

**REPUBLIC OF
THE MARSHALL ISLANDS**



**ANNUAL REPORT ON
INVESTIGATION OF MARINE CASUALTIES**

2019



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Cover Photo: People’s Republic of China-registered fishing support vessel OU YA LENG 6 aground on Taka Atoll, Republic of the Marshall Islands (Photo credit: United States Coast Guard).

Message from the Republic of the Marshall Islands Maritime Administrator

Hans Molver
Deputy Commissioner of Maritime Affairs

The goal of this Annual Report on Investigation of Marine Casualties (the “Report”), is to share Republic of the Marshall Islands (RMI) casualty related information and analysis. The intent is to help owners and operators reduce accidents; improve the overall safety of crews, vessels, cargoes; and help protect the marine environment.

During 2019, the RMI Maritime Administrator (the “Administrator”) investigated 806 reports of very serious marine casualties, marine casualties, marine incidents, and occurrences. A breakdown of each incident category is provided later in this Report.

The Administrator provides these statistics relating to incidents reported to it, as well as the causal factors of these, as a reference to assist Owners and Managers of RMI-registered ships with the goal of increasing awareness and continual improvement of marine safety. Thank you to the Owners, Managers, and Crew for their continued dedication to preventing marine accidents.

Principles of Marine Safety Investigations

Marine safety investigations are conducted in accordance with the *RMI Maritime Act* (MI-107), *RMI Maritime Regulations* (MI-108), Chapter 6, *RMI Rules for Marine Investigations* (MI-260), and the *Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident* (the “Casualty Investigation Code”).

Under the Casualty Investigation Code, marine safety investigations are conducted to determine causal factors of the casualty, with the objective of preventing similar casualties or incidents in the future, and to make safety recommendations, as necessary. Marine safety investigations do not seek to apportion blame or determine liability.

All reports to the Administrator are classified in accordance with the following:¹

1. **Very serious marine casualties** are marine casualties involving loss of life, total loss of the ship, or significant environmental damage.
2. **Marine casualties** are events, or a sequence of events, directly in connection with the operation of the ship, that has resulted in loss of life, serious injury, loss or material damage to the ship, grounding or disabling of the ship, collision/allision, and severe damage to marine infrastructure or to the environment.

¹ For complete definitions, refer to MI-108 §6.35.

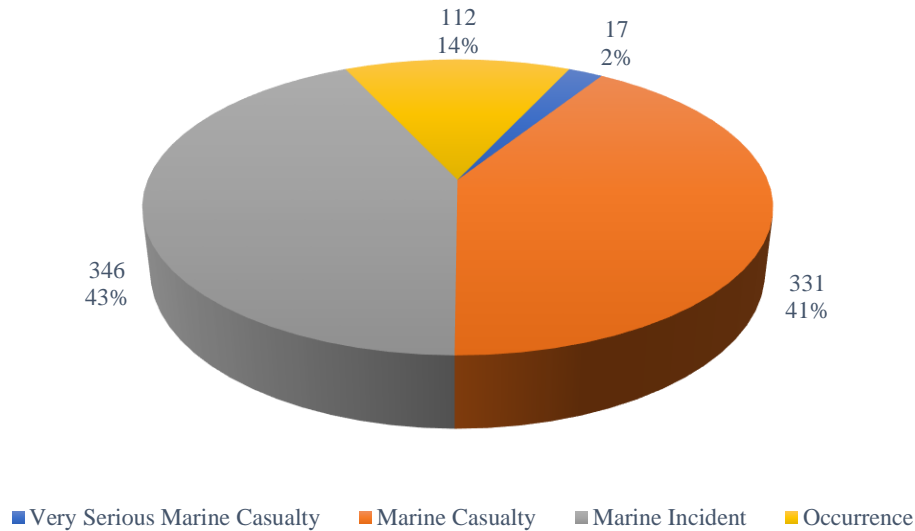
3. **Marine incidents** are events, or sequence of events, other than a marine casualty, which have occurred directly in connection with the operation of the ship, that endangered, or if not corrected, would endanger the safety of the ship, its occupants, or the environment.
4. **Occurrences** are other conditions and events which are not marine casualties or marine incidents but require investigation by the Administrator.

Additionally, all reports are assigned a primary incident type based upon information obtained during the marine safety investigation. The primary incident type details the nature of the incident which resulted in the very serious marine casualty, marine casualty, marine incident, or occurrence.

