



ANNUAL OVERVIEW OF MARINE CASUALTIES AND INCIDENTS

2026 EDITION

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Public authorities from the Safety Investigation Authorities of the EU plus the EEA EFTA States (Iceland and Norway) to which the Directive applies have been consulted. The complete list is available in Appendix 4.

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Disclaimer

The figures use the EMCIP data available at the extraction date of 1 May 2026. EMCIP is a living database, and records may later be added, corrected or completed. Counts and proportions are descriptive. They should not be interpreted as exposure-adjusted risk rankings unless a relevant denominator is used, such as fleet size, traffic, time in operation, persons on board or reporting coverage. It does not determine liability, apportion blame, assess the performance of individual organisations or replace the reports issued by national Safety Investigation Authorities (SIAs). Findings concerning the causes of a specific occurrence and any related safety recommendations should be obtained from the relevant competent authorities published safety investigation reports.

Key Figures

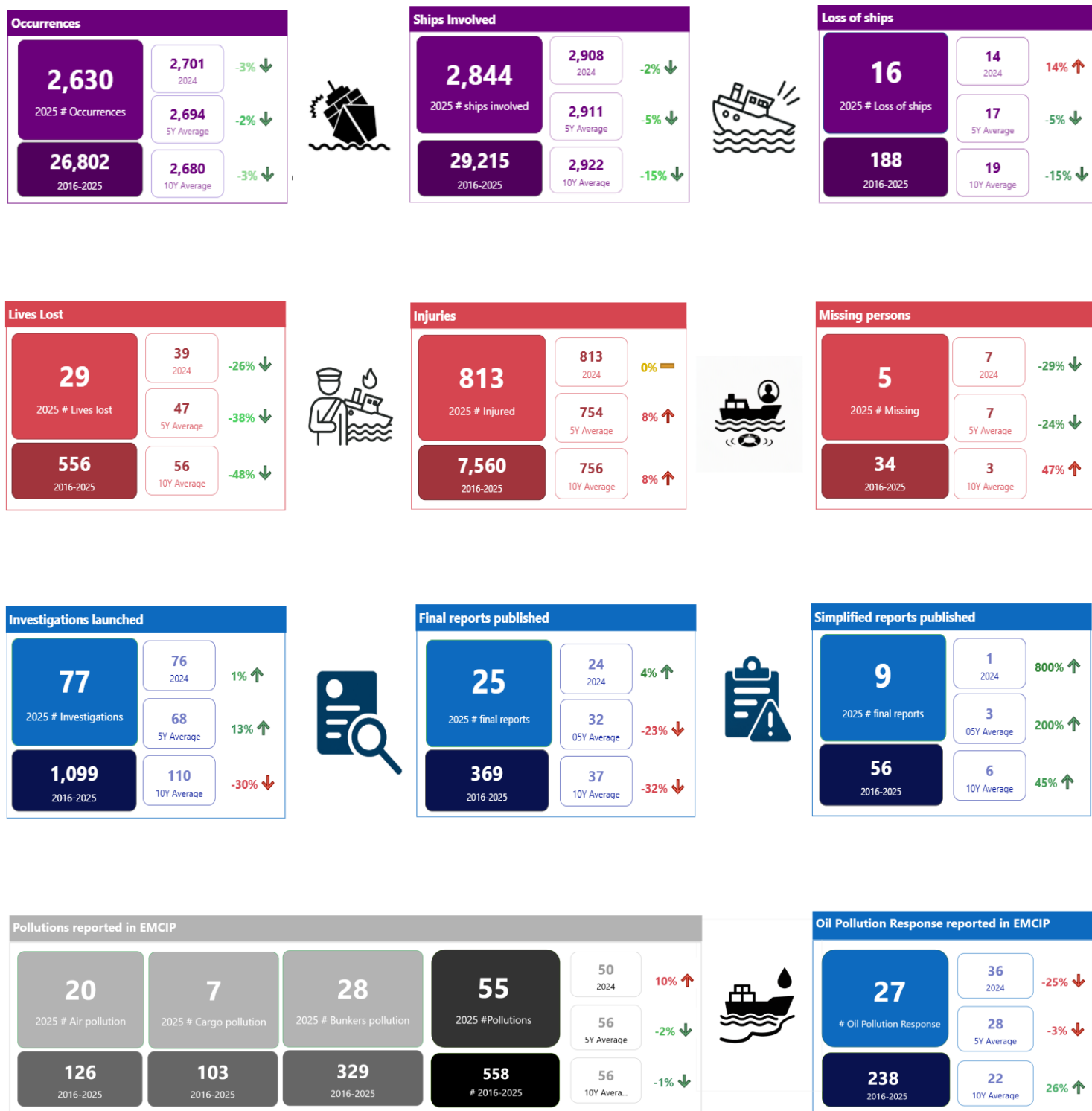


Figure 1. Overview of occurrences, ships involved, human and environmental consequences, and investigations launched and published in 2025, including comparisons with 2024 and the 5-year and 10-year averages

Executive summary

This publication provides an overview of marine casualties and incidents recorded in EMCIP by the [Safety Investigation Authorities](#) of the 27 EU Member States, Iceland and Norway. Together, these are referred to as [occurrences](#). Results for 2025 are presented in the context of the ten-year period **2016–2025**.

A total of **26,802 occurrences** were recorded over the ten-year period. In 2025, **2,630** occurrences were recorded, around **2% below the ten-year annual average**, including **52 Very Serious Casualties**, one of the lowest annual values of the period. Occurrences in 2025 resulted in **29 lives lost, 813 injured persons, 5 missing persons and 16 ships lost**. Lives lost were at their lowest annual level of the ten-year period, while the number of injured persons remained comparatively high.

Cargo ships accounted for the largest number of occurrences, followed by passenger ships. At subtype level, solid-cargo ships accounted for around 38% of occurrences over 2016–2025, while conventional passenger ships and passenger/Ro-Ro cargo ships together represented around 23%.

The age distribution of ships involved in occurrences was spread across age groups. Ships aged **15–29 years** formed the largest known-age group, accounting for around **39% over 2016–2025 and 45.5% in 2025** while ships under ten years also represented a substantial share. This distribution varied by ship type, with older age groups more prominent among occurrences involving fishing vessels and passenger ships.

Recorded occurrences were concentrated in areas of substantial maritime activity. In 2025, **52% were recorded in internal waters, 23% in territorial seas and 21% on the high seas**. These geographical distributions describe where occurrences were recorded and should not be interpreted as measures of geographical risk without relevant exposure information.

Among [ship-related casualty event](#), **loss of control, particularly loss of propulsion power was the most frequently recorded detailed event** over 2016–2025. Collision, contact, damage or loss of equipment, grounding or stranding, flooding or foundering, and fire or explosion were also recurrent. [Person-related Casualty Events](#) were most frequently associated with falls, body movement and loss of control involving machinery, equipment or transport.

[Investigation](#)-derived information should be considered separately from the overall occurrence population, as not every occurrence is investigated, and recent investigations may remain incomplete. Among **914 finalised investigations, Human Action accounted for approximately 64% of classified Accident Events**, while system/equipment failure accounted for approximately **23%**. Crew resource management, personnel and manning, maintenance, procedures and organisational issues were among the [contributing factors](#) identified.

Over the same 2016-2025 period, investigations resulted in **1,316 safety recommendations and 1,066 recorded actions taken**, addressing areas including operational procedures, training, communication, safety management, regulatory compliance and equipment reliability.

Emergency-assistance patterns in 2025 were broadly similar to those recorded over the ten-year period. Around **74% of ship records did not involve shore assistance**, while Search and Rescue intervention was recorded in **9%** and towage in **19%**. Oil-pollution response measures were activated in **27 occurrences**.

Contextual ratios show different profiles across ship types. Passenger ships recorded comparatively high fleet-based occurrence and injury ratios, cargo ships recorded the highest average fleet-based fatality ratio, and fishing vessels recorded the highest severity-profile ratio. **These ratios should not be interpreted as direct comparisons of operational risk or safety performance**, as they do not fully account for differences in exposure such as voyages, time at sea, distance travelled or persons carried.

An associated [Power BI application](#) provides access to more detailed results and enables further exploration of the underlying data.

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Section I. Context and overall occurrence profile

1. Purpose, scope and method

This chapter sets out the purpose, legal basis, dataset and interpretation principles for the 2026 edition of the Annual Overview of Marine Casualties and Incidents. It also explains the respective roles of the publication, the companion Power BI and the appendices.

1.1 Purpose and legal basis

The EMSA Annual Overview provides a high-level statistical description of marine casualties and incidents reported in the European Marine Casualty Information Platform (EMCIP) under the EU accident investigation framework. The publication is prepared in the context of EMSA's task under Regulation (EU) 2025/2434², Article 4(4), to produce a yearly overview of marine casualties and incidents based on data collected in the European database for marine casualties and incidents.

This edition analyses occurrences reported under Directive 2009/18/EC, which constituted the applicable legal framework during the period covered by the report (2016-2025). While Directive (EU) 2024/3017³ amended this framework, the revised provisions will apply from 27 June 2027. Consequently, the statistics and analyses presented in this publication are based on the reporting requirements and definitions in force during the reference period.

The report aims to support a common understanding of accident patterns relevant to European maritime interests. It does not determine liability, attribute blame, or assess the performance of any individual State, organisation, company, or ship type.

The publication covers marine casualties and incidents reported in **EMCIP** that fall within the scope of the Directive, namely occurrences that:

- involve a ship flying the flag of an EU Member State;
- occur within the [territorial sea](#) or [internal waters](#) of an EU Member State, as defined under UNCLOS⁴;
- involve [substantial interests of a Member State](#), regardless of the location of the occurrence or the flag of the ship involved;
- have been notified and stored in **EMCIP** in accordance with the reporting obligations under the Directive.

The operational reporting perimeter represented in **EMCIP** also **includes** occurrences reported by the SIAs of Iceland and Norway (member States of the European Economic Area or EEA). Unless otherwise stated, references in this publication to the reporting States therefore cover the 27 EU Member States together with Iceland and Norway (hereinafter **EEA**).

The scope of **the Directive excludes** certain ship categories, including warships and troop ships, ships not propelled by mechanical means, wooden ships of primitive build, pleasure yachts and pleasure craft not engaged in trade, inland waterway ships operating in inland waterways, fishing vessels of less than 15 metres in length, and fixed offshore drilling units.

Although the original **EMCIP** classification for the period covered includes marine incident, Less Serious Casualty, Serious Casualty and Very Serious Casualty, this publication presents severity using three categories: [Marine Incident](#), [Marine Casualty](#), [Very Serious Casualty](#). This approach aligns the statistical presentation with the revised Directive and the IMO Casualty Investigation Code.

1.2 Dataset used for this edition

Unless otherwise stated, this edition covers occurrences between **1 January 2016 and 31 December 2025**. **The data were extracted from EMCIP on 1 May 2026**. The dataset includes records that have a valid EMCIP workflow status. Records with a status of Draft or Deleted have been excluded. As a consequence of the United Kingdom leaving the Union, records identified as UK-related under the analytical rule used for this edition have also been **excluded**.

² Regulation (EU) 2025/2434 of the European Parliament and of the Council on the European Maritime Safety Agency repealing Regulation (EC) No 1406/2002

³ Directive (EU) 2024/3017 of the European Parliament and of the Council amending Directive 2009/18/EC of the European Parliament and of the Council establishing the fundamental principles governing the investigation of accidents in the maritime transport sector and repealing Commission Regulation (EU) No 1286/2011 (Text with EEA relevance)

⁴ United Nations Convention on the Law of the Sea (UNCLOS), adopted at Montego Bay 10 Dec 1982, entered into force 16 Nov 1994.

EMCIP is a living database. Reporting authorities may add, correct or complete information after the extraction date, including information for earlier years. Figures may therefore differ from previous editions or later extractions. A marine safety investigation typically progresses from notification and an initial assessment, through the collection and analysis of evidence, to findings, conclusions and, where appropriate, safety recommendations. EMCIP does not reproduce the complete investigation report. It stores selected structured information about the occurrence and, when a safety investigation is conducted, information resulting from that investigation.

The table below shows the relationship between the different levels of information recorded during the safety investigation process and available in EMCIP. Starting with the occurrence and the corresponding case record, the framework progresses from the casualty event describing what happened, to the accident event explaining the immediate event involved, and then to the contributing factors that influenced the outcome. The investigation process further identifies underlying conditions and contextual elements before resulting in safety recommendations and actions taken, which represent the safety response aimed at preventing recurrence and improving maritime safety.

Occurrence	Casualty Event	Accident Event	Contributing Factor	Safety recommendations / Actions taken
Case record	What happened	What influenced it	Underlying condition/context	Safety response

Some information can normally be recorded at an early stage, including the date and location of the occurrence, the ships involved, the severity classification, casualty events and consequences. Other information, particularly accident events and contributing factors, safety recommendations and actions taken is investigation-derived and may be entered or completed only as the investigation progresses. It is therefore generally less complete for recent occurrences, occurrences that were not investigated and investigations that remain ongoing.

1.3 Reading and interpretation guide

The publication can be read from beginning to end or consulted by topic. To facilitate navigation of the report, [Section I](#) sets out the purpose, scope and methodology of the analysis and provides an overall profile of marine casualties and incidents in 2025 within a ten-year context. [Section II](#) examines the characteristics of reported occurrences, including the ships involved, casualty-event types and their operational and geographical context. [Section III](#) focuses on the consequences for persons, ships and the environment. [Section IV](#) follows the safety-learning process through safety investigations, identified contributing factors, safety recommendations and actions taken. Finally, [Section V](#) provides an exposure-based assessment and brings together the main conclusions. [Defined terms, abbreviations](#), the [EMCIP codification model](#) and [indicator methodologies](#) are provided in the appendices.

The analyses presented are descriptive and should not be interpreted as measures of risk without considering exposure and operational context. Trends and comparisons depend on the reference period used, while occurrence distributions may reflect fleet composition, traffic patterns and reporting practices. Investigation-related information may be incomplete for recent years, and historical statistics are updated with each edition using the latest validated data. Readers should consult the relevant investigation reports for occurrence-specific findings, and note that geographical classifications, rounding effects and methodological differences may affect direct comparisons.

The electronic version of this publication includes bookmarks and internal links to support navigation between the table of contents, section headings, figures, defined terms and the relevant appendices. At their first relevant occurrence, key defined terms are linked to the glossary. Where available, links to the companion Power BI provide access to more detailed interactive breakdowns. The companion [Power BI report](#) provides interactive access to detailed information on occurrences, investigations, consequences, contributing factors, safety recommendations and of the contextual and relative ratios. The Annual Overview highlights the main findings, while the Power BI report allows readers to explore the data in greater detail.

Further information: [EMSA accident investigation publications](#) and the [EMCIP public dashboard](#).

2. Overall profile of marine casualties and incidents

This chapter places the 2025 marine casualties and incidents recorded in EMCIP within the 2016-2025 context. It summarises occurrence volume, severity, principal consequences, investigation-data maturity and the geographical and operational profile before these themes are examined in greater detail later in the report.

2.1 Reporting of marine casualties and incidents

Across the 2016–2025 period, the annual number of reported Marine Casualties and Very Serious Casualties remained relatively stable. The highest annual value was recorded in 2019 (2,395), while the lowest was recorded in 2022 (2,133). The difference between these two years was approximately **12%**, indicating comparatively limited variation in the overall annual volume of reported casualties. In 2025, 2,630 marine casualties and incidents were recorded. This represented a decrease of approximately 3% compared with 2024 and a value approximately 2% below the annual average for the ten-year period. The 2025 total nevertheless remained within the range observed during the reference period. Within the 10-year period 26,802 occurrences have been recorded in EMCIP as a whole.

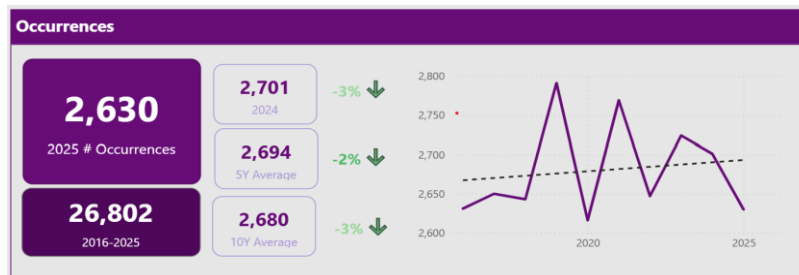


Figure 2. Marine casualties and incidents in 2025 compared with the 2016-2025 profile

2.2 Severity profile

Severity classification provides an indication of the consequences associated with reported occurrences. Between 2016 and 2025, of the total 26,802 occurrences recorded in EMCIP, with over 80% under the **Marine Casualty** category (21,646), 17% **Marine Incidents** (4,465), and 3% **Very Serious Casualties** (692). The year 2025 had almost equivalent ratios between occurrence severities; Marine Casualties 80% (2,099) of the occurrences, Marine Incidents 18% (479 occurrences), and Very Serious Casualties 2% (52). The number of Very Serious Casualties was one of the lowest annual values recorded during the ten-year period, 25% below the 10-year average (77).

	# ships 10Y	# 10Y Occ	% 10Y Occ	# 2025 ships	# 2025 Occ	% Occ 2025	2025 vs 10Y
Marine Incident	4,759	4,465	17%	506	479	18%	7%
Marine Casualty	23,682	21,645	81%	2,280	2,099	80%	-3%
Very Serious Casualty	774	692	3%	58	52	2%	-25%
Total	29,215	26,802	100%	2,844	2,630	100%	-2%

Table 1. Occurrence volume ships involved 2016-2025 and 2025

Figures below shows linear trend equation and its coefficient of determination (R^2) are provided for each severity group for descriptive purposes. Overall, Marine Casualties and Very Serious Casualties showed a moderated downward fitted trend in the 10-year time frame while Marine Incidents show a slight upper trend. These values should be read only as an indication of the general direction of the recorded series, not as forecasts or evidence of a causal trend. The annual trend should also be interpreted in the context of changes in maritime activity. In particular, the reduction in traffic volumes during the COVID-19 pandemic and the subsequent recovery.

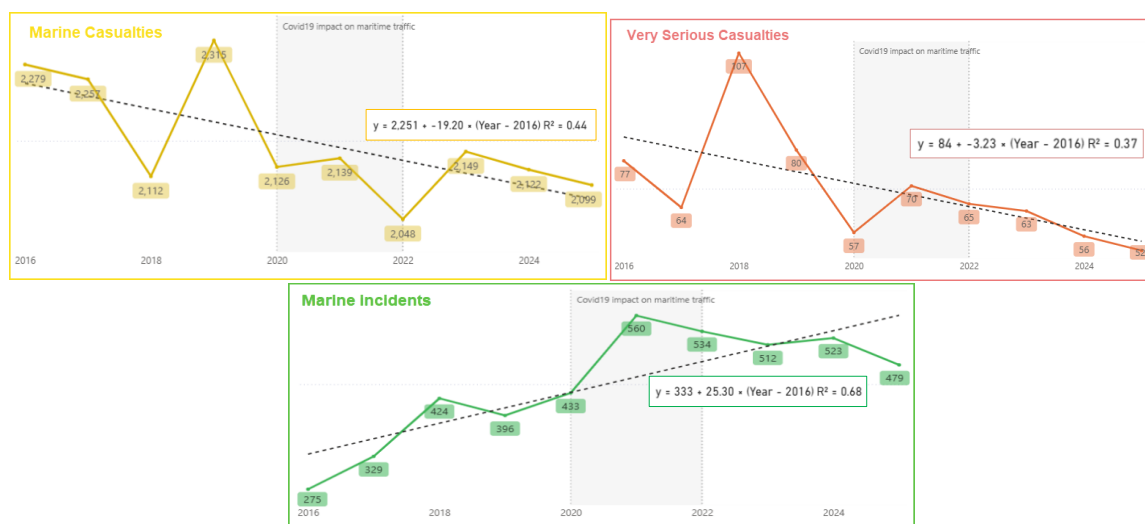


Figure 3. Annual trends in recorded occurrences by severity category, 2016-2025

Regarding the **sea area** where occurrences took place, **internal waters** accounted for the largest share over 2016–2025 (52%). **Very Serious Casualties showed a different geographical profile over the ten-year period**, with a lower share in internal waters (40%) and a higher share on the high seas (31%) than for occurrences overall (21%). In 2025, however, this distinction was less pronounced: internal waters again represented the largest share of Very Serious Casualties, while the high-seas share decreased to 19%. Further details are provided in [Section 5.2](#).

Regarding **voyage segment**, occurrences over 2016–2025 were most frequently recorded during mid-water operations (27%), while anchored or alongside activities (23%) and transit (20%) also accounted for substantial shares. **Very Serious Casualties showed a different operational profile**, with greater concentrations in mid-water (35%) and anchored or alongside operations (32%). This pattern continued in 2025, when these two segments accounted for 31% and 29% of Very Serious Casualties, respectively. Further details are provided in [Section 5.3](#).

Sea_Area	Marine Casualty	Marine Incident	Very Serious Casualty	Total	Voyage segment	Marine Casualty	Marine Incident	Very Serious Casualty	Total
High sea	22%	18%	31%	21%	Anchored or alongside	24%	17%	32%	23%
Inland waters	2%	3%	1%	2%	Arrival	16%	16%	9%	16%
Internal waters	50%	64%	40%	52%	Departure	9%	9%	4%	8%
Repair yard	1%	0%	1%	1%	Mid-water	28%	19%	35%	27%
Territorial sea	24%	14%	26%	23%	Transit	17%	31%	18%	20%
Unknown	1%	0%	1%	1%	Unknown	12%	12%	9%	12%
Total	100%	100%	100%	100%	Total	100%	100%	100%	100%

Table 2.. Distribution of recorded occurrences by severity across sea area (left) and voyage segment (right), 2016-2025

Investigation activity also varies considerably by severity. Very Serious Casualties were investigated more frequently (83%) than Marine Casualties (2%). This difference should be read in the context of the applicable requirements of the Directive. Consequently, although Very Serious Casualties represent only a small share of all reported occurrences, they account for the large share of investigation activity (more details in [Section 7.1](#)).

Occurrence by Severity is further explored within the context of different variables such as ship type ([Section 3.1](#)), casualty events ([Section 4.4](#)), their consequence profile ([Section 6.1.1](#)), accident events and contributing factors ([Section 8.5](#)) and Safety Recommendations ([Section 9.1](#)). In addition, severity ratios showing a ratio of Very Serious Casualties with respect to Marine Casualties is explained in [Section 10.2](#).

2.3 Consequences of marine casualties and incidents

Consequences in EMCIP are recorded in relation to people, ships and the environment and, where relevant, the assistance or emergency response associated with an occurrence. The 2025 consequence profile was characterised by a low number of fatalities but a comparatively high number of injuries. Detailed consequence analysis is provided in [Chapter 6](#).

2.3.1 Consequences to people

With regard to human consequences, **29 lives were lost in 2025**, the lowest annual figure recorded during the 2016-2025 period. This continues a downward trend observed over the decade, from 95 fatalities in 2016 to 29 in 2025. **Overall, 556 fatalities were reported during the ten-year period**, corresponding to an annual average of 56 lives lost, while the five-year average (2021-2025) declined to 47 fatalities per year. This decrease is also reflected in the trend indicators, which show reductions of 39% over the last five years and 45% over the last ten years (see [key figure - Lives lost](#)). The number of **missing** persons remained relatively low throughout the period with no missing persons reported between 2016 and 2021, although the figure rose to 16 in 2022 before declining to 7 in both 2023 and 2024 and decreasing to **5 in 2025**.



Figure 4 and Figure 5. Lives lost, missing (left) and injured (right): 2025 compared with the 2016-2025 profile

Over the 2016-2025 period, annual **injury figures** remained relatively stable, fluctuating between 610 and 845 cases and averaging around 765 injuries per year. Following a low point in 2020, injury levels increased and have remained above 800 cases annually since 2023. With **813 injuries recorded in 2025**, the year remained above the long-term average and close to the highest levels observed during the decade, indicating that the recent reduction in fatalities has not been accompanied by a comparable decline in non-fatal injuries. [Section 6.1](#) provides a more detailed consequence to persons breakdown.

2.3.2 Consequences to ship

A total of **2,844** ships were involved in the **2,630** occurrences in 2025. This is less than the previous year and both the 5 year and the ten-year averages. In 2025, **sixteen ships** were reported as lost, five ships were recorded to have sunk, and 28 ships were reported to have been abandoned. There were 2 more ship losses in 2025 than in the previous year while 2025 is slightly below the 5 year and 10-year averages (17 and 19 respectively). [Section 6.2](#) provides the detailed person, ship, environmental and emergency-response breakdowns



Figure 6 and Figure 7. Ships involved in occurrences (left) and consequence to ship: loss of ships, abandoned, sunk 2025 compared to ten-year profile

2.3.3 Environmental consequences

A total of **55 pollution occurrences were reported in 2025**, representing an increase of approximately 10% compared with 2024, while remaining broadly in line with the levels observed over the last decade. Reported pollution events are mostly associated with bunker releases, which accounted for 28 occurrences in 2025 and 329 occurrences over the 2016–2025 period, making them the most frequently reported type of pollution. Oil pollution response activity is reported to have 27 activations recorded in 2025. 25% lower than the previous year (36) but above the 10-year average of 36% (22%). [Section 6.3](#) provides the detailed person, ship, environmental and emergency-response breakdowns.

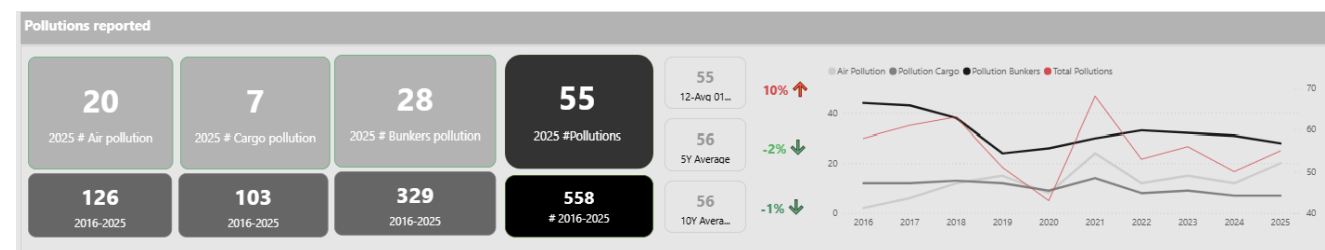


Figure 8. Reported pollution occurrences: 2025 compared with the 2016-2025 profile

2.4 Maturity of investigation-derived information

The availability of information in EMCIP depends on the stage reached by a safety investigation. At the notification stage, occurrences typically include only a limited set of mandatory information, such as the date and location of the event, severity, vessels involved, operational context, voyage segment, flag State and a brief description. As investigations progress, additional information may be added, including casualty-event sequences, accident events, contributing factors, safety recommendations and actions taken.

