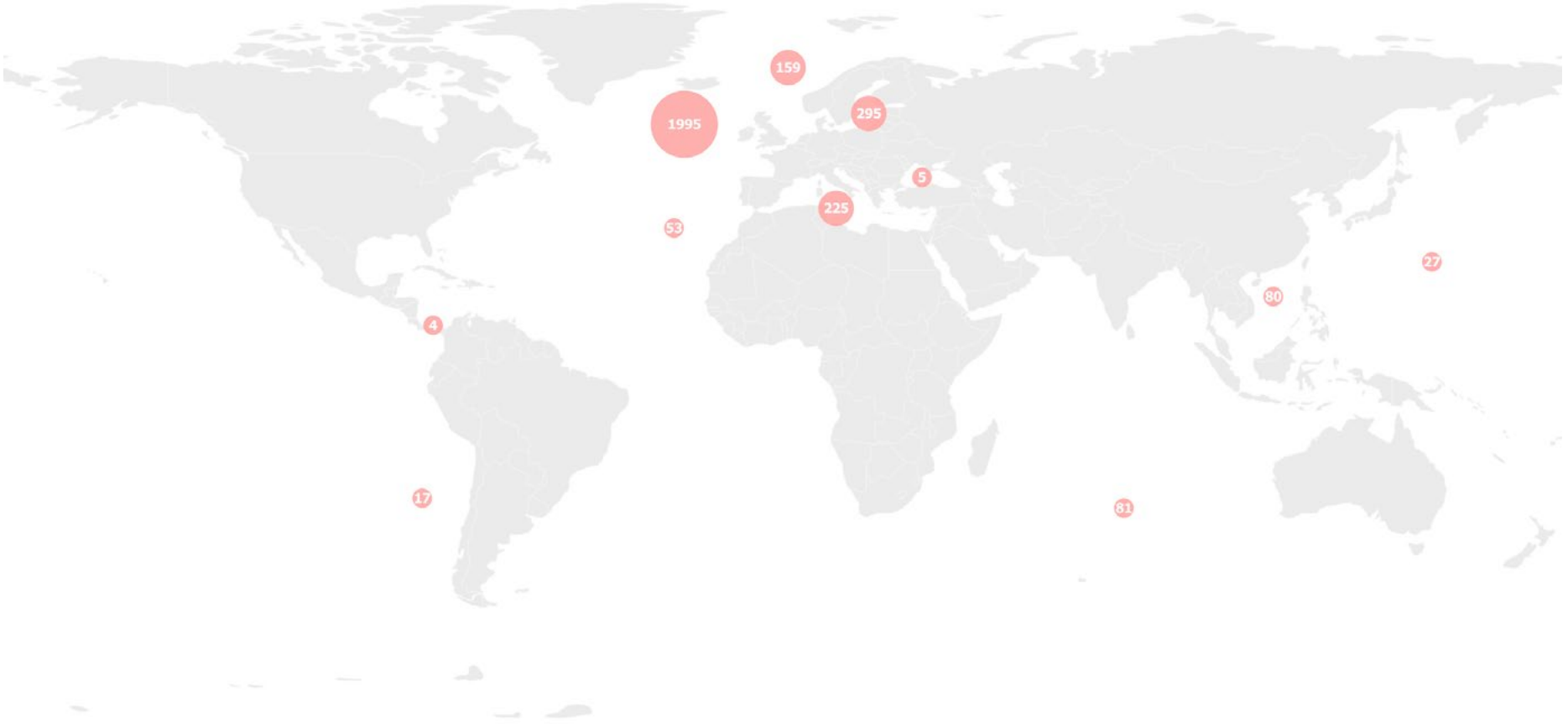
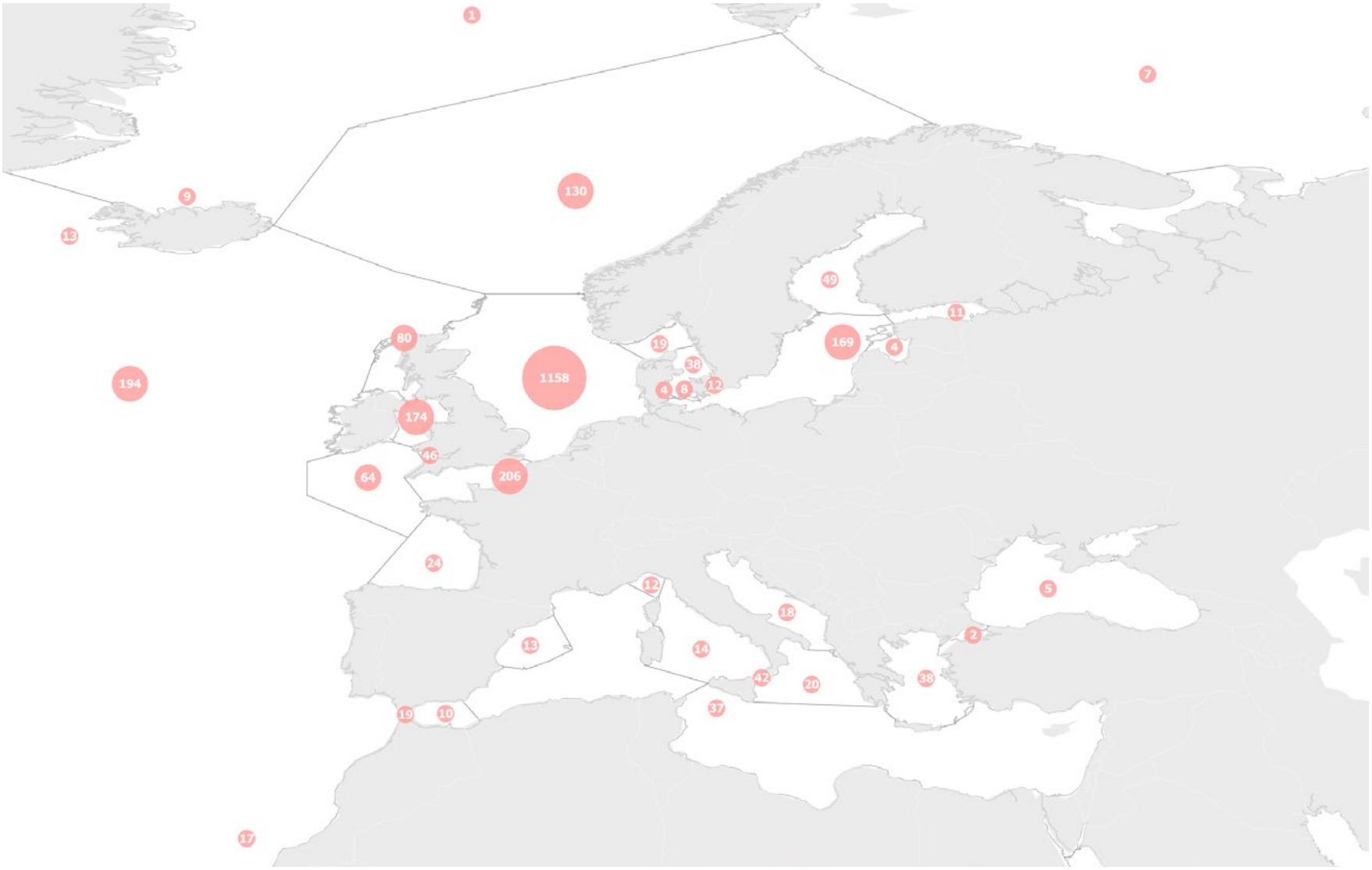
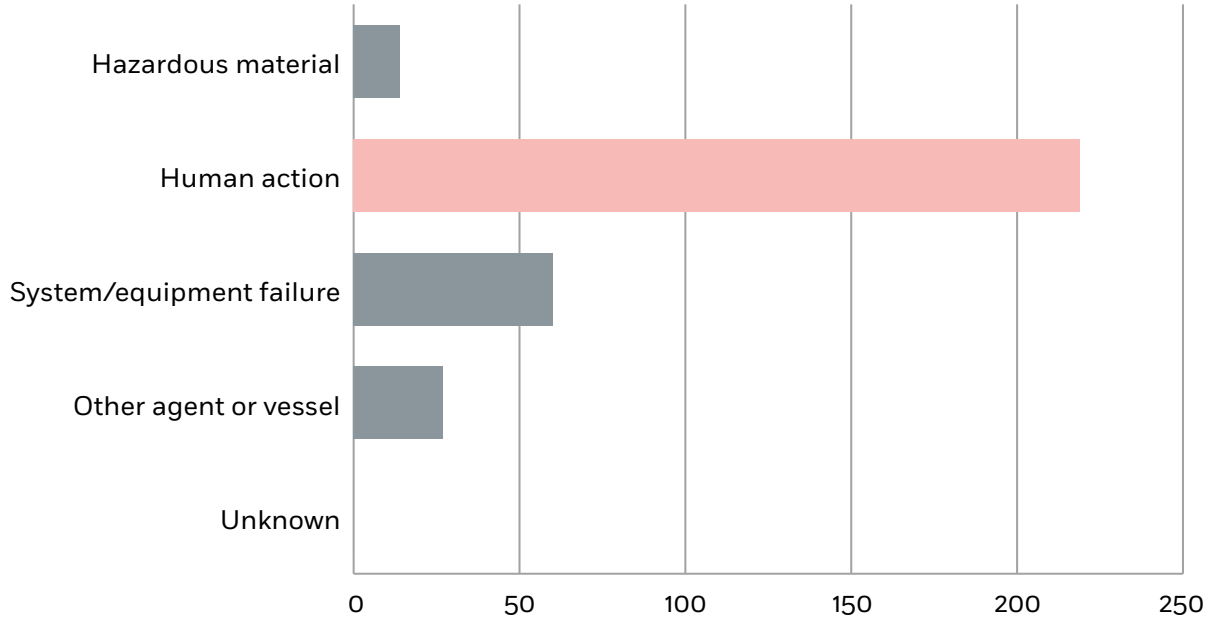


**Figure 6.14: Distribution of marine casualties and incidents within sub-sea areas around EU waters for 2011-2018**



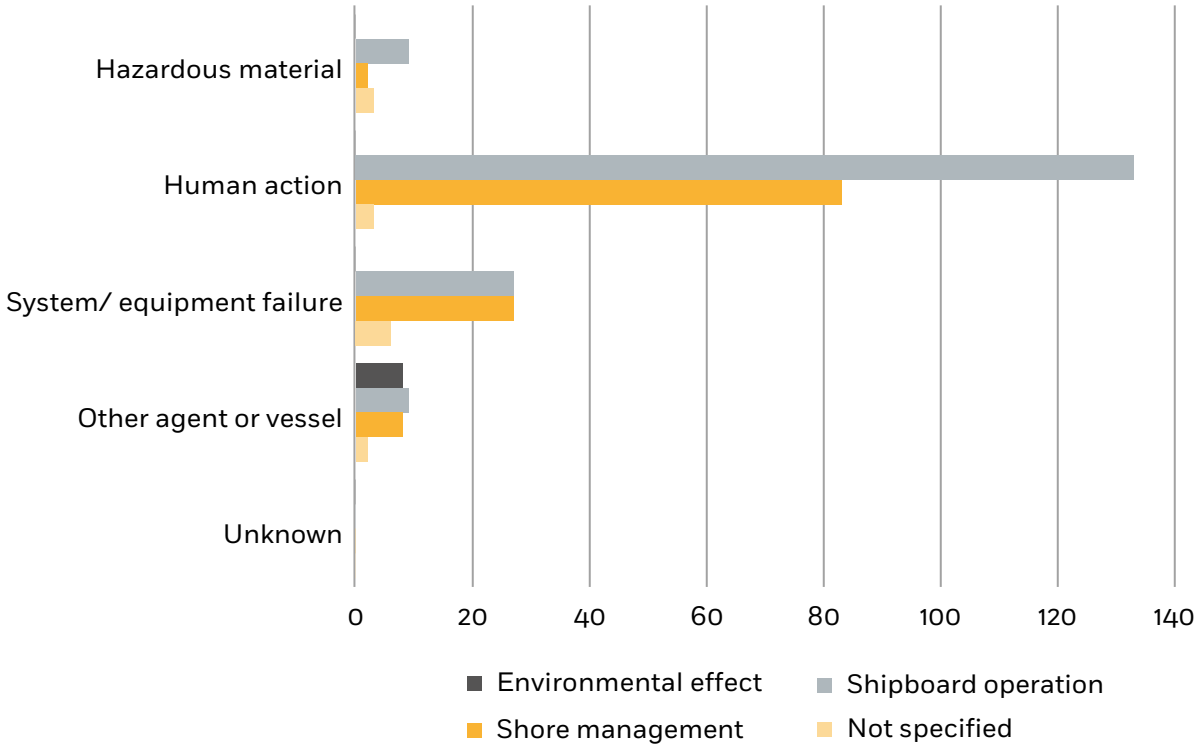
## 6.4 ACCIDENT EVENTS AND CONTRIBUTING FACTORS