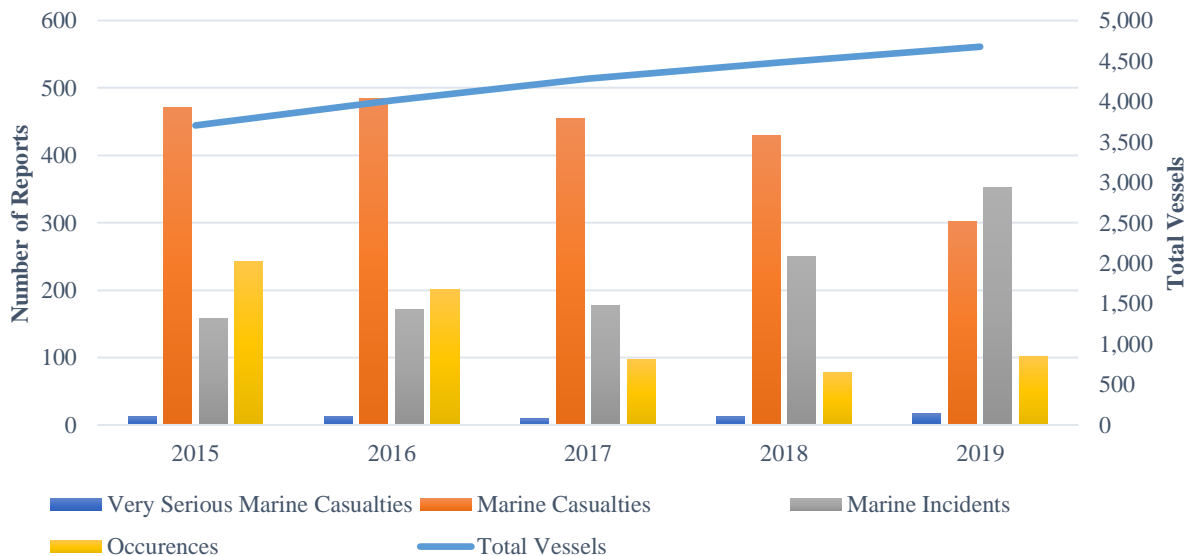
2019 Year in Review

During 2019, there were 806 very serious marine casualties, marine casualties, marine incidents, and occurrences reported to the Administrator.

Reports to the Administrator During 2019



Reports to the Administrator - 2015 to 2019

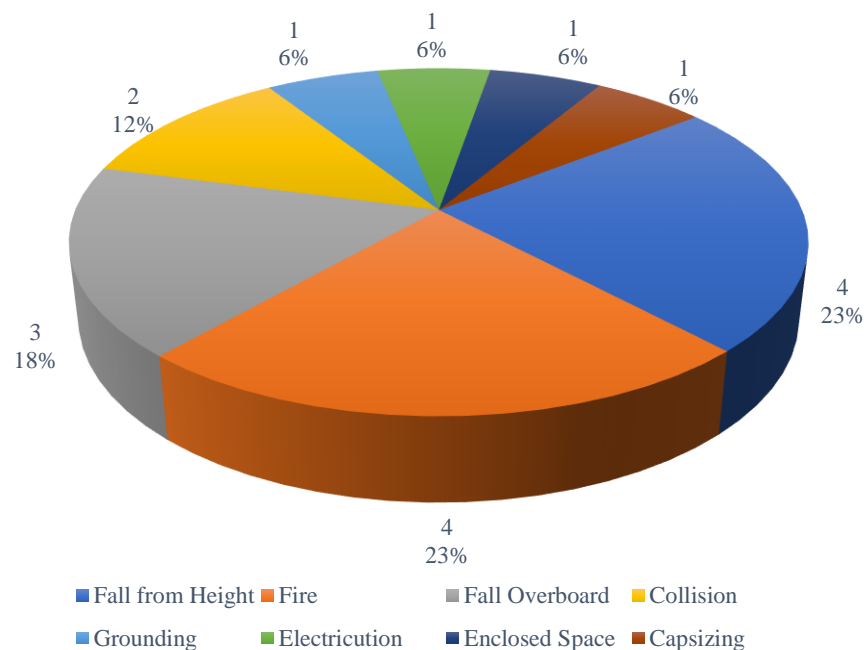


Very Serious Marine Casualties – 2019

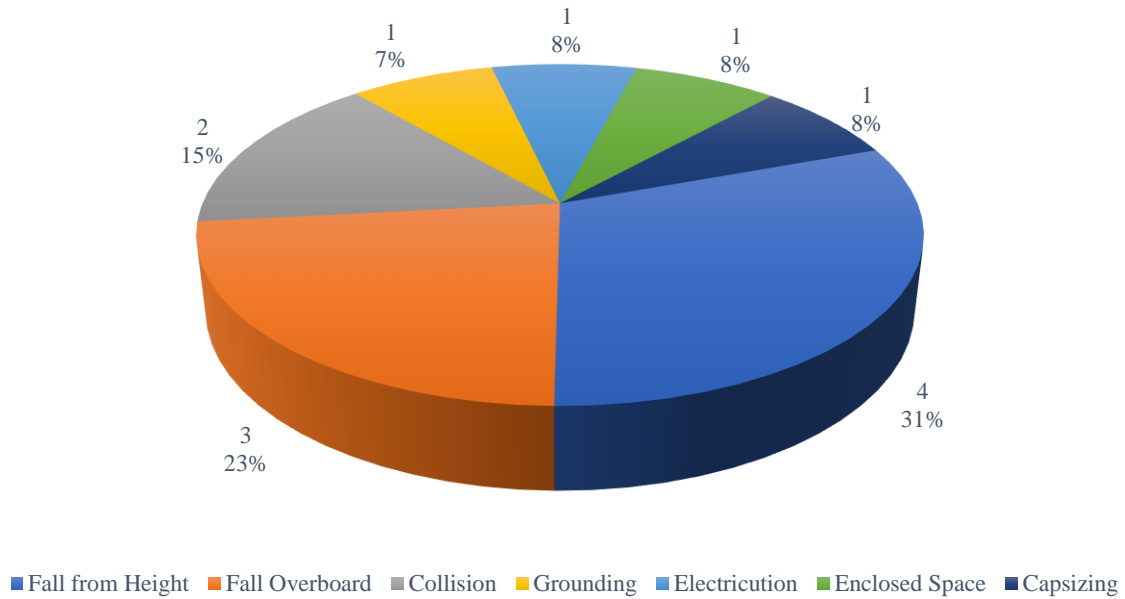
During 2019, 17 very serious marine casualties were reported to the Administrator. Two very serious marine casualties resulted in the constructive total loss of a ship, while 11 others resulted in the loss of one or more lives. Additionally, four of the very serious marine casualties occurred on yachts and resulted in their constructive total loss due to fire.

