



Bundesstelle für Seeunfalluntersuchung
Federal Bureau of Maritime Casualty Investigation

Federal Higher Authority subordinated to the
Ministry of Transport and Digital Infrastructure



2018 Annual Report

May 2019

Foreword

Dear Reader,

We were not spared accidents on the coasts of Germany in 2018 but fortunately there were no major disasters. As you will go on to read below, we have not simply spoken – or rather written – the word 'fortunately' lightly. It is thanks only to much fortune that some of the accidents passed off without serious consequences.

When it comes to the investigation of marine casualties, 2018 was a relatively quiet year. Should you be surprised or believe we have missed something, it was not until the new year, i.e. right at the start of 2019, that 'dramatic' incidents occurred. The MSC ZOE lost more than 300 containers on the German-Dutch border in heavy seas and the YANTIAN EXPRESS fought a devastating cargo fire in the middle of the Atlantic. Both accidents were and continue to be an issue of public interest and both are being investigated, too. However, they will form part of next year's review.

Although the number of incidents and accidents reported increased slightly in the year under review (2018) compared to the last few years, the majority involved only material damage and it is with a clear conscience that we can classify most of them as minor. Nonetheless, there were times when the BSU was forced to take a deep breath. On one hand, the investigation into the grounding of the GLORY AMSTERDAM tied up substantial resources. On the other hand, part of the maritime sector has evolved further in the shape of the offshore industry, which now has the attention of the BSU due to various accidents. A total of three incidents, all extremely different, are currently the subject of a main investigation – a novelty.

The BSU was confronted with another novelty in the autumn of 2018 when it faced the first ever demonstration against one of its investigation reports. Although the situation was clearly unusual for all the parties involved (both the BSU and the demonstrators), everything unfolded within a peaceful and objective framework.

As you see, we have compiled a diverse potpourri of interesting information for you again this year. Some of it may seem familiar, which is good and necessary practise for new readers, but the majority sees us cover new ground. Read on and embark on a maritime voyage of discovery.

Ulf Kaspera
Director

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The BSU is a federal higher authority subordinated to the Ministry of Transport and Digital Infrastructure (BMVI). Its offices are in Hamburg and it currently has 12 staff members (employed on a full- and part-time basis). It is thus one of the smallest federal higher authorities, has a single-stage administrative structure and operates under the supervisory control of Department WS 22 of the BMVI.



The BSU's offices in the BSH building in Hamburg. The piers are visible in the foreground. In the background are the so-called 'Dancing Towers' to the right and the Astraturm to the left. Source: Fotolia

1. Marine casualty investigation

1.1 Principles

In accordance with the international Casualty Investigation Code (Resolution MSC.255/84), the work of marine casualty investigation authorities is defined as 'safety investigation' in EU Directive 2009/18 and, correspondingly, in the *Seesicherheits-Untersuchungs-Gesetz (SUG)* [German Maritime Safety Investigation Act]. This makes clear that a marine casualty investigation is not intended to clarify issues of fault or liability but is solely for the purpose of improving maritime safety. A marine casualty investigation aims to deliver a comprehensive account and analysis of the course of events leading up to and during an accident to prevent future accidents. It should consider any direct and indirect causes, facilitating factors, as well as the overall circumstances including possible rescue operations and safety systems. Due to legislation, the BSU is guided by a no blame approach within the framework of a safety partnership.

The SUG constitutes the primary legal foundation for the work of the BSU. The SUG transposes international rules and regulations, such as those mentioned above, as well as the international Casualty Investigation Code and the EU's Directive 2009/18/EC into the German judicial system. Other provisions that apply under German law include Regulation

(EU) No 1286/2011 and International Maritime Organisation (IMO) Resolution A.1075(28), which harmonise the methodology and implementation of the investigation of accidents at international level.

According to the SUG, the BSU is responsible for the investigation of marine casualties involving seagoing ships of all flags

- within German territorial waters;
- within the German Exclusive Economic Zone (EEZ), and
- during traffic movements on German navigable maritime waterways, as well as to, from, and in ports connected to them.