Consequently, the lower numbers of contributing factors, recommendations, actions taken, completed investigations or published reports in recent years should not be interpreted as evidence of fewer underlying safety issues, but rather as a reflection of the time required to complete investigations and enter findings into EMCIP. For this reason, the analysis of investigation-derived information presented in this publication focuses primarily on the 2016-2025 period rather than on 2025 alone. Further details are provided in [Chapter 7](#) (Safety Investigations and Reports), [Chapter 8](#) (Accident Events and Contributing Factors), and [Chapter 10](#) (Safety Recommendations and Actions Taken).

2.5 Notifications, geographical and operational context

Over the 2016–2025 period, **shore authorities were the principal notifying entity, accounting for 74% of notifications**, and the 2025 figures remained broadly similar. Companies represented the second-largest source of notifications, with a comparatively higher share for cargo and service ships. Ship-originated notifications accounted for 6.1% of the ten-year total and 4.4% in 2025, with fishing vessels recording the highest number of notifications from this source. Further details are provided in [Section 5.1](#).

Recorded occurrences were concentrated in areas of substantial maritime activity, including internal and coastal waters, port approaches, ferry corridors, archipelagic areas, traffic-separation schemes and major shipping routes. In 2025, **internal waters** accounted for 52% of occurrences, **territorial seas** for 23% and the **high seas** for 21%, broadly reflecting the ten-year geographical profile.

Recurring concentrations were visible in the North Sea and English Channel, the Baltic approaches, the Strait of Gibraltar, the central and eastern Mediterranean, the Aegean and Greek island routes, the Iberian and Biscay coasts and North Atlantic island areas. **These geographical concentrations should not be interpreted as measures of risk without considering the underlying level of maritime activity and other relevant exposure ratios.** Further details are provided in [Chapter 5](#).

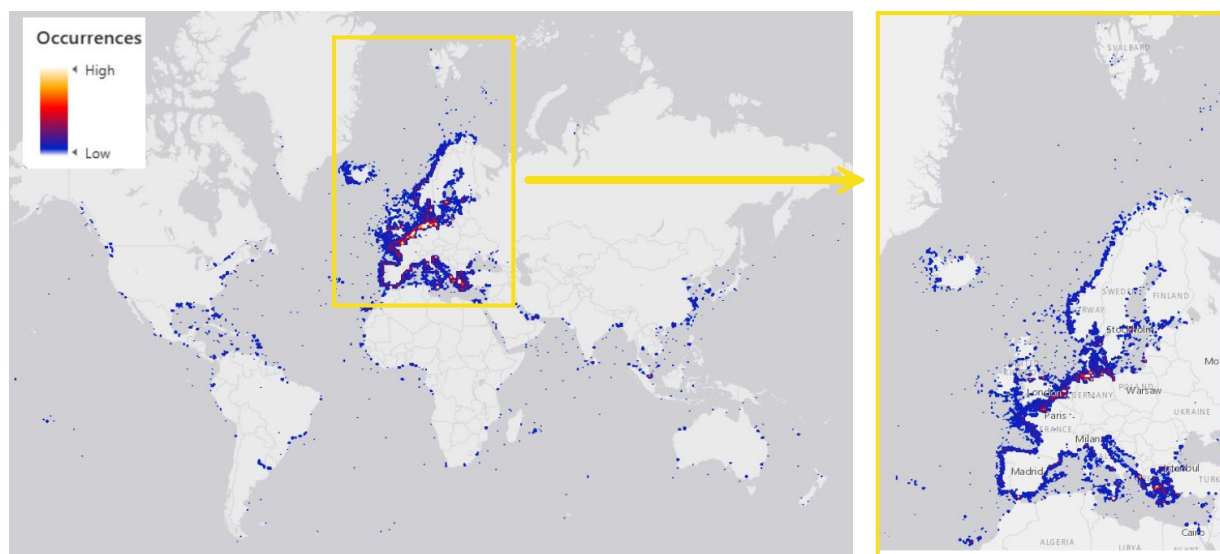


Figure 9. Density of recorded marine casualties and incidents worldwide and in the EEA, 2016-2025

Section II – Characteristics of marine casualties and incidents

3. Ships profile

This chapter describes the ships involved in the [occurrences](#) recorded in EMCIP. It examines the main ship-type and subtype groups and provides context on occurrence severity, ship age, length, gross tonnage, voyage segment, season and time of day. The analysis is based on recorded occurrences and ships involved. It does not account for fleet size, ship movements, time at sea, persons carried or other exposure measures.

3.1 Ship type profile and evolution by occurrence severity

When occurrences are organised by [ship type](#), 1,230 occurrences in 2025 involved at least one cargo ship, 574 involved a passenger ship, 488 involved a fishing vessel, 364 involved a service ship and 94 involved a ship classified as other or unknown. The sum of these values exceeds the total number of occurrences because one occurrence may involve ships belonging to more than one ship-type group (i.e. casualty events such as collisions).

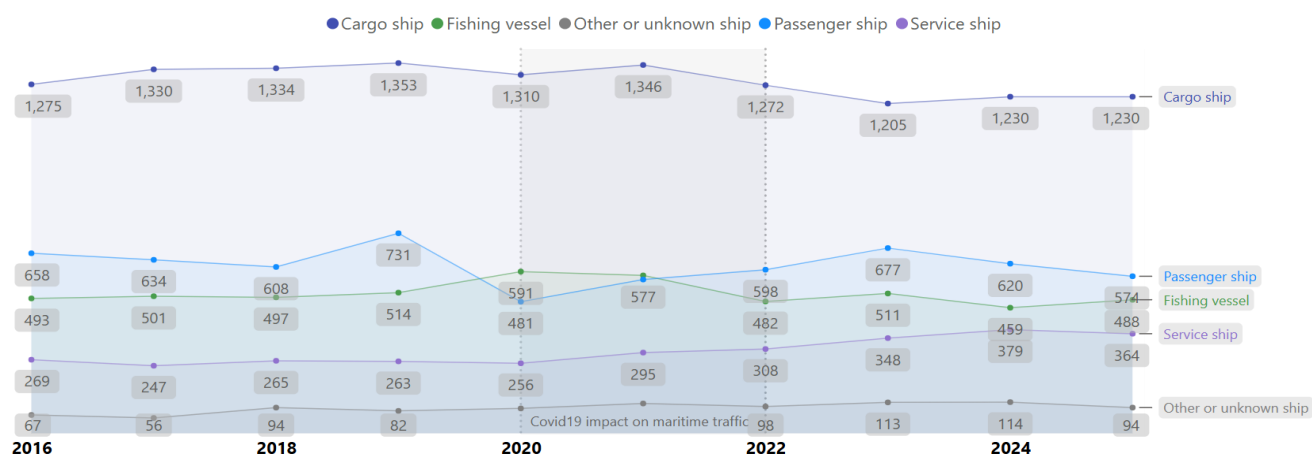


Figure 10. Annual distribution of recorded occurrences by ship type, 2016-2025

When considering occurrences by severity and ship type, cargo ships accounted for the largest number of reported occurrences across all severity categories, followed by passenger ships. Fishing vessels represented a smaller share of the overall occurrence volume, however they accounted for a comparatively higher share of

Very Serious Casualties. Further analysis of the consequences associated with occurrences by ship type is provided in [Chapter 6](#).

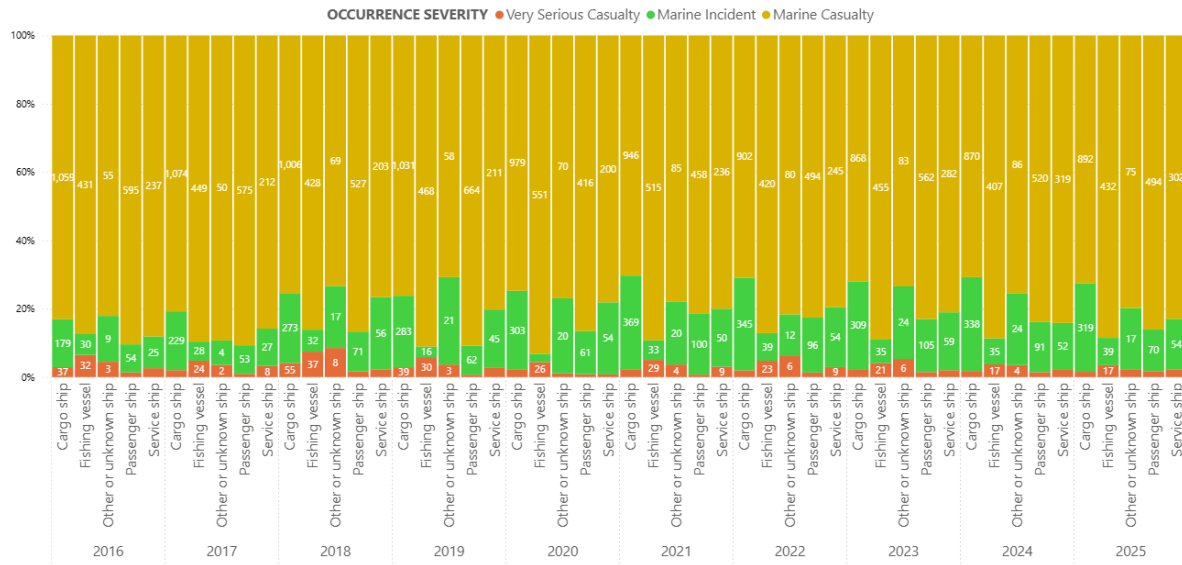


Figure 11. Annual distribution of recorded occurrences by ship type and severity, 2016-2025

In 2025, cargo ships accounted for **36%** of all Very Serious Casualties and fishing vessels for **29%**. Across the full ten-year period, the corresponding shares were **41% and 34%**. Fishing vessels accounted for a larger share of Very Serious Casualties than of the overall occurrence population. Passenger ships accounted for around 25% of Marine Casualties but 11% of Very Serious Casualties over 2016–2025 (fig 13). Passenger ships show a different profile. They accounted for around 25% of all Marine Casualties both over the 2016–2025 period and in 2025, while representing only 11% of Very Serious Casualties over the ten-year period. In 2025, however, their share of Very Serious Casualties increased compared with the ten-year distribution.

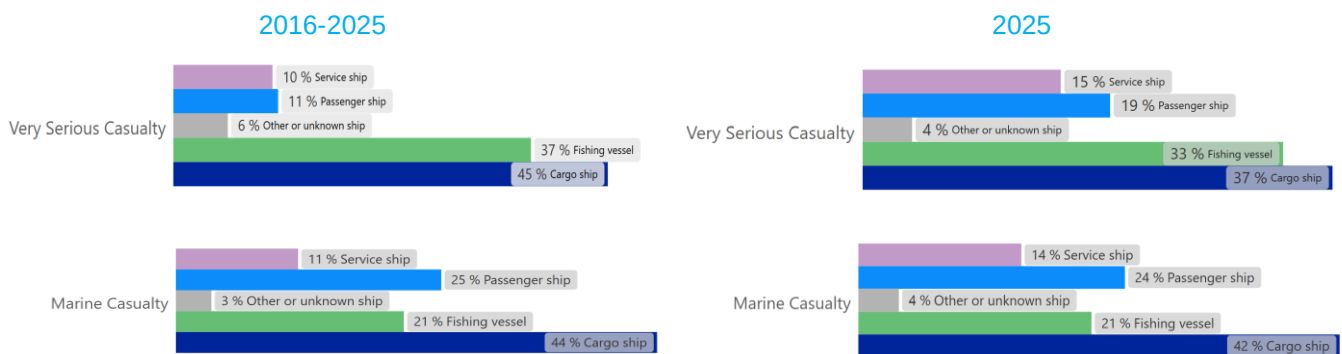


Figure 12 and Figure 13. Severity profile of casualties by ship type: 2016-2025 (left) and 2025 (right)

When casualties are considered by severity, expressed as the proportion classified as **Very Serious Casualties** (see [Section 10.2](#)), **clear differences are observed between ship types**. Over 2016–2025, fishing vessels recorded the highest average severity ratio (5.3%), compared with 3.1% for cargo ships and 1.4% for passenger ships. **The overall proportion of Very Serious Casualties decreased to 2.4% in 2025, the lowest level recorded during the ten-year period.** The decline was particularly marked for fishing vessels, from a peak of 8.0% in 2018 to 3.8% in 2025, and for cargo ships, from 5.2% to 2.1%. Fishing vessels nevertheless continued to record the highest proportion among the principal ship types. **Passenger ships showed a different trend:** their Very Serious Casualty ratio reached 2.0% in 2025, the highest annual value for this ship type during 2016–2025, although it remained the lowest ratio among the principal ship types in 2025. Further analysis of consequences by ship type is provided in [Chapter 6](#).

Ship type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Fishing vessel	6.9%	5.1%	8.0%	6.0%	4.5%	5.3%	5.2%	4.4%	4.0%	3.8%	5.3%
Other or unknown ship	5.2%	3.8%	10.4%	4.9%	1.4%	4.5%	7.0%	6.7%	4.4%	2.6%	5.2%
Cargo ship	3.4%	2.5%	5.2%	3.6%	2.8%	3.2%	2.7%	3.1%	2.5%	2.1%	3.1%
Service ship	2.9%	3.6%	2.9%	3.2%	1.0%	3.7%	3.5%	2.4%	2.4%	2.6%	2.8%
Passenger ship	1.5%	1.0%	1.9%	0.7%	1.0%	0.9%	1.6%	1.7%	1.7%	2.0%	1.4%
Total	3.3%	2.8%	4.8%	3.3%	2.6%	3.2%	3.1%	2.8%	2.6%	2.4%	3.1%

Table 3. Severity profile by ship type: share of Very Serious Casualties among casualties by year (2016-2025)

3.2 Ship Subtypes

Ship subtype provides a more detailed classification of ships within each ship-type group, based on design characteristics and operational roles. For example, cargo ships include solid cargo, container and liquid cargo ships; passenger ships include conventional passenger ships and passenger/Ro-Ro cargo ships; fishing vessels include trawlers, gillnetters and seiners; while service ships include tugs, dredgers and other specialised ships. A detailed breakdown is available in [Appendix 4](#).

Over 2016–2025, **solid cargo ships were the most frequently recorded ship subtype**, accounting for 39% of occurrences. Liquid cargo ships represented a further 10%.

Passenger ship subtypes also formed a substantial part of the profile, with conventional passenger ships and passenger/Ro-Ro cargo ships together accounting for 23% of occurrences. Among fishing vessels, **trawlers accounted for 7% of occurrences and vessels with an unspecified fishing subtype for 6%**, while gillnetters, seiners, liners and multipurpose fishing vessels each represented smaller shares. Service-ship occurrences were distributed across several lower-volume subtypes.

		# ships 10Y	# occ 10Y		# 2025 ships	# 2025 Occ	% Occ 2025
Cargo ship	Solid Cargo	10,753	10,331	39%	1,026	987	38%
Passenger ship	Passenger and Ro-Ro cargo	3,164	3,104	12%	277	277	11%
Passenger ship	Only passenger	3,023	2,943	11%	303	295	11%
Cargo ship	Liquid Cargo	2,796	2,703	10%	258	251	10%
Fishing vessel	Trawler	2,014	1,987	7%	156	156	6%
Fishing vessel		1,581	1,565	6%	176	174	7%
Service ship	Special purpose ship	847	833	3%	117	117	4%
Service ship	Tug (Towing/Pushing)	771	743	3%	87	84	3%
Service ship	Dredger	465	463	2%	53	53	2%
Fishing vessel	Other	442	421	2%	69	66	3%
Fishing vessel	Gillnetter	324	322	1%	20	20	1%
Fishing vessel	Seiner	319	315	1%	26	26	1%
Service ship	Other	291	289	1%	26	26	1%
Service ship		246	244	1%	34	34	1%
Other or unknown ship	Sailboat (aux. motor)	241	229	1%	26	25	1%
Fishing vessel	Liner	215	214	1%	18	18	1%
Fishing vessel	Multipurpose	196	194	1%	25	25	1%

Table 4. Principal ship subtypes involved in recorded occurrences, 2016-2025

The 2025 subtype distribution

remained broadly consistent with the ten-year profile. Solid cargo ships continued to form the largest group, accounting for 38% of occurrences, while conventional passenger ships and passenger/Ro-Ro cargo ships together represented around 22%. Among fishing vessels, **trawlers recorded 156 occurrences and vessels with an unspecified subtype 174 occurrences in 2025**, with other fishing subtypes generally accounting for smaller shares of the annual total.

Overall, the subtype profile was concentrated in a relatively small number of commercial and operational categories, particularly solid and liquid cargo ships, conventional passenger ships, passenger/Ro-Ro cargo ships, trawlers and unspecified fishing vessels. A more detailed breakdown, including lower-volume subtypes and consequence profiles, is provided in [Section 6.1.2](#).

3.3 Ship age

The age profile shows that occurrences were not confined to older ships. Over 2016–2025, vessels aged 15–29 years formed the largest group, accounting for 39% of the known-age profile. Vessels under 10 years also represented a substantial share (23.4%), while those aged 10–14 years accounted for 19.4%. Vessels aged 30–44 years represented 16.7%, with older age bands accounting for smaller shares. In 2025, the concentration in the 15–29-year band increased to 45.5%, while vessels under 10 years still represented 19.2% of the known-age profile.

The age distribution varied by ship type. Passenger ships were concentrated mainly in the 15–29-year (39.4%) and 30–44-year (25.2%) bands. Fishing vessels showed a more pronounced older profile: vessels under 10 years represented only 8.3% over 2016–2025, while the 15–29 and 30–44-year bands accounted for around 45% and 31%, respectively. The 30–44-year band was therefore considerably more prominent among fishing and passenger ships than in the overall profile (16.7%). Service ships also showed an older-vessel component, particularly among tugs, for which around one third of recorded casualties involved vessels aged 45–59 years.

The 2025 profile reinforced these differences. Vessels aged 15–29 years remained the largest group overall and accounted for 51% of cargo-ship occurrences. Among fishing vessels, the 30–44-year band increased from around 31% over 2016–2025 to 39.5% in 2025. These findings describe the age distribution of vessels involved in recorded occurrences and **should not be interpreted as evidence of age-related risk without corresponding fleet-age or operational-exposure data.**

2016-2025							2025						
Vessel Age Band (Casualty)	Cargo ship	Fishing vessel	Other or unknown ship	Passenger ship	Service ship	Total	Vessel Age Band (Casualty)	Cargo ship	Fishing vessel	Other or unknown ship	Passenger ship	Service ship	Total
≤9 (Young)	27.4%	8.3%	24.6%	17.6%	32.1%	23.4%	≤9 (Young)	21.2%	11.3%	20.0%	19.5%	19.7%	19.2%
100+ (Centenarian)	0.1%	0.2%	8.6%	2.4%	0.4%	0.8%	100+ (Centenarian)	0.1%	0.4%	5.8%	5.8%	1.2%	1.2%
10–14 (Mid-life)	27.2%	7.8%	9.0%	7.6%	16.6%	19.4%	10–14 (Mid-life)	20.6%	3.9%	6.2%	14.3%	14.7%	14.7%
15–29 (Old)	38.4%	45.2%	27.7%	39.4%	23.5%	39.1%	15–29 (Old)	51.1%	38.7%	35.0%	35.4%	39.5%	45.5%
30–44 (Very old)	8.4%	31.2%	16.4%	25.2%	16.8%	16.7%	30–44 (Very old)	7.5%	39.5%	20.0%	19.5%	14.3%	16.0%
45–59 (Aged)	2.1%	6.9%	9.4%	7.1%	10.3%	4.8%	45–59 (Aged)	2.2%	5.9%	10.0%	10.5%	9.5%	5.2%
60–84 (Extreme age)	0.3%	2.4%	6.6%	2.4%	2.6%	1.4%	60–84 (Extreme age)	0.6%	2.0%	15.0%	3.9%	2.7%	1.8%
85–99 (Ultra old)	0.0%	0.1%	1.2%	0.6%	0.8%	0.2%	85–99 (Ultra old)	0.0%	0.0%	1.2%	1.2%	1.4%	0.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5 and Table 6. Volume of occurrences by ship type and age, 2016-2025 (left) and 2025 (right)

3.4 Ship length and Gross Tonnage

The ship-length profile in 2025 remained broadly consistent with that observed over 2016–2025. Cargo and passenger ships involved in occurrences were predominantly vessels of 45 metres and above, although vessels between 24 and 44 metres also represented an important share among passenger ships. Fishing vessels showed a more balanced distribution between the 15–24 metre and larger-vessel categories, with little change between 2025 and the ten-year profile.

Other or unknown ship types remained predominantly represented by vessels under 15 metres,[1] although the share of larger vessels increased slightly in 2025. **Service ships showed the most noticeable change in 2025**, with a higher share of vessels under 15 metres⁵ and a corresponding reduction among vessels of 24 metres and above. Overall, however, the distribution of vessel length by ship type remained largely unchanged.

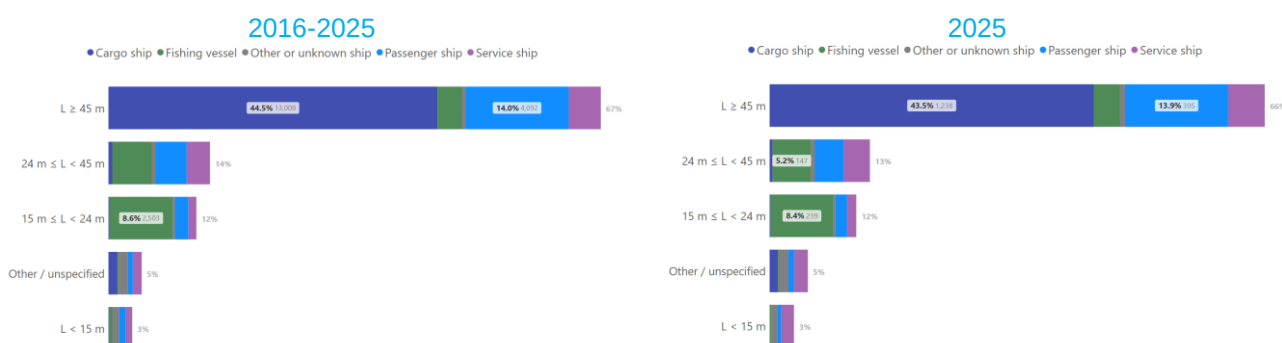


Figure 14 and Figure 15. Volume of occurrences by ship length and ship type, 2016-2025 (left) and 2025 (right)

The gross-tonnage profile in 2025 was also broadly consistent with the ten-year distribution, with clear differences between ship types. Cargo-ship occurrences were concentrated mainly in the 3,000–9,999 GT and 10,000–49,999 GT categories, with vessels of 10,000 GT and above accounting for the majority of cargo-ship occurrences. Fishing-vessel occurrences remained concentrated below 500 GT, while service ships were also predominantly represented in the lower-tonnage categories.

Passenger ships were distributed across a wider range of gross-tonnage classes. In 2025, the share involving passenger ships of 50,000 GT and above increased compared with the 2016–2025 profile. Other or unknown ship types remained concentrated in the lower-tonnage bands, with no occurrences involving vessels above 10,000 GT recorded in this category in 2025.

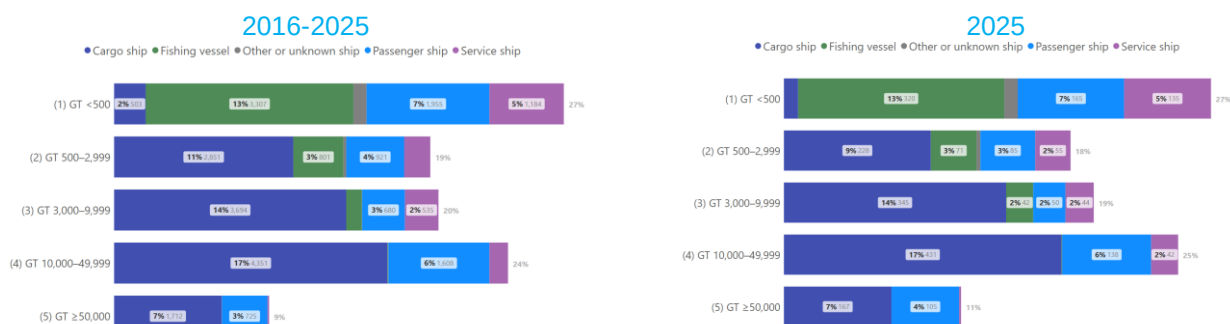


Figure 16 and Figure 17. Recorded occurrences by ship type and gross tonnage, 2016-2025 (left) and 2025 (right)

⁵ Vessels under 15 metres are generally outside the scope of the applicable Directive and are therefore not comprehensively represented in EMCIP. They are included only where the relevant reporting conditions are met.

These distributions describe the size characteristics of vessels involved in recorded occurrences and should not be interpreted as indicating greater or lower risk for particular vessel lengths or gross-tonnage categories without appropriate exposure data.

3.5 Ship type by Season and time of day

Over 2016–2025, occurrences were distributed relatively evenly throughout the day, although **some differences were evident between ship types**. Cargo-ship occurrences were slightly more frequent during the morning and midday/early-afternoon periods and less frequent at night. Passenger ships showed a more pronounced daytime profile, with occurrences concentrated in the morning and midday and comparatively few recorded at night. Service ships followed a similar pattern. **Fishing vessels showed a more even distribution across the day**, with only modest increases during the morning, midday/afternoon and night periods. The distribution observed in 2025 remained broadly consistent with the ten-year profile (fig pbi. [distribution of recorded occurrences by ship type and time of day, 2025](#)).

Season was derived from the occurrence date and location, using the corresponding seasonal calendar for the Northern or Southern Hemisphere. **Seasonal variation was most evident for passenger ships and the Other/unknown ship category**. Passenger-ship occurrences were highest in summer (2,126) and lowest in winter (1,115), showing the largest seasonal variation among the principal ship types.

Occurrences involving Other/unknown ship types also showed a marked summer concentration, increasing to 121 occurrences in summer compared with 28 in winter. Occurrences involving Other/unknown ship types also showed a marked summer concentration, with 121 occurrences in summer compared with 28 in winter.

Cargo ships showed the opposite seasonal pattern, with the highest number of occurrences recorded in winter (3,513; 13.4%) and the lowest in summer (2,828; 10.8%). Fishing vessels and service ships displayed comparatively limited seasonal variation. **The 2025 distribution by season broadly reflected the patterns observed over 2016–2025** (fig pbi. [distribution of recorded occurrences by ship type and time of day, 2025](#)).