Accidental falls were the leading cause of death during 2019, with seven lives lost. Four of these fatalities were the result of falls from height and three were falls overboard. Improper enclosed space entry also resulted in the loss of two seafarers.

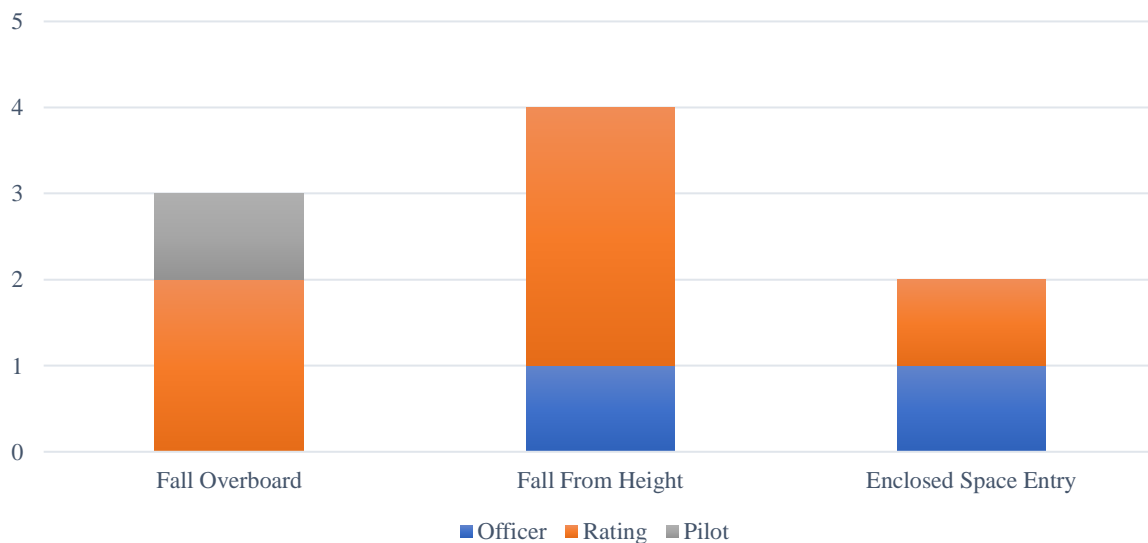
Very Serious Marine Casualty Primary Incident Types 2019



Very Serious Marine Casualty Primary Incident Types 2019 (Excluding Yachts)



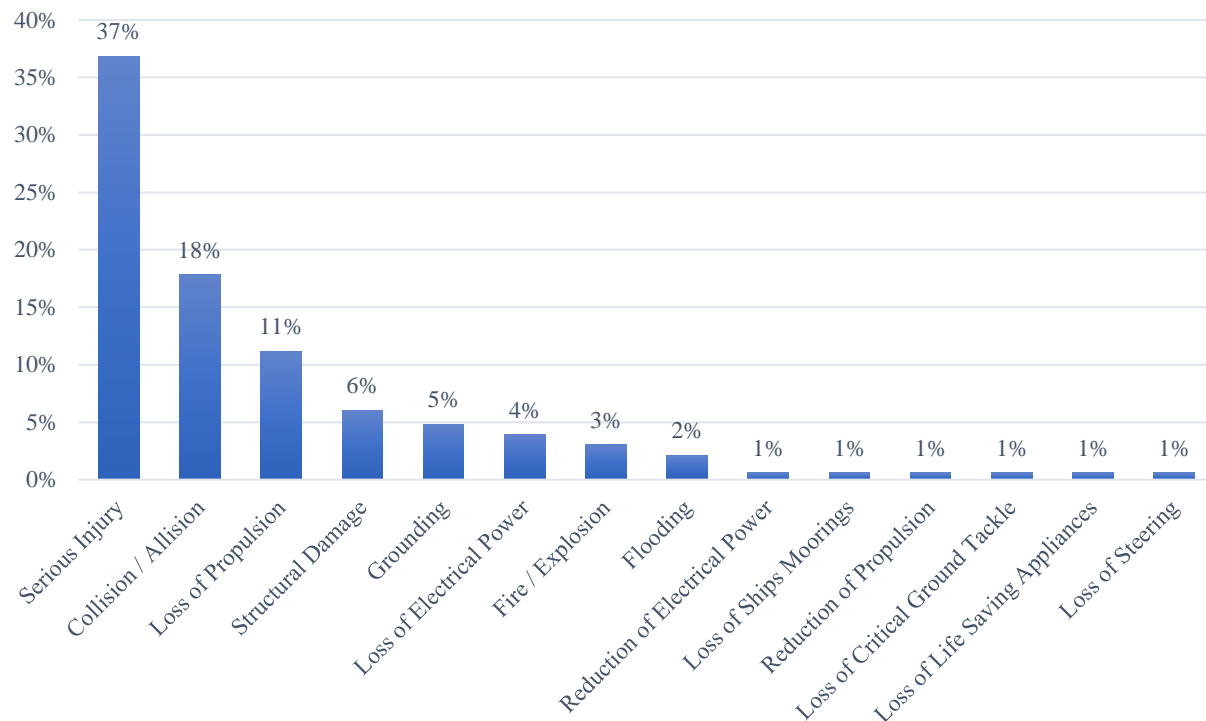
Loss of Life - Primary Incident Type and Positions 2019