In addition to those areas, the BSU investigates marine casualties on or involving seagoing ships flying the German flag or if the Federal Republic of Germany has a substantial interest in the investigation of a marine casualty abroad (if German nationals are affected, for example).

The SUG also regulates those cases in which the BSU does not take action. The BSU is not responsible for marine casualties involving only

- ships of war, troop ships and other ships owned or operated by Germany's federal or state governments and used only on government non-commercial service;
- ships not propelled by mechanical means, wooden ships of primitive build, recreational yachts and recreational craft not engaged in trade, unless they have prescribed manning and carry more than 12 passengers;
- fishing vessels with a length of less than 15 m, and
- fixed offshore drilling units.

This is of particular relevance in the recreational yacht sector. The SUG does not cover privately used recreational yachts (unlike those used commercially), meaning the BSU's legal mandate does not extend to investigating accidents involving recreational yachts. This applies regardless of damage. It is only possible for the BSU to investigate such accidents in (rare) exceptions and then only when an accident occurs in Germany's territorial waters or EEZ and concerns recreational craft built and suitable for maritime navigation and used accordingly. Open rowing or sailing boats and jet skis, etc. do not belong to this category.

The SUG distinguishes between four categories¹ of marine casualty – incident, marine casualty (to distinguish from the generic term, referred to as 'less serious marine casualty'), serious marine casualty and very serious marine casualty – and in the case of the latter requires that the BSU always conduct an investigation.

1.2 The investigation procedure

After an accident notification is received, the BSU's director (or the deputy director in his absence) decides on the initiation of an investigation and usually assigns the subsequent processing of the accident to a team of two people. The BSU is free from instructions in this decision and in all other aspects of the investigation. The BSU has extensive rights and powers of intervention when investigating the course of events leading up to and during an accident, including in respect of access to the scene of the accident, preservation and analysis of evidence, questioning witnesses and the engagement of experts. These rights are not limited to entities/individuals directly involved in the accident (the ship, her crew and possibly pilots), but can also be asserted against third parties (e.g. shipowners, shipyards or

¹ See the explanatory notes in the Statistics section for more information.

classification societies) or authorities (e.g. the Federal Waterways and Shipping Administration or the Ship Safety Division (BG Verkehr)).

An important cornerstone of the work of the BSU is co-operation with the members of European and non-European investigative bodies. Based on European and international principles, the BSU conducts investigations in international co-operation. These can be limited to merely supporting the other investigative body or may extend to a full joint investigation and joint final report. Recent examples include the accident involving the SEATROUT and USOLI in the Scheldt estuary in 2017 or only a few months ago the MSC ZOE's loss of cargo on the German-Dutch border at the beginning of 2019. Both cases saw the BSU work closely with its Dutch counterpart, the *Onderzoeksraad voor Veiligheid* [Dutch Safety Board].

1.3 Investigation reports and safety recommendations

The investigation report is the product of a safety investigation and made available to the public. An investigation concludes with the publication of the report. The BSU's investigation reports follow a certain pattern, which is provided by Directive 2009/18/EC. In addition to the required indication of the purpose of the safety investigation, notably, the prevention of future accidents and malfunctions, but not the determination of blame, liability, or claims, each report contains

- a summary of the accident;
- factual information, in particular, ship and voyage particulars;
- a detailed account of the course of the accident and investigation;
- an analysis of the investigation;
- ensuing conclusions, and
- as a rule, safety recommendations.

The publication of interim investigation reports is also required if it is not possible to prepare a final report within one year of the date of an accident. Cases discontinued after a preliminary investigation are usually closed with an internal report. Interim reports are only produced for serious or very serious marine casualties, however.

Safety recommendations constitute the key element of an investigation report. A safety recommendation points to an identified gap in safety and aims to help the addressee avoid or at least reduce the impact of future situations similar to those that led to an accident in the case investigated. A safety investigation by the BSU focuses not only on events on board, but also looks at organisation ashore or the safety system where appropriate. In short, any factors that may have facilitated the accident are investigated and evaluated. Consequently, in addition to the crew, addressees of safety recommendations could include pilots, shipowners, shipyards, manufacturers of equipment, the Maritime Administration, the legislator, or others. Safety recommendations can also be directed at several addressees but their wording should be sufficiently specific. Addressees should be able to clearly discern what is being recommended to them. Accordingly, recommendations of a general nature should be avoided.