Figure 6.15: Accident events for 2011-2018



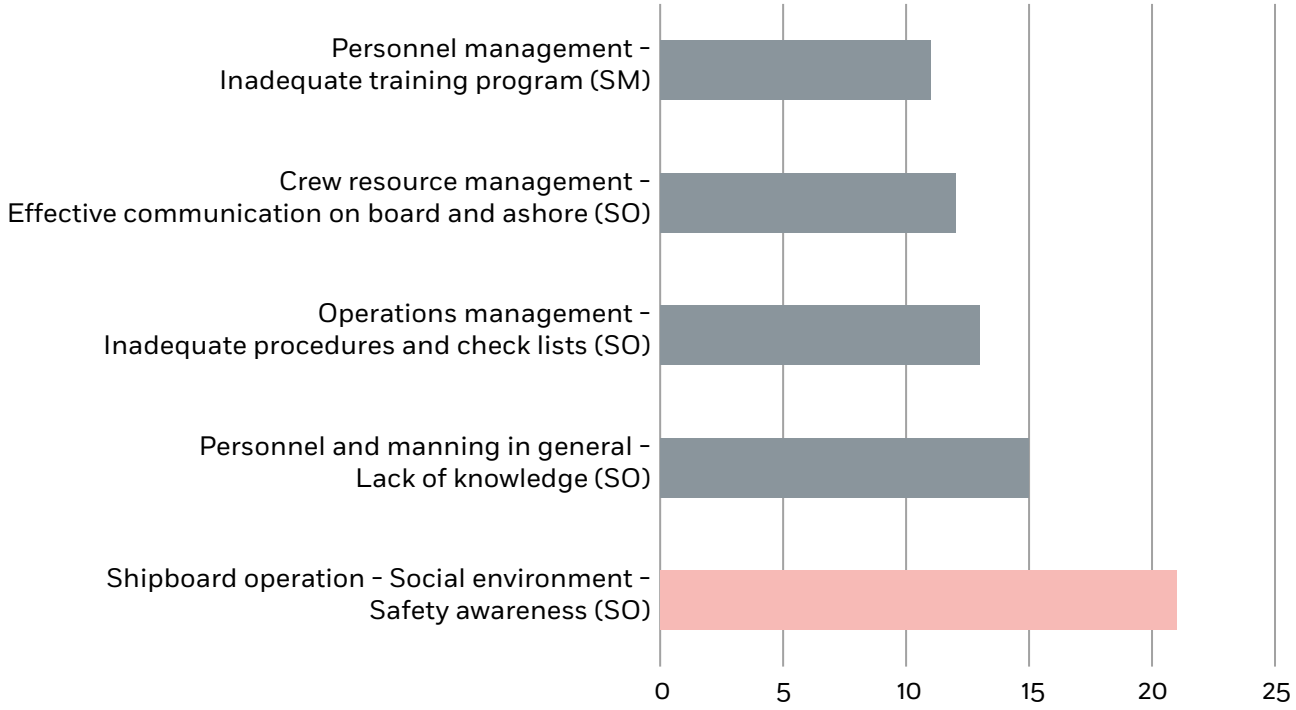

**From a total of 320 accident events analysed during the investigations, 68.4% were attributed to a Human action and 18.8% to System/ equipment failure.**

Figure 6.16: Relationship between accident events and the main contributing factors for 2011-2018




**When reported, shipboard operations represented the main contributing factor with 55.6% of the total.**

Figure 6.17: Contributing factors related to 'Human action' for 2011-2018



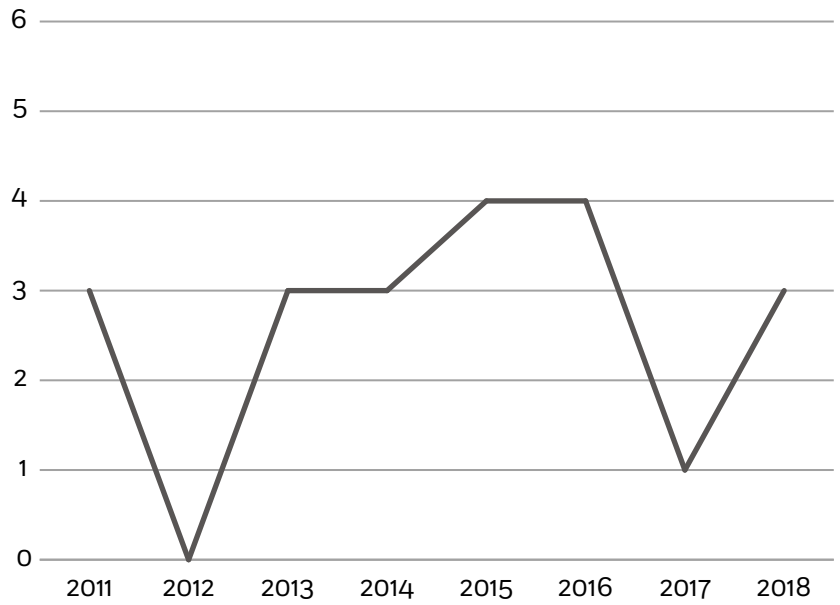

**This figure shows the 5 most reported contributing factors related to 'Human action'. Social environment - Safety awareness (21), Personnel and manning in general - Lack of knowledge (15) and Operations management - Inadequate procedures (13) represent the highest figures.**

The main groups of safety recommendations are classified under: SO – Ship board operations; SM – Shore management, and; EE – Environmental effect

## 6.5 CONSEQUENCES

### 6.5.1 CONSEQUENCES TO SHIPS

Figure 6.18: Service ships lost



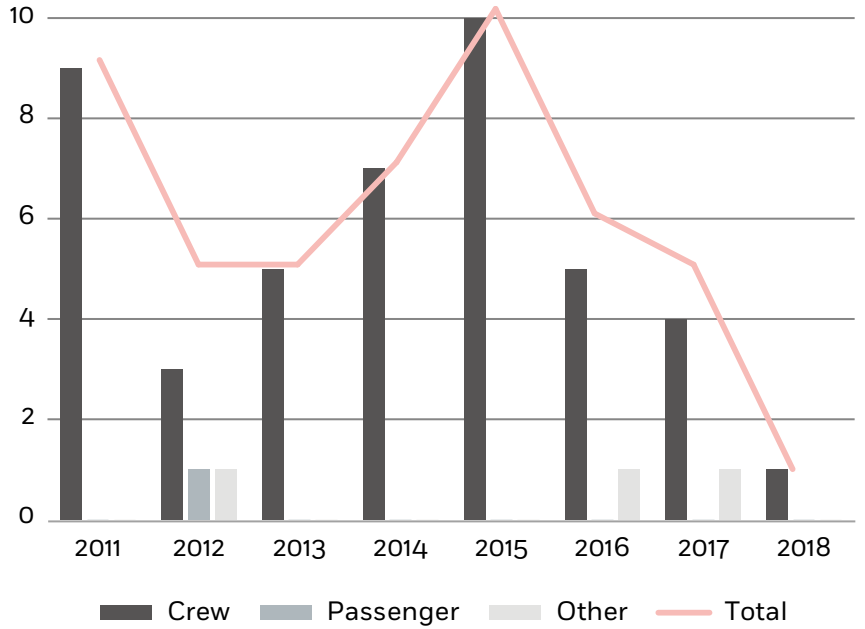

**In the reference period 2011 – 2018, the average number of service ships lost per year was 2.6.**

**Of the 21 ships lost one third were tugs.**

### 6.5.2 CONSEQUENCES TO PERSONS

#### 6.5.2.1 FATALITIES

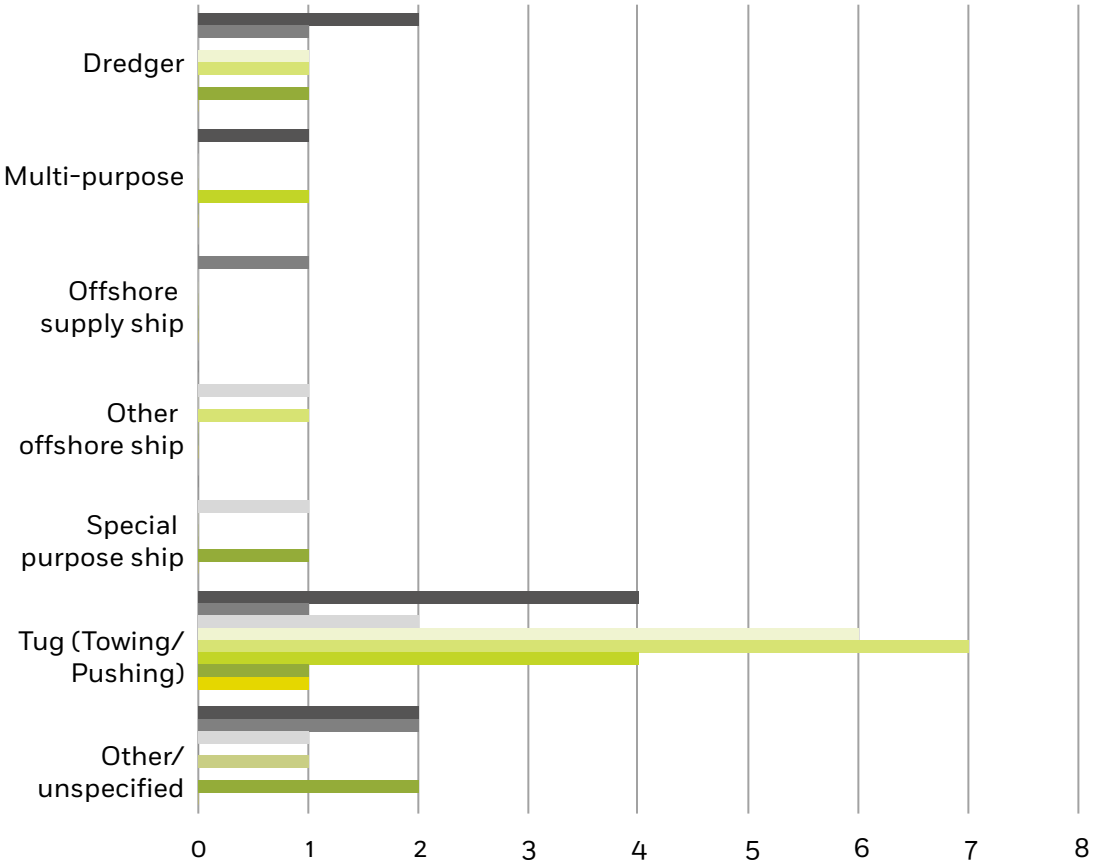
Figure 6.19: Number of fatalities




**After an increase of fatalities from 2013 to 2015, the number of deaths tended to decrease since 2015.**

**Almost all victims (91.7%) were crew members.**

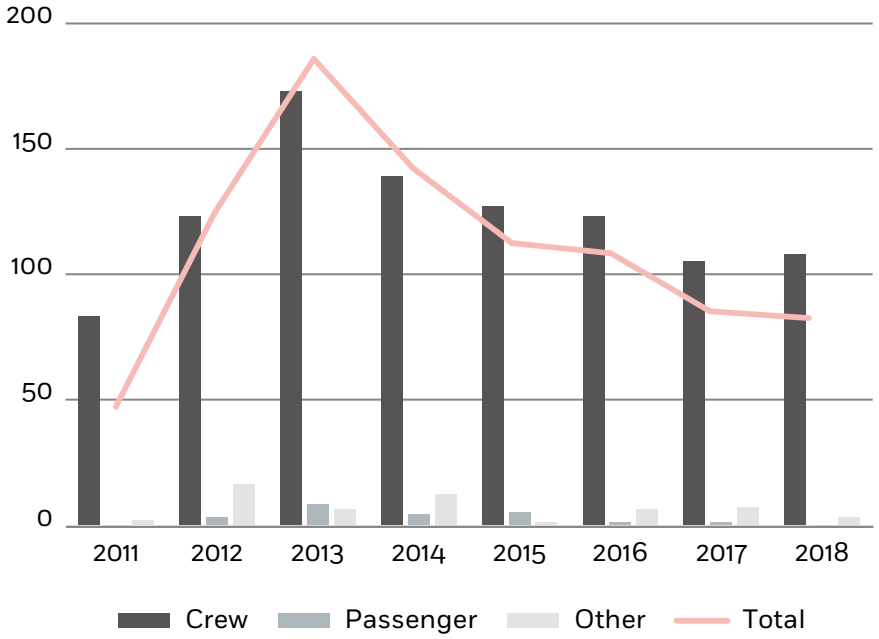
Figure 6.20: Distribution of fatalities per service ship type