Marine Casualties - 2019

There were 331 marine casualties which were reported to the Administrator during 2019. These have been classified by the primary incident type and are shown on the below chart as a percentage of the total marine casualties reported during 2019.²

Marine Casualty Primary Incident Types 2019

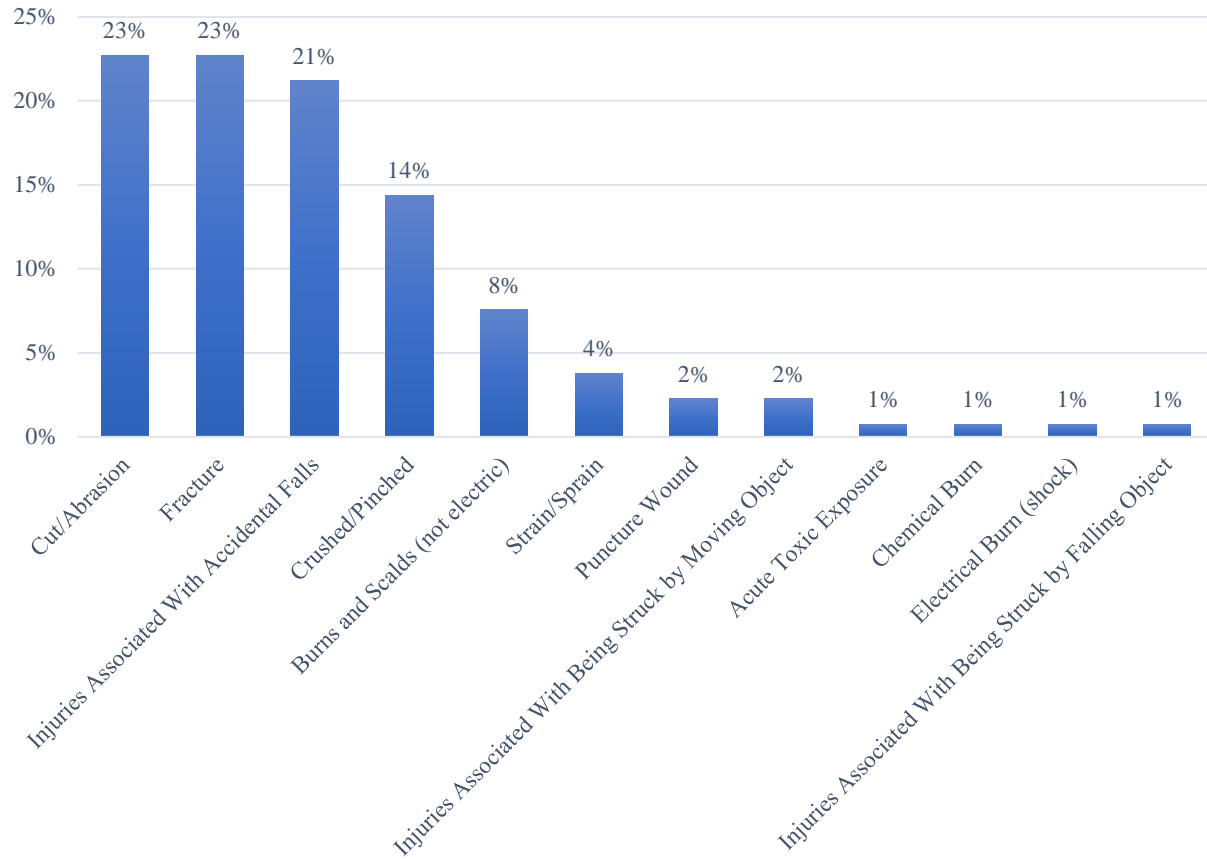


Serious Injuries

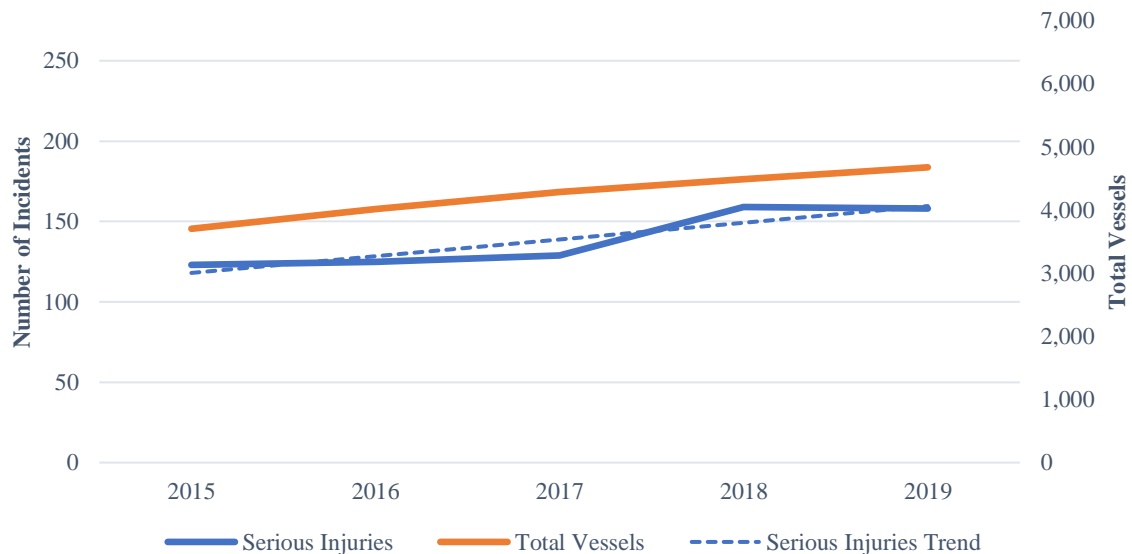
Serious injuries (resulting in incapacitation for 72 hours or more) were by far the most frequently occurring marine casualty during 2019, accounting for 158 of the 331 total marine casualties reported to the Administrator. Cuts/abrasions, fractures, and injuries associated with accidental falls were the top three types and accounted for a combined 67% of all serious injuries reported to the Administrator. Investigations into these injuries found that they were likely avoidable by following safe work practices, proper use of personal protective equipment (PPE), and maintaining situational awareness while completing tasks.