The BSU may also issue an early alert in the form of preliminary safety recommendations before the publication of an investigation report. This is to prevent accidents if it has been found that a safety risk exists for which notification must be provided as quickly as possible, i.e. before publication of the final report, which happened this year in the case of the grounding of the GLORY AMSTERDAM. The corresponding interim investigation report contained a safety recommendation addressed to the BMVI, which it had actioned by the end of the year.

One or more safety recommendation(s) is/are not issued for every investigation report. This can be for a variety of reasons, e.g. that no specific deficiencies were apparent or the speculative addressees had already closed a gap in safety identified by the BSU through their own action while the investigation was ongoing. In 2018, the BSU issued 25 safety recommendations in eight investigation reports.

Safety recommendation addressees in 2018 included (number of recommendations in brackets):

- ship's command/crew (1);
- owner (11);
- manufacturer/distributor (1);
- Federal Ministry of Transport and Digital Infrastructure (9);
- classification societies (2);
- Ship Safety Division (BG Verkehr) (1).

A preliminary safety recommendation was also published in 2018.

2. Main investigations

This section deals with current main investigations into marine casualties that occurred in 2018. In principle, investigations should be completed after one year. Unfortunately, this is not possible in many cases. The reasons for this are as varied as the actual accidents. However, the rule is that the length of the investigation rises with the degree of complexity of the events surrounding the accident and number of parties involved. The BSU obviously makes every effort to analyse accidents quickly and publish the final report within one year.

Some of the accidents in 2018 that resulted in a main investigation by the BSU, which is still ongoing in certain cases, are presented on the following pages. The focus this year was on the diverse offshore industry. A complete and up-to-date list of current main investigations can be found on the BSU's website.²

2.1 AKACIA – serious marine casualty



The AKACIA underway. Source: © Jörn Kallauch

The Portugal-flagged AKACIA planned to sail into the Neue Südschleuse lock in Kiel-Holtenau at about 2345 on 19 February 2018. The ship was under pilotage and steered by a canal helmsman. While approaching the lock chamber, the ship suddenly accelerated unintentionally and without the intervention of the bridge crew. The crew was unable to stop this acceleration. Among other things, dropping both anchors did not prevent the ship from striking the lock gate on the seaward side. The lock gate was severely damaged by the impact. The ship was pushed onto the gate and in addition to considerable damage suffered water ingress. Fortunately, nobody came to physical harm. There was no environmental damage, either, so it was confined to the – albeit very serious – material damage to the ship and lock gate.

² www.bsu-bund.de.