**54.2% of the fatalities occurred on board tugs, however in 2017 and 2018 only one fatality occurred.**

### 6.5.2.2 INJURIES

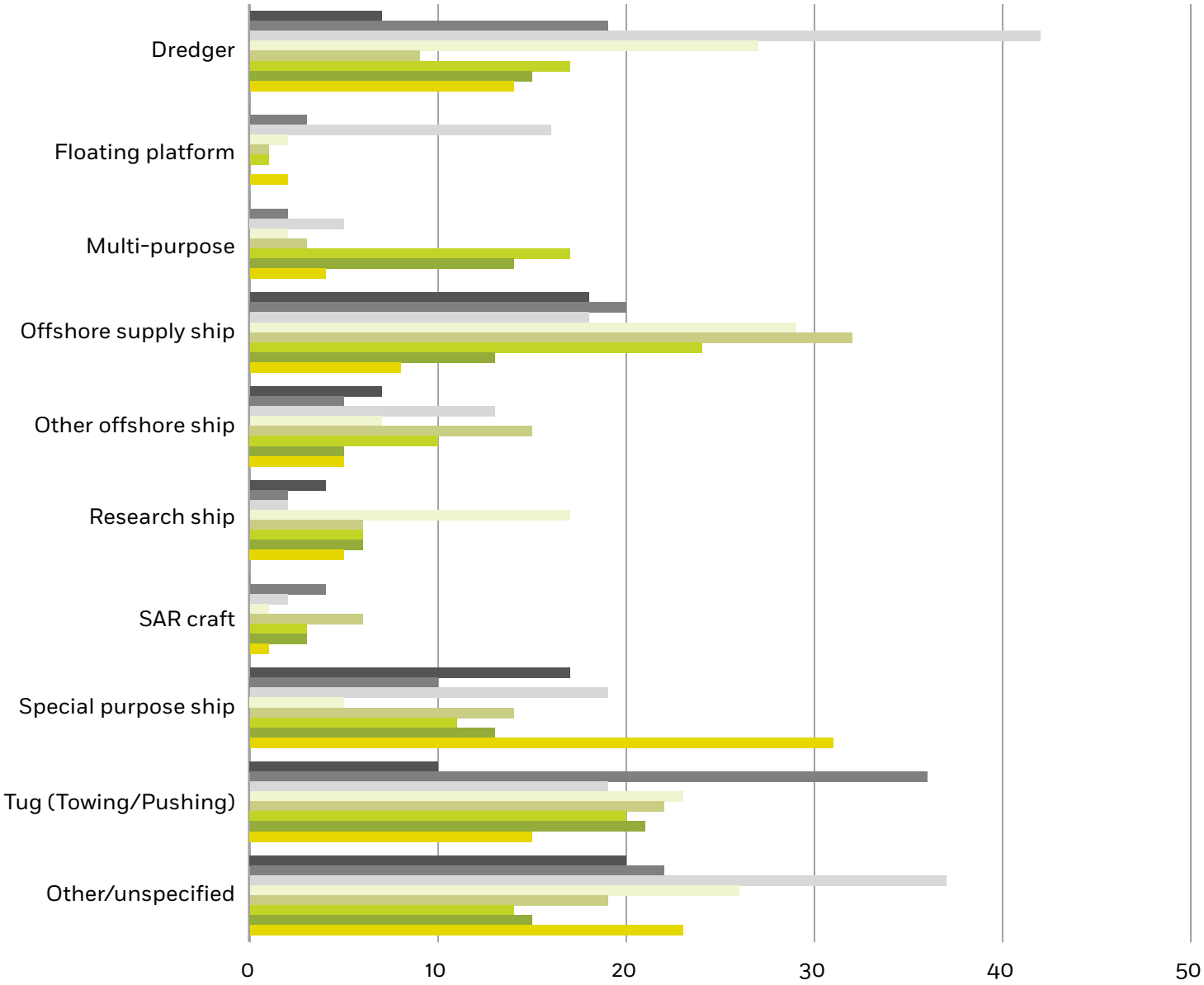
**Figure 6.21: Number of injuries**




**After an increase of injuries in 2013, the number of persons injured has continuously decreased since then.**

**Crew members were the main victims of injuries (92.9%).**

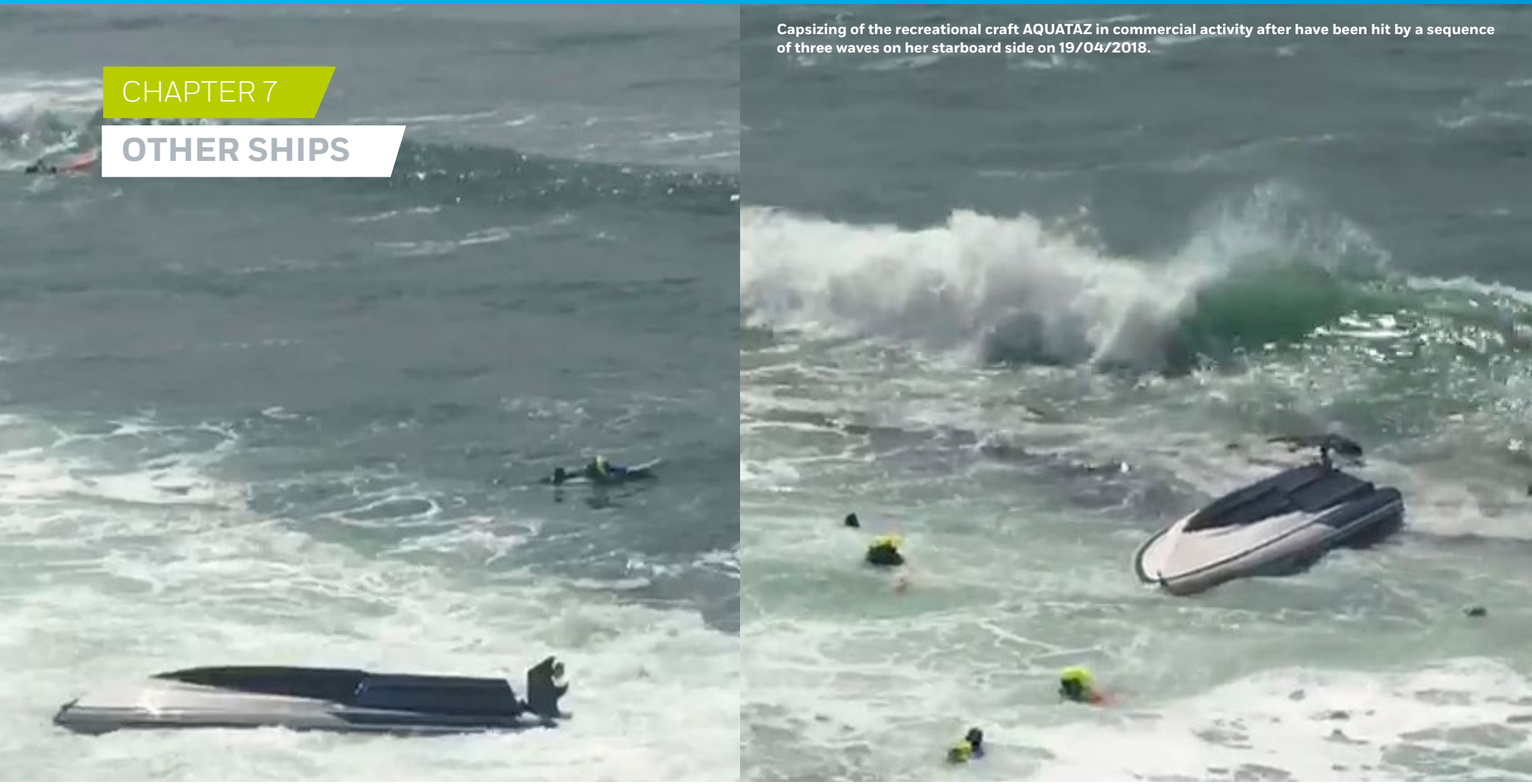
Figure 6.22: Distribution of injuries per service ship type




**In 2018, the marine casualties and incidents resulting in injuries increased among the categories special purpose ship (53.3%) and other service ship/ unspecified (more than double) and decreases on board tugs (28.6%).**

CHAPTER 7

# OTHER SHIPS



Capsizing of the recreational craft AQUATAZ in commercial activity after have been hit by a sequence of three waves on her starboard side on 19/04/2018.

## KEY FIGURES 2018

| 150 | 10 | 1 | 33 | 4 | 167 |
|---|---|---|---|---|---|
| CASUALTIES & INCIDENTS | VERY SERIOUS CASUALTIES | FATALITIES | PERSONS INJURED | SHIPS LOST | SHIPS INVOLVED |

## 7.1 DETAILED DISTRIBUTION

**The directive does not apply to marine casualties and incidents involving only ships not propelled by mechanical means, wooden ships of primitive build, pleasure yachts and pleasure craft not engaged in trade, unless they are or will be crewed and carrying more than 12 passengers for commercial purposes. This category of vessels are also within the scope of the directive 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).**

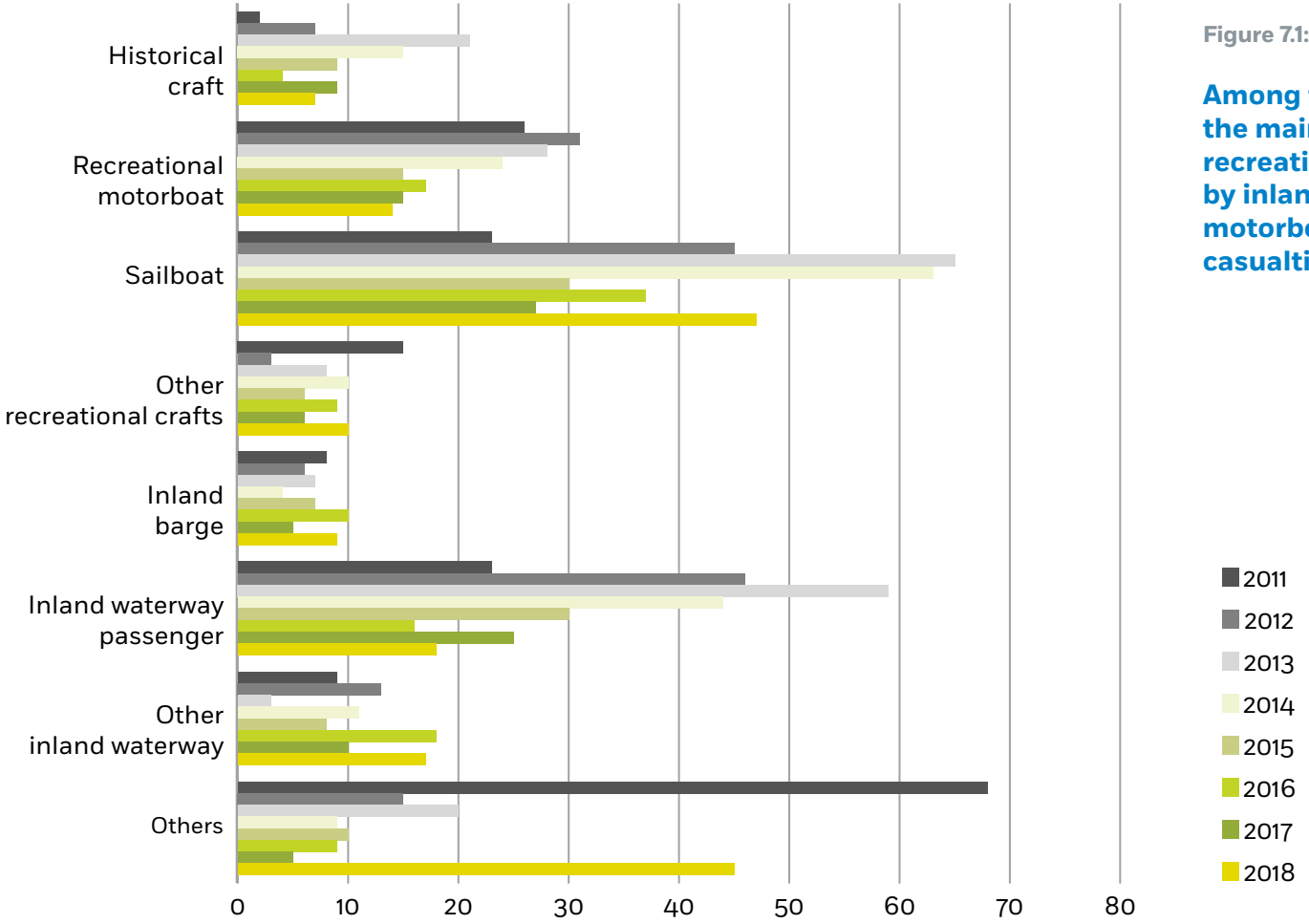
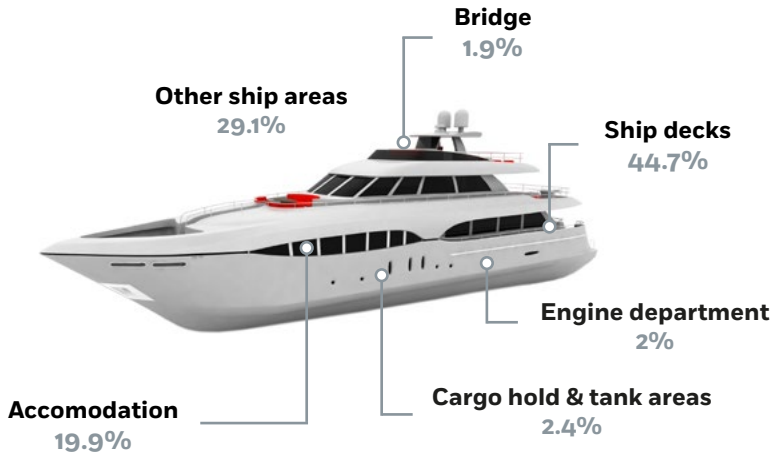



Figure 7.1: Distribution of 'Other ships' involved

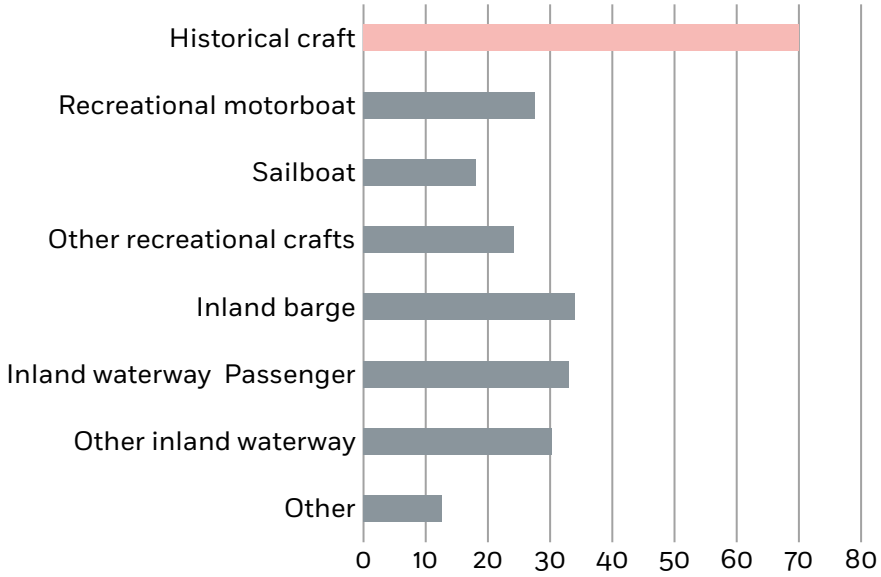
**Among the other types of ships involved, the main subcategory was represented by recreational sailboats (30.4%), followed by inland waterway passenger (24%) and motorboat (15.6%). The number of marine casualties or incidents in 2018 were 167.**

Figure 7.2: Main places of occurrence with person(s) onboard 'Other ships' for 2011-2018



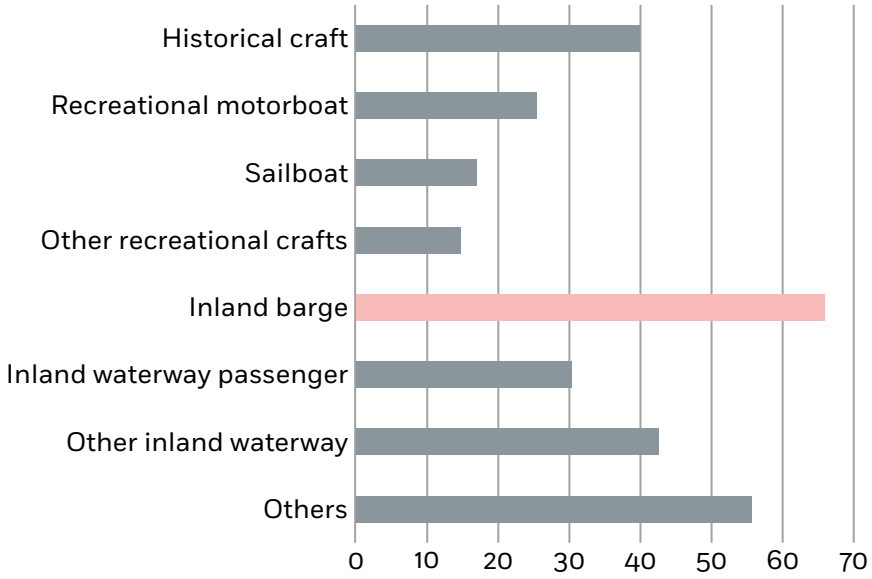

**The most quoted location of marine casualties and incidents was ship decks (44.7%) corresponding to 92 cases, followed by 'Other ships' areas (29.1%).**