² Excluded are incident types which accounted for less than 1% of the marine casualties reported. Values are rounded to the nearest whole percent.

Types of Injuries Reported During 2019



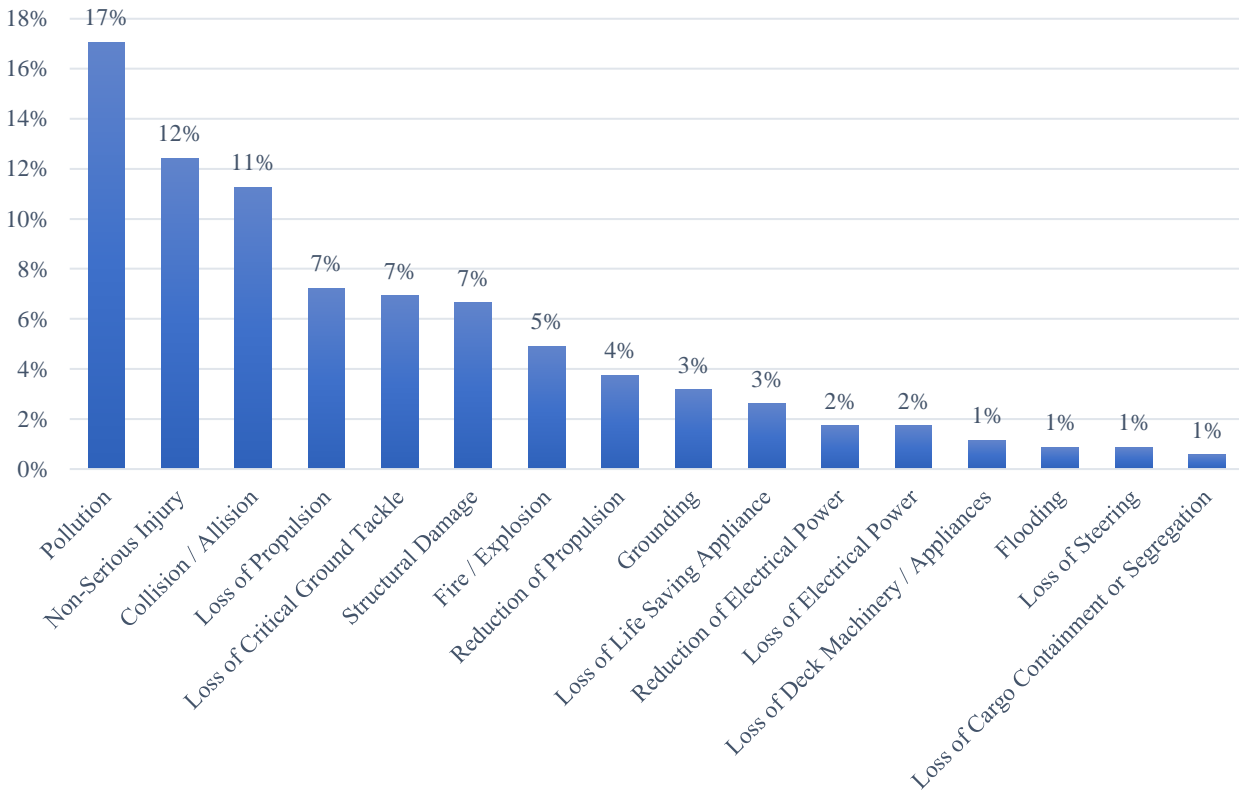
Serious Injuries and Fleet Size - 2015 to 2019



Marine Incidents – 2019

There were a total of 346 marine incidents reported to the Administrator during 2019. These have been classified by the primary incident type and are shown on the below chart as a percentage of the total marine incidents reported during 2019.³