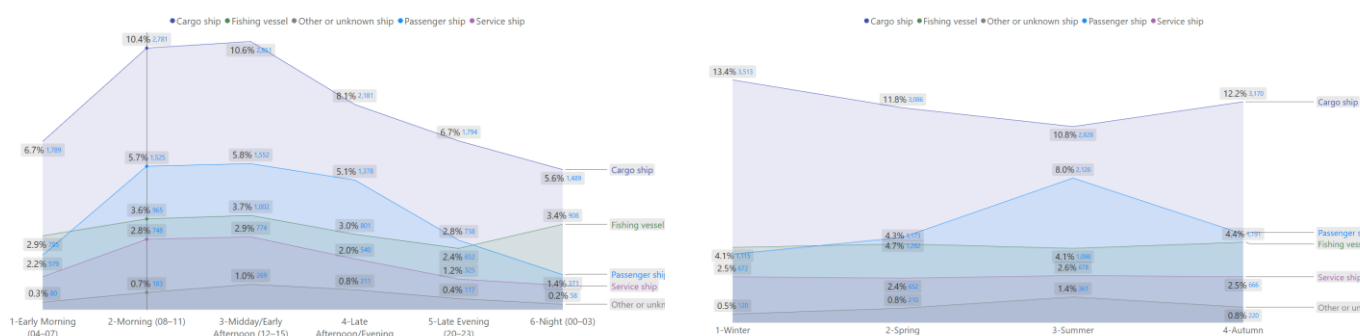


Figure 18 and Figure 19. Distribution of recorded occurrences by ship type and time of day (left) and season distribution (right), 2016-2025

4. Nature and events of marine casualties and incidents

In EMCIP, casualty events represent the casualty itself and are recorded for the ships involved in an occurrence. They are classified into two main groups: **occurrences with ships (s)**, describing events affecting a ship, its equipment or cargo, and **occurrences with persons (s)**, describing accidents affecting persons. An occurrence may contain more than one Casualty Event and may include both groups. This chapter explains how **occurrences** are represented through **casualty events** in EMCIP.

4.1 Casualty event profile

Across 2016–2025, casualty events affecting ships represented **75%** of recorded casualty events and events affecting persons **25%**. In 2025, the corresponding shares were **72%** and **28%**. The annual profile therefore remained ship-event dominated, while the person-event share within 2025 was slightly higher than in the ten-year time frame.



Figure 20 and Figure 21. Distribution of recorded casualty events by event type, 2016-2025 (left) and 2025 (right)

Across 2016–2025, **cargo ships accounted for the largest share of both ship-related (51%) and person-related (36%) casualty events**. The clearest difference between the two profiles was observed for fishing vessels, which accounted for 27% of person-related casualty events but only 14% of ship-related events. **Fishing vessels therefore represented a considerably larger share of the person-related casualty-event profile than of the ship-related profile.**

Passenger ships accounted for broadly similar shares of person-related (23%) and ship-related (21%) casualty events, while service ships represented 12% and 10%, respectively. Other or unknown ship types accounted for comparatively small shares. **The distribution observed in 2025 remained broadly consistent with the ten-year profile.**

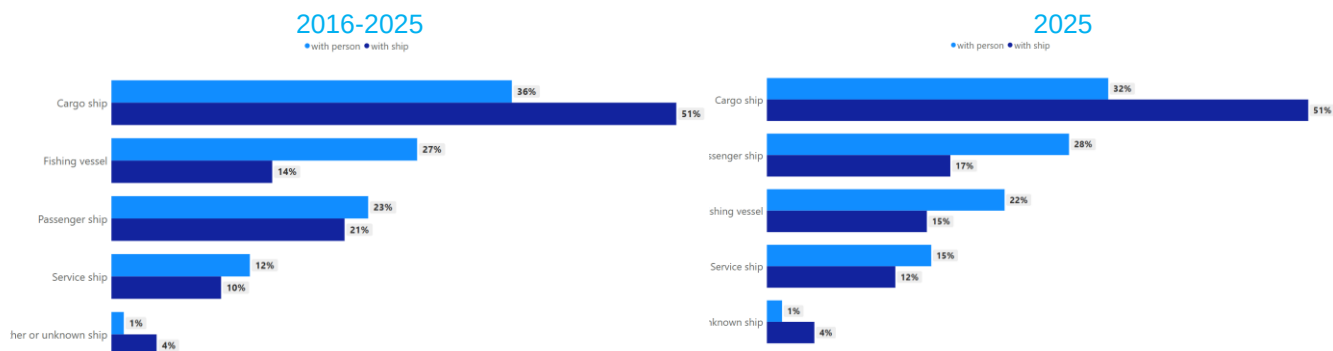


Figure 22 and Figure 23. Recorded casualty events by event type and ship type, 2016-2025 (left) and 2025 (right)

4.2 Casualty events related with ships

Ship-related casualty events describe what happened to the ship during the sequence of an occurrence. **Loss of control due to loss of propulsion power was the most frequently recorded detailed ship-related casualty event**, accounting for 5,131 events, or 26.6% of the total, over 2016–2025.

Other frequently recorded events included collisions with other ships (3,564; 18.5%), contact with shore objects (2,590; 13.4%) and grounding/stranding due to loss of power (1,879; 9.8%). **The 2025 distribution remained broadly consistent with the ten-year profile**, with loss of propulsion power continuing to represent the largest share (493; 27.6%), followed by collisions with other ships (288; 16.1%).

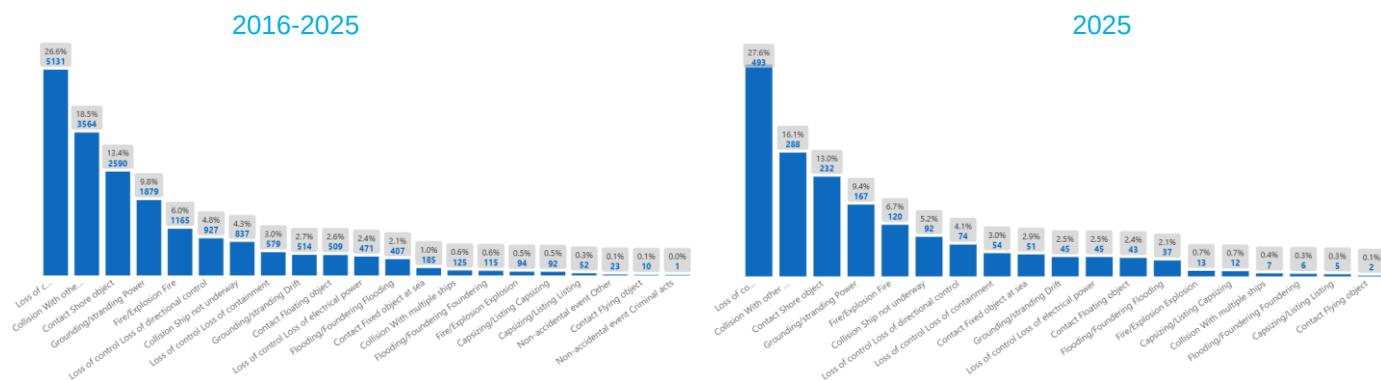


Figure 24 and Figure 25. Ship-related casualty events, 2016-2025 (left) and 2025 (right)

The ship-related casualty-event profile varied by ship type. For cargo ships, loss of control accounted for 30.5% of events, with loss of propulsion power alone representing 20.5%. Other prominent categories included collisions (19.0%), damage or loss of equipment (18.5%) and contact events (16.3%).

Fishing vessels showed the strongest concentration of loss-of-control events, which accounted for 49.5% of their ship-related casualty events; more than 41% were associated with loss of propulsion power. Grounding/stranding (10.7%) and flooding/founder (8.2%) were also comparatively prominent for this ship type.

Passenger ships also showed a substantial loss-of-control profile, accounting for 32.9% of events, including 24.7% associated with loss of propulsion power. Contact events (17.5%), damage or loss of equipment (13.9%) and grounding/stranding (11.5%) were also frequently recorded. **Fire-related events represented a comparatively higher share for passenger ships (more than 7%)** than for fishing vessels (5.0%) and cargo ships (4.1%).

Contact events involving shore objects were more prominent among cargo and passenger ships, accounting for 14.1% and 13.8% of their respective casualty-event profiles, compared with 2.1% for fishing vessels and 8.8%

for service ships. Service ships showed a more diversified distribution across casualty-event categories. Table below shows in percentage the different ship types and their ship-related casualty events for the 10-year period and the year 2025.

Further analysis of ship-related casualty events by geographical context is provided in [Section 5.2](#).

2016-2025							2025						
conseq event ship level 1	Cargo ship	Fishing vessel	Other or unknown ship	Passenger ship	Service ship	Total	conseq event ship level 1	Cargo ship	Fishing vessel	Other or unknown ship	Passenger ship	Service ship	Total
Loss of control	30.5%	49.5%	10.3%	32.9%	16.9%	31.6%	Loss of control	30.2%	57.8%	6.3%	24.5%	22.6%	31.4%
Collision	19.0%	17.1%	58.1%	13.9%	27.1%	20.0%	Collision	16.4%	11.9%	57.9%	15.3%	23.3%	18.2%
Contact	16.3%	4.7%	9.6%	17.5%	16.2%	14.6%	Contact	17.2%	5.3%	15.8%	19.9%	14.4%	15.5%
Damage / loss of equipment	18.5%	3.0%	4.3%	13.9%	10.7%	14.0%	Damage / loss of equipment	21.9%	2.2%	4.2%	15.3%	9.3%	15.5%
Grounding/stranding	9.5%	10.7%	11.3%	11.5%	15.6%	10.8%	Grounding/stranding	6.9%	10.6%	8.4%	14.4%	16.3%	10.0%
Fire/Explosion	4.6%	5.2%	1.9%	7.9%	8.0%	5.6%	Fire/Explosion	5.9%	4.1%	2.1%	9.0%	8.6%	6.3%
Flooding/Foundering	0.7%	8.2%	2.8%	1.7%	3.1%	2.3%	Flooding/Foundering	0.6%	7.5%	2.1%	0.8%	2.7%	2.0%
Capsizing/Listing	0.4%	1.2%	1.4%	0.2%	1.8%	0.6%	Capsizing/Listing	0.6%	0.3%	2.1%	0.3%	2.3%	0.8%
Hull failure	0.3%	0.3%	0.2%	0.5%	0.5%	0.3%	Hull failure	0.2%		1.1%	0.5%	0.4%	0.3%
Non-accidental event	0.1%	0.2%		0.0%	0.2%	0.1%	Missing		0.3%				0.0%
Missing	0.0%	0.1%	0.1%	0.0%		0.0%	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%							

Table 7 and Table 8. Ship-related casualty events (in number and percentage) by ship type 2016-2025 (left) and 2025 (right)

Within Very Serious Casualties, the ship-related casualty event profile was more concentrated. Flooding or foundering, collision, fire or explosion, and capsizing or listing were more prominent than in the overall event population. Both in the 10-year period and in 2025, collision and flooding or foundering were the largest specified ship-event groups after Other or unspecified, followed by fire or explosion. Figure 22 below shows the number of ship-related casualty events within Very Serious Casualties for both the 10-year period and the year 2025 alone.

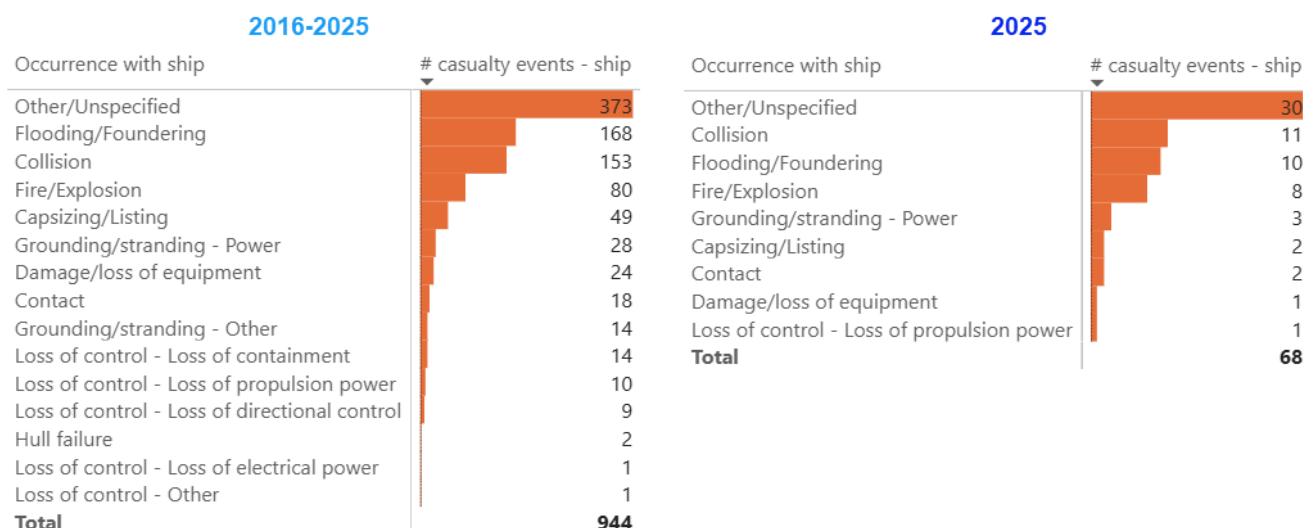


Figure 26 and Figure 27. Ship-related casualty events for Very Serious Casualties 2016-2025 (left) and 2025 (right)

4.3 Casualty events with persons

Person-related casualty events form a smaller part of the overall event population but are directly associated with consequences to people. In EMCIP, the **Deviation** attribute records the last event deviating from normal activity that led to the occupational accident.

Over 2016–2025, **slipping, stumbling and falling was the most frequently recorded deviation, with 2,291 records**. Other recurrent categories included body movement without physical stress (1,741), loss of control involving machines or transport equipment (1,102), body movement with physical stress (869), and breakage, bursting, splitting or collapse of material agents (737). **Movement-related deviations accounted for a substantial share of person-related Casualty Events**.

The 2025 distribution remained broadly consistent with the ten-year profile. Falls accounted for 214 records and body movement without physical stress for 209, followed by body movement with physical stress (135) and loss of control involving equipment or transport (91).

Within Very Serious Casualties, the overall pattern remained similar, although breakage, bursting, splitting or collapse of material agents was comparatively more prominent, ranking third among the recorded deviation categories. Figure 23 exposes the overall values of person-related casualty event deviations in all occurrences (in blue, left) and Very Serious Casualties (in orange, right) both in the 2016-2025 timeframe and 2025

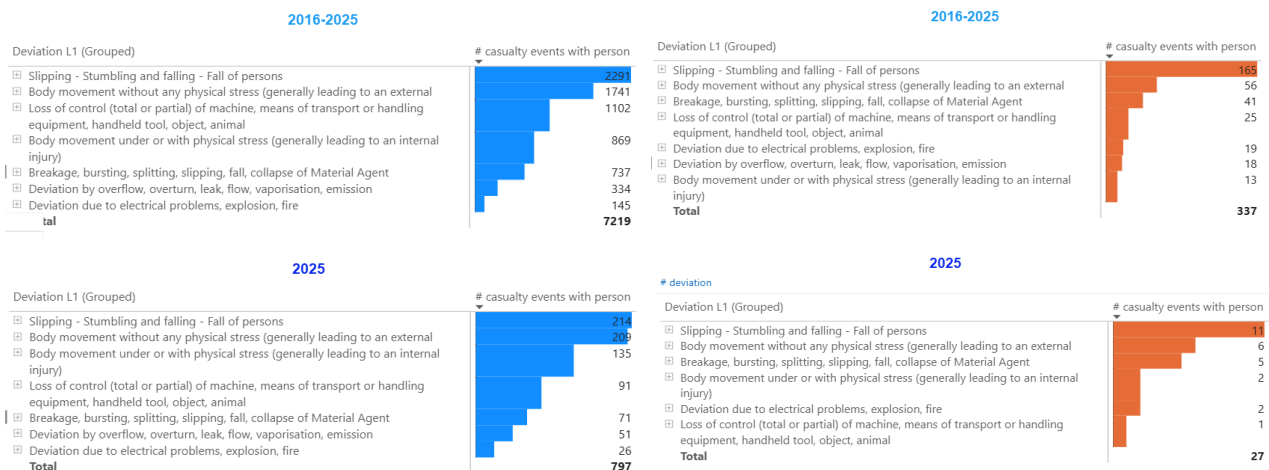


Figure 28 and Figure 29. Person-related casualty event deviations in all occurrences (in blue, left) and Very Serious Casualties (in orange, right) 2016-2025 and 2025

5. Notifications, geographical and operational context

This chapter describes the overall geographical context of the occurrences, including the type of entities notifying the occurrence, where they happen and the operational contexts in which they took place. It brings together the notifying entities, sea-area, voyage-segment, ship-related casualty event profile by sea region and traffic-density analysis.

5.1 Notifying entities

Notifying-entity distributions may be influenced by national reporting arrangements, ship type, company procedures, occurrence severity and the entity that first became aware of the event. Over 2016–2025, **shore authorities were the principal notifying entity**, followed by companies, while ship-originated, public, classification-society and other notifications represented smaller shares. **The 2025 distribution remained broadly consistent with the ten-year profile**, with the same overall ranking of notifying entities.

Within Very Serious Casualties, public and other notifications represented comparatively larger shares than for Marine Casualties or Marine Incidents, accounting for 4% and 1%, respectively. By ship type, **companies represented a comparatively higher share of notifications for cargo ships (23.2%) and service ships (20%)**.

Ship-originated notifications accounted for 6.1% of all notifications over 2016–2025 and 4.4% in 2025. **Fishing vessels recorded the highest number of ship-originated notifications** in both the ten-year period and in 2025.

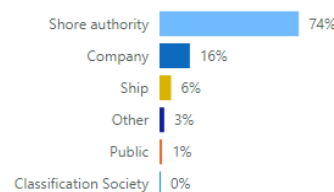


Figure 30. Distribution of notifying entities for recorded occurrences, 2016-2025

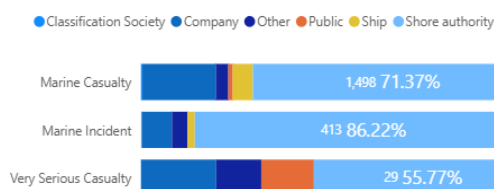


Figure 31. Distribution of notifying entities by Severity (2016-2025)

Ship type	Classification Society	Company	Other	Public	Ship	Shore authority	Total
Cargo ship	0.4%	23.2%	3.6%	1.2%	4.4%	67.2%	100.0%
Fishing vessel	0.0%	3.2%	1.2%	2.5%	7.8%	85.2%	100.0%
Other or unknown ship	0.3%	9.6%	2.1%	2.3%	3.7%	82.0%	100.0%
Passenger ship	0.3%	11.2%	1.7%	0.6%	8.9%	77.3%	100.0%
Service ship	0.3%	20.0%	1.6%	1.5%	5.2%	71.4%	100.0%
Total	0.3%	16.1%	2.5%	1.4%	6.1%	73.7%	100.0%

Table 9. Distribution in percentage of notifying entities by Ship type (2016-2025)

5.2 Geographical profile

Over both 2016–2025 and in 2025, **65% of recorded occurrences took place within the internal waters or territorial seas of EEA reporting States, while 35% occurred outside those waters**. Occurrences outside EEA waters form part of the EMCIP dataset principally where an EEA-flagged ship or another substantial EEA interest was involved. The geographical coverage of EMCIP should therefore not be interpreted as representing maritime activity worldwide.

Separately, when occurrences are classified by **sea area**, irrespective of whether they occurred within or outside EEA waters, internal waters represented the largest share over 2016–2025 (52%), including 38.2% recorded in port areas. Territorial seas accounted for 22.2% and the high seas for 21.4%. Channels or rivers and archipelagic fairways together represented around 9%. **The 2025 sea-area distribution remained broadly consistent with the ten-year profile**, with internal waters continuing to represent the largest share, followed by territorial seas and the high seas (Figure 27).

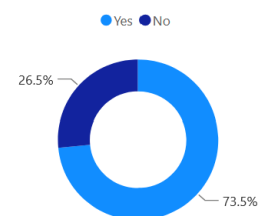


Figure 32. Percentage of occurrences in EEA location

When analysed by broader geographical region, **the North Atlantic accounted for the largest share of recorded occurrences**, representing more than 33% both over 2016–2025 and in 2025. This was followed by overall internal waters (26% over 2016–2025; 24% in 2025), the Mediterranean region (19%; 18%) and the Baltic Sea (12% in both periods). The remaining regions each represented 4% or less of the total.

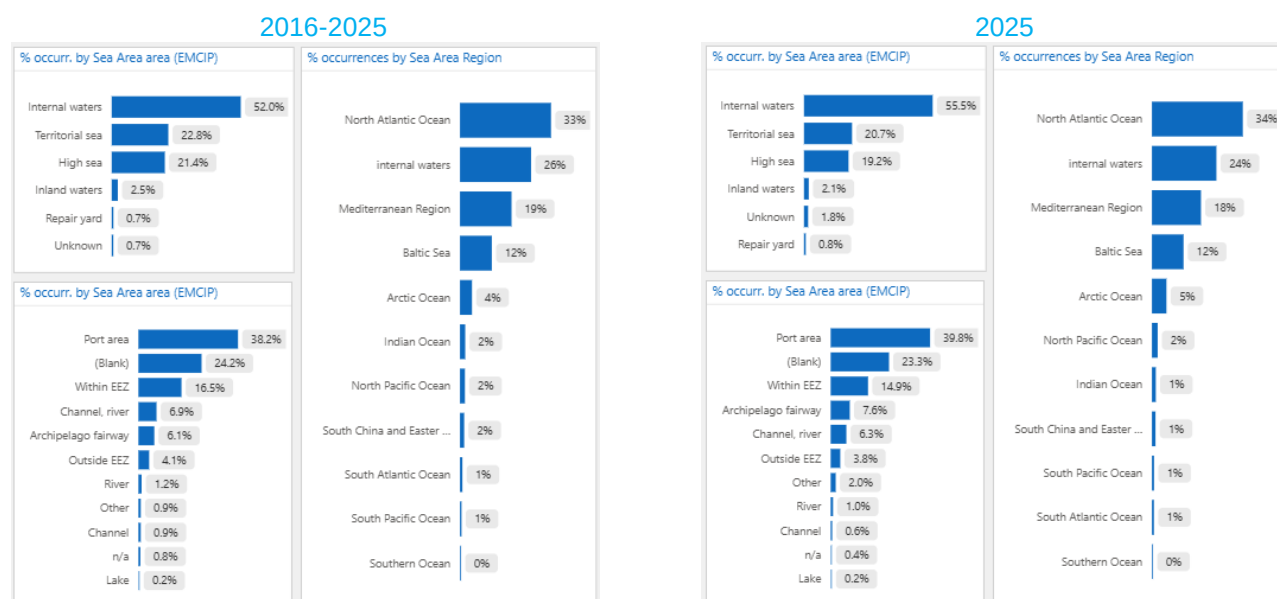


Figure 33. Geographical distribution in percentage of recorded occurrences by region: 2016-2025 (left) and 2025 (right)

Over **2016–2025**, when ship-related casualty events are compared by geographical region with the overall casualty-event profile, **some clear differences emerge**. Contact events were comparatively more prominent in internal waters, representing around 26.6% of the regional event profile compared with 14.6% overall. **Loss of control was more prominent in the Mediterranean region**, accounting for around 43.8% of ship-related casualty events compared with 31.6% overall. The Baltic Sea showed a particularly high proportion of grounding/stranding events, at around 17.1% compared with 10.8% overall. The North Atlantic profile was closer to the overall distribution, although loss of control was also somewhat more prominent.

These differences describe the composition of recorded ship-related casualty events by geographical region **over 2016–2025** and should not be interpreted as measures of regional risk without appropriate exposure data.

OCCURRENCE_WITH_SHIP_L1	Arctic Ocean	Baltic Sea	Indian Ocean	internal waters	Mediterranean Region	North Atlantic Ocean	North Pacific Ocean	South Atlantic Ocean	South China and Easter Archipelagic Seas	South Pacific Ocean	Southern Ocean	Total
Capsizing/Listing	7.0%	13.4%	0.7%	14.1%	21.1%	40.1%	1.4%	0.7%	0.7%	0.7%	0.0%	100.0%
Collision	2.6%	13.3%	2.9%	26.6%	18.9%	27.0%	3.6%	0.8%	4.0%	0.2%	0.0%	100.0%
Contact	4.3%	16.3%	0.5%	39.9%	11.1%	26.1%	0.7%	0.4%	0.5%	0.2%	0.0%	100.0%
Damage / loss of equipment	1.7%	10.0%	2.6%	19.0%	24.8%	35.2%	2.4%	1.2%	1.8%	1.1%	0.1%	100.0%
Fire/Explosion	6.2%	11.1%	4.7%	21.0%	17.2%	32.3%	2.7%	1.2%	2.6%	0.7%	0.2%	100.0%
Flooding/Foundering	4.7%	5.9%	1.0%	14.9%	24.8%	44.2%	1.2%	1.6%	0.4%	1.4%	0.0%	100.0%
Grounding/stranding	12.6%	22.2%	0.9%	21.7%	9.2%	30.2%	0.6%	1.0%	1.2%	0.4%	0.0%	100.0%
Hull failure	22.1%	2.6%	1.3%	20.8%	20.8%	27.3%	2.6%	0.3%	1.3%	1.3%	0.0%	100.0%
Loss of control	1.5%	13.6%	0.6%	12.8%	28.7%	40.7%	0.9%	0.3%	0.6%	0.4%	0.0%	100.0%
Missing		42.9%		14.3%	42.9%							100.0%
Non-accidental event	4.2%	12.5%		20.8%	8.3%	54.2%						100.0%
Total	3.8%	14.0%	1.6%	21.9%	20.7%	33.5%	1.7%	0.7%	1.6%	0.5%	0.0%	100.0%

Table 10. Table with ship-related casualty events in percentage by sea region (2016-2025)

5.3 Voyage segment

Over **2016–2025**, ship-related casualty events were most frequently recorded during mid-water operations (24%) and transit (22%), followed by arrival (18%) and anchored or alongside operations (16%). **The distribution, however, varied substantially by casualty-event type**.

Capsizing/listing and flooding/foundering were particularly concentrated in mid-water operations, accounting for 42% and 46% of their respective events over the ten-year period. **Contact events showed a distinct arrival-**

phase profile, with 44% recorded during arrival and a further 20% during transit. Grounding/stranding events were distributed mainly between arrival (22%) and transit (23%), while collisions were more evenly spread across the different operational phases.

Damage or loss of equipment and fire/explosion were comparatively more prominent while ships were anchored or alongside, accounting for 29% and 32% of their respective events over 2016–2025. Damage or loss of equipment was also frequently recorded during transit (29%), as was fire/explosion (21%).

These distributions describe where casualty-event types were recorded during **2016–2025** and **should not be interpreted as occurrence rates by operational phase**, since exposure differs substantially in terms of time spent, distance travelled, port calls, manoeuvres and persons exposed.