Figure 7.3: Average age of 'Other ships' by category involved for 2011-2018




**The youngest ship category is sailboat (with aux. motor and sail only) (18y), while the oldest is historical ships (70y).**

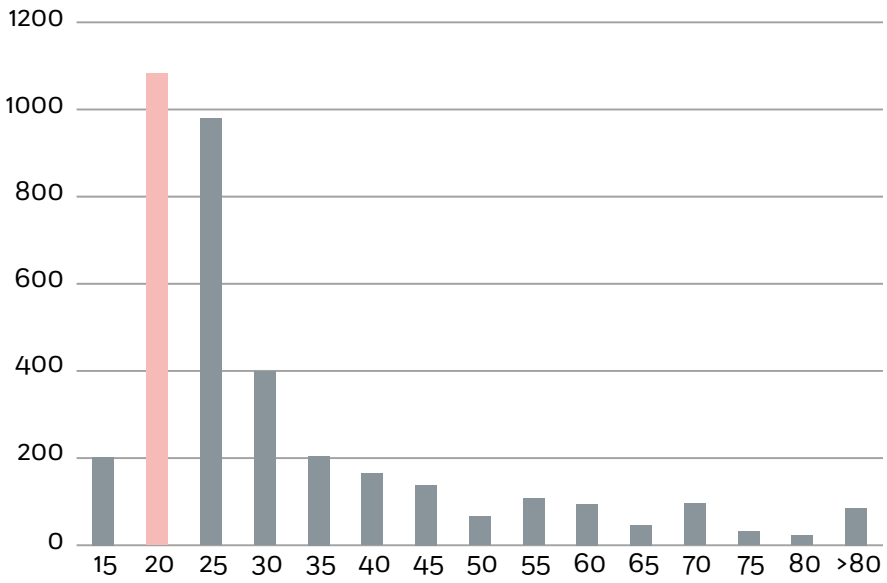
Figure 7.4: Average length overall of 'Other ships' involved by main category for 2011-2018




**With an average length of 65.9m, barges were the longest ships involved in this category. Recreational craft were the smallest.**

Crew member position representation on an historical craft boom, before falling down on the deck causing his death on 05/12/2018.

Figure 7.5: Length overall distribution of 'Other ships' involved for 2011-2018

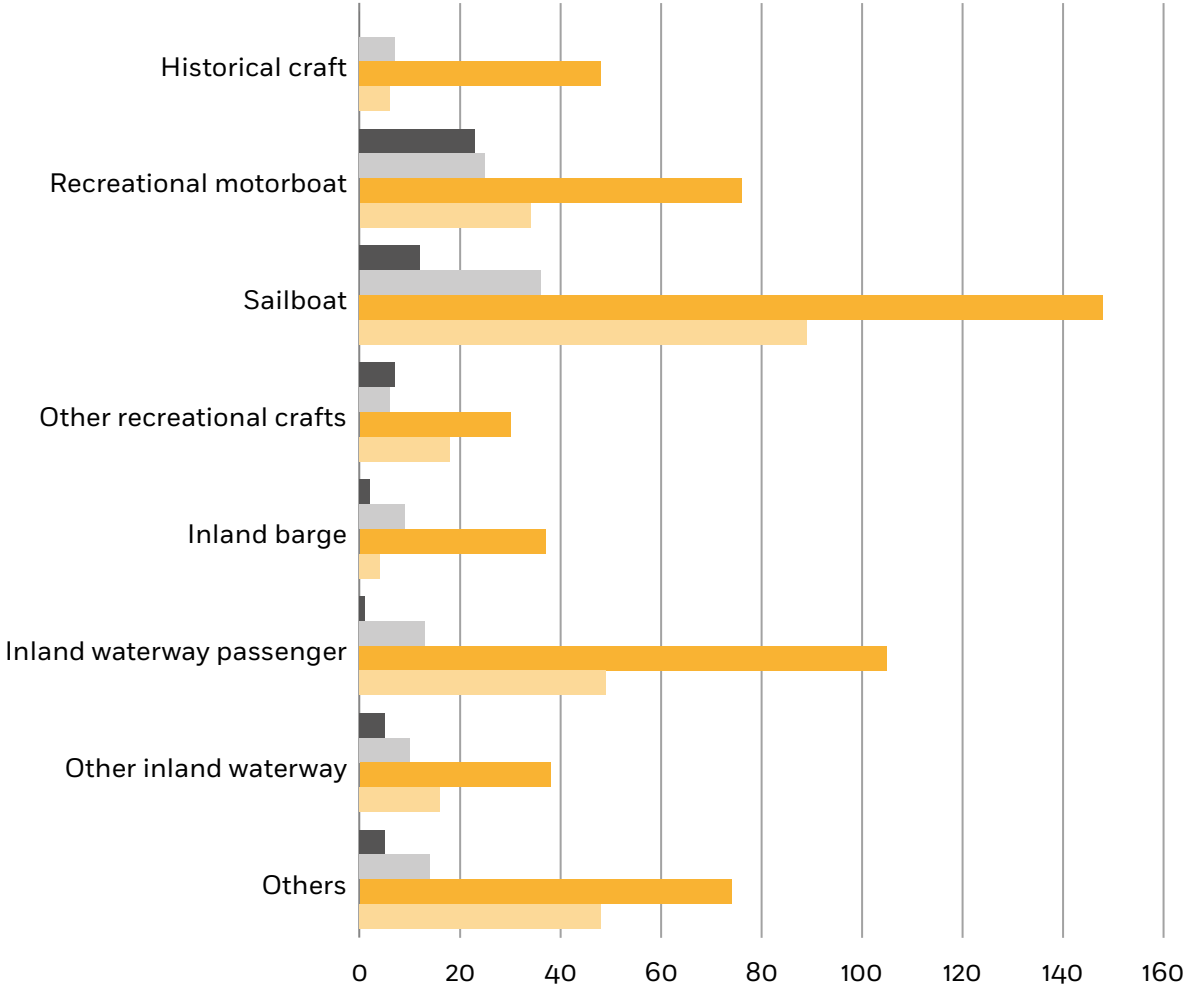



**A peak is noted for ships with a length overall between >15 - 20 meters.**

## 7.2 NATURE OF MARINE CASUALTIES AND INCIDENTS

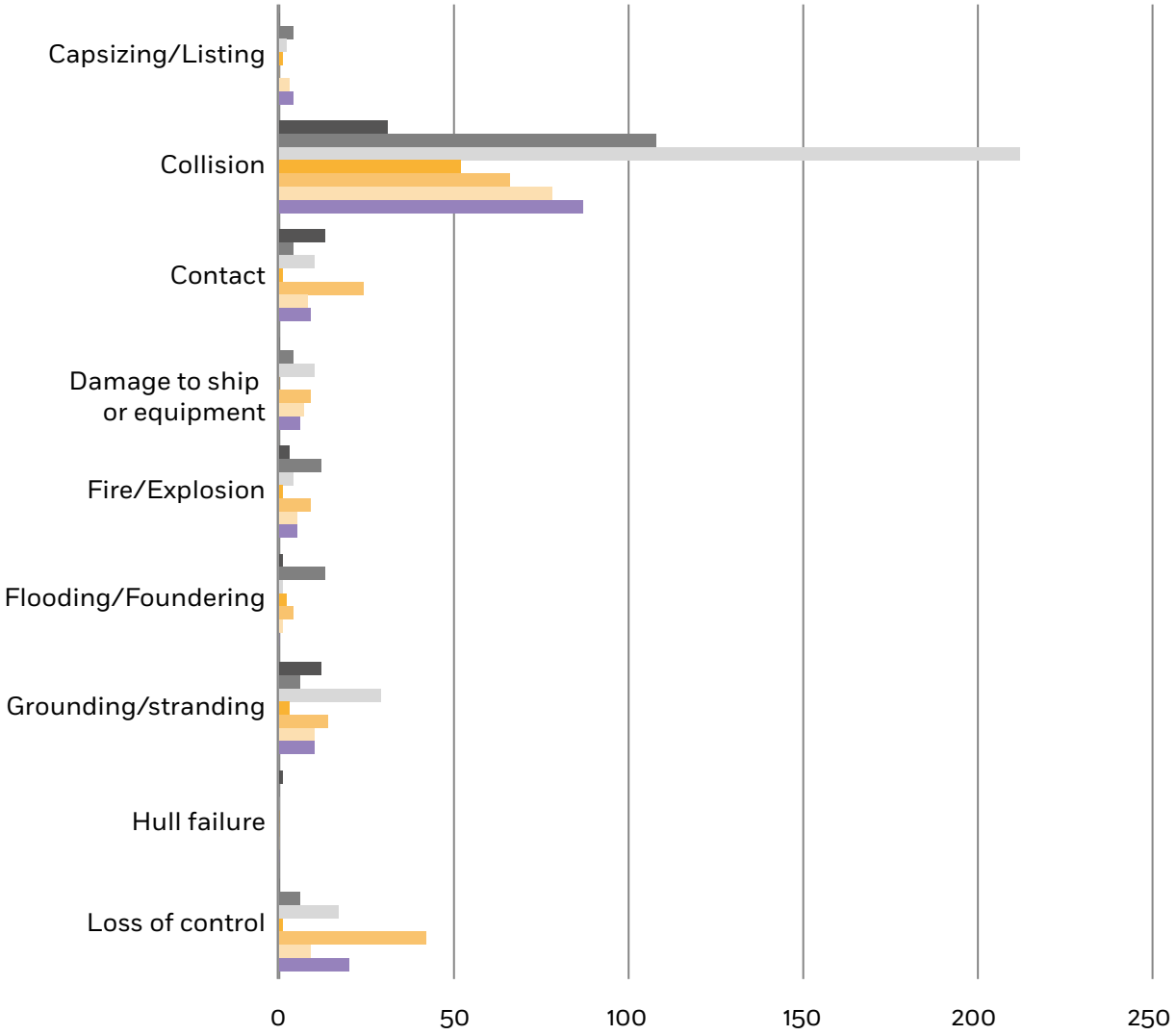
### 7.2.1 OCCURRENCE WITH SHIP(S)

Figure 7.6: Distribution of severity by 'Other ships' for 2011-2018




**Recreational craft motorboats and sailboats have the highest rate of very serious casualties 41.8% and 21.8%, respectively.**

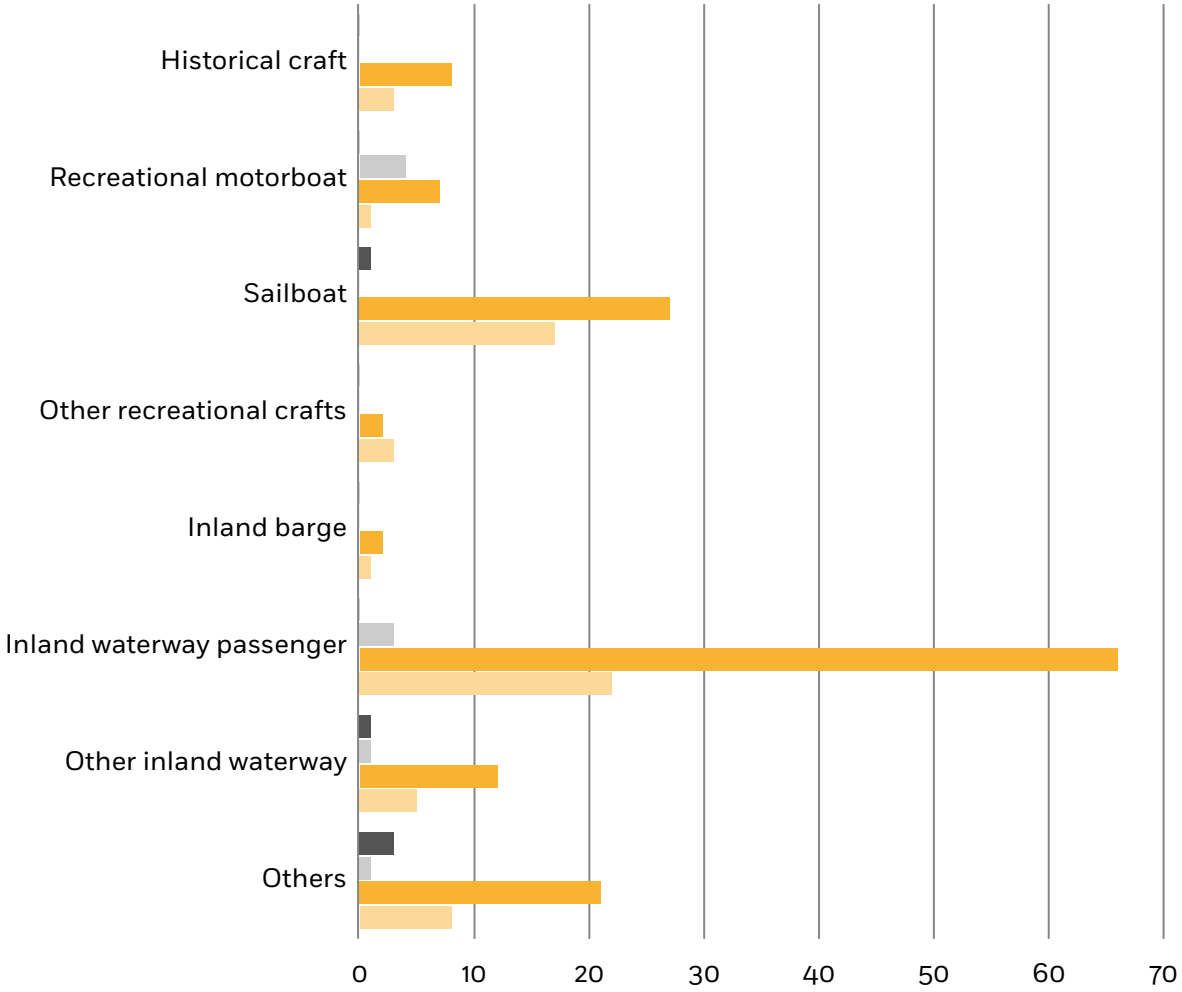
Figure 7.7: Distribution of casualty events per 'Other ships' for 2011-2018