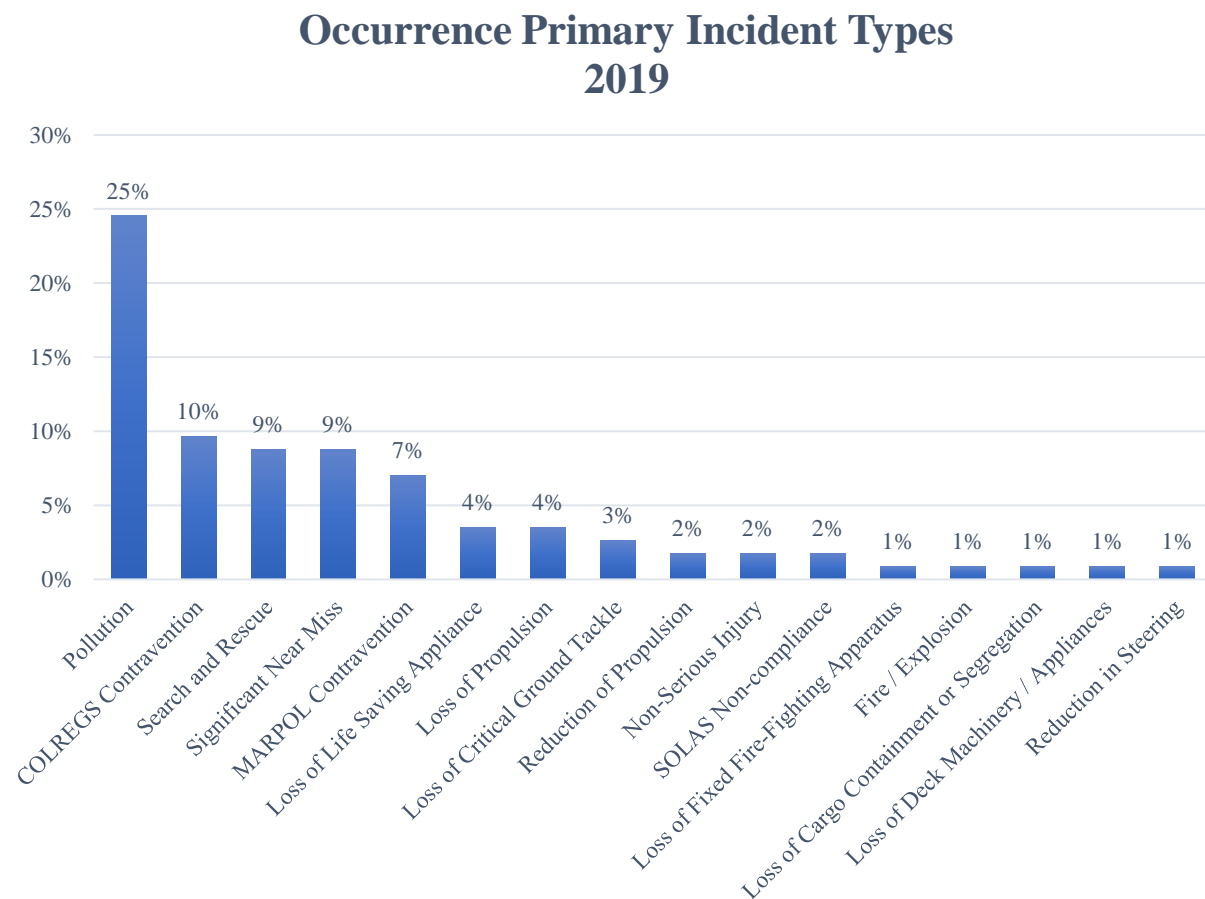
Marine Incident Primary Incident Types 2019



³ Excluded are incident types which accounted for less than 1% of the marine incidents reported. Values are rounded to the nearest whole percent.

Occurrences - 2019

There were 112 occurrences reported to the Administrator during 2019. These have been classified by the primary incident type and are shown on the below chart as a percentage of the total occurrences reported during 2019.⁴

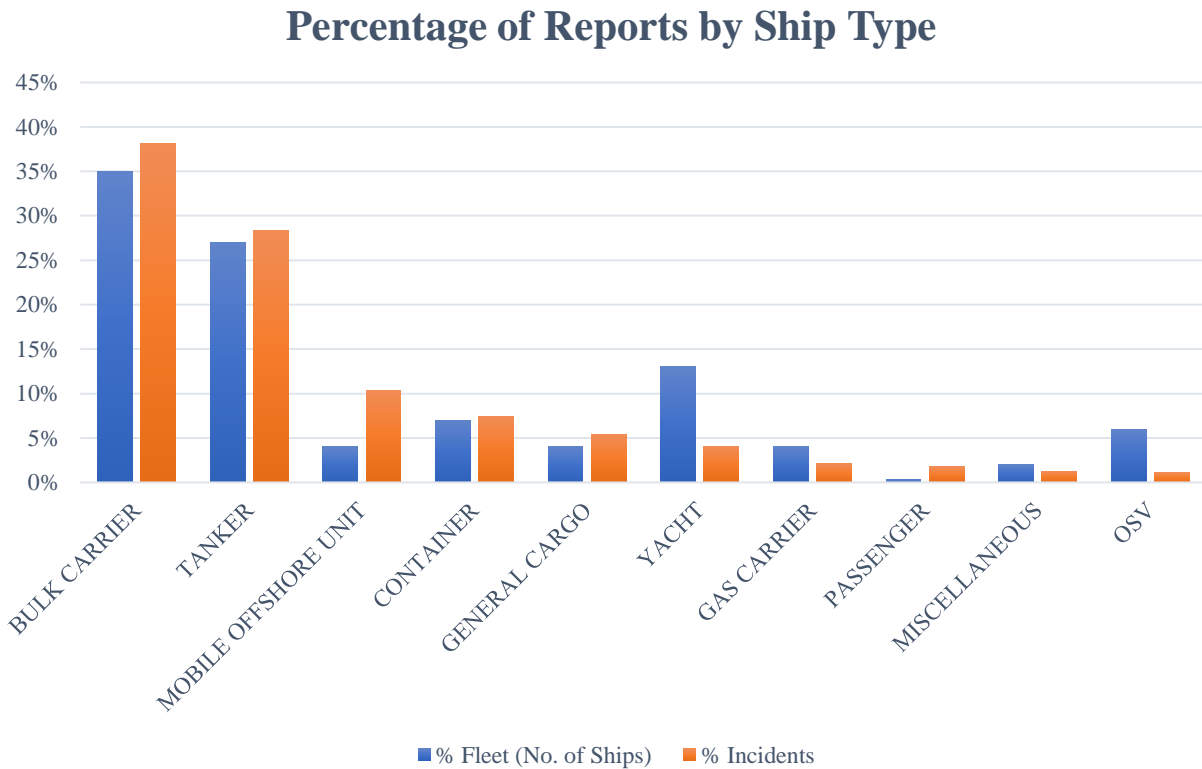


⁴ Excluded are incident types which accounted for less than 1% of the occurrences reported. Values are rounded to the nearest whole percent.