OCCURRENCE_WITH_SHIP_L1	Anchored or alongside	Arrival	Departure	Mid-water	Transit	Unknown	Total
Capsize/Listing	17%	2%	1%	42%	22%	16%	100%
Collision	24%	17%	9%	14%	16%	19%	100%
Contact	7%	44%	12%	7%	20%	9%	100%
Damage / loss of equipment	29%	12%	11%	14%	29%	4%	100%
Fire/Explosion	32%	7%	4%	28%	21%	8%	100%
Flooding/Foundering	19%	7%	5%	46%	15%	9%	100%
Grounding/stranding	4%	22%	14%	29%	23%	8%	100%
Hull failure	23%	3%	8%	26%	35%	6%	100%
Loss of control	9%	11%	8%	38%	23%	10%	100%
Missing	29%	14%	14%	14%	29%	14%	100%
Non-accidental event		17%	4%	4%	21%	54%	100%
Total	16%	18%	10%	24%	22%	11%	100%

Table 11. Table with ship-related casualty-events in percentage by voyage segment (2016–2025)

5.4 Traffic-density and ship-type context

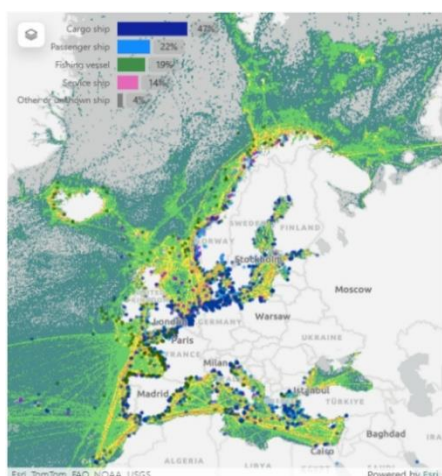


Figure 34. Map with Traffic density for all traffic and recorded occurrences in European area, 2025

In **2025**, comparison of recorded occurrence locations with EMSA traffic-density maps showed that **many occurrence concentrations coincided with areas of high maritime activity**⁶. Over **2016–2025**, recorded occurrences were concentrated in coastal waters, port approaches, ferry corridors, archipelagic areas, traffic-separation schemes and major international shipping routes. Within the European area, recurring concentrations were visible in the North Sea and English Channel, the Baltic approaches, the Strait of Gibraltar, the central and eastern Mediterranean, the Aegean and Greek island routes, the Iberian and Biscay coasts, and North Atlantic island areas including the Canary Islands, Madeira and the Azores. Outside Europe, records were also visible around major port approaches and international shipping corridors, including the Gulf and east coast of the United States, the Panama Canal approaches, the Singapore and Malacca Strait area and East Asian coastal hubs.

The figures below compare **2025 occurrence locations with traffic density for the principal ship types**. Cargo-ship occurrences broadly followed major commercial shipping corridors, with concentrations around ports, port approaches and constrained waterways in the North Atlantic and Mediterranean. Passenger-ship occurrences were concentrated mainly along established ferry and passenger routes, including the Aegean, Adriatic, Baltic, North Sea and English Channel, as well as Atlantic island connections. Fishing-vessel occurrences showed a broader distribution across fishing grounds and coastal waters, particularly in the North Atlantic, North Sea, Baltic Sea, Norwegian waters, Bay of Biscay and certain parts of the Mediterranean.

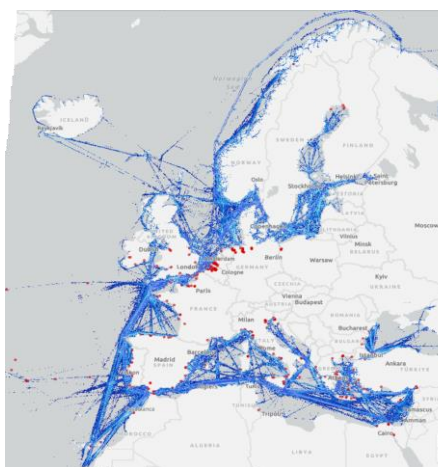


Fig. 35. Traffic density vs recorded occurrences EEA area, 2025 cargo vessels

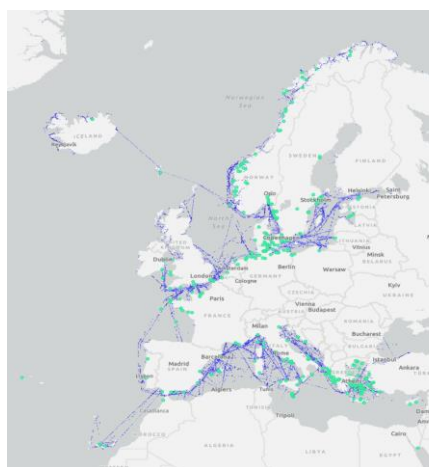


Fig. 36. Traffic density vs recorded occurrences EEA area, 2025 passenger vessels

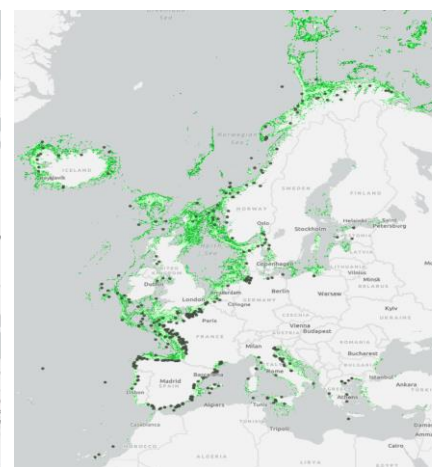


Fig. 37. Traffic density vs recorded occurrences EEA area, 2025 fishing vessels

⁶ The [EMSA traffic density maps](#) are designed to provide insights into maritime traffic patterns within the EU. They are based on Automatic Identification System (AIS) data and calculate ship position data to assess traffic density in 1 x 1 km cells.

Section III – Consequence of marine casualties and incidents

6. Consequence to persons, ships and the environment

This chapter describes the **consequences** associated with marine casualties and incidents recorded in EMCIP during 2016–2025 and places the 2025 results within that ten-year context. The consequence profile is considered across four distinct dimensions: consequences to people, consequences to ships, environmental consequences, and the external assistance or emergency response associated with an occurrence.

Consequence counts are presented primarily in absolute terms. Where normalised human-consequence ratios are used, they are calculated against the number of ships involved in the relevant occurrences. A value expressed per 100 ships involved is therefore a consequence ratio, not the percentage of ships affected, and may exceed 100 when several persons are injured in the same occurrence (details are provided in [Section 10.3](#)). Consequence counts reflect the information recorded in EMCIP at the extraction date. Information concerning persons on board, injury characteristics, body parts affected, pollution quantities, consequence-sequence depth and emergency response may not be available for every record. The results should therefore be interpreted as a description of the recorded consequence profile rather than as a complete measurement of all effects arising from the occurrences.

6.1 Consequence by occurrence severity

Under the casualty-severity definitions applied in EMCIP, **loss of life is recorded only in connection with Very Serious Casualties**, while injuries may be recorded across all severity categories. Over **2016–2025**, Marine Casualties accounted for the largest absolute number of injured persons because they represented by far the largest occurrence group. However, when injuries are considered relative to the number of ships involved within each severity category, **Very Serious Casualties showed the highest injury ratio (43.4%)**, compared with 29.5% for Marine Casualties and 5% for Marine Incidents.

Over **2016–2025**, Very Serious Casualties represented 692 of the 26,802 recorded occurrences, or approximately 3%, but accounted for all 556 lives lost and 185 of the 188 ships lost. Marine Casualties accounted for 6,990 of the 7,560 injured persons, while 234 injuries were associated with Marine Incidents.

The same distinction remained visible in 2025. Very Serious Casualties represented 52 of the 2,630 recorded occurrences, approximately 2%, but accounted for all 29 lives lost, all recorded missing persons and all 16 ships lost. Marine Casualties accounted for 745 of the 813 injured persons, compared with 45 associated with Marine Incidents and 23 with Very Serious Casualties.

Environmental consequences showed a different profile. Over **2016–2025**, 558 pollution records were reported across cargo, bunker and air-pollution categories, including 55 in 2025. Most pollution records were associated with Marine Casualties in absolute terms. **Relative to the number of ships involved, however, the pollution ratio was substantially higher for Very Serious Casualties (13.8%) than for Marine Casualties (1.8%).**

Figure 34 summarises the principal consequence ratios by occurrence severity for 2016–2025 and 2025.

Occurrence severity	# occ 10Y	# 2025 Occ	% occ 10Y	% Occ 2025	2025 vs 10Y Occ	10Y lives lost	2025 lives lost	10Y ratio lives lost	2025 live lost ratio	2025vs 10Y lives lost	10Y Injured	# 2025 injured	2025 vs 10Y injured	10Y injured ratio*	2025 injured ratio	#10Y Loss Ship	# 2025 Loss ships	2025 vs 10Y lost ships	10Y lost ship ratio	2025 lost ship ratio
Very Serious Casualty	692	52	3%	2%	-25%	556	29	71.8%	50.0%	-48%	336	23	-32%	43.4%	39.7%	185	16	-14%	23.9%	27.6%
Marine Casualty	21,645	2,099	81%	80%	-3%	0	0	0.0%	0.0%		6,990	745	7%	29.5%	32.7%	3		-100%	0.0%	
Marine Incident	4,465	479	17%	18%	7%	0	0	0.0%	0.0%		234	45	92%	4.9%	8.9%					
Total	26,802	2,630	100%	100%	-2%	556	29	1.9%	1.0%	-48%	7,560	813	8%	25.9%	28.6%	188	16	-15%	0.6%	0.6%

Table 12. Principal consequence ratios by occurrence severity: 2016–2025 and 2025

6.2 Consequence profile by ship type and subtype

Over **2016–2025**, cargo ships accounted for 48% of recorded occurrences and were associated with the largest absolute number of fatalities (315) and 2,447 injured persons. In 2025, they represented 47% of occurrences (1,230). **Despite their predominance in absolute numbers, cargo ships recorded comparatively lower ten-year consequence ratios**, at 2.3 lives lost and 18.0 injured persons per 100 ships involved.

Passenger ships accounted for 23% of occurrences over 2016–2025 and 22% in 2025. **Their consequence profile combined comparatively low fatality ratios with high injury ratios.** The fatality ratio was 0.9 lives lost per 100 ships involved over the ten-year period and 1.4 in 2025, while the injury ratio was 33.6 and 42.5 injured persons per 100 ships involved, respectively.

Fishing vessels represented 19% of occurrences both over 2016–2025 and in 2025. **They recorded the highest ten-year fatality ratio among the principal ship types**, at 3.5 lives lost per 100 ships involved, together with an injury ratio of 36.5 and a ship-loss ratio of 2.2 ships lost per 100 ships involved. In 2025, these ratios were 0.8 lives lost, 33.8 injured persons and 1.6 ships lost per 100 ships involved. Service ships accounted for 11% of occurrences and recorded a comparatively high ten-year injury ratio (36.0 injured persons per 100 ships

involved), while their ship-loss ratio remained low (0.4 per 100 ships involved). Other or unknown ships recorded a ten-year fatality ratio of 2.9 lives lost per 100 ships involved and 2.0 in 2025. Figure 35a presents the overall consequence profile by ship type for 2016–2025 and 2025, while Figure 35b presents the corresponding consequence ratios for Very Serious Casualties.

Ship type	# occ 10Y	# 2025 Occ	# ship 10Y	# 2025 Ships	10Y lives lost	2025 lives lost	10Y ratio lives lost	2025 live lost ratio	10Y Injured	# 2025 injured	10Y injured ratio*	2025 injured ratio	#10Y Loss Ship	# 2025 Loss ships	10Y lost ship ratio	2025 lost ship ratio	# 10Y poll	# 2025 poll	10Y poll ratio	2025 poll ratio
Cargo ship	12,885	1,230	13,575	1,285	315	15	2.3%	1.2%	2,447	239	18.0%	18.6%	19	2	0.1%	0.2%	294	29	2.2%	2.3%
Fishing vessel	5,113	488	5,225	497	184	4	3.5%	0.8%	1,905	168	36.5%	33.8%	113	8	2.2%	1.6%	108	13	2.1%	2.6%
Passenger ship	6,143	574	6,327	588	60	8	0.9%	1.4%	2,127	250	33.6%	42.5%	12		0.2%		75	3	1.2%	0.5%
Service ship	2,994	364	3,107	374	51	2	1.6%	0.5%	968	133	31.2%	35.6%	22	4	0.7%	1.1%	67	9	2.2%	2.4%
Other or unknown ship	918	94	981	100	28	2	2.9%	2.0%	269	37	27.4%	37.0%	22	2	2.2%	2.0%	14	1	1.4%	1.0%
Total	26,802	2,630	29,215	2,844	556	29	1.9%	1.0%	7,560	813	25.9%	28.6%	188	16	0.6%	0.6%	558	55	1.9%	1.9%

Table 13. Principal consequence ratios by ship type: 2016-2025 and 2025

Ship type	# occ 10Y	# 2025 Occ	# ship 10Y	# 2025 Ships	10Y lives lost	2025 lives lost	10Y ratio lives lost	2025 live lost ratio	10Y Injured	# 2025 injured	10Y injured ratio*	2025 injured ratio	#10Y Loss Ship	# 2025 Loss ships	10Y lost ship ratio	2025 lost ship ratio	# 10Y poll	# 2025 poll	10Y poll ratio	2025 poll ratio
Fishing vessel	256	17	265	17	184	4	69.4%	23.5%	87	5	32.8%	29.4%	111	8	41.9%	47.1%	69	6	26.0%	35.3%
Cargo ship	311	19	319	21	315	15	98.7%	71.4%	99	10	31.0%	47.6%	19	2	6.0%	9.5%	19	3	6.0%	14.3%
Service ship	72	8	75	8	51	2	68.0%	25.0%	34	5	45.3%	62.5%	21	4	28.0%	50.0%	7		9.3%	
Other or unknown ship	39	2	39	2	28	2	71.8%	100.0%	67	4	171.8%	200.0%	22	2	56.4%	100.0%	6	1	15.4%	50.0%
Passenger ship	75	10	76	10	60	8	78.9%	80.0%	91	3	119.7%	30.0%	12		15.8%		6		7.9%	
Total	692	52	774	58	556	29	71.8%	50.0%	336	23	43.4%	39.7%	185	16	23.9%	27.6%	107	10	13.8%	17.2%

Table 14. Principal consequence ratios for Very Serious Casualties by ship type: 2016-2025 and 2025

Within Very Serious Casualties, the consequence profile differed considerably by ship type over 2016–2025. Cargo ships recorded the highest fatality ratio, at 98.7 lives lost per 100 ships involved in Very Serious Casualties, compared with 78.9 for passenger ships and less than 70 for the other ship-type groups. Given that a casualty may be classified as Very Serious due to loss of life, total loss of the ship, severe environmental damage, or a combination of these outcomes, the observed ratios should not be interpreted as indicating the primary reason for the classification. Rather, they describe the relative prominence of different consequences among Very Serious Casualties once they have occurred. Injury ratios within Very Serious Casualties were highest for Other or unknown ships and passenger ships, exceeding 100 injured persons per 100 ships involved. **A ratio above 100 indicates that, in aggregate, more than one person was injured per ship involved; it does not represent a percentage of ships or casualties with injuries.** The corresponding ratios were 32.8 for fishing vessels and 31.0 for cargo ships. Ship-loss ratios were highest for Other or unknown ships (56.4 ships lost per 100 ships involved) and fishing vessels (41.9), compared with 6.0 for cargo ships.

At ship-subtype level, the **10 most frequently reported subtypes accounted for approximately 84% of all occurrences, 80% of recorded fatalities and injuries, and 52% of ships lost.** Solid-cargo ships formed the largest group, followed by trawlers, liquid-cargo ships, ro-ro cargo ships, and passenger ships. Of the 47 recorded ship subtypes, 24 were associated with fatalities during the ten-year period. **Solid-cargo ships accounted for the highest number of lives lost**, followed by trawler fishing vessels, unknown cargo ships, and liquid-cargo ships. In contrast, passenger/ro-ro cargo ships, despite ranking among the more frequently reported subtypes, accounted for comparatively fewer fatalities. Table 15 below shows the principal consequence ratios by ship subtype.

Ship type	Ship subtype	# occ 10Y	# 2025 Occ	# 10Y Ships	# 2025 Ships	10Y lives lost	2025 lives lost	10Y ratio lives lost	2025 live lost ratio	10Y Injured	# 2025 injured	10Y injured ratio*	2025 injured ratio	#10Y Loss Ship	# 2025 Loss ships	10Y lost ship ratio	2025 lost ship ratio	# 10Y poll	# 2025 poll	10Y poll ratio	2025 poll ratio
Cargo ship	Solid Cargo	10,331	987	10,753	1,026	243	13	2.3%	1.3%	1,905	186	17.7%	18.1%	18	1	0.2%	0.1%	203	22	1.9%	2.1%
Fishing vessel	Trawler	1,967	156	2,014	156	77	1	3.8%	0.6%	610	27	30.3%	17.3%	39	3	1.9%	1.9%	56	6	2.8%	3.8%
Cargo ship	Liquid Cargo	2,703	251	2,798	258	74	3	2.6%	1.2%	544	50	19.5%	19.4%	1	1	0.0%	0.4%	90	7	3.2%	2.7%
Fishing vessel		1,565	174	1,581	176	52	2	3.3%	1.1%	852	107	53.9%	60.8%	14	1	0.9%	0.6%	10	2	0.6%	1.1%
Passenger ship	Passenger and Ro-Ro cargo	3,104	277	3,164	277	33	2	1.0%	0.7%	1,157	121	36.6%	43.7%	2		0.1%		29		0.9%	
Passenger ship	Only passenger	2,943	295	3,023	303	24	6	0.8%	2.0%	904	117	29.9%	38.6%	9		0.3%		45	3	1.5%	1.0%
Fishing vessel	Seiner	315	26	319	26	19	0	6.0%	0.0%	91	4	28.5%	15.4%	10		3.1%		9	1	2.8%	3.8%
Service ship	Special purpose ship	833	117	847	117	18	0	2.1%	0.0%	334	42	39.4%	35.9%	3		0.4%		12	4	1.4%	3.4%
Other or unknown ship	Motorboat	131	16	136	18	14	2	10.3%	11.1%	93	20	68.4%	111.1%	9	1	6.6%	5.6%	5	1	3.7%	5.6%
Fishing vessel	Gillnetter	322	20	324	20	13	0	4.0%	0.0%	106	2	32.7%	10.0%	9	1	2.8%	5.0%	9	2	2.8%	10.0%
Service ship	Other	289	26	291	26	11	0	3.8%	0.0%	92	5	31.6%	19.2%	4	1	1.4%	3.8%	13		4.5%	
Service ship	Tug (Towing/Pushing)	743	84	771	87	10	1	1.3%	1.1%	137	21	17.8%	24.1%	4	2	0.5%	2.3%	14	3	1.8%	3.4%
Fishing vessel	Liner	214	18	215	18	9	0	4.2%	0.0%	63	4	29.3%	22.2%	13	2	6.0%	11.1%	12	2	5.6%	11.1%
Fishing vessel	Other	421	66	442	69	7	1	1.6%	1.4%	87	19	19.7%	27.5%	15		3.4%		10		2.3%	
Other or unknown ship	Sailboat (sail only)	27	1	27	1	7	0	25.9%	0.0%	9	0	33.3%	0.0%								
Fishing vessel	Multipurpose	194	25	196	25	5	0	2.6%	0.0%	61	4	31.1%	16.0%	6	1	3.1%	4.0%	1		0.5%	
Service ship	Dredger	463	53	465	53	5	1	1.1%	1.9%	155	25	33.3%	47.2%	5		1.1%		9		1.9%	
Other or unknown ship		158	12	166	12	3	0	1.8%	0.0%	30	3	18.1%	25.0%	4		2.4%		2		1.2%	
Passenger ship	Passenger and general cargo	117	8	118	8	3	0	2.5%	0.0%	70	12	59.3%	150.0%	1		0.8%					
Fishing vessel	Dredger	92	7	94	7	2	0	2.1%	0.0%	19	1	20.2%	14.3%	4		4.3%		1		1.1%	
Other or unknown ship	Worksite craft	16	2	16	2	2	0	12.5%	0.0%	2	0	12.5%	0.0%								
Service ship		244	34	246	34	2	0	0.8%	0.0%	71	11	28.9%	32.4%	1		0.4%		5		2.0%	
Service ship	MODU	4		4		2		50.0%		0		0.0%									
Service ship	Other offshore ship	46	7	47	7	2	0	4.3%	0.0%	17	5	36.2%	71.4%					1		2.1%	
Other or unknown ship	Recreational craft	11	2	11	2	1	0	9.1%	0.0%	8	0	72.7%	0.0%								
Other or unknown ship	Sailboat (aux. motor)	229	25	241	26	1	0	0.4%	0.0%	39	10	16.2%	38.5%	4	1	1.7%	3.8%				
Service ship	Multi-purpose	55	5	55	5	1	0	1.8%	0.0%	28	3	50.9%	60.0%					1		1.8%	
Service ship	Offshore supply ship	153	14	155	14	1	0	0.6%	0.0%	68	7	43.9%	50.0%	1		0.6%		4		2.6%	

Table 15. Principal consequence ratios by ship subtype (one or more lives lost): 2016-2025 and 2025

Some lower-frequency ship subtypes showed **disproportionately high fatality and injury ratios**. **Motorboats**, for example, recorded only **131 occurrences over the ten-year period and 16 in 2025**, yet had a **lives-lost ratio exceeding 10%**. A similar pattern was observed for injuries, with an **injury ratio of 68.4% over the ten-year period**, alongside **111 injuries recorded in 2025**. **Sailboats** displayed a comparable pattern. Despite a very low occurrence volume—**27 occurrences over the ten-year period and only one in 2025**—they recorded a **ten-year fatality ratio of 25.9% and an injury ratio of 33.3%**, indicating a comparatively high severity of consequences relative to their occurrence frequency. These values should be interpreted with caution, as they do not cover all casualties and incidents involving motorboats and sailboats. These ship subtypes are excluded from Directive 2009/18/EC and therefore are included only when involved in occurrences where a vessel covered by the Directive is also involved.

6.3 Consequence to people

This section examines the distribution and characteristics of fatalities, injuries and missing persons in marine casualties and incidents during 2016–2025, analysing their relationship with the geographical context, operational conditions, ship characteristics, casualty events and injury patterns.

6.3.1 Flag, coastal and operational context

Occurrences involving at least one **EEA-flagged ship accounted for the majority of recorded human consequences** over the 2016–2025 period. As a single occurrence may involve ships from more than one flag group, these figures are **not mutually exclusive**. Overall, **457 fatalities (82%) and 6,955 injuries (92%)** were associated with occurrences involving EEA-flagged ships. A similar pattern was observed in 2025, when **20 of the 29 recorded fatalities (69%)** were linked to occurrences involving at least one EEA-flagged ship.

In geographical terms, however, **human consequences were more evenly distributed between EEA sovereign waters and areas outside them**. Over the ten-year period, **231 fatalities (42%)** occurred within areas under **EEA sovereignty**—internal waters and territorial seas—while **325 fatalities (58%)** occurred outside these areas. Injuries showed a broadly similar distribution, with **4,095 injuries (54%)** recorded outside EEA sovereign waters and **3,465 (46%)** within them. The geographical contrast was most pronounced for **missing persons**, with **25 cases (74%)** recorded outside EEA sovereign waters. In 2025, **62% of fatalities and 68% of injuries occurred within EEA internal waters and territorial seas**, indicating a greater concentration of these human consequences **within**, rather than outside, EEA sovereign waters.

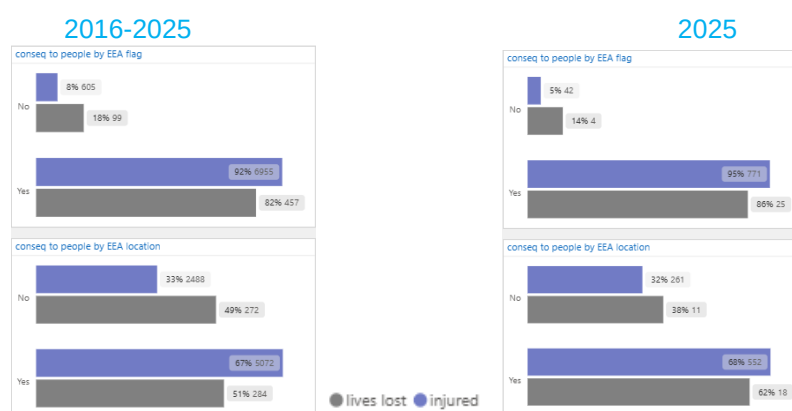


Figure 38 and Figure 39. Lives lost and injured by EEA Coastal state and Flag state 2016-2025 (left) and 2025 (right)

Over the 2016-2025 period, the **Anchored or Alongside voyage segment** recorded the **highest injury and fatality ratios**, with 41.8 injuries and 2.9 lives lost per 100 ships involved. In 2025, it also had the highest injury ratio (46.6 injuries per 100 ships involved, corresponding to 306 injuries), while the **Transit** segment recorded the **highest fatality ratio** (1.6 lives lost per 100 ships involved), despite Anchored or Alongside accounting for the largest number of lives lost (10). **Mid-water** showed comparatively **high injury and fatality ratios** in both the 10-year period (30.0 and 2.6) and 2025 (30.2 and 1.2). Overall, the injury ratio was higher in 2025 than across the 10-year period (28.6 vs. 25.9 per 100 ships involved), while the fatality ratio was lower (1.0 vs. 1.9 lives lost per 100 ships involved).

2016-2025					2025				
Voyage segment	injured	injured ratio	live loss	lives lost ratio	Voyage segment	injured	injured ratio	live loss	lives lost ratio
Mid-water	2217	30.0%	190	2.6%	Anchored or alongside	306	46.6%	10	1.5%
Anchored or alongside	2636	41.8%	185	2.9%	Mid-water	225	30.2%	9	1.2%
Transit	1032	18.6%	116	2.1%	Transit	114	20.7%	9	1.6%
Unknown	795	24.1%	65	2.0%	Departure	34	15.0%	3	1.3%
Arrival	713	16.4%	37	0.9%	Arrival	86	20.3%	1	0.2%
Departure	288	12.4%	21	0.9%	Unknown	60	24.8%	0	0.0%
Total	7560	25.9%	556	1.9%	Total	813	28.6%	29	1.0%

Table 16 and Table 17. Human consequences by segment, 2016-2025 period (left) and 2025 (right)

6.3.2 Ship length and age

Larger ships account for most reported occurrences in EMCIP, but some smaller-ship categories show comparatively high consequence ratios within the recorded population. In the 10-year period, ships between 24 and 45 metres recorded an elevated fatality ratio (**2.7 per 100 ships involved**) among the principal length groups, while ships below 15 metres also showed a high recorded fatality ratio (3.7 per 100 ships involved) despite their small occurrence volume. The latter category requires particular caution because ships below 15 metres are not fully represented within the scope of the Directive and therefore do not have a complete exposure base in EMCIP.