**Ships within this category, despite being excluded from the scope of Directive 2009/18/EC, were however recorded as they were involved in a collision with a ship falling under the scope. This explains the very high rate of collisions as a casualty event (63.8%) being motorboats and sailing boat responsible for more than 50%.**

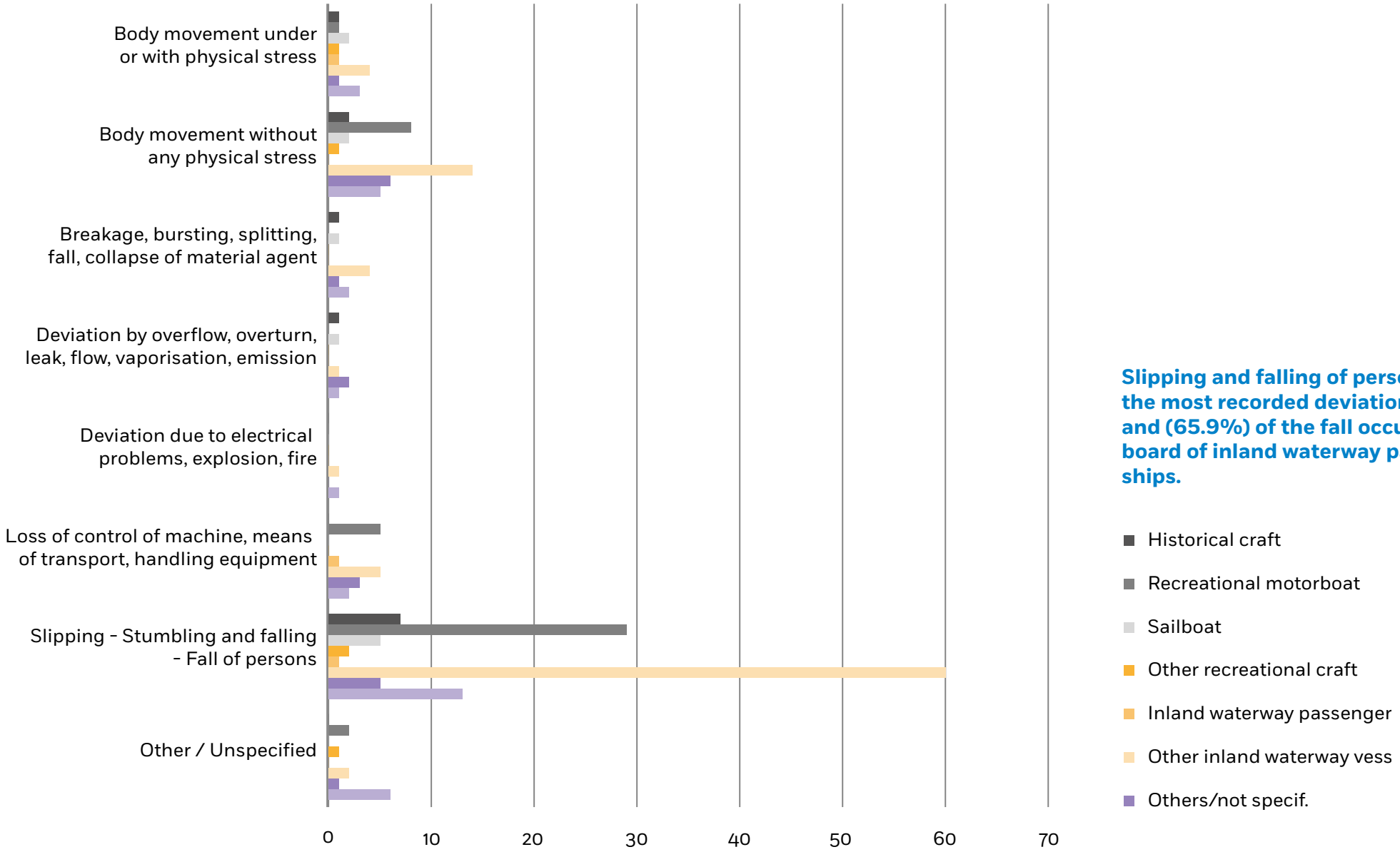
## 7.2.2 OCCURRENCE WITH PERSON(S)

Figure 7.8: Severity of occurrence with person(s) per 'Other ships' for 2011-2018




**The numbers for very serious (5) and serious (9) occurrence with person(s) for this category of ships are low in line with the reduced number of accidents.**

Figure 7.9: Distribution of deviations per 'Other ships for 2011-2018



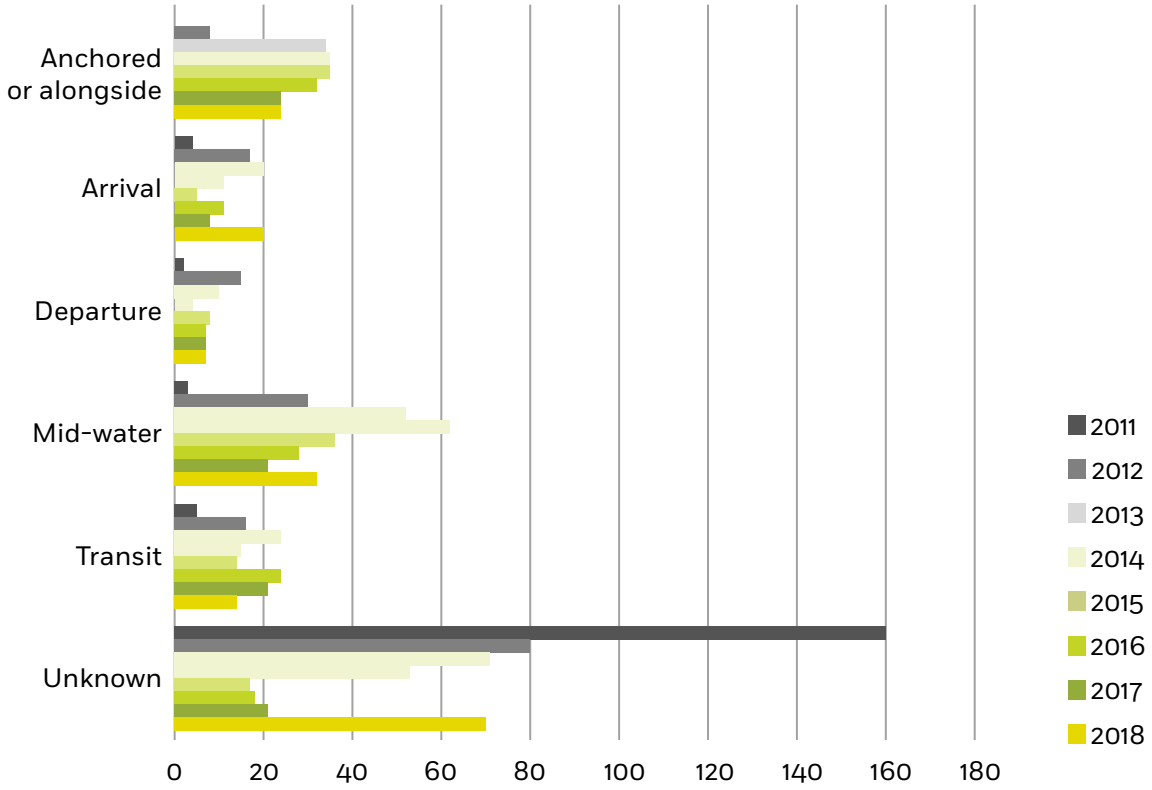

**Slipping and falling of persons was the most recorded deviation (41.6%) and (65.9%) of the fall occurred on board of inland waterway passenger ships.**

## 7.3 LOCATION OF MARINE CASUALTIES AND INCIDENTS

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

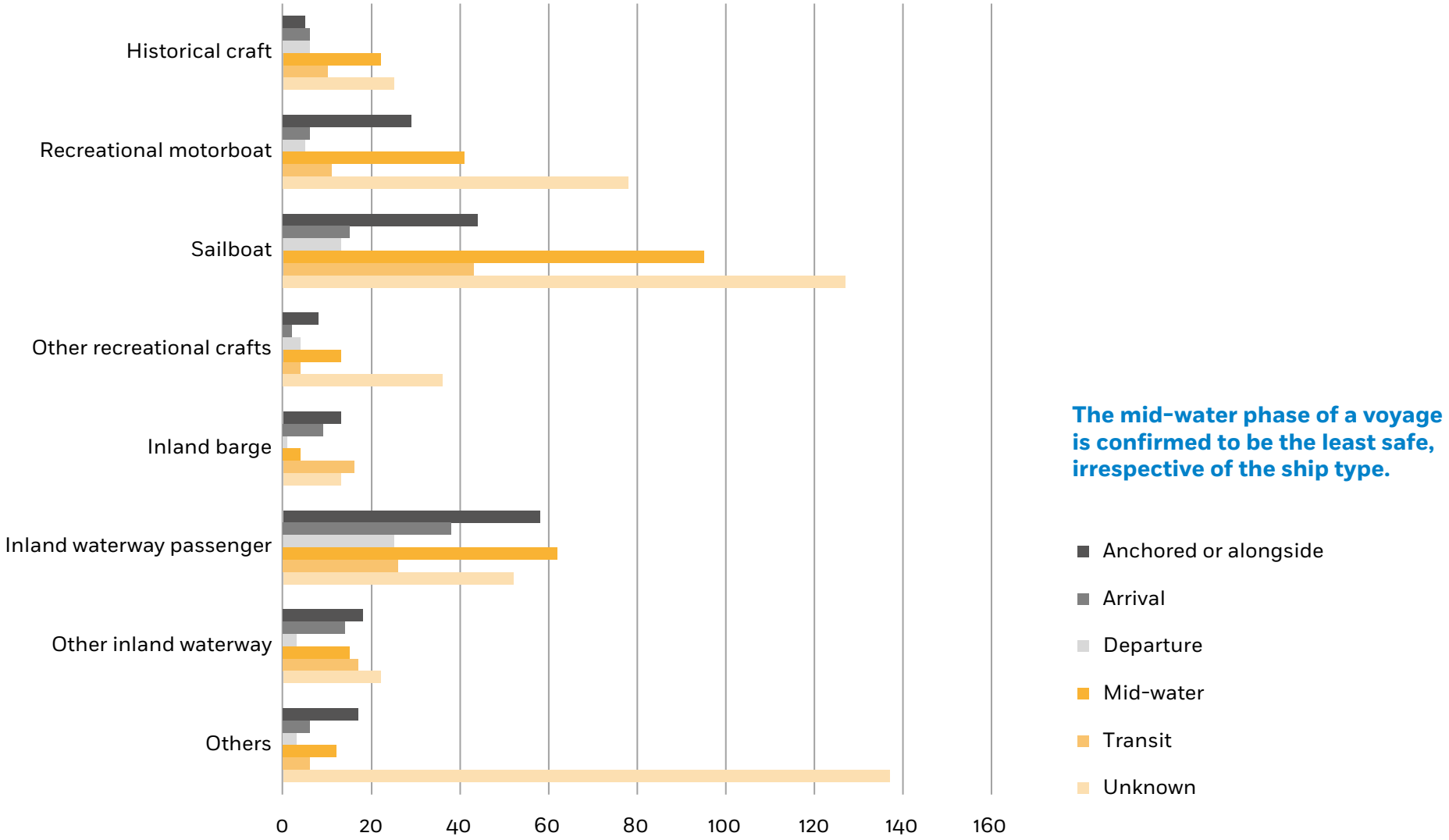
### 7.3.1 VOYAGE SEGMENTS

Figure 7.10: Distribution by voyage segment for 2011-2018




**The specified mid-water is the least safe phase with 21.4% followed by anchored or alongside with 15.5%.**

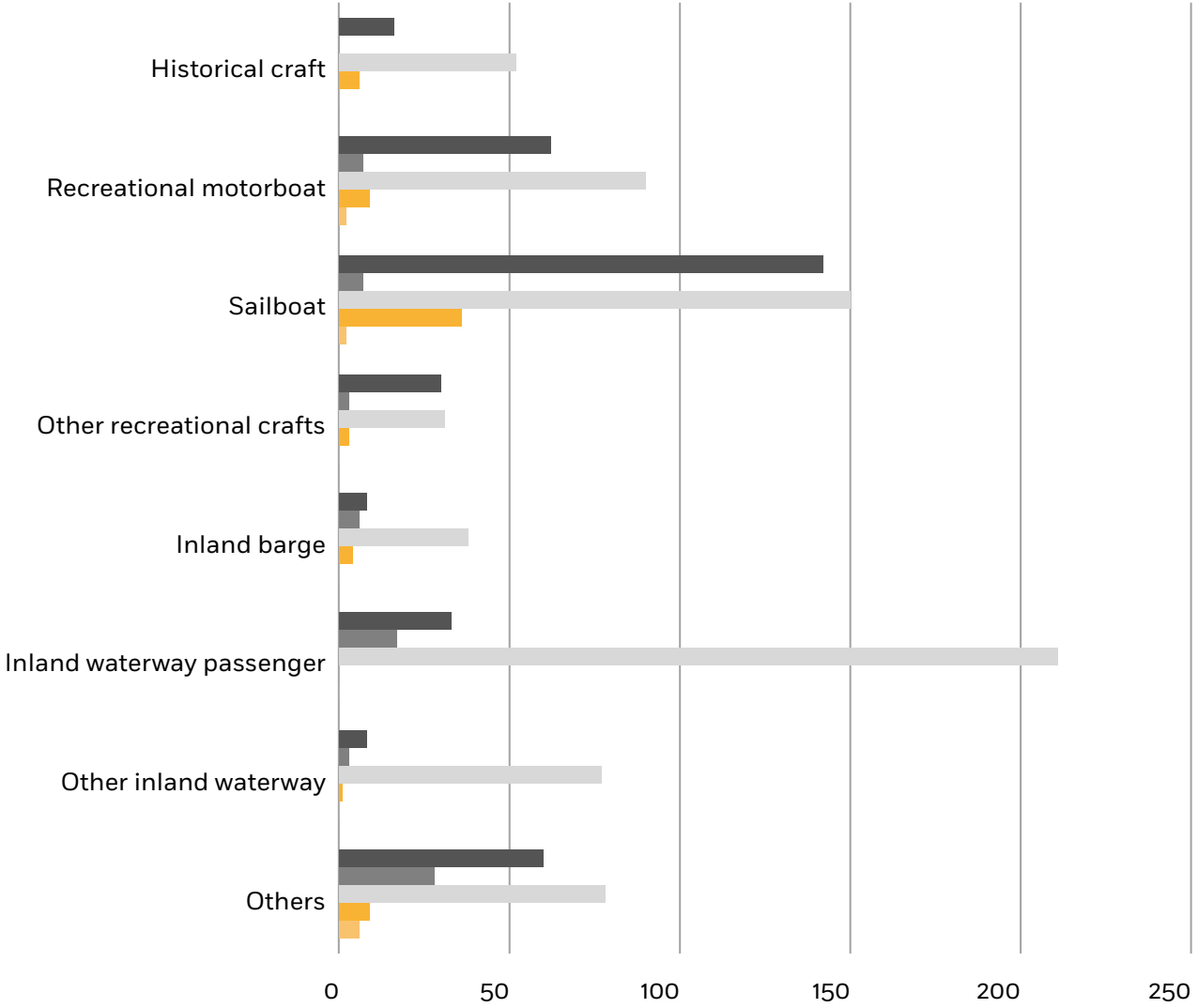
Figure 7.11: Distribution by voyage segment per 'Other ships for 2011-2018