All Incident Classifications

Ship Type

The chart below details the percentage of all reports to the Administrator during 2019 by ship type and the percentage of the fleet (by numbers) that each ship type represents.



Most Common Incident Types by Ship Type – All Incident Classifications

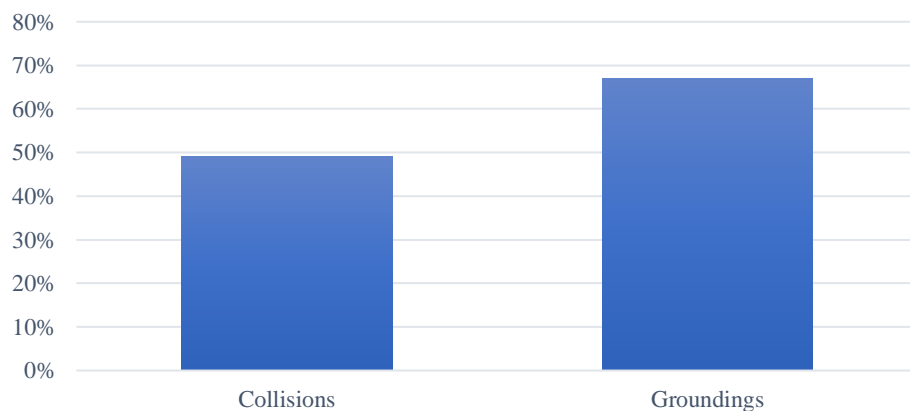
The table below lists the three most common incident types for all reports made to the Administrator during 2019, by ship type.

Ship Type	First	Second	Third
Bulk Carrier	Serious injury	Collision or allision	Loss of propulsion
Tanker	Serious injury	Collision or allision	Loss of propulsion
Mobile Offshore Unit	Pollution	Serious injury	Fire or explosion
Container	Serious injury	Collision or allision	Loss of propulsion
General Cargo	Serious injury	Collision or allision	Loss of propulsion
Yacht	Serious injury	Fire or explosion	Loss of propulsion
Gas Carrier	Serious injury	Fire ⁵	Collision or allision
Passenger	Loss of propulsion	Serious injury	Non-Serious Injury
Miscellaneous	Pollution	Serious injury	Loss of propulsion
OSV	Pollution	Serious injury	Loss of propulsion

Collisions and Groundings with Pilot Onboard

During 2019, 67 collisions and 30 groundings were investigated by the Administrator. It was found that 49% of collisions occurred while a Pilot was on board, while 67% of the groundings occurred with a Pilot on board.

Collisions and Groundings with Pilot Onboard



⁵ Three fires were reported on gas carriers during 2019 (occurring in the engine room, mechanical room, and accommodation).

CRITICAL ISSUES

Accidental Falls

Accidental falls, including those from height and overboard, were the most common cause of death and a significant cause of injuries of seafarers onboard RMI-registered ships in 2019. Falls from height are also a significant means of serious injury to seafarers on RMI-registered ships.

Common causal factors identified during the Administrator's investigation into these casualties are the failure to identify the risk of a fall, failure to use the proper PPE, and failure to follow safe working procedures. The lack of established procedures and the lack of availability of PPE were not seen as causal factors of incidents involving falls from height.

The risk of injury or death from a fall can exist during routine work, as well as during exceptional circumstances. Focus must always be made to identify if a fall hazard exists before starting a job and ensuring that the proper PPE is used. Several falls overboard reported to the Administrator during 2019 occurred while crew were preparing or adjusting pilot and accommodation ladders, a frequent task for which the hazards may be underestimated.

Enclosed Space Entry and Rescue Incidents

During 2019, improper enclosed space entry and rescue continued to be a cause of death of seafarers onboard RMI-registered ships. This accounted for the death of two seafarers and the serious injury of two more. Year-after-year, lives continue to be lost at sea due to improper enclosed space entry and rescue.

Investigations into recent enclosed space entry fatalities have found that, in most cases, the seafarer had participated in enclosed space entry and rescue drills as required by the International Convention for the Safety of Life at Sea (SOLAS). This is an indication that the training currently being conducted is failing to achieve its goal. Many times, the enclosed space entry and rescue drills held on board use scenarios that are not realistic in nature nor relatable to a seafarer's normal tasks. This can create a perception that enclosed space entry is unusual or exceptional in nature and not something that is often encountered onboard. This can also inadvertently create a sense of "this will not happen to me," which is extremely dangerous given the frequency of shipboard enclosed space entry.

All seafarers must understand that the purpose of conducting enclosed space entry and rescue training is to:

1. recognize what constitutes an enclosed space;
2. recognize and understand the risks and precautions to take prior to entry; and
3. practice realistic rescue drills.