2016-2025					2025				
Vessel_Length	injured	injured ratio	live loss	lives lost ratio	Vessel_Length	injured	injured ratio	live loss	lives lost ratio
L < 15 m	307	32.7%	35	3.7%	L < 15 m	43	46.2%	2	2.2%
24 m ≤ L < 45 m	1097	27.3%	108	2.7%	Other / unspecified	33	22.6%	2	1.4%
L ≥ 45 m	5138	26.4%	418	2.1%	L ≥ 45 m	555	29.3%	22	1.2%
15 m ≤ L < 24 m	830	23.9%	55	1.6%	24 m ≤ L < 45 m	126	32.9%	4	1.0%
Other / unspecified	329	25.0%	20	1.5%	15 m ≤ L < 24 m	69	20.8%	1	0.3%
Total	7560	25.9%	556	1.9%	Total	813	28.6%	29	1.0%

Table 18 and Table 19. Human consequences by vessel length, 2016-2025 period (left) and 2025 (right)

By ship age when looking at the 10-year period, the largest absolute numbers of fatalities and injuries were associated with ships aged **15-29 years (193)**, reflecting the size of this group within the occurrence population. Young ships (**less than 10 years old**) have the second largest fatality and injuries number with **151 lives lost and 1,771 injured** people in the 10-year period. This also reflects in a high fatality ratio of **2.7%**. Similar trend is followed by the mid-life (**10 to 14 years old**) which shows as the third age group in absolute and relative values of fatalities (**127 lives lost and 2.9 ratio of lives lost** per 100 ships involved). In the 2025-year trend the **15-29-year-old** ship age band has **11 lives lost and 234 injured**, being responsible for the highest fatality and injuries in absolute numbers. However, within 2025, old ships from 85-99 years age have the highest fatality ratios per ships involved (16.7) followed by mid-life ships (between 10 to 14 years old) with 2.1. Regarding injury ratios within 2025, old ships from 85 to 99 years old also account for the highest ratio (66.7) followed by ships with less than 10 years (39.9).

2016-2025					2025				
Vessel Age Band	injured	injured ratio	live loss	lives lost ratio	Vessel Age Band	injured	injured ratio	live loss	lives lost ratio
85-99 (Ultra old)	14	28.6%	2	4.1%	85-99 (Ultra old)	4	66.7%	1	16.7%
60-84 (Extreme age)	47	17.9%	8	3.1%	10-14 (Mid-life)	121	35.8%	7	2.1%
10-14 (Mid-life)	1120	25.8%	127	2.9%	≤9 (Young)	185	39.9%	6	1.3%
≤9 (Young)	1771	31.1%	151	2.7%	15-29 (Old)	234	24.8%	11	1.2%
15-29 (Old)	2251	25.7%	193	2.2%	45-59 (Aged)	38	33.3%	1	0.9%
45-59 (Aged)	271	25.8%	20	1.9%	Unknown	159	25.9%	4	0.7%
30-44 (Very old)	807	22.4%	66	1.8%	100+ (Centenarian)	8	38.1%	0	0.0%
Unknown	1401	26.4%	64	1.2%	30-44 (Very old)	77	24.4%	0	0.0%
100+ (Centenarian)	40	26.3%	0	0.0%	60-84 (Extreme age)	1	3.4%	0	0.0%
Total	7560	25.9%	556	1.9%	Total	813	28.6%	29	1.0%

Table 20 and Table 21. Human consequences by vessel age, 2016-2025 period (left) and 2025 (right)

6.3.3 Geographical context

Over the 2016-2025 period, **internal waters recorded the highest absolute number of injuries (3,764)** and fatalities (202), followed by high seas and territorial seas. When measured relative to the number of ships involved, repair yards exhibited the highest injury and fatality consequence ratios. The 2025 profile broadly mirrored the long-term pattern. Internal waters continued to account for the largest number of injuries and fatalities, although the injury consequence ratio increased compared with the ten-year average. The main change was observed in the territorial sea, where the fatality consequence ratio declined significantly from its long-term level.

2016-2025					2025				
Sea Area of Occurrence L1	injured	injured ratio	live loss	lives lost ratio	Sea Area of Occurrence L1	injured	injured ratio	live loss	lives lost ratio
Internal waters	3,764	24.3%	202	1.3%	Internal waters	465	29.0%	20	1.2%
High sea	2,108	34.9%	194	3.2%	High sea	188	35.7%	2	0.4%
Territorial sea	1,398	21.3%	148	2.3%	Territorial sea	125	21.5%	7	1.2%
Repair yard	113	56.5%	7	3.5%	Unknown	16	33.3%	0	0.0%
Unknown	89	50.3%	0	0.0%	Repair yard	12	54.5%	0	0.0%
Inland waters	88	11.8%	5	0.7%	Inland waters	7	10.9%	0	0.0%
Total	7,560	25.9%	556	1.9%	Total	813	28.6%	29	1.0%

Table 22 and Table 23. Human consequences by vessel age, 2016-2025 period (left) and 2025 (right)

The North Atlantic, internal waters and the Mediterranean as the largest geographical groups in the human-consequence records. The North Atlantic recorded concentrations in the fatality and missing-person profiles, while internal waters contain the largest injury volume. In 2025, the North Atlantic again contained the largest

number of lives lost and all recorded missing persons, while internal waters contained the largest number of injured persons. These distributions should be interpreted together with traffic volume, port and coastal activity, route structure, ship-type composition, persons exposed and reporting coverage.

2016-2025					2025				
Sea Region	injured	injured ratio	live loss	lives lost ratio	Sea Region	injured	injured ratio	live loss	lives lost ratio
North Atlantic Ocean	2,232	23.6%	163	1.7%	North Atlantic Ocean	198	21.1%	12	1.3%
Mediterranean Region	1,049	19.3%	119	2.2%	internal waters	274	41.0%	5	0.7%
internal waters	2,795	37.1%	96	1.3%	Mediterranean Region	126	25.2%	3	0.6%
North Pacific Ocean	187	33.6%	50	9.0%	Arctic Ocean	20	28.6%	2	2.9%
Indian Ocean	202	35.5%	34	6.0%	Baltic Sea	53	16.2%	2	0.6%
Baltic Sea	359	10.5%	31	0.9%	Indian Ocean	21	51.2%	2	4.9%
Arctic Ocean	418	34.2%	21	1.7%	South China and Easter Archipelagic Seas	18	41.9%	2	4.7%
South China and Easter Archipelagic Seas	140	28.6%	17	3.5%	North Pacific Ocean	66	46.2%	1	0.7%
South Atlantic Ocean	96	37.8%	12	4.7%	South Atlantic Ocean	19	28.8%	0	0.0%
South Pacific Ocean	28	28.6%	7	7.1%	South Pacific Ocean	5	22.7%	0	0.0%
Southern Ocean	53	34.6%	6	3.9%	Southern Ocean	13	59.1%	0	0.0%
Total	7,560	25.9%	556	1.9%	Total	813	28.6%	29	1.0%

Table 24 and Table 25. Human consequence by geographical region: 2016-2025 (left) and 2025 (right)

6.3.4 Human consequence by casualty events

Within the 2016-2025 period, the ship related casualty-event categories with the highest proportions of fatalities were **collision (34.4%)**, **capsizing/listing (33.6%)**, **flooding/foundering (29.0%)**, **fire/explosion (17.0%)** and **loss of control (13.9%)**. In contrast, the highest proportions of injuries were associated with contact (25.5%) and damage or loss of equipment (17.6%) events. In 2025, the casualty-event profile associated with fatalities differed somewhat from the long-term pattern. **Fire/explosion was the event type most frequently associated with loss of life (44.4%)**, followed by **collision (33.3%)**. For injuries, damage or loss of equipment (22.6%) and contact (18.9%) remained the dominant casualty-event categories, consistent with the trends observed over the 10-year period.

2016-2025			2025		
occurrence with ship	% associated injured	% associated live loss	occurrence with ship	% associated injured	% associated live loss
Collision	18.7%	34.4%	Fire/Explosion	17.0%	44.4%
Capsizing/Listing	6.0%	33.6%	Collision	17.0%	33.3%
Flooding/Foundering	6.9%	29.0%	Capsizing/Listing	9.4%	11.1%
Fire/Explosion	11.7%	17.0%	Grounding/stranding	19.8%	11.1%
Loss of control	13.6%	13.9%	Missing	0.0%	11.1%
Damage / loss of equipment	17.6%	5.8%	Contact	18.9%	0.0%
Missing	0.7%	4.6%	Damage / loss of equipment	22.6%	0.0%
Grounding/stranding	7.6%	2.7%	Flooding/Foundering	1.9%	0.0%
Contact	25.5%	1.2%	Hull failure	0.0%	0.0%
Non-accidental event	0.9%	0.4%	Loss of control	3.8%	0.0%
Hull failure	0.2%	0.0%	Total	100.0%	100.0%
Total	100.0%	100.0%			

Table 26 and Table 27. Human consequences by ship-related casualty event, 2016-2025 (left) and 2025 (right)

While person-related consequences were distributed relatively evenly across a range of casualty-event types, fatalities were concentrated in a smaller number of categories. Over the 2016-2025 period, **collision, capsizing/listing and flooding/foundering accounted for approximately 97% of all ship-related casualty-event categories associated with fatalities**. In 2025 alone, fire/explosion and collision together represented 77.7% of casualty-event categories associated with loss of life.

2016-2025			2025		
DEVIATION_CE_L1	% deviations with injured	% deviations with live loss	DEVIATION_CE_L1	% deviations with injured	% deviations with live loss
Slipping - Stumbling and falling - Fall of persons	28.7%	46.6%	Slipping - Stumbling and falling - Fall of persons	24.3%	35.0%
Body movement without any physical stress (generally leading to an external injury)	23.9%	16.0%	Body movement without any physical stress (generally leading to an external injury)	27.4%	25.0%
Breakage, bursting, splitting, slipping, fall, collapse of Material Agent	8.8%	10.1%	Breakage, bursting, splitting, slipping, fall, collapse of Material Agent	7.7%	25.0%
Loss of control (total or partial) of machine, means of transport or handling equipment, handheld tool, object, animal	14.4%	7.7%	Body movement under or with physical stress (generally leading to an internal injury)	16.4%	5.0%
Deviation by overflow, overturn, leak, flow, vaporisation, emission	5.0%	6.1%	Deviation due to electrical problems, explosion, fire	2.2%	5.0%
Deviation due to electrical problems, explosion, fire	1.9%	5.5%	Loss of control (total or partial) of machine, means of transport or handling equipment, handheld tool, object, animal	11.3%	5.0%
Other	3.8%	4.6%	Deviation by overflow, overturn, leak, flow, vaporisation, emission	6.6%	0.0%
Body movement under or with physical stress (generally leading to an internal injury)	10.9%	2.8%	No information	2.3%	0.0%
No information	2.7%	1.8%	Other	2.6%	0.0%
Shock, fright, violence, aggression, threat, presence	0.4%	0.6%	Total	100.0%	100.0%
Total	100.0%	100.0%			

Table 28 and Table 29. Human consequences by person-related casualty event deviations, 2016-2025 (left) and 2025 (right)

Fatality and injury trends differed markedly by person category over the 2016-2025 period. Crew fatalities declined substantially, from 67 in 2016 to 21 in 2025, while passenger and other-person fatalities remained comparatively low throughout the decade. In contrast, injuries increased across all categories, particularly among crew, where annual injuries rose from 101 to 707. Passenger injuries also increased, peaking at around 95 before declining to 74 in 2025, while injuries involving other persons showed a gradual upward trend. Overall,

the data indicate a significant reduction in fatalities, especially among crew, but a concurrent rise in non-fatal injuries across all groups.

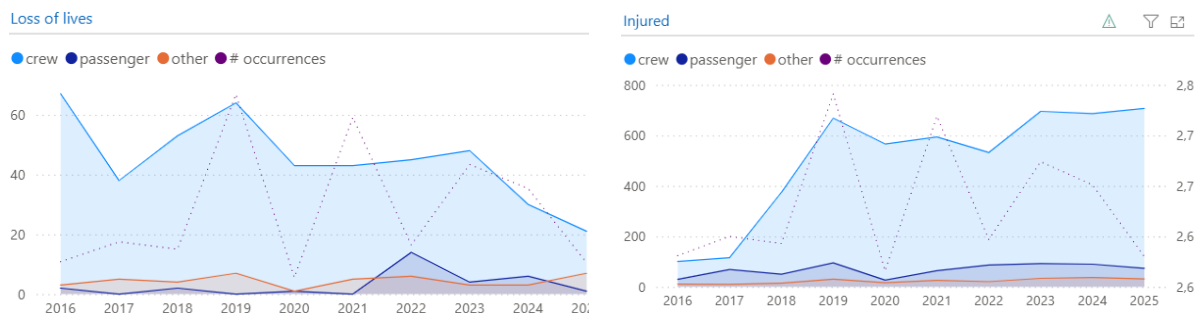


Figure 41 and Figure 42. Loss of lives (left) and injured (right) by year (2016-2025)

6.3.6 Injury characteristics

Where injury-type information was available, fatal outcomes were concentrated in severe trauma, internal injuries, asphyxiation, and drowning, whereas non-fatal injuries were mainly represented by fractures, sprains, wounds, and burns. Analysis of the 7,732 reported body injuries shows that the upper extremities were the most frequently affected body region, followed by whole body and multiple body sites, lower extremities, back, and head injuries.

A more detailed breakdown indicates that injuries to the fingers, hands, arms, shoulders, and wrists accounted for a large share of upper-extremity cases, while lower-extremity injuries were concentrated in the legs, knees, ankles, and feet. Back injuries were also prominent. Injuries affecting the head, torso and multiple body regions were recorded less frequently.

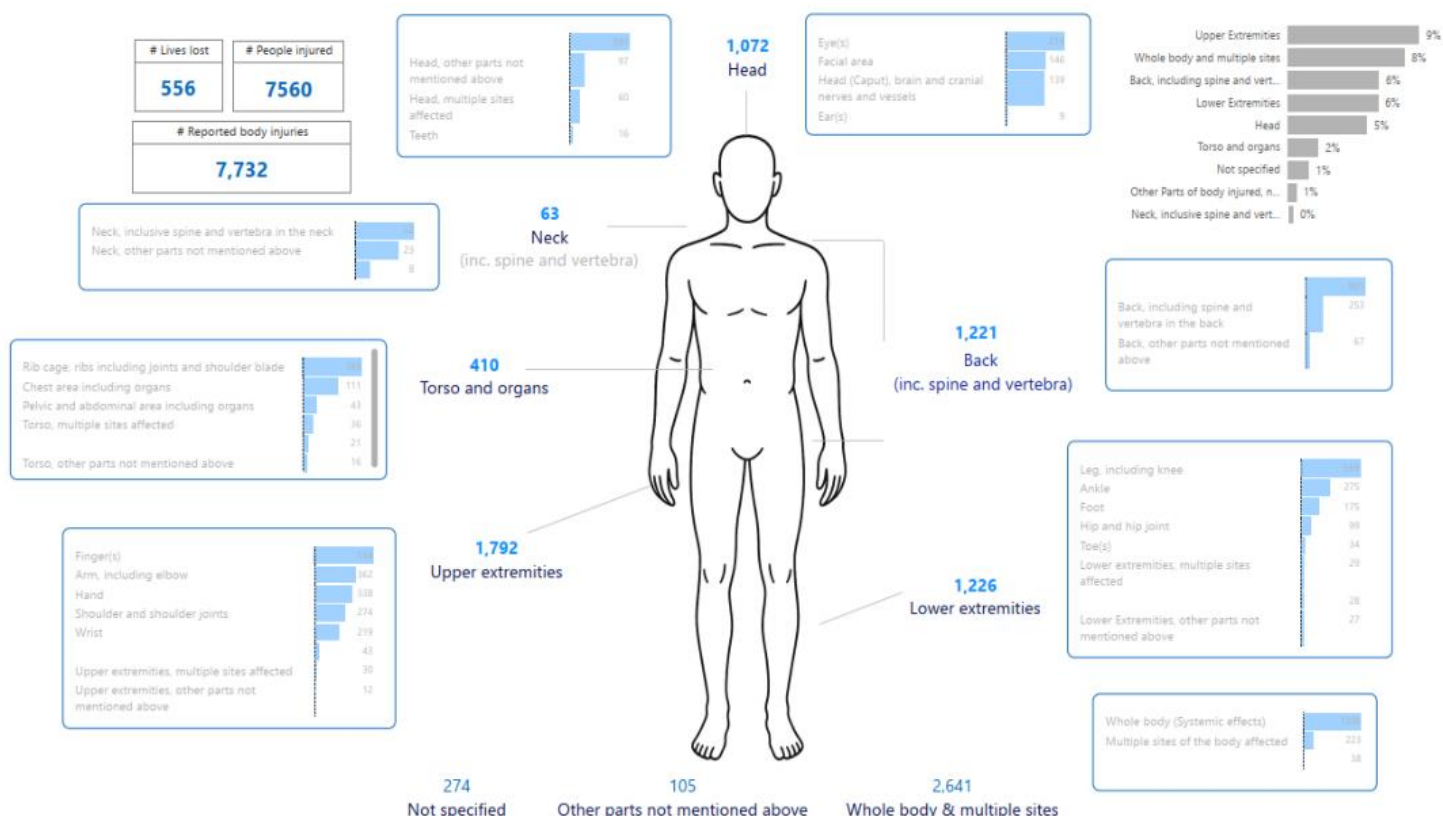


Figure 43. Distribution of reported body injuries by body region and injury site, 2016-2025

6.4 Consequence to ships

A total of 188 ships were recorded as lost between 2016 and 2025. In 2025, 16 ships were lost and 28 were recorded as abandoned. Although these outcomes affected only a small proportion of ships involved in occurrences, they were significantly concentrated within specific ship types (see figure 6).

Fishing ships accounted for 113 ship losses over the 10-year period, representing around 60% of the total, and for eight of the 16 ships lost in 2025 (Figure 32). By contrast, cargo ships accounted for only two ship losses in 2025 but were involved in 19 Very Serious Casualties resulting in 15 fatalities. Cargo ships accounted for the

largest number of lives lost, while fishing vessels accounted for the largest number of ships lost and missing persons.



Figure 44. Loss of ship, ship sunk and/or abandoned 2016-2025

Annual loss-of-ship incidents fluctuated between 10 and 28 during 2016-2025, peaking in 2018 and reaching their lowest level in 2022. The 28 incidents recorded in 2018 were 180% higher than the 10 recorded in 2022 and represented 17.0% of all loss-of-ship incidents in the period. In 2025, there were 13 loss-of-ship incidents, matching 2024 and remaining well below the 2018 peak.

The number of ships recorded as sunk ranged from 21 to 45 annually, while ships abandoned ranged from 9 to 27. Both values peaked in 2018, with 45 ships sunk and 27 abandoned. By comparison, 2022 recorded the lowest number of ships sunk (21) and 15 abandoned ships. In 2025, 27 ships were reported as sunk and 13 as abandoned, placing the year within the mid-range of values observed across the decade.

6.5 Consequence to environment

Pollution consequences recorded in EMCIP include cargo, bunker and air pollution events. In 2025, 55 occurrences with reported pollution consequences were recorded, compared with 50 in 2024. This annual total remained within the range observed during the 2016-2025 reference period. Bunker pollution was the most frequently recorded category, accounting for 28 occurrences in 2025 and 329 records over the 10-year period.

Over the 2016-2025 period, the total number of reported pollution occurrences fluctuated between 43 and 68 annually. The highest number was recorded in 2021 (68 occurrences), while the lowest was observed in 2020 (43 occurrences). **Air pollution** records increased from 2 occurrences in 2016 to a peak of 24 in 2021 before declining and stabilising at relatively higher levels between 2022 and 2025. The 2021 value was twelve times higher than that reported in 2016. In 2025, 20 air pollution occurrences were recorded, compared with 12 in 2024. **Cargo-related pollution** occurrences remained comparatively stable throughout the period, ranging between 7 and 15 records per year. The highest annual value was recorded in 2021 (15 occurrences), while annual totals generally ranged between 7 and 9 occurrences from 2022 onwards. In 2025, seven cargo-related pollution occurrences were reported. **Bunker pollution** showed an overall downward trend over the reference period. Reported occurrences decreased from 44 in 2016 to annual totals generally ranging between 20 and 30 from 2019 onwards. In 2025, 28 bunker pollution occurrences were recorded, representing a slight decrease from 31 in 2024.

Ship type	10Y air poll	2025 air poll	2025 vs 10Y air poll	10Y cargo poll	2025 Cargo Poll	2025 vs 10Y cargo poll	10Y bunkers poll	2025 bunkers poll	2025 vs 10Y bunkers poll	10Y total poll	2025 total poll	2025 vs 10Y total poll
☐ Cargo ship	61	11	62%	64	4	-38%	169	14	-17%	294	29	-1%
☐ Service ship	14	2	14%	9		-100%	44	7	59%	67	9	34%
☐ Fishing vessel	20	5	50%	26	2	-23%	62	6	-3%	108	13	20%
☐ Passenger ship	27	2	-33%	2		-100%	46	1	-78%	75	3	-60%
☐ Other or unknown ship	4		-100%	2	1	0%	8		-100%	14	1	-29%
Total	126	20	59%	103	7	-32%	329	28	-15%	558	55	-1%

Table 30. Pollution response trends 2025 vs 2016-2025

When analysed by ship type, cargo ships accounted for the largest share of recorded pollution occurrences in both the 2016-2025 dataset and the 2025 profile, with solid cargo ships particularly prominent among ship subtypes (Figures 32 and 33). These counts are not adjusted for fleet size, cargo volumes, distance travelled, port calls or other measures of ship activity. In the absence of exposure data, such as cargo volumes carried, fuel quantities, distance travelled, port calls or ship activity levels, relative risk cannot be assessed accurately.

In addition, the number of recorded pollution occurrences does not provide information on the quantity of pollutants released, the geographical extent affected, the duration of the event or the resulting environmental impact. These data describe the frequency of reported pollution occurrences, not the quantity released or the resulting environmental impact.

6.6 Emergency response

Over the 10-year period, 28,434 ship records were reported, of which 24% required **shore assistance**, 2% received assistance that was subsequently reported as unnecessary, and 74% required no assistance. The distribution in 2025 was almost identical, with 23% of ships requiring shore assistance, 3% receiving unnecessary assistance, and 74% requiring none.

Information on **Search and Rescue (SAR)** intervention was available for 26,802 records over the period. Overall, 11% required SAR intervention, 87% did not, and 1% were reported as unknown. The 2025 distribution was similar, with 9% of records requiring intervention and 90% requiring none. When analysed by ship type, fishing vessels were the most frequent users of external assistance, with more than 40% of occurrences requiring shore assistance and over 30% involving SAR intervention. This pattern was consistent both across the decade and in 2025. Passenger and cargo ships showed comparable SAR intervention ratios, at around 5% over the 10-year period and 3% in 2025. Passenger ships required shore assistance less frequently, with ratios of 16% over the decade and 17% in 2025.

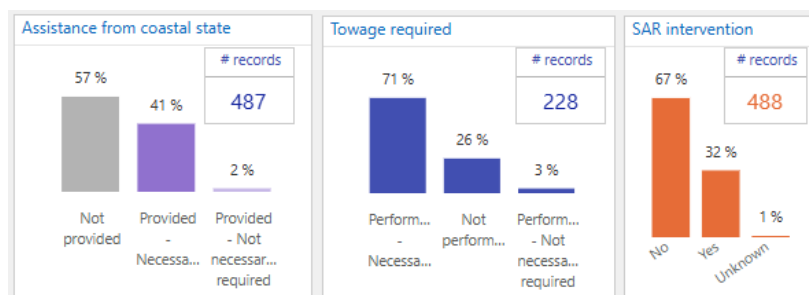


Figure 45. Shore assistance, towage, Figure 46. SAR and Figure 47. oil pollution response (2016-2025)

Towage information was available for 19,019 records during 2016-2025. Of these, 20% required towage assistance and 1% received assistance that was subsequently deemed unnecessary. The corresponding figures for 2025 were 19% and 3%, respectively. Towage was required in 7% of passenger-ship occurrences over the decade. Fishing vessels again stood out, with 49% of occurrences requiring towage assistance during the 10-year period, compared with 26% in 2025.

A total of 238 **oil pollution response** activations were recorded during 2016-2025, including 27 in 2025. Although this represented a 25% decrease compared with the 36 activations recorded in 2024, it remained 26% above the annual average of 22 activations recorded across the decade (see key figures oil pollution response reported).

Section IV. Safety investigations and safety learning

7. Safety investigations and investigation reports

This chapter describes the investigation and reporting fields recorded in EMCIP. It distinguishes the investigation status, reports published notifying entity and location and flag-State dimensions (EEA and non-EEA). The information presented reflects the investigation status recorded in EMCIP at the time of data extraction and should not, by itself, be interpreted as an assessment of compliance with investigation requirements. Such assessments require consideration of the specific circumstances of individual cases, including the applicable legal framework, the complexity of the investigation, and any arrangements established between the States involved. Furthermore, for more recent occurrences, some investigations, reports, identified factors, recommendations and follow-up actions may still be incomplete at the extraction date.

7.1 Investigation profile

Very serious marine casualties are subject to specific investigation requirements under the maritime accident investigation framework. For casualties falling within the scope of Directive 2009/18/EC, a safety investigation is generally required following a very serious marine casualty, while the Directive also establishes provisions regarding the lead investigating State, cooperation between substantially interested States and, where relevant, cooperation with third countries.

Within the EMCIP dataset analysed for 2016–2025, the number of safety investigations initiated shows an overall declining trend, with the exception of 2018. Across the ten-year period, **safety investigations were launched for 82.9% of very serious marine casualties, 2.3% of marine casualties and 0.5% of marine incidents. In 2025, a safety investigation was recorded for 78.8% of very serious marine casualties, 2.2% of marine casualties and 0.2% of marine incidents.** While these proportions differ by severity category, they should be interpreted in the context of the applicable investigation framework and the status of records available in EMCIP at the time of data extraction.