**The mid-water phase of a voyage is confirmed to be the least safe, irrespective of the ship type.**

## 7.3.2 LOCATION

Figure 7.12: Distribution by location of marine casualties and incidents per 'Other ships' for 2011-2018




**'Internal waters' is the location where the majority of the casualties or incidents took place. Within the category of sailing boats, accidents occurred mainly in internal waters (44.5%) and in territorial sea (42.1%).**

## 7.3.3 REGIONAL DISTRIBUTION

**Figure 7.13: Global ocean and sea distribution for of marine casualties and incidents 2011-2018**

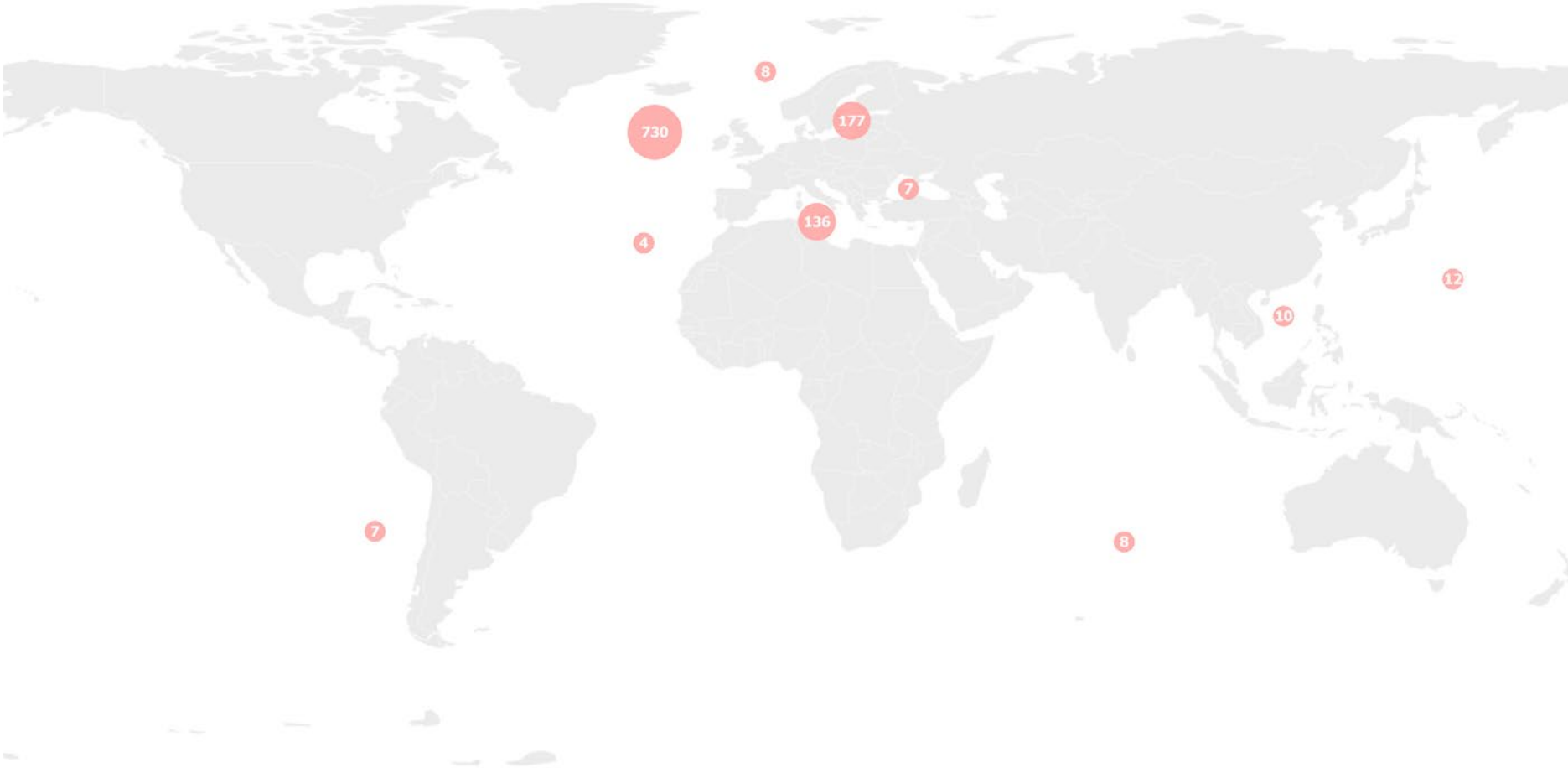
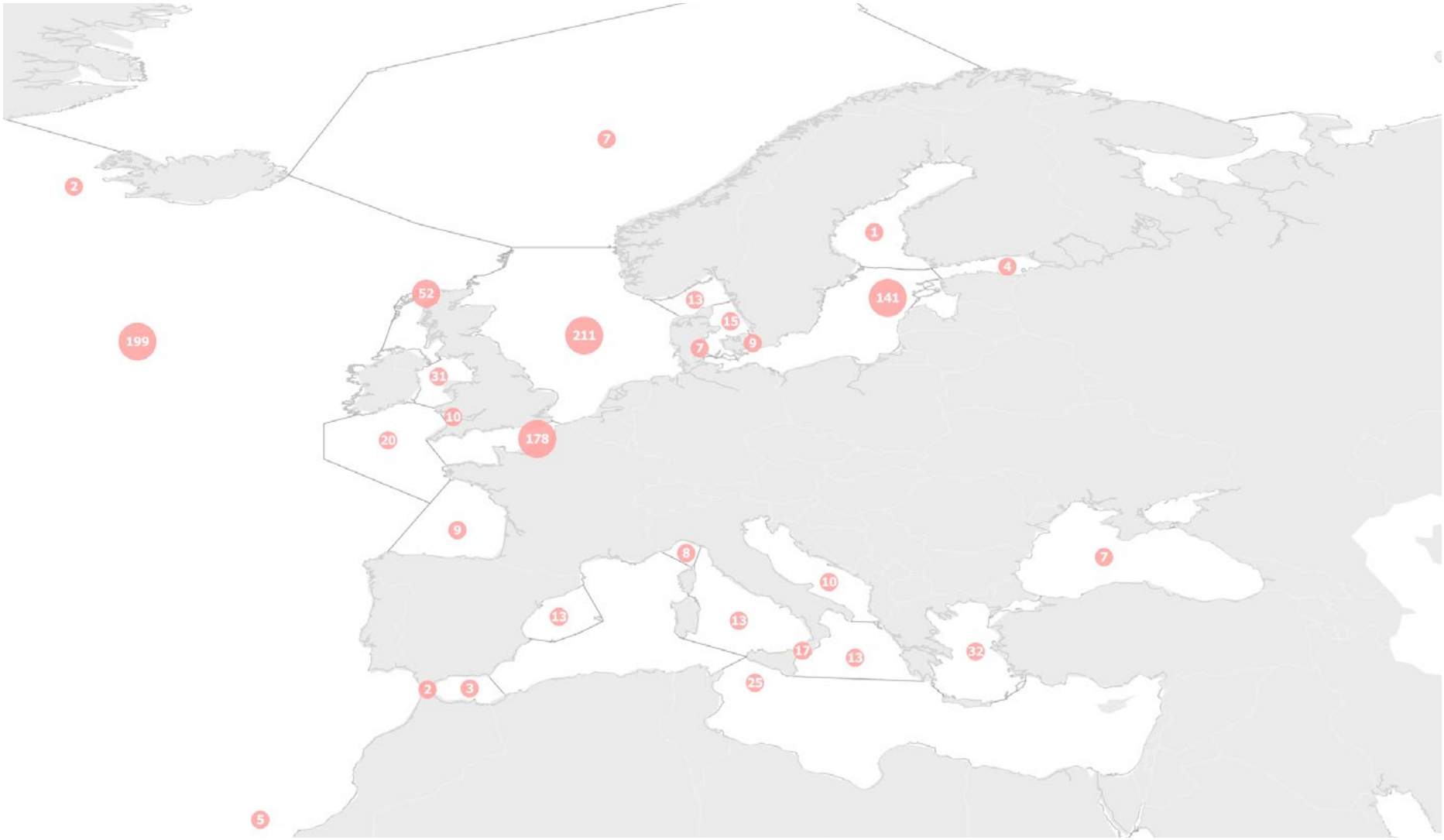


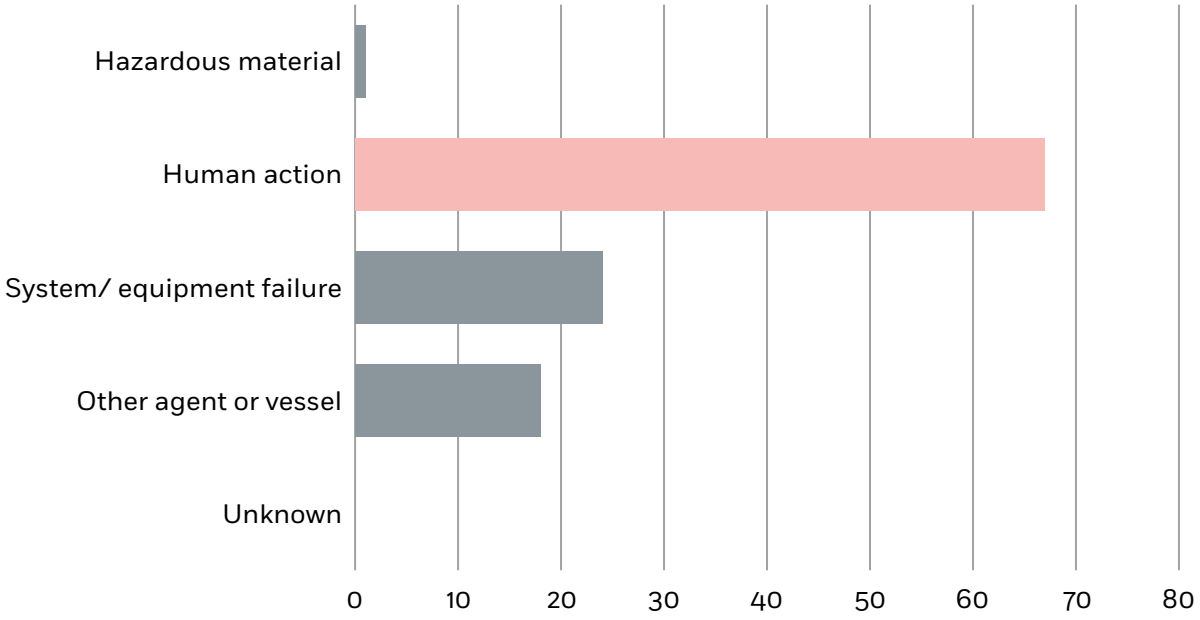
Figure 7.14: Distribution of marine casualties and incidents within sub-sea areas around EU waters for 2011-2018



## 7.4 ACCIDENT EVENTS AND CONTRIBUTING FACTORS

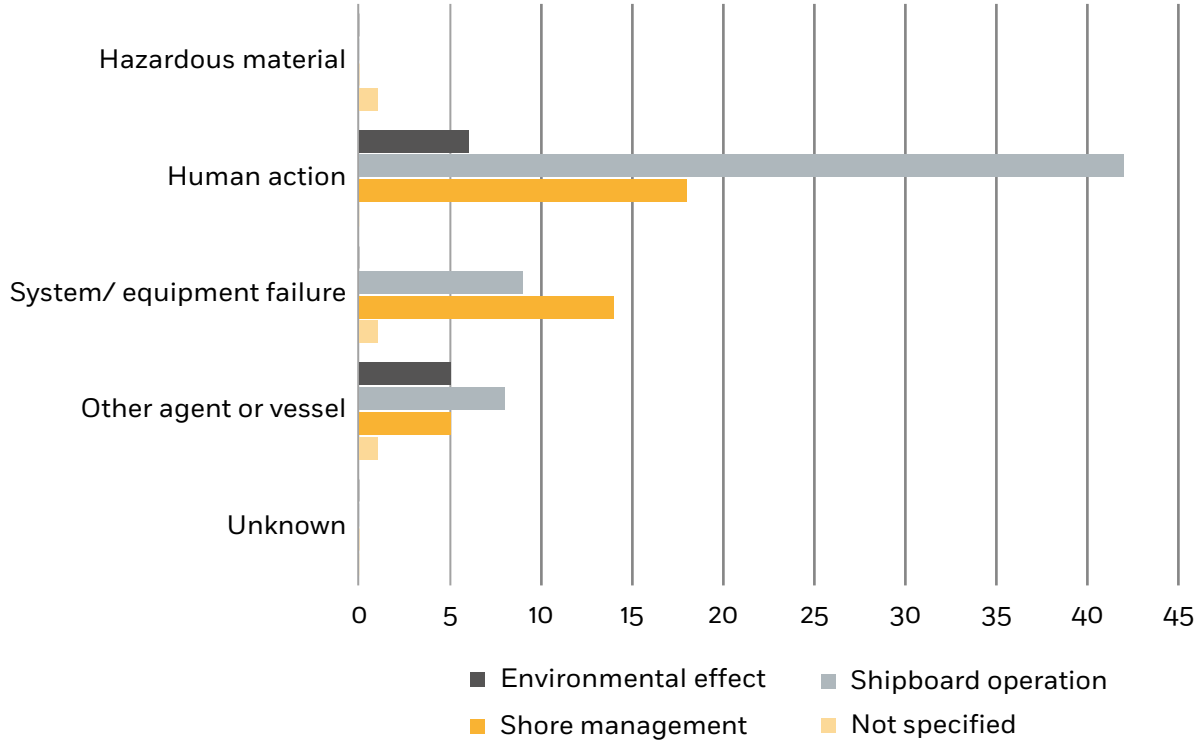
**Due to the limited number of cases, figures below should be considered as indicative rather than conclusive. However, possible conclusions that can be made follow the conclusions made for the four other categories of ship.**