Another issue that needs to be continually addressed and understood is the natural desire to assist a shipmate when in trouble. Most enclosed space deaths reported to the Administrator also involved inappropriate rescue attempts by fellow crewmembers, made in haste and without the use

of PPE. Often, this has resulted in the death of one or more of the rescuers. While it is impossible to recreate the pressures faced during an actual enclosed space rescue, drills must be conducted in a manner that stresses the importance of teamwork when following established enclosed space rescue procedures. All crewmembers must be aware that the failure to follow enclosed space rescue procedures not only threatens their lives, it also reduces the chances of a successful rescue. Incidents where would-be rescuers became victims have significantly delayed rescue operations.

Most fundamental to enclosed space entry and rescue safety is the recognition of enclosed spaces. Enclosed space entry and rescue procedures will not be implemented if a seafarer does not recognize the space as an enclosed space. Seafarers must be ever vigilant in the identification of enclosed spaces during their normal daily routine and during exceptional circumstances. In addition to the requirements set forth in Marine Notice [7-041-1](#), Managers of RMI-registered ships must ensure that frequent training with regards to the identification of enclosed spaces be incorporated into every enclosed space entry and rescue training program. Additionally, clear markings with appropriate warning signs are recommended to reinforce seafarers' awareness of enclosed spaces.

Despite new regulations and increased focus, lives continue to be lost due to improper enclosed space entry and rescue. To break this trend, decisive and immediate actions are needed by Owners, Managers, Seafarers, and other stakeholders in the maritime industry.

Collisions and Groundings While Under Pilotage

The number of collisions and groundings that occurred in 2019 with a pilot on board is consistent with the number that occurred in prior years. 49% of collisions investigated by the Administrator occurred while the ship was under pilotage. The fact that 67% of groundings occurred when a Pilot was on board is consistent with the fact that shoal waters are most frequently encountered when a ship is under pilotage.

Causal factors commonly identified during the Administrator's marine safety investigations of collisions and groundings that occurred under pilotage include:

1. improper delegation of responsibility for navigation decision making to the Pilot;
2. ineffective information sharing during the Master/Pilot exchange;
3. ineffective communications between the Master, Pilot, and other members of the ship's bridge team;
4. ineffective navigation watch standing by ship bridge teams when a Pilot is on board; and
5. the Pilot communicating with tugs, local or river traffic, and vessel traffic services in a local language leading to the bridge team's lack of situational awareness.

Masters should be reminded that when a Pilot is on board, the Master remains in command of the ship. The Administrator has observed that the causal factors for many of the collisions that occurred both when a Pilot was on board and when one was not, include not adequately assessing the risk of collision and not taking timely or appropriate action to avoid collision.

RMI Marine Safety Investigation Report Recommendations

Below is a summary of the most pertinent 2019 marine safety investigation report recommendations and the actions that have been taken on them by the Administrator to date.

Bulk Carrier Safety

It was recommended that the Administrator consider submitting a proposal to amend SOLAS regulations XII/4 and 5 for bulk carriers of 150 meters (m) or more in length, of double-side skin construction, and designed to carry cargoes having a density of 1,000 kilograms/m³ and above. It was proposed that they be designed to have sufficient strength and stability to withstand flooding of any wing tank located within the cargo length where the longitudinal bulkhead is located more than B/5 or 11.5 m, whichever is less, measured inboard from the side of the ship perpendicularly to the centerline at the level of summer load line in all loading and ballast conditions.

It was also recommended to submit a proposal to amend the International Code on the Enhanced Programme of Inspections During Surveys of Bulk Carriers and Oil Tankers, 2011 (the 2011 ESP Code). The proposed amendments intend to align the schedule for inspections of bulk carrier water ballast tanks and void spaces with those for tankers and to require more frequent inspections of voids within the cargo length taking into consideration whether the void is coated and the condition of the coating.

To address these recommendations, the RMI coordinated with several co-sponsors and has submitted two papers to the IMO's Marine Safety Committee (MSC). One paper proposes amendments to SOLAS regulations XII/4, XII/5, and XII/12; the other to the 2011 ESP Code. The papers are expected to be considered by the Sub-committee on Ship Design and Construction (SDC).

Enclosed Space Entry

It was recommended that the Administrator consider submitting a proposal to amend the IMO Revised Recommendations for Entering Enclosed Spaces Aboard Ships (IMO Resolution A.1050(27)). The recommendation was for the Resolution to be amended to ensure that shipboard enclosed space entry and rescue training instruct seafarers that the best way to assist a fellow seafarer inside an enclosed space is not to enter the space, but to immediately raise the alarm so that an organized rescue can be conducted according to established procedures. The Administrator is currently assessing follow-up actions to ensure they are most appropriate and effective in addressing the issue.

Marine Safety Advisories (MSAs) Issued by the Administrator

During 2019, the Administrator issued the following MSAs in response to incidents reported to the Administrator:

MSA No.	Subject
21-19	Enclosed Space Entry Incidents (superseded by MSA 23-20)
23-19	Structural Failure of Provision Crane Maintenance Platform (cancelled)
27-19	Fire Hazard Posed by Personal Electronic Devices

Looking Forward

As we look forward, the Administrator reminds all Owners and Managers of RMI-registered ships that statistics relating to very serious marine casualties, marine casualties, marine incidents, and occurrences that are reported to the Administrator are available.

We also express our sincere appreciation to all Owners, Managers, and Crew of RMI-registered ships for their dedication to the investigation of marine casualties, marine incidents, and occurrences. The thorough investigation and implementation of preventive actions is crucial in increasing marine safety and environmental protection.