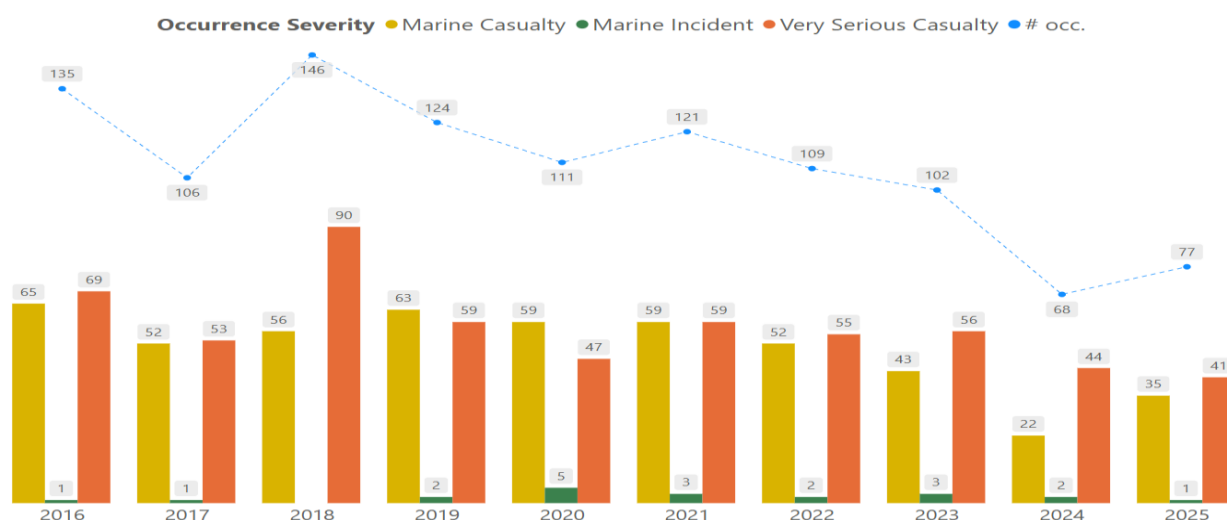


Figure 48. Investigations launched by year of occurrence and severity

Across all ship types in the 10-year period, **most investigated or ongoing investigations involve cargo ships** (588 cases, 53.5%), followed by fishing vessels (268, 24.4%) and passenger ships (176, 16%), with service ships (110, 10%) and other/unknown ships (52, 4.5%) making up a smaller share of the total 1,099 cases. The year 2025 has 52 cases reported as ongoing while 25 finalised. Of the total 77 investigated cases 51% correspond to cargo ships, 19% to fishing vessels, 23% passenger ships, 13% service ships and remaining 5% to Other/unknown ship type.

2016-2025						2025							
Investigation Status	Investigated		Ongoing		Total		Investigation Status	Investigated		Ongoing		Total	
Ship_Type	#	%	#	%	#	%	Ship_Type	#	%	#	%	#	%
Cargo ship	482	53%	106	57%	588	54%	Cargo ship	10	40%	29	56%	39	51%
Fishing vessel	242	26%	26	14%	268	24%	Fishing vessel	7	28%	8	15%	15	19%
Other or unknown ship	46	5%	6	3%	52	5%	Other or unknown ship	2	8%	2	4%	4	5%
Passenger ship	136	15%	40	22%	176	16%	Passenger ship	6	24%	12	23%	18	23%
Service ship	85	9%	25	14%	110	10%	Service ship	3	12%	7	13%	10	13%
Total	914	100%	185	100%	1,099	100%	Total	25	100%	52	100%	77	100%

Table 31 and Table 32. Investigations launched by status and ship type: 2016-2025 (left) period and 2025 (right)

Organizing safety investigations completed by report type, 93% of the investigation reports were classified as final reports from 2016 to 2025, 6% were simplified with only 1% recorded as unspecified. In 2025, the number of final and simplified reports was lower compared to other years in the analysed period. Nevertheless, it should be noted that the data for the analysis was extracted the 1st of May 2026 and some investigation reports from 2025 can be still pending.

7.2 Investigation State, coastal State and flag State

The last 10 years, investigation-State field in EMCIP was strongly centred on EEA States with 946 investigations involving **EEA flags** and 229 **non-EEA Flag**⁷. Similarly, 1,006 investigations were conducted by **EEA investigating States** compared with 93 **non-EEA States**, indicating that EEA safety investigation authorities conduct the majority of recorded safety investigations launched or ongoing in EMCIP.

There are 1,099 investigations in total over the 10-year period, of which 628 cases have the **coastal state also acting as the investigation state**, while in 476 cases another state is investigating. In terms of where these investigated occurrences are ongoing, 714 took place in EEA waters and 385 in non-EEA waters.

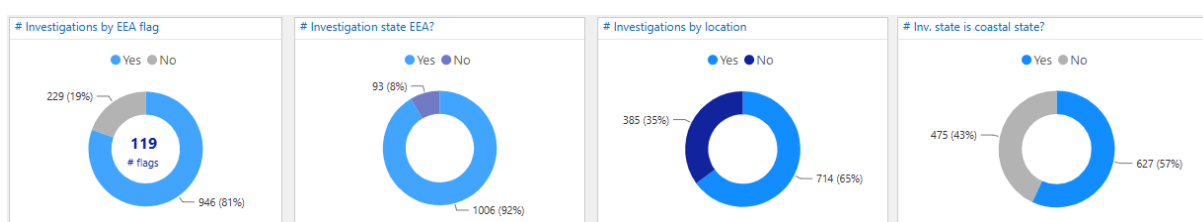


Figure 49. Share of safety investigations by EEA and non-EEA: investigation State (1), location of occurrence investigated (2), flag state (3) and investigation state same as coastal state, 2016-2025

⁷ One investigation may involve both a non-EEA flag and a EEA flagged vessel (i.e., collision)

8. Accident events and contributing factors

An accident event describes an action, failure, external influence or other element identified in the investigated sequence. A contributing factor describes a condition that influenced an accident event. One occurrence may contain several accident events, and each accident event may be associated with one or more contributing factors. Accident events and contributing factors are available only where an investigation has generated and recorded this information. They generally mature later than the occurrence date, severity, location, ships involved, [casualty events](#) and initial consequences. Recent occurrence years are therefore less complete, particularly where investigations remain ongoing or the investigation findings have not yet been entered in EMCIP. The Accident events or contributing factor counts are not adjusted for fleet size, traffic, time at sea, persons carried or investigation coverage. The figures are particularly sensitive to investigation status, reporting maturity and the level of detail entered in the database. The analysis is descriptive and should not be interpreted as a full causal assessment of individual occurrences. In EMCIP, contributing factors are exposed only for a subset of occurrences, i.e. finished safety investigations. For this reason, the analysis in this chapter should be interpreted as a profile of coded contributing-factor information in finalized safety investigations, not as a complete causal assessment of all reported marine casualties and incidents.

8.1 Accident events and Contributing factor overall trends

The EMCIP dataset for 2016-2025 finalised investigations contains 1,043 accident events. The dedicated contributing-factor extract reports 2,455 contributing factors associated with 544 occurrences. The higher number of contributing factors reflects the possibility of recording several factors for the same accident event or occurrence; it is not a measure of occurrence severity or complexity.

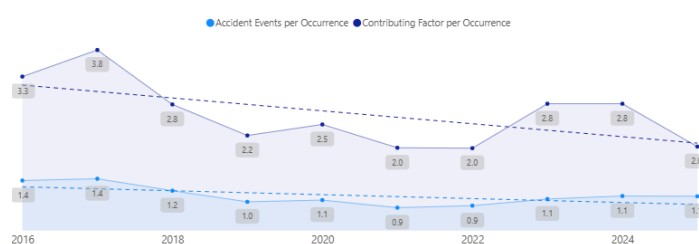


Figure 50. Accident events and Contributing factors per investigated cases by year

The number of Accident Events and Contributing Factors recorded per investigated occurrence varied over time within the 10-year period. Contributing Factors per investigated occurrence remained consistently higher than Accident Events per investigated occurrence, reaching about **3.8** factors per case in 2017 and around **2.8** in 2023–2024. Accident Events per investigated occurrence varied within a narrower range, from around **0.9** to **1.5** per case, with lower values around 2019–2022 and higher values again from 2023. These ratios describe the amount of investigation-derived information recorded in EMCIP for each investigated occurrence. Differences between years may reflect investigation scope, completion status, coding practice and record maturity, and should not be interpreted directly as changes in the complexity of marine casualties and incidents.

8.2 Accident events profile

EMCIP uses five accident-event types: **human action**, **system/equipment failure**, **other agent or ship**, **hazardous material** and **unknown**. Among the classified accident events recorded over 2016-2025, human action formed the largest group, accounting for approximately **64%**. System/equipment failure accounted for approximately **23%**, followed by other agent or ship at 7%, hazardous material at 3% and unknown at 3%. Human action and system/equipment failure therefore represented the two principal accident-event groups in the ten-year coding.

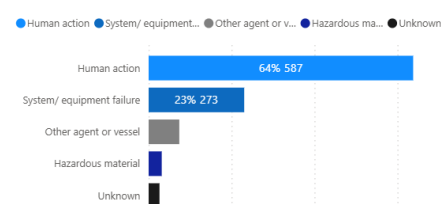


Figure 51. Accident events 2016-2025 for completed investigations

The broad distribution was similar across the main ship types. Human action remained the largest accident-event type in each group, followed by system/equipment failure. Cargo ships had the largest absolute number of recorded events, reflecting their larger occurrence population in EMCIP

EVENT_TYPE	Cargo ship	Fishing vessel	Other or unknown ship	Passenger ship	Service ship	Total
Human action	57.9%	58.1%	60.7%	57.8%	63.3%	58.3%
System/ equipment failure	25.5%	27.0%	17.9%	24.4%	26.5%	25.4%
Other agent or vessel	8.6%	8.1%	7.1%	8.9%	6.1%	8.4%
Hazardous material	5.8%	0.7%		3.7%		3.9%
Unknown	1.1%	3.4%	14.3%	1.5%	2.0%	2.1%
	1.1%	2.7%		3.7%	2.0%	1.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 33. Accident events for finalised investigations by ship type (2016-2025)

The distribution of Accident Event categories differed by ship-related Casualty Event. The analysis is limited to cases for which Accident Event information is available and should therefore be interpreted as investigation-derived information, rather than as a description of the entire population of occurrences. System and equipment

failures were particularly associated with damage or loss of equipment (75%), and casualty events, loss of propulsion power (68%) and loss of electrical power (66%) and fire/explosion (51%) were the most prominent accident events, with more than half of accident events attributed to system or equipment failures. In contrast, human actions were the dominant accident events in collisions with other ships (84%), groundings and strandings (83%), as well as in accident events involving loss of propulsion power (68%) and loss of electrical power (67%). Hazardous material-related factors were most frequently associated with fire and explosion events (17%), while accident events involving other agents or ships showed a more even distribution across casualty types, with the highest shares observed in collisions with ships not underway and contact with shore-side objects (both 17%).

Navigational Casualty Events, such as contact, collision, and grounding or stranding, occur across several Accident Event categories, whereas loss-of-control events show a particularly strong association with system/equipment failure. The relationship should be interpreted in terms of the coded event sequence: the Casualty Event describes what happened to the ship, while the associated Accident Event represents an event, condition, or element identified during the investigation as having influenced that Casualty Event. These distributions describe the coded investigation subset and should not be interpreted as a ranking of causal importance across the full population of marine casualties and incidents.

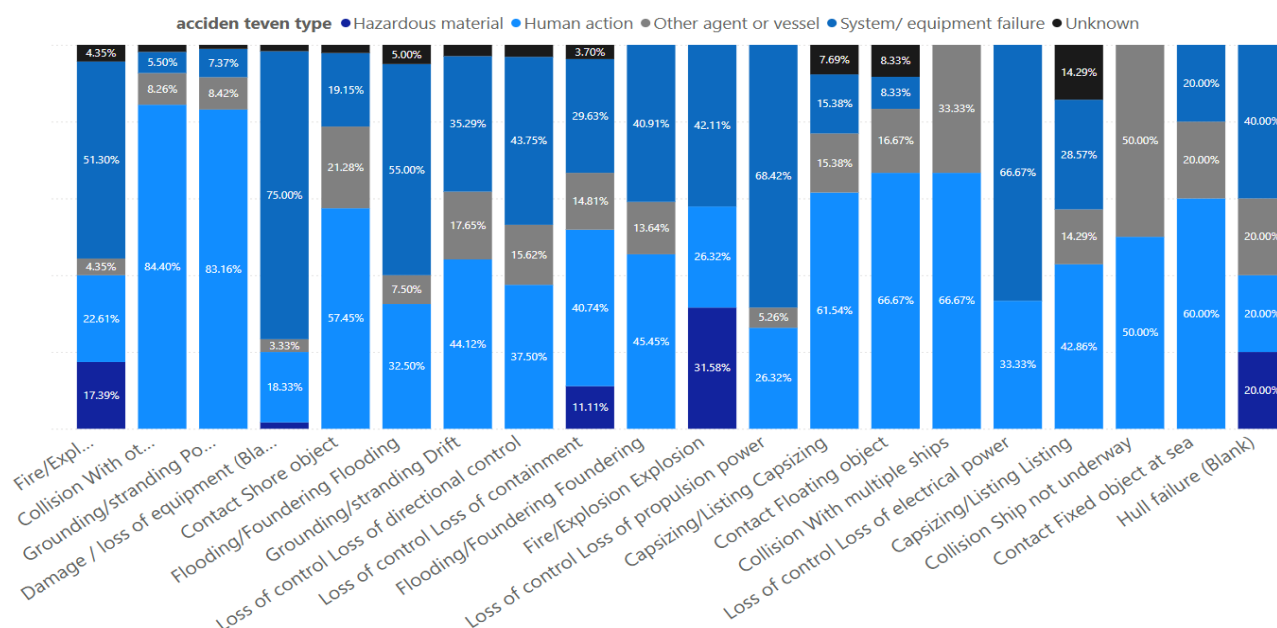


Figure 52. Ship-related casualty events and their associated accident event (2016-2025)

8.3 Main contributing factor profile

Each Accident Event may be associated with one or more Contributing Factors. In EMCIP, Contributing Factors describe conditions, actions, omissions or contextual elements identified through the investigation as having influenced an Accident Event. They are grouped under three broad areas: **shipboard operation, shore management and external environment**. These categories indicate where the factor sits within the investigation model; they do not indicate its relative importance in an individual casualty or incident.

At the extraction date, 51 contributing factors from were associated with occurrences dated in 2025. During calendar year 2025, 68 contributing factors were entered in EMCIP, of which 47 related to occurrences that took place in 2024. Of the 68 Contributing Factors entered in EMCIP during 2025, 47 related to occurrences in 2024, confirming that recent-year records remain incomplete. Lower counts for recent occurrence years should be read as an indication of record maturity, not as evidence that those occurrences involved fewer safety issues. Overall, within the 10-year period, shipboard operation accounted for the largest share of recorded Contributing Factors in the available investigation-derived data with 70%, followed by shore management (20%), while external-environment factors formed a smaller but recurrent group.

At the more detailed level, crew resource management, personnel and manning and maintenance were the most frequently recorded factors in the analytical view. Together, these categories accounted for approximately half of the recorded Contributing Factors.

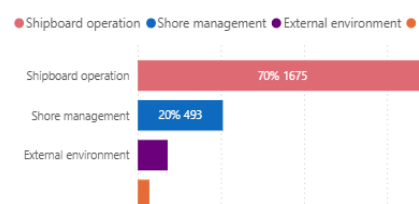


Figure 53. Distribution of contributing factors by contributing-factor type, 2016-2025

Shipboard-operation factors dominated the contributing-factor profile across all principal ship types, accounting for between **52%** and **74%** of recorded factors, while shore-management factors played a comparatively larger role in passenger and service ships. External-environment factors contributed a smaller share across all ship types.

Crew Resource Management (CRM), which relates to how crew members coordinate tasks, make decisions, and utilise available resources, was the most frequently recorded contributing factor subcategory, accounting for almost 18% of all identified contributing factors. Personnel and manning contributing factors followed closely with 17% of the overall recorded. Maintenance and Workplace Conditions were the next most frequently recorded subcategories, each representing approximately 9% of the total. Overall, these 4 categories account for more than 50% of the overall.

Analysis of the free-text descriptions of contributing factors highlighted recurring issues related to decision-making, working methods, safety awareness, and workload management. Maintenance-related factors commonly involved defects or deficiencies that had not been detected during inspection, maintenance, or repair activities.

Examination of the relationships between contributing factors and accident events showed that CRM and personnel-related factors were most frequently associated with events classified as Human Action. In contrast, maintenance, system acquisition, and other technical or organisational factors were more commonly linked to System/Equipment Failure events. Environmental factors, including weather conditions, visibility, traffic density, and fairway characteristics, were identified across multiple event categories, although they were recorded less frequently overall.

CF_CODING_L1	Cargo ship	Fishing vessel	Other or unknown ship	Passenger ship	Service ship	Total
Shipboard operation	74.1 %	69.0 %	56.3 %	62.1 %	55.2 %	70.3 %
Crew resource management	21.4 %	7.9 %	18.3 %	13.3 %	8.8 %	17.9 %
Personnel and manning in general	15.7 %	25.9 %	16.9 %	15.1 %	19.2 %	17.1 %
Maintenance	9.9 %	6.6 %	2.8 %	11.2 %	3.2 %	9.1 %
Work place conditions	10.3 %	7.6 %	2.8 %	7.4 %	4.0 %	9.0 %
Inadequate tools and equipment	7.1 %	10.0 %	7.0 %	6.2 %	12.0 %	7.6 %
Social environment	7.2 %	4.1 %	2.8 %	7.1 %	4.8 %	6.6 %
Emergency preparedness	1.5 %	5.9 %	4.2 %	0.9 %	1.6 %	2.0 %
Physical stress	1.0 %	1.0 %	1.4 %	0.9 %	1.6 %	1.0 %
Shore management	16.2 %	24.8 %	33.8 %	26.9 %	29.6 %	20.0 %
Operations management	3.4 %	2.4 %	9.9 %	5.6 %	8.8 %	4.1 %
Design	2.6 %	4.5 %	7.0 %	7.1 %	4.0 %	3.7 %
Safety and Environment management	3.4 %	4.1 %	4.2 %	3.0 %	3.2 %	3.4 %
Regulatory activities	1.1 %	4.8 %		3.8 %	4.0 %	2.1 %
Organisation and General management	1.8 %	1.7 %	1.4 %	2.4 %	2.4 %	1.9 %
Emergency preparedness	0.7 %	3.4 %	2.8 %	0.6 %	2.4 %	1.2 %
Occupational health management	1.1 %	1.0 %	2.8 %	0.6 %	0.8 %	1.0 %
System acquisition	1.1 %	0.3 %	1.4 %	0.6 %	1.6 %	1.0 %
Maintenance policy	0.5 %	0.3 %	1.4 %	2.4 %	0.8 %	0.8 %
Business climate	0.3 %	1.4 %			1.6 %	0.5 %
Personnel management	0.2 %	0.7 %	2.8 %	0.9 %		0.4 %
External environment	9.7 %	6.2 %	9.9 %	10.9 %	15.2 %	9.7 %
Environmental impact	6.0 %	4.1 %	5.6 %	6.2 %	9.6 %	6.0 %
Phenomenon	3.6 %	2.1 %	4.2 %	4.7 %	5.6 %	3.7 %
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Table 34. Main contributing factors recorded in investigated ship occurrences in percentage, 2016-2025

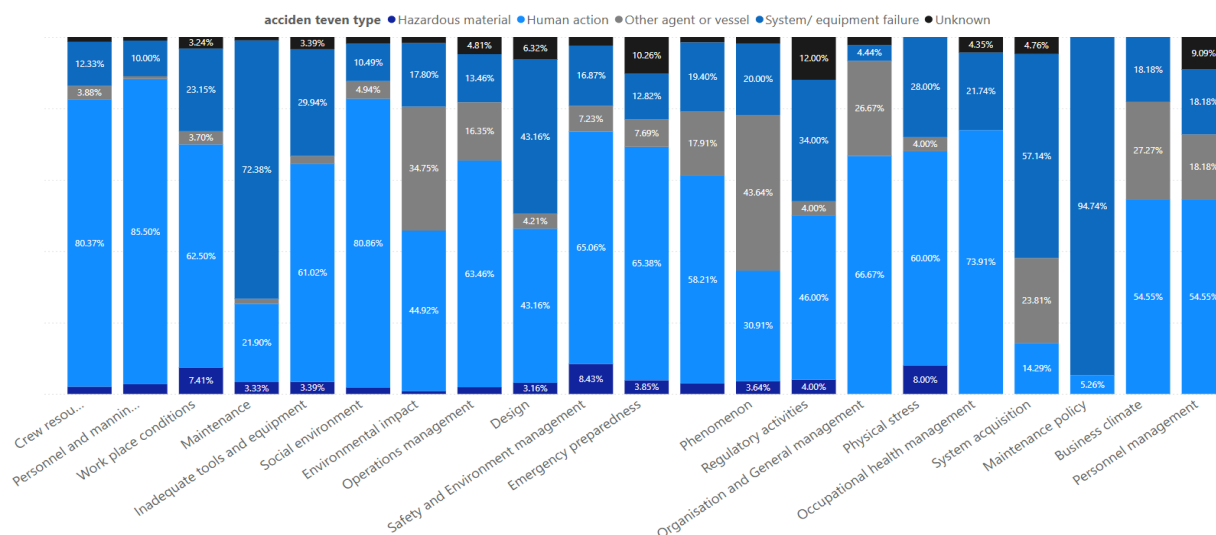


Figure 54. Contributing factors by accident event types (2016-2025)

Contributing Factors also differed by ship-related Casualty Event. Based on the available investigation-derived records, Personnel and Manning factors and Crew Resource Management deficiencies were frequently identified in event sequences leading to groundings/strandings and collisions.

Grounding and stranding events were particularly associated with deficiencies in Organisational and General Management (49%), followed by Personnel and Manning in General (35%). Significant associations were also observed with Crew Resource Management and Business Climate, each accounting for more than 30% of the contributing factors recorded for these events. Loss of control showed strong associations with Physical Stress (33%) and was also prominent among Fire and Explosion events (33%). For Flooding and Foundering, Regulatory Activities represented 24% of the recorded Contributing Factors. Damage or Loss of Equipment was strongly associated with maintenance-related factors, including Maintenance Policy and Maintenance Practices (both exceeding 33%). High proportions were also observed for System Acquisition (43%), Occupational Health

Management (37.5%), and Maintenance-related deficiencies (35%). Grounding and collision records showed frequent associations with organisational, personnel and Crew Resource Management factors, while Damage or Loss of Equipment showed stronger associations with maintenance, system acquisition and related technical factors.

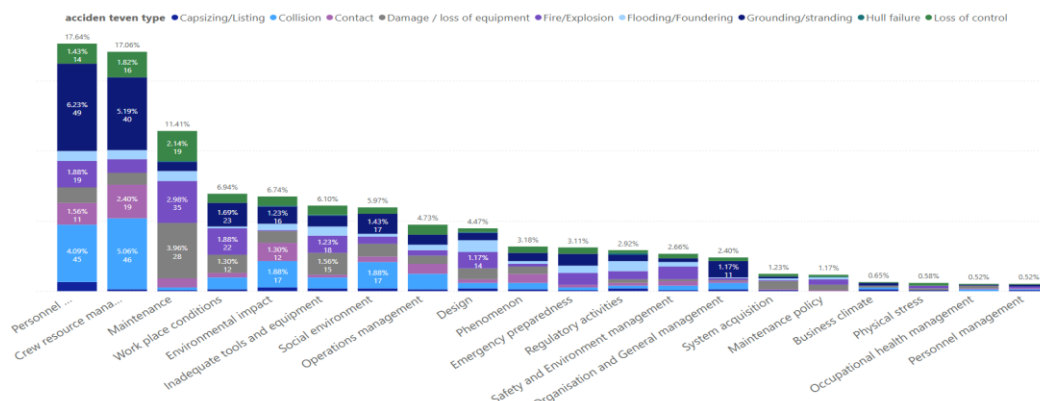


Figure 60. Contributing factors by ship-related casualty event (2016-2025)

8.4 Human related contributing factors

Human Action is one of the Accident Event categories used in EMCIP. For the purpose of this analysis, the human-element view is limited to Contributing Factors associated with Accident Events classified as Human Action. The classification therefore reflects the relationship between the Contributing Factor and the associated Accident Event; it does not constitute a separate classification of the Contributing Factor itself as “human” and should not be interpreted as identifying individual error or attributing responsibility.

Over the 2016–2025 period, the majority of the recorded Contributing Factors were associated with Human Action Accident Events. The factors represented within this subset covered different parts of the investigation model (63.8%), including shipboard operation, shore management and external environment. The results refer only to investigation-derived records for which both Accident Event and Contributing Factor information was available. They therefore describe the coded investigation subset and should not be interpreted as the proportion of all marine casualties and incidents attributable to the human element.

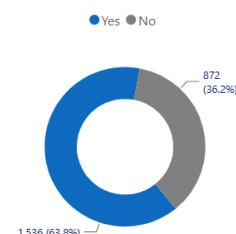


Figure 56. Human factor Contributing factors 2016-2025

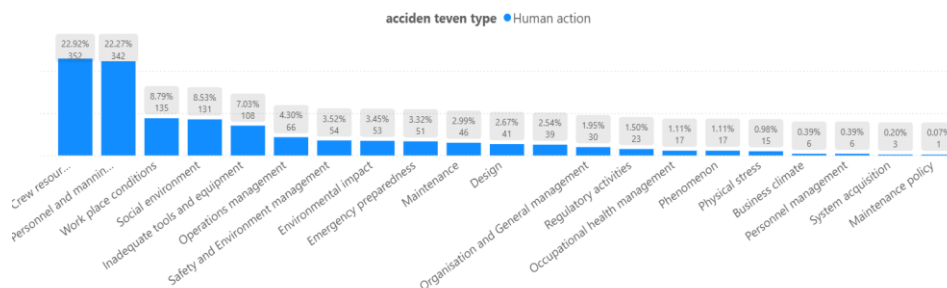


Figure 57. Contributing factors related to Accident event - human action (2016-2025)

When considering the casualty events associated with the accident event human action within the 10-year period, the largest share of human-action events is collision with other ship with 27% of the total accident event records of this type. Grounding/stranding due to power follows closely with 23%. Other notable categories include contact with shore object (7.9% and fire (7.6%).

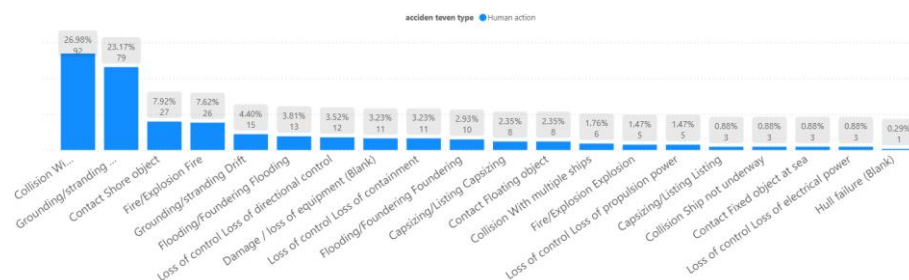


Figure 58. Contributing factors related to Accident event - human action (2016-2025)

9. Safety recommendations and actions taken

This chapter brings together the [safety recommendations](#) issued by Safety Investigation Authorities and the [actions taken](#) recorded in EMCIP. The two record types are related but distinct: recommendations describe measures proposed by an investigation authority, while actions taken describe measures reported as initiated or implemented by relevant parties.