Figure 7.15: Accident events for 2011-2018




**From a total of 110 accident events analysed during the investigations, 60.9% were attributed to Human action and 21.8% to System/equipment failure.**

Figure 7.16: Relationship between accident events and the main contributing factors for 2011-2018




**When reported, shipboard operations were most quoted as contributing factor with 53,6% of the total.**

**Figure 7.17: Contributing factors related to 'Human action' for 2011-2018**


**This figure shows the 6 contributing factors most reported. Social environment - Safety awareness (26), Personnel and manning - Lack of knowledge (16) and Operations management - Inadequate procedures and check lists (SM) (14) represent the highest figures.**

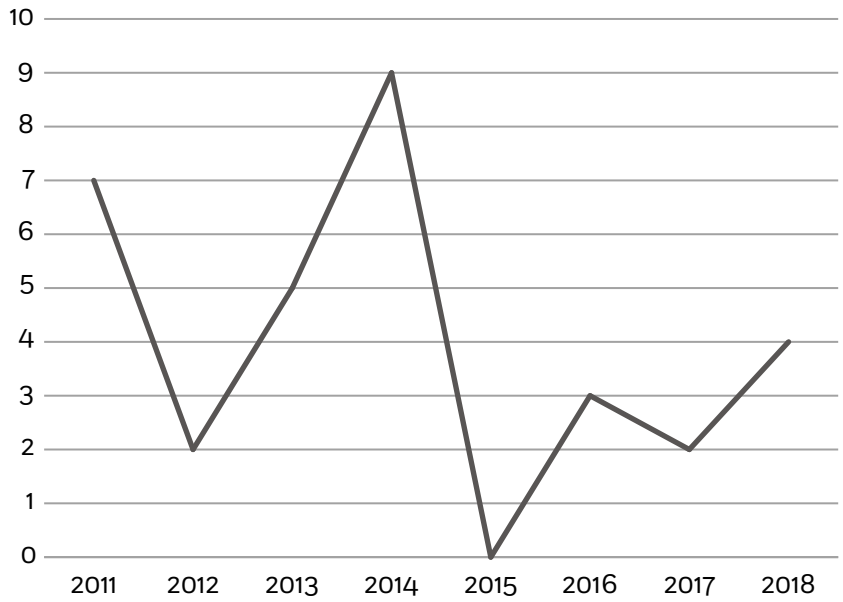
Main groups of safety recommendations are classified under: SO – Ship board operations; SM – Shore management, and; EE – Environmental effect.

LTA – Less than adequate.

## 7.5 CONSEQUENCES

### 7.5.1 CONSEQUENCES TO SHIPS

Figure 7.18: 'Other ships' lost



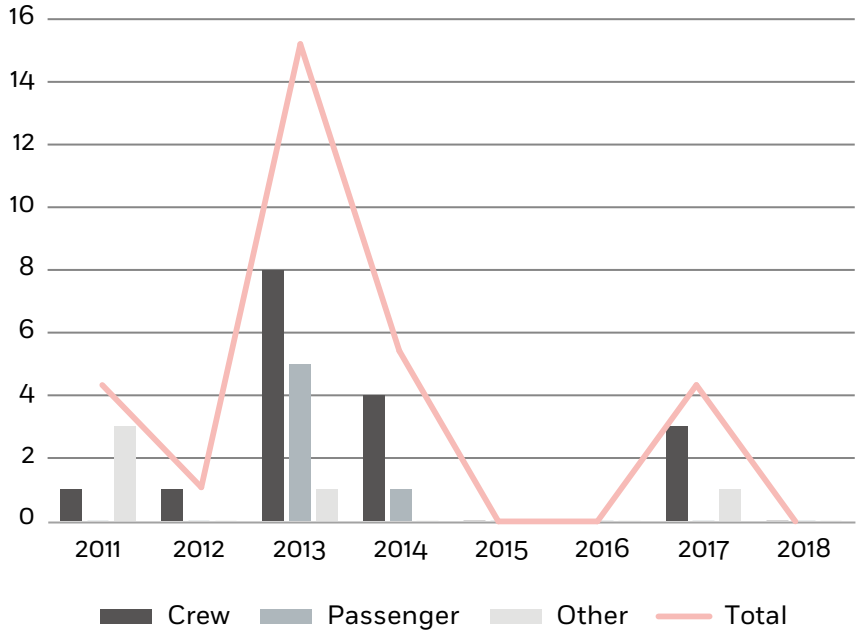

**After no lost ships were recorded in this category in 2015, figures have been rising.**

**Of the 32 'Other ships' that were lost, the majority were recreational craft (62%).**

### 7.5.2 CONSEQUENCES TO PERSONS

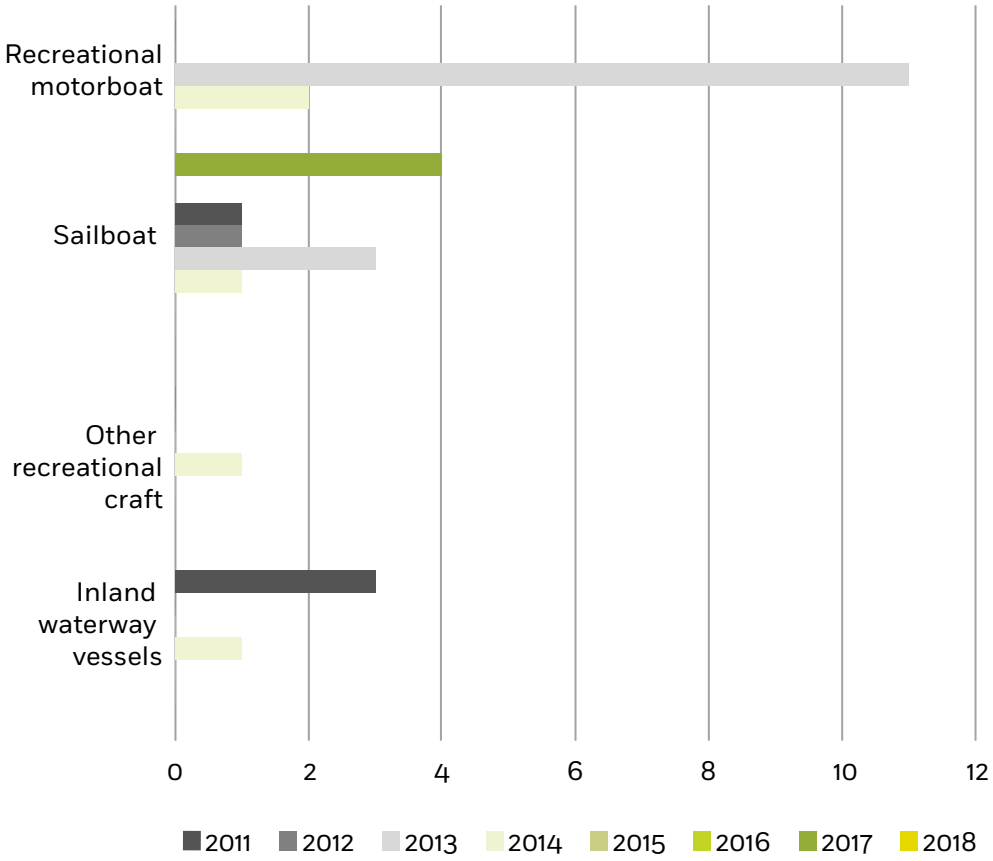
#### 7.5.2.1 FATALITIES

Figure 7.19: Number of fatalities




**Since 2013 the number of fatalities on board 'Other ships' tended to decrease.**

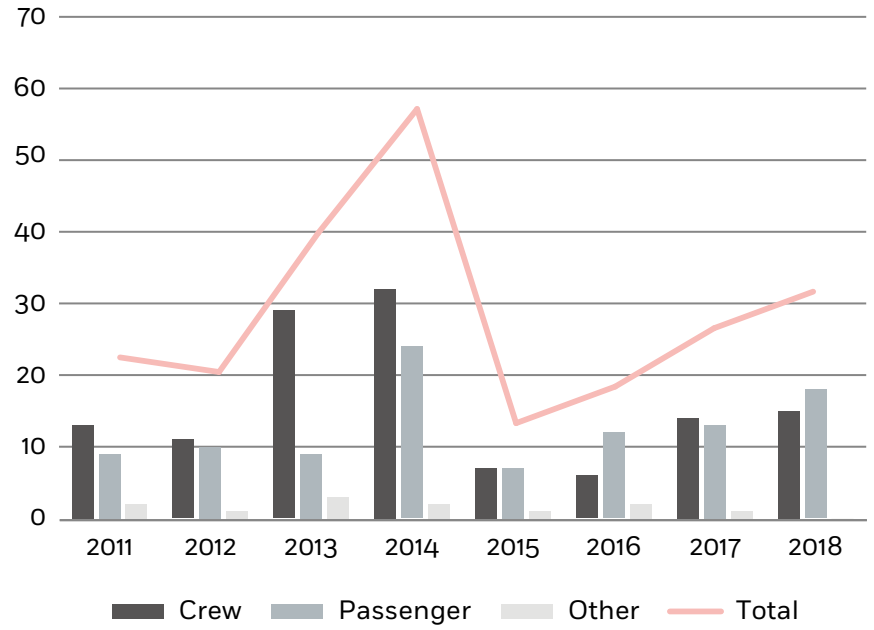
Figure 7.20: Distribution of fatalities per 'Other ships'




**Most fatalities occurred on board recreational craft, motorboats or sailboats, in particular those with auxiliary motor.**

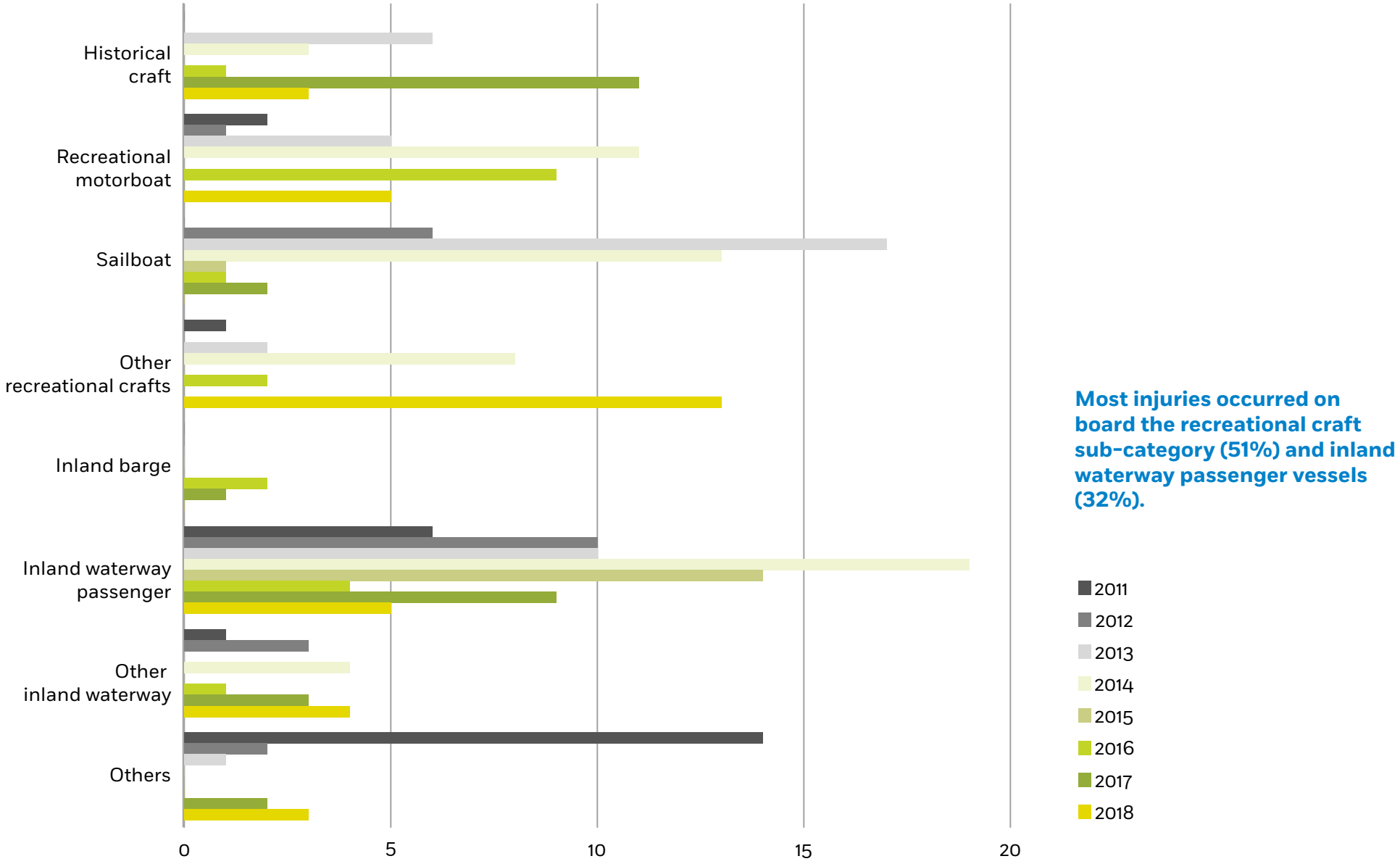
## 7.5.2.2 INJURIES

Figure 7.21: Number of injuries




**The number of injuries has continued increasing since 2015, with in particular an increase in the number of passengers that were injured in 2018 (18).**

Figure 7.22: Distribution of injuries per 'Other ships'




**Most injuries occurred on board the recreational craft sub-category (51%) and inland waterway passenger vessels (32%).**

# APPENDICES

Contact during the mooring manoeuvre of the chemical tanker with a berth of the cargo terminal on 05/08/2018.