Both record types depend on investigation completion, reporting practice, follow-up and record maturity. Recent years may be incomplete as they are dependent on the maturity of the investigation and external variables and therefore should not be compared directly with earlier completed cohorts. Actions and recommendations may be entered after the occurrence year, after the investigation is completed or after follow-up is received.

9.1 Safety recommendations

Within the ten-year period, there were a total of 1,316 safety recommendations recorded with investigated cases. These Safety recommendations are associated with 421 marine casualties and incidents meaning 11.11 % of the investigated cases have associated Safety Recommendations. [Safety recommendations](#) were mainly associated with more severe occurrences. Over the ten-year period, Very Serious Casualties accounted for 54% of all recommendations, while Marine Casualties represented 44%. Recommendations arising from Marine Incidents accounted for only a small proportion of the total. ([fig pbi. Safety recommendations by severity 2016-2025](#)).

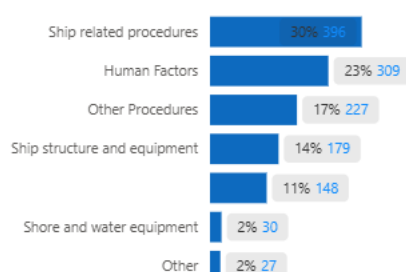


Figure 59. Safety recommendations by recommendation category, 2016-2025

Both safety recommendations and corresponding actions can be grouped into six focus areas: human factors, ship-related procedures, other procedures, ship structure and equipment, shore and water equipment, and other. Ship-related procedures represented the largest recommendation focus area, accounting for 30% of recorded recommendations, followed by human factors at 23% and other procedures at 17%. Ship structure and equipment represented 14%, while the remaining recommendations concerned shore and water equipment, other areas or were not categorised. At subcategory level, the most frequently identified themes were compliance with regulations and legislation, training, skills and experience, and company or organisational aspects. Other recurring areas included operational safety and work

practices, studies and reviews, information dissemination, management, crew-related factors and inspections. A relatively large uncategorised group was also recorded.

Cargo ships generated the highest number of safety recommendations issued during the period analysed accounting 54% of the overall, followed by fishing vessels (21%) and passenger ships (18%). Service ships and vessels classified as other or unknown accounted for a smaller share of recommendations⁸ ([pbi figure Safety recommendations by ship type, 2016-2025](#)). With regard to recommendation status, 55% of recommendations were reported as fully accepted and a further 5.6% as partially accepted. Over one third (34%) had not received a reply, while only 5.6% were recorded as refused ([pbi Fig. Safety recommendation replies 2016-2025](#)).

SR Category	SR_Subcategory	SR_Subcategory level 2	% SR
			11.2%
Other Procedures	Compliance (regulations/legislation)		8.7%
Human Factors	Training, skills, experience		7.0%
Human Factors	Company and organisation		6.2%
Ship related procedures	Operation	Safe working practices	3.9%
Other Procedures	Port and terminal facilities		3.7%
Ship related procedures	Information dissemination		3.0%
Ship related procedures	Maintenance		2.9%
Ship structure and equipment	Ship equipment/system		2.4%
Human Factors	Management		2.3%
Ship related procedures	Operation		2.3%
Human Factors	Equipment		2.1%
Ship related procedures	Compliance (regulations/legislation)		2.1%
Ship related procedures	Emergency		2.1%
Ship related procedures	Safety of Navigation	Watchkeeping and navigational practice	2.1%
Other			2.1%
Other Procedures	Other		2.1%
Ship related procedures	Operation	Documentation	2.1%
Human Factors	Study/review		2.0%

Table 35. Safety recommendation with 2% or above of the total safety recommendations by categories (2016-2025)

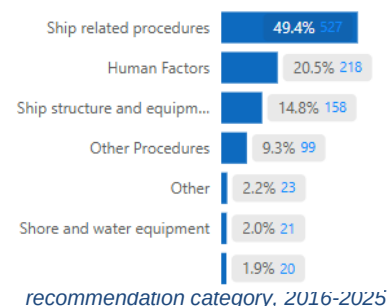
⁸ In case a Safety recommendation or Action taken is provided for a marine casualty or incident where more than two ships and/or two ship-types are involved, the safety recommendation will count in both types.

9.2 Actions taken

Over the period 2016–2025, 1,066 **Actions Taken** were recorded in EMCIP and linked to 261 unique investigated occurrences. Actions Taken are investigation- and follow-up-related information and their coverage should be assessed against the relevant investigated or completed-investigation population rather than against all reported occurrences. ([fig pbi Number of actions taken by occurrence per year 2016-2025](#)).

Similarly to safety recommendation, but with an even greater concentration, the largest action category was ship-related procedures, accounting for almost **50%** of all recorded actions. Human factors represented 20%, while ship structure and equipment accounted for 14.8%. Other procedures and shore and water equipment together contributed less than 9.2% of the total.

At subcategory level, actions most frequently related to training skills, experience (10.2%) and information dissemination (9.4%), operational safety and safe working practices (7.9%), operational documentation (5.8%) and maintenance (5.5%).



Actions taken category	Actions taken subcategory level 1	Actions taken subcategory level 2	% AT
Human Factors	Training, skills, experience		10.2%
Ship related procedures	Information dissemination		9.4%
Ship related procedures	Operation	Safe working practices	7.9%
Ship related procedures	Operation	Documentation	5.8%
Ship related procedures	Maintenance		5.5%
Other Procedures	Port and terminal facilities		3.2%
Human Factors	Company & organisation		2.8%
Ship related procedures	Operation	Training	2.8%
Human Factors	Equipment		2.3%
Other Procedures	Compliance (regulations/legislation)		2.3%
Other			2.2%
Ship structure and equipment	Other		2.2%
Ship related procedures	Compliance (regulations/legislation)		2.1%
Ship related procedures	Inspection		2.0%
Ship structure and equipment			2.0%

Table 36. Actions taken with over 2% of the overall actions taken records by actions taken category 2016-2025

Where an agreement response was recorded, recommendations were more often fully or partially accepted than refused. The principal limitation was the large no-reply and blank or unspecified group, which represented more than half of recommendations. Follow-up information was also incomplete. The absence of a follow-up code does not establish that no action occurred; it means that the action was not available in the analysed field at the extraction date. The publication should distinguish acceptance, follow-up and implementation and should not use them interchangeably.

Section V. Analytical context and conclusions

10. Contextual and relative ratios

The raw data displayed in the previous sections describe the volume of marine casualties and incidents and their recorded consequences, but they do not account for the size of the fleet, the composition of the casualty population or the number of ships involved. This chapter provides the context to interpret the ratios used throughout the report and explains how they complement each other.

10.1 EEA fleet-based ratios

10.1.1 Context

The EEA fleet-based ratios are the results of dividing accident data, e.g., number of occurrences, injuries or fatalities involving EEA flagged ships, by the number of ships in the EEA fleet in the relevant year. Consequently, these ratios should not be interpreted as measures of operational exposure or risk as the number of voyages, port calls, hours at sea, etc. are not considered.

The ratios include only occurrences involving at least one EEA-flagged vessel (occurrences with only non-EEA flag vessels have been excluded). For cargo, passenger and service ships, only vessels with an IMO number are considered to ensure consistency with the fleet data used. Fishing vessel ratios are based on EU-registered fishing vessels above 15 metres in length overall, in line with the scope of Directive 2009/18/EC. As complete fleet information is not available for non-IMO ships, these cannot be fully represented in the analysis. For this reason, the ship category “other/unknown” has been excluded as it is likely to contain a significant proportion of non-IMO vessels, including pleasure craft.

10.1.2 Interpretation

Over 2016-2025, the eligible EEA fleet averaged approximately 25,800 ships and recorded an average of 78.1 marine casualties and incidents per 1,000 ships per year. The corresponding ten-year average ratios were 2.0 Very Serious Casualties, 21.5 injured persons and 1.5 fatalities per 1,000 ships.

Passenger ships recorded the highest average occurrence and injury ratios relative to fleet size. Cargo ships recorded the highest average fleet-based fatality ratios and the highest average Very Serious Casualty ratio among the principal groups. Fishing vessels, despite forming the largest eligible fleet segment, recorded the lowest average occurrence ratio.

In 2025, the overall occurrence ratio was 78.6 per 1,000 ships, close to the ten-year average. **The relative position of the ship types differed when occurrences were expressed in relation to eligible fleet size.**

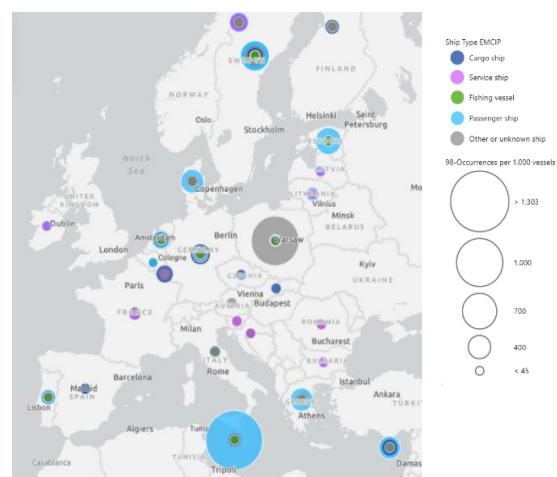


Figure 61. EEA fleet-based occurrence ratio by EEA country (2025)

2016-2025									
Ship Type EMCIP	year average EEA fleet	avg occ EEA flag	Occ/1K EEA fleet	Very Serious Casualty EEA flag	Very Serious Casualty / 1K EEA fleet	Loss lives EEA flag	Loss of lives / 1K EEA fleet	Injured EEA flag	Injured / 1K EEA fleet
Passenger ship	2,490	587.5	235.9	66	2.7	53	2.13	1,988	79.84
Cargo ship	6,788	844.5	124.4	200	2.9	209	3.08	1,741	25.65
Service ship	3,956	208.2	52.6	45	1.1	35	0.88	667	16.86
Other or unknown ship	936	34.0	36.3	21	2.2	14	1.50	138	14.74
Fishing vessel	11,641	342.7	29.4	182	1.6	77	0.66	1,022	8.78
Total	25,812	2,016.9	78.1	514	2.0	388	1.50	5,556	21.52

2025									
Ship Type EMCIP	year average EEA fleet	avg occ EEA flag	Occ/1K EEA fleet	Very Serious Casualty EEA flag	Very Serious Casualty / 1K EEA fleet	Loss lives EEA flag	Loss of lives / 1K EEA fleet	Injured EEA flag	Injured / 1K EEA fleet
Passenger ship	2,632	566.0	215.0	10	3.8	8	3.04	247	93.84
Cargo ship	6,946	805.0	115.9	14	2.0	11	1.58	180	25.91
Service ship	4,100	258.0	62.9	5	1.2	1	0.24	86	20.98
Fishing vessel	10,258	311.0	30.3	12	1.2	2	0.19	61	5.95
Other or unknown ship	1,192	36.0	30.2	2	1.7	2	1.68	24	20.13
Total	25,128	1,976.0	78.6	43	1.7	24	0.96	598	23.80

Table 37 and Table 38. EEA Fleet-based occurrence and consequence ratios by ship type, 2016-2025 period (above) and 2025 (below). Occurrences with EEA flag ship only

10.2 Severity profile ratio

10.2.1 Context

The severity profile ratio complements the absolute occurrence figures and the EEA-based fleet ratio presented in the preceding sections. While absolute counts describe the volume of reported occurrences and the fleet-based occurrence ratio places those occurrences in relation to the EEA fleet size, the severity profile ratio describes the composition of the recorded casualty population. The ratio measures the proportion of casualties classified as Very Serious Casualties over all recorded casualties (excluding incidents). A higher value means that Very Serious Casualties represent a larger proportion of the recorded casualty population. It does not indicate the probability that a ship will be involved in a [Very Serious Casualty](#) and is not an exposure-adjusted measure of risk or safety performance and should be interpreted together with the underlying numbers of marine casualties and Very Serious Casualties. Details on the severity profile ratio by vessel type and year are available in figure 12.

10.2.2 Interpretation

Very Serious Casualties represented 3.1% of the total casualty population within the 10-year time frame analysed. The annual severity profile ratio reached its highest in 2018 at 4.8% and despite annual variation, was lower in subsequent years, reaching 2.4% in 2025, the lowest value in the 10-year period.

Differences are also visible among the principal types over the 10-year period. Fishing vessels recorded the highest severity profile ratio, with Very Serious Casualties representing approximately 5.3% of the casualties involving this ship type. Cargo ships recorded a value of approximately 3.1%, close to the overall ten-year result, while passenger ships recorded the lowest proportion among the principal ship-type groups.

For fishing vessels, the ratio decreased from 8.0% in 2018 to 3.8% in 2025. For cargo ships from 5.2% to 2.1% over the same period. Nevertheless, fishing vessels continued to present the highest recorded proportion of Very Serious Casualties among the main ship-type groups. In 2025, cargo ships accounted for around 34% of recorded Very Serious Casualties and fishing vessels for around 30%. As fishing vessels accounted for a

smaller overall casualty population, Very Serious Casualties represented a larger proportion of casualties involving fishing vessels

10.3 Human- consequence ratios

10.3.1 Context

Human-consequence ratios relate the number of lives lost or persons injured to the number of ships involved in the corresponding occurrence population. They are expressed per 100 ships involved.

For example, a fatality ratio of 2 means two lives lost per 100 ships involved; an injury ratio of 25 means 25 injured persons per 100 ships involved. **These are not percentages of ships or occurrences with a fatality or injury, because more than one person may be affected in the same occurrence or on the same ship.**

Human consequence ratios are analysed and made available in the figures within [Section 6.1](#) and [Section 6.3](#).

10.3.2 Interpretation

Over the period 2016–2025, injuries were substantially more frequent than fatalities among ships involved in reported occurrences. On average, the loss-of-life ratio was **1.9** per 100 ships involved, while the injury ratio reached **25.9** per 100 ships involved, indicating that injuries occurred around fourteen times more frequently than fatalities. The fatality ratio declined over the period, from a peak of **3.3** in 2016 to **1.0** per 100 ships involved in 2025, whereas the injury ratio remained comparatively stable, fluctuating between **21.6** and **29.1** per 100 ships involved.

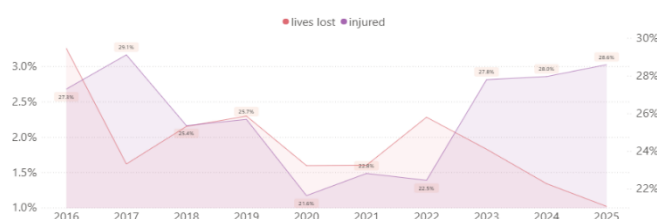


Figure 62. Fatalities and injuries per 100 vessels involved, by year, 2016-2025

Regarding occurrences with ship, capsizing and listing were associated with the most severe outcomes, recording both the highest fatality and injury ratios, while flooding and foundering also showed notably high levels of human consequences. By contrast, collisions and contact events recorded higher injuries than fatality ratios. Human-consequence ratios varied across ship age groups. Older ships generally exhibited higher fatality ratios, while injury ratios were the highest among the youngest ships and certain very old ship categories.

By ship type, fishing vessels recorded the highest overall injury and fatality ratios per ship involved. Passenger ships recorded comparatively high injury ratios and low fatality ratios. Cargo ships exhibited lower injury ratios but a comparatively higher share of fatalities, while service ships generally showed intermediate values. In 2025, passenger ships recorded the highest injury ratio, while cargo and other/unknown ships showed the highest fatality ratios. Within Very Serious Casualties, cargo ships accounted for the largest share of fatalities. Passenger ships also exhibited a high fatality ratio in Very Serious Casualties despite recording fewer total fatalities in absolute terms.

10.4 Combined interpretation

The ratios used in this report describe different dimensions of the recorded safety profile. The fleet-based occurrence ratio places recorded occurrences in relation to eligible EEA fleet size; the severity-profile ratio shows the share of casualties classified as Very Serious; and the human-consequence ratios show fatalities and injuries relative to ships involved.

A ship type may rank differently depending on the ratio considered. No single ratio should therefore be presented as an overall ranking of safety or risk. For example, cargo ships have the largest absolute occurrence volume, passenger ships have high fleet-based occurrence and injury ratios, and fishing vessels have the highest long-term severity-profile ratio among the principal ship types.

None of these ratios fully accounts for operational exposure. They should be interpreted together with fleet composition, activity patterns and the underlying absolute counts.

11. Overall trends and analytical findings

This chapter brings together the principal findings from the analyses presented in the preceding sections.

11.1 Main highlights

The analysis for 2016–2025 shows that **the overall number of recorded marine casualties and incidents remained relatively stable, while fatalities decreased and injuries remained comparatively high.** The proportion of casualties classified as Very Serious decreased from 4.8% in 2018 to 2.4% in 2025, the lowest value of the reference period. Fatalities decreased from 95 lives lost in 2016 to 29 in 2025. Injuries followed a

different pattern: 813 injured persons were recorded in 2025, above the ten-year annual average of approximately 765, and annual totals have remained above 800 since 2023.

Very Serious Casualties represented a small part of the recorded occurrence population but accounted for the most severe consequences to people and ships. Injuries were distributed differently: most were recorded in Marine Casualties. The same pattern was observed in 2025, when all 29 lives lost, all missing persons and all 16 ships lost were associated with Very Serious Casualties, while 745 of the 813 injured persons were associated with Marine Casualties.

Ships aged 15–29 years formed the largest known-age group and accounted for the highest absolute numbers of fatalities and injuries. In 2025, vessels in this age band were associated with 11 lives lost and 234 injured persons. However, ships aged **85–99 years recorded the highest consequence ratios**, at 16.7 lives lost and 66.7 injured persons per 100 ships involved.

Newer vessels also have significance in the casualty profile. Over the 10-year period, vessels aged **less than 10 years** ranked second among age groups in terms of the absolute number of occurrences, fatalities and injuries, and recorded the **highest injury rate, at 31.1 injured persons per 100 vessels involved**. Vessels aged **10–14 years** were also notable, ranking second in 2025 for both fatalities and injuries.

The age profile also differed by ship type. **Cargo-ship occurrences were more concentrated in the 15–29-year age group, while fishing vessels had a stronger representation of ships aged 30–44 years.** In 2025, 51% of cargo-ship occurrences involved ships aged 15–29 years, while the 30–44-year group represented 39.5% of fishing-vessel occurrences. Passenger ships were concentrated mainly in the 15–29 and 30–44-year groups. Cargo and passenger occurrences were predominantly associated with ships of 45 metres and above, while fishing and service ships were mainly represented in lower gross-tonnage groups.

Cargo ships accounted for the largest number of occurrences and the largest absolute number of fatalities over 2016–2025. They also recorded the highest average number of fatalities per 1,000 eligible EEA fleet ships among the principal groups. Passenger ships recorded the highest average number of occurrences and injuries relative to their eligible EEA fleet. Fishing vessels recorded fewer occurrences relative to fleet size, but the highest proportion of casualties classified as Very Serious. They also recorded the highest ten-year fatality ratio per 100 vessels involved and accounted for 113 of the 188 ships lost over the period. Detailed highlights by ship type are provided in [section 11.2](#)).

Casualty Event profiles differed by geographical and operational context. Contact accounted for 26.6% of ship-related Casualty Events in internal waters, compared with 14.6% overall, and 44% of contact events were recorded during arrival. Loss of control represented 43.8% of ship-related Casualty Events in the Mediterranean, compared with 31.6% overall. Grounding or stranding was more prominent in the Baltic Sea, while flooding or foundering and capsizing or listing were concentrated mainly in mid-water operations.

The events associated with fatalities were not the same as those most frequently associated with injuries. Over 2016–2025, collision, capsizing or listing, and flooding or foundering were prominent among ship-related events associated with fatalities. Contact and damage or loss of equipment were more prominent among events associated with injuries. In 2025, fire or explosion and collision were the principal event categories associated with lives lost, while damage or loss of equipment and contact remained the main categories associated with injuries.

Crew remained the main group affected by human consequences, but fatalities and injuries developed differently. **Crew fatalities decreased from 67 in 2016 to 21 in 2025, while crew injuries increased from 101 to 707.** In 2025, crew accounted for approximately 72% of lives lost and 87% of injured persons. **Passenger fatalities remained comparatively low throughout the period, while passenger injuries increased during the decade before declining to 74 in 2025.** Where injury characteristics were recorded, upper-extremity injuries were the most frequent, followed by whole-body or multiple-site injuries, lower-extremity injuries, back injuries and head injuries.

Within **finalised safety investigations, Human Action was the most frequently recorded Accident Event category**, accounting for approximately 64%, followed by System/Equipment Failure at approximately 23%. Human Action was particularly frequent in investigated collision and grounding or stranding cases, while system and equipment failures were prominent in loss-of-control and equipment-related events. Crew Resource Management and Personnel and Manning were frequently recorded among the contributing factors associated with grounding and collision cases, while maintenance-related factors were prominent in cases involving damage or loss of equipment.

Safety Recommendations and Actions Taken were concentrated in several recurring areas. Ship-related procedures formed the largest Safety Recommendation category, followed by human factors, other procedures and ship structure and equipment. Actions Taken were concentrated mainly in ship-related procedures, with recurring areas including training and experience, information dissemination, operational safety and safe working practices, operational documentation and maintenance. These findings describe the information recorded in finalised investigations (they do not attribute responsibility or blame to individuals).

11.2 Highlights by Ship Type

11.2.1 Cargo ships

Cargo ships were the largest ship-type group throughout the reference period, accounting for **48% of recorded occurrences over 2016–2025** and **1,230 occurrences (47%) in 2025**. Their severity profile decreased over the period, with the proportion of cargo-ship casualties classified as Very Serious falling from **5.2% in 2018 to 2.1% in 2025**, compared with a ten-year average of 3.1%.

The profile was dominated by **solid-cargo ships**, which accounted for around **39% of all recorded occurrences over 2016–2025 and 38% in 2025**; liquid-cargo ships represented a further 10% over the ten-year period. Cargo-ship occurrences were concentrated in the **15–29-year age group**, which represented 51% of cargo occurrences in 2025, and predominantly involved ships of **45 metres and above**. By gross tonnage, the main concentrations were in the 3,000–9,999 GT and 10,000–49,999 GT bands. These characteristics describe the recorded occurrence population and are not age- or size-adjusted risk measures.

Cargo-ship occurrences were somewhat more frequent during the **morning and midday/early-afternoon** and less frequent at night. Seasonal variation was limited, although winter recorded the highest occurrence volume and summer the lowest over 2016–2025. The geographical distribution was concentrated along major commercial shipping corridors, ports and port approaches, broadly corresponding to areas of high cargo-ship activity.

The ship-related casualty-event profile was broad. **Loss of control accounted for 30.5% of cargo-ship events**, including **20.5% involving loss of propulsion power**. Collision represented **19.0%**, damage or loss of equipment **18.5%**, and contact **16.3%**. Contact events were concentrated particularly during arrival and transit, while damage or loss of equipment was frequently recorded both during transit and while anchored or alongside.

Over 2016–2025, cargo ships were associated with **315 lives lost and 2,447 injured persons**, corresponding to 2.3 lives lost and 18.0 injured persons per 100 ships involved. In 2025, **19 Very Serious Casualties involving cargo ships accounted for 15 of the 29 lives lost**, while two cargo ships were recorded as lost. Cargo ships also accounted for the largest absolute number of recorded pollution occurrences. Search and Rescue intervention was recorded in around **5% of cargo-ship occurrences over 2016–2025 and 3% in 2025**.

Cargo ships also formed the largest part of the investigation population, with **588 investigated or ongoing cases (53.5%) over 2016–2025 and 51% of investigated cases in 2025**. Within finalised investigations, Human Action was the largest coded Accident Event category, followed by system/equipment failure. These results refer to investigation-derived records and do not represent causal proportions for the full cargo-ship occurrence population.

The eligible EEA cargo fleet averaged around **6,788 ships per year**. Cargo ships recorded an average of **124.4 occurrences per 1,000 EEA ships**, together with the highest average fleet-based fatality ratio (**3.08 per 1,000 ships**) and Very Serious Casualty ratios (**2.9 per 1,000 ships**) among the principal ship types. In 2025, the corresponding occurrence and Very Serious Casualty ratios were **115.9 and 2.0 per 1,000 EEA ships**.

11.2.2 Passenger ships

Passenger ships accounted for around **23% of recorded occurrences over 2016–2025**. The group was dominated by **conventional passenger ships (12% of all occurrences) and passenger/Ro-Ro cargo ships (11%)**, which together represented almost the entire passenger-ship occurrence profile.

The passenger-ship age profile was concentrated mainly in the **15–29-year (39.4%) and 30–44-year (25.2%)** bands. Occurrences predominantly involved ships of **45 metres and above**, although the **24–44 metre** group also represented a substantial share. Passenger ships covered a wider gross-tonnage range than fishing and service ships, with an increased share of occurrences involving ships of **50,000 GT and above in 2025**.

Passenger-ship occurrences showed a pronounced temporal pattern, with higher volumes during **daytime operations and summer**, and lower volumes during winter. Geographically, occurrences were concentrated along established ferry routes, island connections and coastal passenger corridors, including the Aegean, Adriatic, Baltic, North Sea and English Channel.

Loss of control accounted for 32.9% of passenger-ship casualty events, including **24.7% involving loss of propulsion power**. Contact represented **17.5%**, damage or loss of equipment **13.9%**, and grounding or stranding **11.5%**. Fire-related events represented more than **7%**, a higher share than for cargo and fishing vessels.

The consequence profile combined comparatively low fatalities with high injury levels. Passenger ships recorded the **lowest ten-year fatality ratio among the principal ship types, at 0.9 lives lost per 100 ships involved**, and the **highest injury ratio, at 33.6 injured persons per 100 ships involved**. In 2025, the injury ratio increased to **42.5**. The severity-profile ratio remained the lowest over the ten-year period but increased to **2.0% in 2025**, its highest annual value during 2016–2025.

Fleet-based ratios also placed passenger ships highest among the principal ship types for occurrence and injury ratios. Over 2016–2025, they recorded averages of **235.9 occurrences and 79.8 injured persons per 1,000 EEA ships**. In 2025, the occurrence ratio was **215 per 1,000 EEA ships**, while the Very Serious Casualty ratio was **3.8 per 1,000 EEA ships**.

11.2.3 Fishing vessels

Fishing vessels accounted for around **19% of recorded occurrences** over 2016–2025 and recorded the **highest severity-profile ratio among the principal ship types**. Trawlers represented around 7% of all occurrences and fishing vessels with an unspecified subtype around 6%. In 2025, **174 occurrences involved an unspecified fishing subtype and 156 involved trawlers**.

The vessels involved had a comparatively older and smaller profile. Over 2016–2025, the main age groups were **15–29 years (45%) and 30–44 years (31%)**; in 2025, the latter increased to around 39.5%. Fishing-vessel occurrences were broadly distributed between the 15–24 metre and 24 metres-and-above length groups and were concentrated below **500 GT**. These characteristics describe the vessels represented in EMCIP and are not age- or size-adjusted risk measures.

Fishing-vessel occurrences showed relatively limited seasonality and a more even distribution throughout the day than cargo and passenger ships, with a more visible early-morning/night component. Geographically, occurrences were distributed across major fishing grounds and coastal waters, particularly in the North Atlantic, North Sea, Baltic Sea and parts of the Mediterranean.

The ship-related casualty-event profile was strongly concentrated in **loss of control (49.5%)**, with more than **41% associated with loss of propulsion power**. Grounding or stranding (**10.7%**) and flooding or foundering (**8.2%**) were also prominent. Fishing vessels accounted for **27% of person-related Casualty Events**, compared with **14% of ship-related Casualty Events**.

Fishing vessels accounted for **113 of the 188 ships lost over 2016–2025**, around 60% of the total, and **8 of the 16 ships lost in 2025**. All five persons reported missing in 2025 were associated with fishing vessels. Over the ten-year period, the recorded consequence ratios were approximately **3.5 lives lost, 36.5 injured persons and 2.2 ships lost per 100 vessels involved**.

Fishing vessels also recorded the highest use of external assistance among the principal ship types: more than **40%** of occurrences required shore assistance, more than **30%** involved Search and Rescue intervention, and towage was recorded in **49%** over the ten-year period.

Fishing vessels formed the largest eligible fleet segment but recorded an average of **29.4 occurrences and 0.66 fatalities per 1,000 EEA vessels**. Their severity-profile ratio was the highest among the principal ship types, at approximately **5.3% over 2016–2025 and 3.8% in 2025**.

11.2.4 Service ships

Service ships accounted for around **11% of recorded occurrences over 2016–2025**. The category includes operationally different vessel types, notably special-purpose ships and tugs, each accounting for around 3% of all occurrences, and dredgers at around 2%. In 2025, **117 occurrences involved special-purpose ships, 84 tugs and pushing ships, and 53 dredgers**.

Service ships were predominantly represented in the **lower-tonnage categories, particularly below 500 GT**. In 2025, a larger share of occurrences involved vessels below 15 metres than over the ten-year period. Among tugs, around one third of recorded casualties involved ships aged **45–59 years**. Occurrences were more frequently recorded during morning and midday operations than during late evening and night, while seasonal variation was limited.

Occurrences were recorded mainly in ports, coastal-support and offshore operational areas. **Collision was the most frequently recorded casualty event**, followed by loss of control, contact, and grounding or stranding.

Service ships recorded a comparatively high ten-year injury ratio of **36.0 injured persons per 100 ships involved**, while the ship-loss ratio was **0.4 ships lost per 100 ships involved**. In 2025, service ships accounted for **4 of the 16 ships lost**.

Fleet-based ratios were comparatively low. Over 2016–2025, service ships recorded averages of **52.6 occurrences, 16.9 injured persons and 0.88 fatalities per 1,000 EEA fleet ships**, together with the lowest average Very Serious Casualty ratio among the principal ship types, at **1.1 per 1,000 ships**. Investigation-derived information also recorded a comparatively larger share of shore-management factors for service and passenger ships than for the other principal ship types.

Appendix 1 – List of abbreviations

Acronym	Description
AT	Actions Taken
BNWAS	Bridge Navigational Watch Alarm System
CF	Contributing Factor
COLREG	International Regulations for Preventing Collisions at Sea
EC	European Commission
ECDIS	Electronic Chart Display and Information System
EEA	European Economic Area
EEZ	Exclusive Economic Zone
EMCIP	European Marine Casualty Information Platform
EMSA	European Maritime Safety Agency
EU	European Union. For the analysis means EU-27 Member States and EEA EFTA States
EU-27	Refers to the 27 Member States of the EU
GIS	Geographic Information System
GT	Gross Tonnage
IMO	International Maritime Organization
IMR	Inspection, Maintenance and Repair
MEPC	IMO's Marine Environment Protection Committee
MSC	IMO's Maritime Safety Committee
PPE	Personal Protective Equipment
PSC	Port State Control
SAR	Search and Rescue
SIA	Safety Investigation Authority
SMS	Safety Management System
SR	Safety Recommendation
SRR	Search and Rescue Region
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
VTs	Vessel Traffic Service

Appendix 2 – Glossary

Sources: Definitions and classifications used in this report are based on the IMO Casualty Investigation Code, the IMO Circulars and guidance related to marine casualty investigations, the EMCIP taxonomy and supporting EMSA documentation, Directive 2009/18/EC on the investigation of accidents in the maritime transport sector, the International Convention for the Safety of Life at Sea (SOLAS), the International Safety Management (ISM) Code, and the United Nations Convention on the Law of the Sea (UNCLOS).

Term	Definition
Accident Event	An event recorded in EMCIP that does not represent the casualty itself but is considered to have influenced or contributed to a Casualty Event. An Accident Event is linked to a particular Casualty Event and should be interpreted in that context. Accident Events are generally unintended or unwanted. The five principal Accident Event types used in this publication are: Hazardous material; Human action; Other agent or vessel; System/equipment failure; and Unknown . Each principal type may be further detailed through lower taxonomy levels.
Actions taken	Preventive or corrective measures recorded in EMCIP as having been implemented or initiated by relevant parties in response to an occurrence, investigation finding, identified safety issue or safety recommendation. Actions taken are analytically distinct from safety recommendations. Actions taken describe measures undertaken, whereas safety recommendations describe measures proposed by an investigation authority.
Casualty Event	An event recorded in EMCIP that represents the casualty itself and describes what happened to a ship or to a person. A single occurrence may involve more than one ship and may contain more than one Casualty Event where an event chain occurred. Casualty Events and their associated consequences are linked to the ship associated with the occurrence and not to the occurrence itself. (EMCIP differentiates between two categories: Ship and People)
Casualty Event – occurrence with person(s)	A Casualty Event concerning an accident affecting a person rather than a casualty affecting the ship itself. This category is used to identify occupational accidents connected with ship operations. The second-level values used in the analytical model are: • Occurrence with person(s) – Accident; and • Occurrence with person(s) – Unknown.
Casualty Event – occurrence with ship(s)	A Casualty Event representing what happened to a ship. The ten second-level values used in this publication are: EMCIP includes additional third- and fourth-level taxonomy values through which the Casualty Event can be described in greater detail.
Causal factor	An action, omission, event or condition without which: • the marine casualty or marine incident would not have occurred; • its adverse consequences would probably not have occurred or would not have been as serious; or • another associated action, omission, event or condition would probably not have occurred.
Coastal State	A State in whose territory, including its territorial sea, a marine casualty or marine incident occurs. For the geographical scope used in this publication and in Directive 2009/18/EC, relevant occurrences may also include those taking place in a Member State's internal waters, as defined in UNCLOS.
Company	The owner of a ship or any other organisation or person, such as the manager or bareboat charterer, that has assumed responsibility for operating the ship from the shipowner and, in doing so, has agreed to take over the duties and responsibilities imposed by the International Safety Management Code.
Consequences	Outcomes associated in EMCIP with an occurrence and linked to the relevant ship. Consequence information supports the description of the effects of the occurrence and, where applicable, its severity classification. The ten consequence groups used in the EMCIP data model are: Air pollution; bunkers, residues and wastes; Damage Ship; DG-Package – Dangerous goods; Liquid cargo in bulk – Chemical; Liquid cargo in bulk – Oil; Liquid cargo in bulk – Others; People; Solid cargo in bulk – Material; and Third party. Each group contains additional fields through which detailed information concerning the consequences may be recorded.
Contributing factor	A condition, action, omission or contextual element recorded in EMCIP and associated with an Accident Event. It may concern the external environment, shipboard operations or shore management. The recording of a Contributing Factor indicates that it formed part of the causal or contributory context identified through the investigation. It should not automatically be interpreted as an independently established root cause.
EEA State	A State participating in the European Economic Area.. The term describes the geographical perimeter used in the publication and does not modify the legal territorial scope of Directive 2009/18/EC.
Exclusive economic zone	The exclusive economic zone as defined in Article 55 of UNCLOS. It is an area beyond and adjacent to the territorial sea that is subject to the specific legal regime established in Part V of UNCLOS.
Flag State	A State whose flag a ship is entitled to fly.
High seas	The parts of the sea that are not included in a State's exclusive economic zone, territorial sea or internal waters, or in the archipelagic waters of an archipelagic State, as provided for in Article 86 of UNCLOS.
Human-element-related factors	Contributing factors that are associated to a Human Action accident event type.
Internal waters	Waters situated on the landward side of the baseline from which the breadth of the territorial sea is measured. In this publication, internal waters may be divided analytically into port areas, channels or rivers, archipelago fairways and other subcategories, depending on the EMCIP and GIS classifications applied.
Investigated marine casualty	For indicators used in this publication, a distinct marine casualty for which a marine safety investigation was conducted and for which investigation-related information is available in EMCIP under the selected analytical filters. The investigation-status field, inclusion criteria and completeness requirements used to identify investigated marine casualties should be specified in the methodology.
Investigating State	In this publication, the State recorded in the relevant EMCIP field as being responsible for, leading, conducting or participating in the investigation of an occurrence. The exact meaning depends on the EMCIP field used in the analysis. The term should be distinguished from Flag State, Coastal State, lead investigating State and marine safety investigating State.
Lead investigating State	The Member State or other State leading a marine safety investigation where two or more substantially interested States are involved. The States concerned are expected to cooperate and agree which State will lead the investigation and the arrangements for participation by the other substantially interested States.
Marine casualty – legal definition	An event or sequence of events occurring directly in connection with the operation of a ship and resulting in one or more of the following: the death of, or serious injury to, a person; the loss of a person from a ship; the loss, presumed loss or abandonment of a ship; material damage to a ship; the stranding or disabling of a ship, or the involvement of a ship in a collision; material damage to marine infrastructure external to a ship that could seriously endanger the safety of the ship,

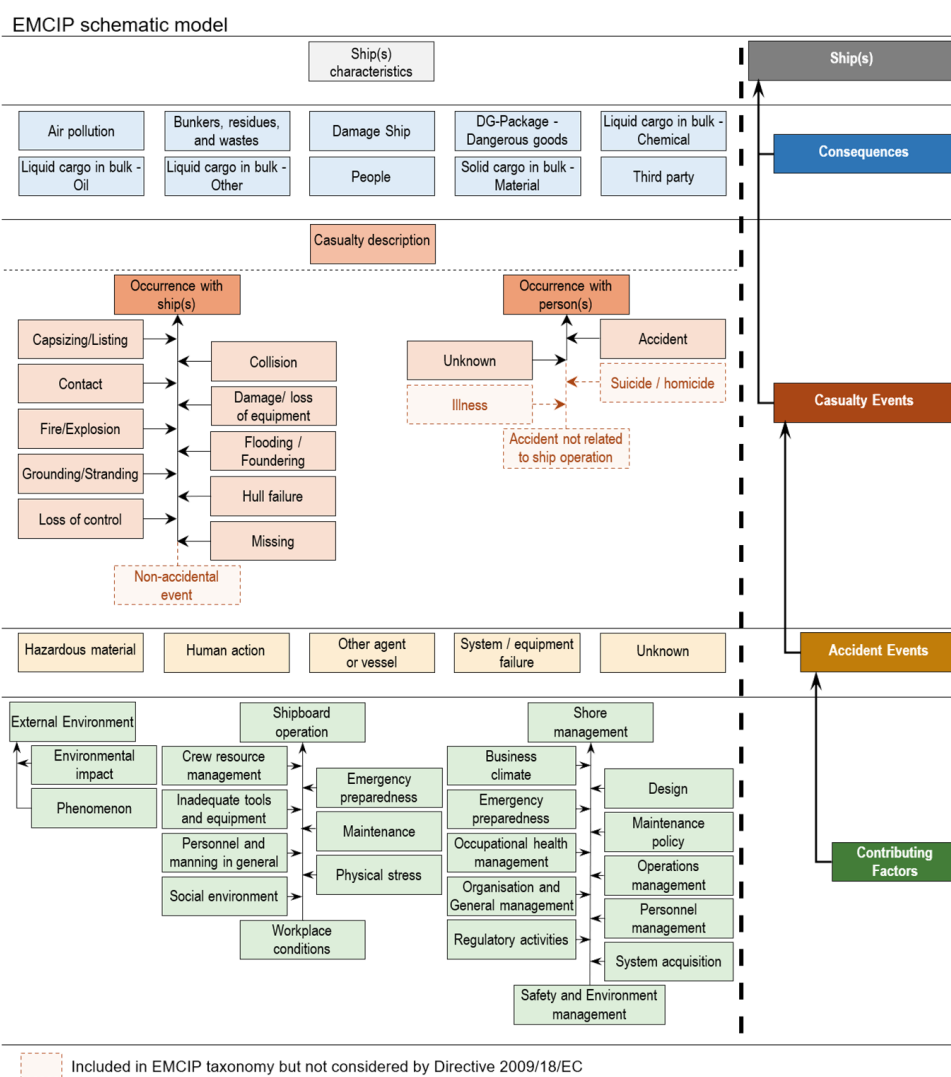
Term	Definition
	another ship or an individual; or severe damage, or the potential for severe damage, to the environment brought about by damage to a ship or ships. A marine casualty does not include a deliberate act or omission intended to cause harm to the safety of a ship, an individual or the environment.
Marine casualty – publication severity group	For statistical presentation in this publication, Marine casualty , abbreviated as MC , means the combined group of occurrences historically recorded as Serious Marine Casualty and Less Serious Marine Casualty. Very Serious Casualties and Marine Incidents are presented separately. This is a publication-specific statistical grouping and does not replace the broader legal definition of marine casualty. Under the legal definition, a Very Serious casualty is itself a type of marine casualty.
Marine incident	An event or sequence of events, other than a marine casualty, occurring directly in connection with the operation of a ship that endangered or, if not corrected, would endanger the safety of the ship, its occupants, another person or the environment. A marine incident does not include a deliberate act or omission intended to cause harm to the safety of a ship, an individual or the environment.
Marine safety investigating State	The Flag State or, where relevant, the State or States that assume responsibility for conducting a marine safety investigation, as mutually agreed in accordance with the IMO Casualty Investigation Code.
Marine safety investigation	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. It includes the collection and analysis of evidence, the identification of causal factors and, where necessary, the making of safety recommendations. A marine safety investigation is separate from other forms of investigation and is not conducted for the purpose of determining liability or apportioning blame.
Marine safety investigation authority	The authority in a State responsible for conducting marine safety investigations. Under Directive 2009/18/EC, Member States must ensure that marine safety investigations are conducted under the responsibility of an impartial, permanent investigative body provided with the necessary organisation, legal powers and appropriately qualified investigators.
Material damage	Damage that significantly affects the structural integrity, performance or operational characteristics of marine infrastructure or a ship and requires major repair or replacement of a major component or components. Where the term is used as part of the legal definition of marine casualty, it should be interpreted in accordance with the applicable IMO and EU provisions.
Occurrence	A distinct marine casualty or marine incident recorded in EMCIP and included under the scope and analytical filters applied in this publication.
Occupational accident	An accident affecting a person that is directly connected with ship operations and is recorded in EMCIP through a Casualty Event concerning an occurrence with person(s). Occupational accidents are distinguished analytically from Casualty Events affecting the ship itself.
R ² (Coefficient)	A statistical measure that indicates how well a linear regression equation explains the variability of the dependent variable. What it represents: The proportion of the total variance in the dependent variable (Y) that is explained by the independent variable(s) X in the model. Range: From 0 to 1. A “0” means the model explains none of the variation in Y. A “1” reflects the model explains all of the variation in Y.
Safety recommendation	A proposal made by a marine safety investigation authority, based on information derived from a marine safety investigation or other relevant sources, with the intention of preventing future marine casualties and incidents. A safety recommendation should be addressed to the organisation, authority or person best placed to implement it. It should not determine liability or apportion blame. In the analytical event-chain model used in this publication, safety recommendations may be understood as measures intended to interrupt or prevent the recurrence of relationships between Contributing Factors, Accident Events and Casualty Events. This analytical explanation does not replace the legal meaning of the term.
Serious injury	An injury sustained by a person that results in incapacitation, meaning that the person is unable to function normally for more than 72 hours, beginning within seven days from the date on which the injury was suffered.
Severe damage to the environment	Damage to the environment that, as evaluated by the affected State or States, or by the Flag State where appropriate, produces a major harmful effect on the environment.
Ship type	Ships are catalogued in types according to the ship's main activity: • Cargo ship: is a commercial ship designed for the carriage of various types of cargo, goods or products and up to a maximum of 12 passengers. • Fishing vessel: is a vessel equipped or used commercially for catching fish or other living resources at sea. • Passenger ship: is a ship designed to transport more than 12 passengers. • Service ship: is a ship designed for special services, like a tug or a dredger. • Other ship: may be: • Inland waterway vessel: is a vessel intended solely or mainly for navigation on inland waterways. • Recreational craft: is a boat of any type, regardless of the means of propulsion, intended for sports or leisure purposes. • Navy ship: is a ship operating under the Navy or other military organization. • Other or 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 “Other/Unknown” category includes a heterogeneous mix of motorboats, sailboats, barges, recreational craft, specialised vessels and records with incomplete classification, limiting the value of aggregated interpretation.
Substantially interested State	A State having a significant interest in a marine casualty or marine incident. This may include a State because: it is the Flag State of a ship involved; the casualty or incident occurred in its territory, including its territorial sea; its environment was seriously or significantly affected; the consequences caused or threatened serious harm to that State or to artificial islands, installations or structures over which it exercises jurisdiction; its nationals died or suffered serious injuries; it possesses important information that may assist the investigation; or it otherwise establishes an interest considered significant by the marine safety investigating State or States.
Territorial sea	The territorial sea as defined in UNCLOS. It is a belt of sea adjacent to a State's coast over which that State exercises sovereignty, subject to UNCLOS and other rules of international law. The breadth of the territorial sea may extend up to 12 nautical miles from the applicable baselines.
Very Serious Casualty	A marine casualty involving:• the total loss of a ship;• a death; or• severe damage to the environment. A Very Serious Casualty remains legally a type of marine casualty, although it is presented as a separate severity group in this publication.

Appendix 3. List of Ratios

Ratio type	ID	Business ratio name	Ratio type	Unit of analysis
People-related consequence ratios	P-01	Annual number of lives loss in marine casualties	Absolute count	Person
	P-02	Annual number of people missing in marine casualties	Absolute count	Person
	P-03	Annual number of people injured in marine occurrences	Absolute count	Person
	P-04	Lives loss per 1,000 vessels	Ratio per fleet size	Person per vessel
	P-05	People injured per 1,000 ships	Ratio per fleet size	Person per ship
	P-06	Lives loss per ship involved in an accident	Ratio per ships in accidents	Person per accident ship
	P-07	People injured per ship involved in an accident	Ratio per ships in accidents	Person per accident ship
	P-08	Change in consequences to people vs previous year and long-term average	% change vs baseline	Person
Ship-related consequence ratios	S-01	Annual number of ships totally lost	Absolute count	Ship
	S-02	Annual number of ships sunk	Absolute count	Ship
	S-03	Annual number of ships abandoned	Absolute count	Ship
	S-04	Total loss of ships per ship involved in an accident	Ratio per ships in accidents	Ship per accident ship
	S-05	Ships sunk per ship involved in an accident	Ratio per ships in accidents	Ship per accident ship
	S-06	Ships abandoned per ship involved in an accident	Ratio per ships in accidents	Ship per accident ship
	S-07	Change in consequences to ships vs previous year and long-term average	% change vs baseline	Ship
Environmental consequence ratios	E-01	Annual number of oil pollution responses	Absolute count	Pollution event
	E-02	Annual number of air pollution events	Absolute count	Pollution event
	E-03	Annual number of cargo pollution events	Absolute count	Pollution event
	E-04	Annual number of bunkers pollution events	Absolute count	Pollution event
	E-05	Annual number of total pollution events (all types)	Absolute count	Pollution event
	E-06	Pollution events per ship involved in an accident (by type)	Ratio per ships in accidents	Pollution event per accident ship
	E-07	Change in environmental consequences vs previous year and long-term average	% change vs baseline	Pollution event
Occurrence and exposure ratios	O-01	Annual number of marine occurrences	Absolute count / average	Occurrence
	O-02	Annual number of casualty events	Absolute count / average	Casualty event
	O-03	Average number of occurrences per year	Average	Occurrence
	O-04	Average fleet size per year	Average	Ship
	O-05	Occurrences per 1,000 ships	Ratio per fleet size	Occurrence per ship
	O-06	Marine incidents / casualties / Very Serious Casualties per 1,000 ships	Ratio per fleet size	Incident/casualty per ship
	O-07	Change in occurrence level vs previous year and long-term average	% change vs baseline	Occurrence
	O-08	Long-term trend in occurrences (slope, fit, predicted level)	Regression-based trend	Occurrence
System-response ratios (investigation etc.)	R-01	Annual number of safety investigations	Absolute count / average	Investigation
	R-02	Annual number of final reports issued	Absolute count / average	Report
	R-03	Annual number of safety recommendations issued	Absolute count / average	Recommendation
	R-04	Annual number of actions taken in response to recommendations	Absolute count / average	Action
Composition and attribution ratios	C-01	Share of consequences by ship type	Proportion / share	Consequence (people/ships/pollution)
	C-02	Share of occurrences with specific contributing factors	Proportion / share	Occurrence
	C-03	Share of occurrences by notification entity	Proportion / share	Occurrence
	C-04	Share of occurrences by severity level	Proportion / share	Occurrence
	C-05	Share of occurrences by coastal state (EEA / non-EEA / total)	Proportion / share	Occurrence / coastal state
	C-06	Proportion of occurrences by investigating state vs flag state	Proportion / share	Occurrence

Appendix 4 - EMCIP model and ship types

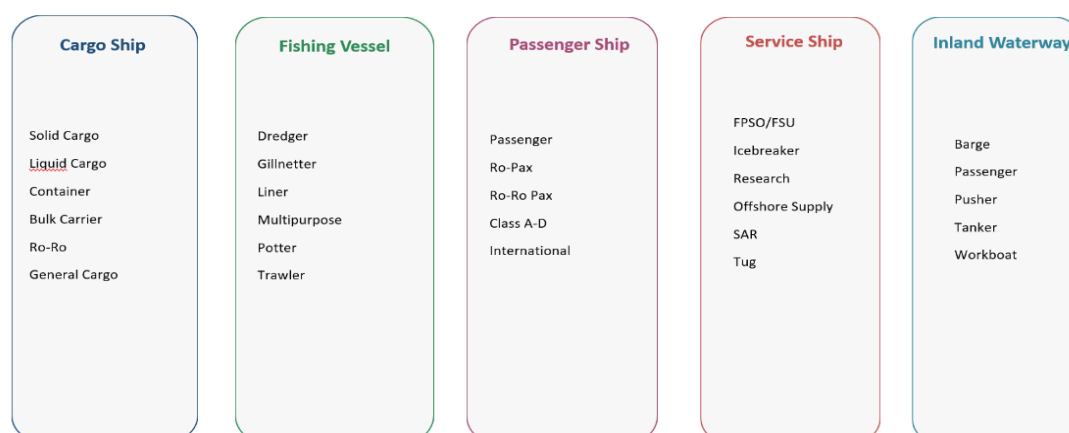
To harmonise the reporting in a meaningful and comprehensive way, a codification of the information resulting from marine casualties was defined. This codification provides also practical advice for a systematic investigation of marine casualties and incidents and allows the development of effective 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 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 database to store the various information collected during the investigation.

EMCIP ship types



Appendix 5 - EEA national safety investigation authorities

Member State	Name of the national investigative body	Acronym	Website
Austria	Safety Investigation Authority of Austria	BAV/SUB	http://www.bmvit.gv.at/
Belgium	Federal Bureau for the Investigation of Maritime Accidents	FEBIMA	www.febima.be
Bulgaria	Maritime Accident Investigation Unit	MTITC	http://www.mtitc.government.bg
Croatia	Air, Maritime and Railway Traffic Accidents Investigation Agency	AIN	www.ain.hr
Cyprus	Marine Accident and Incident Investigation Committee	MAIC	www.maic.gov.cy/mcw/dms/maic/maic.nsf/
Czech Republic	Ministry of Transport, Czech Maritime Administration Navigation Department	MT_ND	http://www.mdcz.cz
Denmark	Danish Maritime Accident Investigation Board	DMAIB	http://www.dmaib.com
Estonia	Safety Investigation Bureau of Estonia	ESIB	www.ojk.ee
Finland	Safety Investigation Authority of Finland	SIA	http://www.onnettomuustutkinta.fi
France	French Marine Casualties Investigation Board	BEAmer	http://www.bea-mer.developpement-durable.gouv.fr/
Germany	Federal Bureau of Maritime Casualty Investigation	BSU	http://www.bsu-bund.de
Greece	Hellenic Bureau for Marine Casualties Investigation	HBMCI	http://www.hbmci.gov.gr
Hungary	Transportation Safety Bureau of Hungary	TSB	http://www.kbsz.hu
Iceland	Icelandic Marine Accident Investigation Board	ITSB	www.rnsa.is
Ireland	Marine Accident Investigation Unit	MAIU	https://www.maiu.gov.ie/
Italy	General Directorate for Railway and Maritime Accident Investigation	DIGIFEMA	http://www.mit.gov.it
Latvia	Transport Accident and Incident Investigation Bureau	TAIIB	http://www.taiib.gov.lv
Lithuania	Safety Investigation Division of the Ministry of Justice of the Republic of Lithuania	SID	https://sia.lrv.lt/en/
Luxembourg	Administration of Technical Investigations	AET	https://aet.gouvernement.lu/en.html
Malta	Marine Safety Investigation Unit	MSIU	https://msiu.gov.mt/
The Netherlands	Dutch Safety Board	DSB	www.safetyboard.nl
Norway	Norwegian Safety Investigation Authority	NSIA	http://www.nsia.no
Poland	State Marine Accident Investigation Commission	PKBWM/SMAIC	www.pkbwm.gov.pl
Portugal	Maritime Accident Investigation Office and Aeronautical Meteorology Authority	GAMA	www.gama.mm.gov.pt
Romania	Marine Accidents Investigation Department	CIATN	http://www.mt.ro
Slovakia	Ministry of Transport and Construction	MTCR	https://www.mindop.sk/
Slovenia	Ministry for Infrastructure and Energy. Air, Maritime and Railway Accident and Incident Investigation Unit	MID	https://www.gov.si/en/
Spain	Standing Commission for Maritime Accident and Incident Investigation	CIAIM	https://www.transportes.gob.es/organos-colegiados/ciaim
Sweden	Swedish Accident Investigation Authority	SHK	http://www.havkom.se

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