# APPENDIX 1

## ACRONYMS

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

## DEFINITIONS FROM THE IMO CASUALTY INVESTIGATION CODE AND THE DIRECTIVE 2009/18/EC

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

1. A **coastal State** means a State in whose territory, territorial sea and internal waters as defined in UNCLOS, a marine casualty or marine incident occurs.

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

3. 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.

4. 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.

5. 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.

6. 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.

7. 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 organizational 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.

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

1. damage that:
    1.1 significantly affects the structural integrity, performance or operational characteristics of marine infrastructure or a ship; and
    1.2 requires major repair or replacement of a major component or components; or
2. destruction of the marine infrastructure or ship.

9. 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:

- immobilization 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.**

10. 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.

11. A **severe damage to the environmen**t 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.

12. **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 recognized 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).

13. **Territorial sea** (section 1 of Part II of the United Nations Convention on the Law of the Sea) refers to the area within which 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. 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.

14. 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 can be found in the:

"IMO Code for the Investigation of Marine Casualties and Incidents" which 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://www.emsa.europa.eu/implementation-tasks/accident-investigation.html or on https://portal.emsa.europa.eu/emcip-public/#/dashboard

## OTHER EXPRESSIONS, AS PER EMCIP TAXONOMY

1. **Accident 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.

2. **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/foundering** 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 accident 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).

3. **Contributing factor** is a condition that may have contributed to an accident event or worsened its consequence (e.g. man/machine interaction, inadequate illumination).

4. Occurrence with person(s) 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 in this classification.**

5. Categories describing the **location** where the casualty or accident occurred are:

- Outside territorial sea it will be regarded as **open sea**.
If it is in waters up to 12 nautical miles from the baseline 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 categorized 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.

6. **Occurrence with person(s)** type means the mode in which only a person(s)on board was injured or died.

Accidents not related to ship operations, illness, suicide and homicides are not covered by the scope of the Directive 2009/18/EC.

7. **Persons on board** are categorised as follow:

- Crew members / seafarers (any person who is employed or engaged or works in any capacity on board a ship);
- Passengers; and
- Others, for example persons working in harbours to load or unload ships.

8. 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.

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

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.

9. The **ship type** 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 ships**, 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 organization.
  - **Unknown ship type**: occurrence for which it was not 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).

The nature of marine casualties and incidents are separated into two different categories: a "occurrence with ship(s)", when a ship, its equipment or cargo is affected by an accident and an "occurrence with person(s)", where the accident affects only a person.

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

11. As a consequence of a breakdown or immobilisation of the main engines or other event, the ships concerned might need **towage or shore assistance**.

12. **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

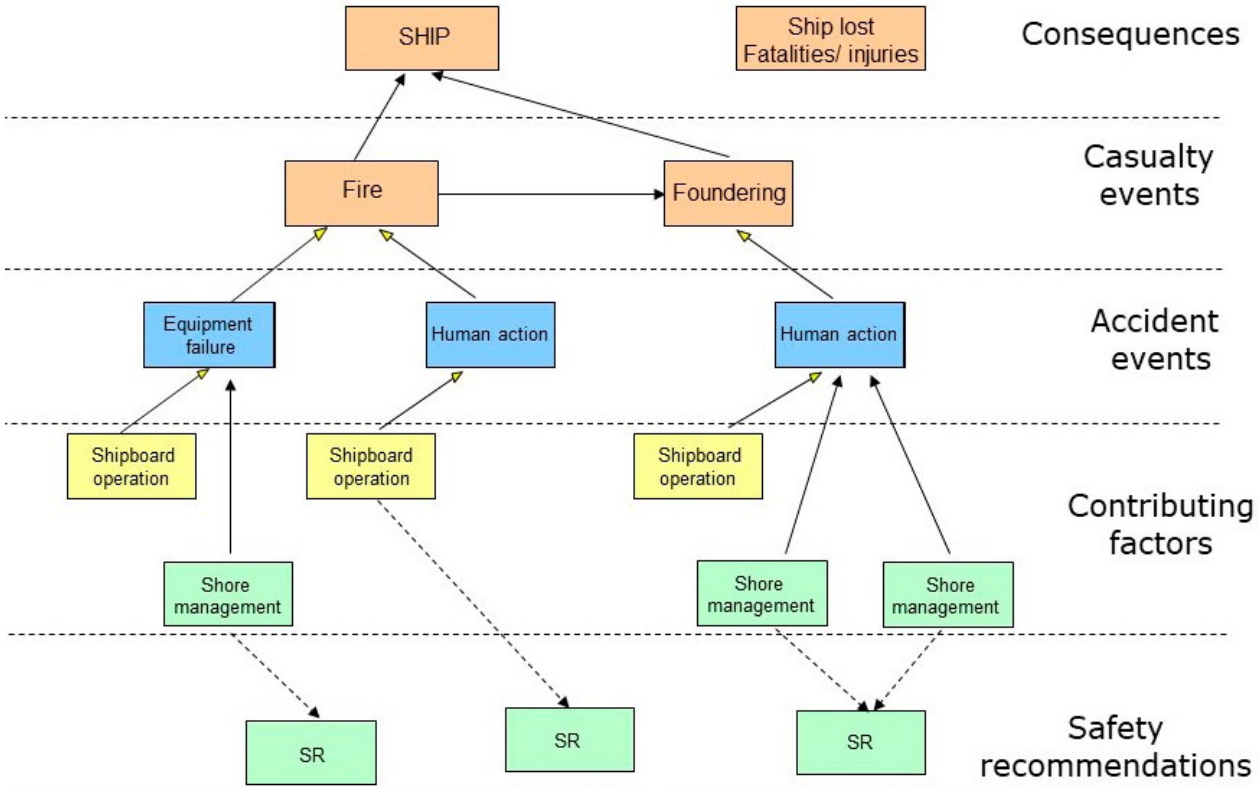
an unreasonable threat of harm to the marine environment.

13. 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); or
- **Mid-water** (between transit phases).

## APPENDIX 2

Figure 1: EMCIP Model




Note: safety recommendations can be linked to contributing factors.

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 provides also 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 events.

Such model is not only implemented at European level, but also at international level through the IMO resolution A28/Res.1075.

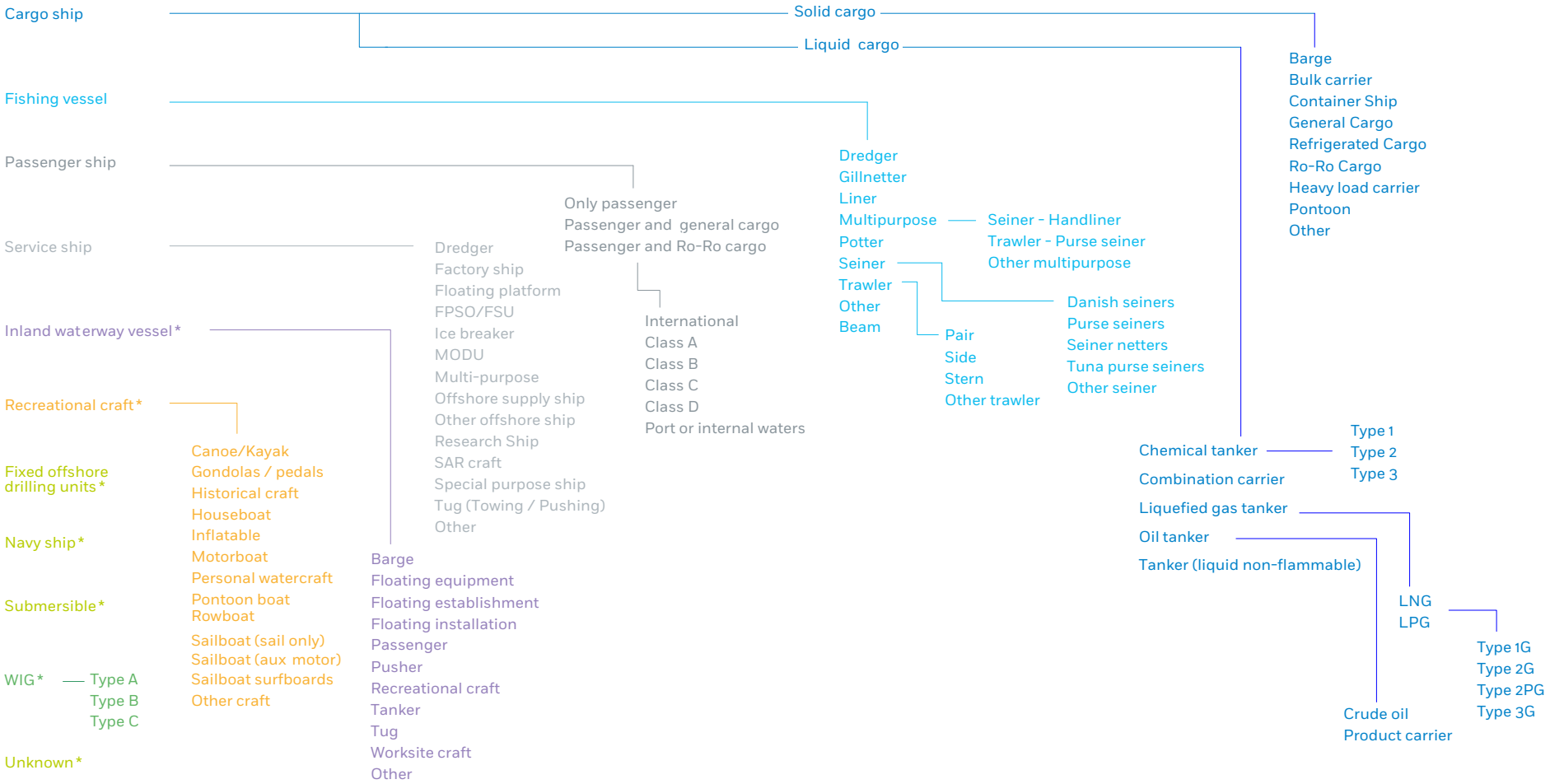
To support this model, a specific taxonomy related to marine casualties and incidents, composed by 630 fields, has been developed in the EMCIP database to store the various information collected during the investigation.

**Safety Recommendations issued by the investigation bodies aim at "cutting the links" between the Contributing Factors, Accident 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 casualties.**

# APPENDIX 3

Figure 1: EMCIP ship type




*ships grouped under category "Other ships" in this publication

Note: supplementary classification called 'Additional type of ship': HSC (ACV, Hydrofoil, SES,Other), with sub-values A, B and other

# APPENDIX 4

## LIST OF NATIONAL INVESTIGATION BODIES IN THE EU

| Member State | Name of the national accident investigation body | Acronym | Website |
|---|---|---|---|
| **Austria** | Safety Investigation Authority of Austria | BAV/SUB | www.bmvit.gv.at |
| **Belgium** | Federal Bureau for the Investigation of Maritime Accidents | FEBIMA | mobilit.belgium.be/en/shipping/federal_bureau_investigation_maritime_accidents_febima |
| **Bulgaria** | Maritime Accident Investigation Unit | MTITC | www.mtitc.government.bg |
| **Croatia** | Air, Maritime and Railway Traffic Accidents Investigation Agency | AIN | www.ain.hr |
| **Cyprus** | Marine Accidents and Incidents Investigation Committee | MAIC | www.maic.gov.cy/mcw/dms/maic/maic.nsf |
| **Czech Republic** | Ministry of Transport, Czech Maritime Administration Navigation Department | MT_ND | www.mdcr.cz |
| **Denmark** | Danish Maritime Accident Investigation Board | DMAIB | www.dmaib.com |
| **Estonia** | Safety Investigation Bureau of Estonia | ESIB | www.ojk.ee |
| **Finland** | Safety Investigation Authority of Finland | SIA | www.onnettomuustutkinta.fi |
| **France** | French Marine Casulaties Investigation Board | BEAmer | www.bea-mer.developpement-durable.gouv.fr |
| **Germany** | Federal Bureau of Maritime Casualty Investigation | BSU | www.bsu-bund.de |
| **Greece** | Helenic Bureau Marine Casualties Investigation | HBMCI | www.hbmci.gov.gr |
| **Hungary** | Transportation Safety Bureau of Hungary | TSB | www.kbsz.hu |
| **Iceland** | Icelandic Marine Accident Investigation Board | ITSB | www.rnsa.is |
| **Ireland** | Marine Casualty Investigation Board | MCIB | www.mcib.ie |
| **Italy** | General Directorate for Railway and Maritime Accident Investigation | DIGIFEMA | digifema.mit.gov.it |
| **Latvia** | Transport Accident and Incident Investigation Bureau | TAIIB | www.taiib.gov.lv |
| **Lithuania** | Transport Accident and Incident Investigation Division | TAITS | www.en.tm.lt |
| **Luxembourg** | Administration of Technical Investigations | AET | www.mt.public.lu/transports/AET |
| **Malta** | Marine Safety Investigation Unit | MSIU | www.transport.gov.mt |
| **The Netherlands** | Dutch Safety Board | DSB | www.safetyboard.nl |

| Member State | Name of the national accident investigation body | Acronym | Website |
|---|---|---|---|
| **Norway** | Accident Investigation Board of Norway | AIBN | www.aibn.no |
| **Poland** | State Marine Accident Investigation Commission | PKBWM/ SMAIC | www.pkbwm.gov.pl |
| **Portugal** | Maritime Accident Investigation and Aeronautical Meteorology Authority | GAMA | www.gama.mm.gov.pt |
| **Romania** | Marine Accidents Investigation Department | MAID | www.mt.ro |
| **Slovenia** | Maritime Accident & Incidents Investigation Services | MAIIS | www.telecom.gov.sk |
| **Spain** | Standing Commission for Maritime Accident and Incident Investigation | CIAIM | www.ciaim.es |
| **Sweden** | Swedish Accident Investigation Authority | SHK | 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's mission is to ensure a high level 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 overall purpose is to promote a safe, clean and economically viable maritime sector in the EU.

## 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