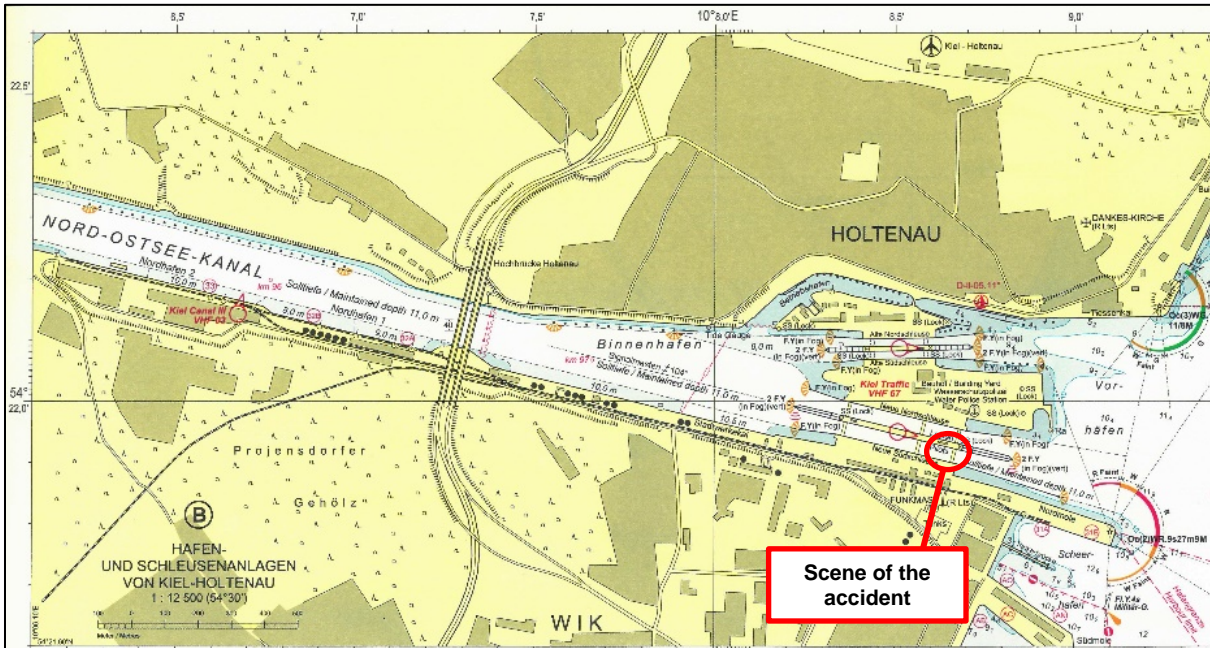


Chart showing the scene of the accident. Source: Navigational Chart 21/42, BSH



The bow of the ship penetrated the lock gate and settled on top of it. Source: BSU

2.2 VOS STONE – less serious marine casualty

At 1106 on 10 April 2018, the offshore supply vessel VOS STONE struck a wind turbine under construction. The ship and platform sustained heavy damage and people suffered minor injuries. There was no environmental pollution.



The Denmark-flagged VOS STONE. Source: VROON (the owner)

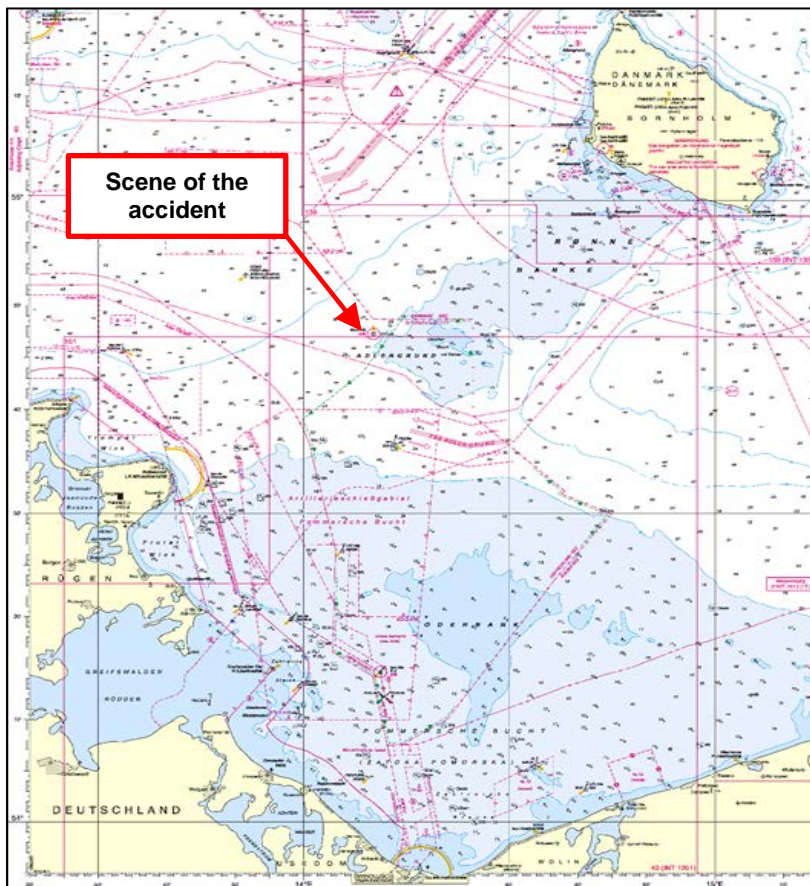
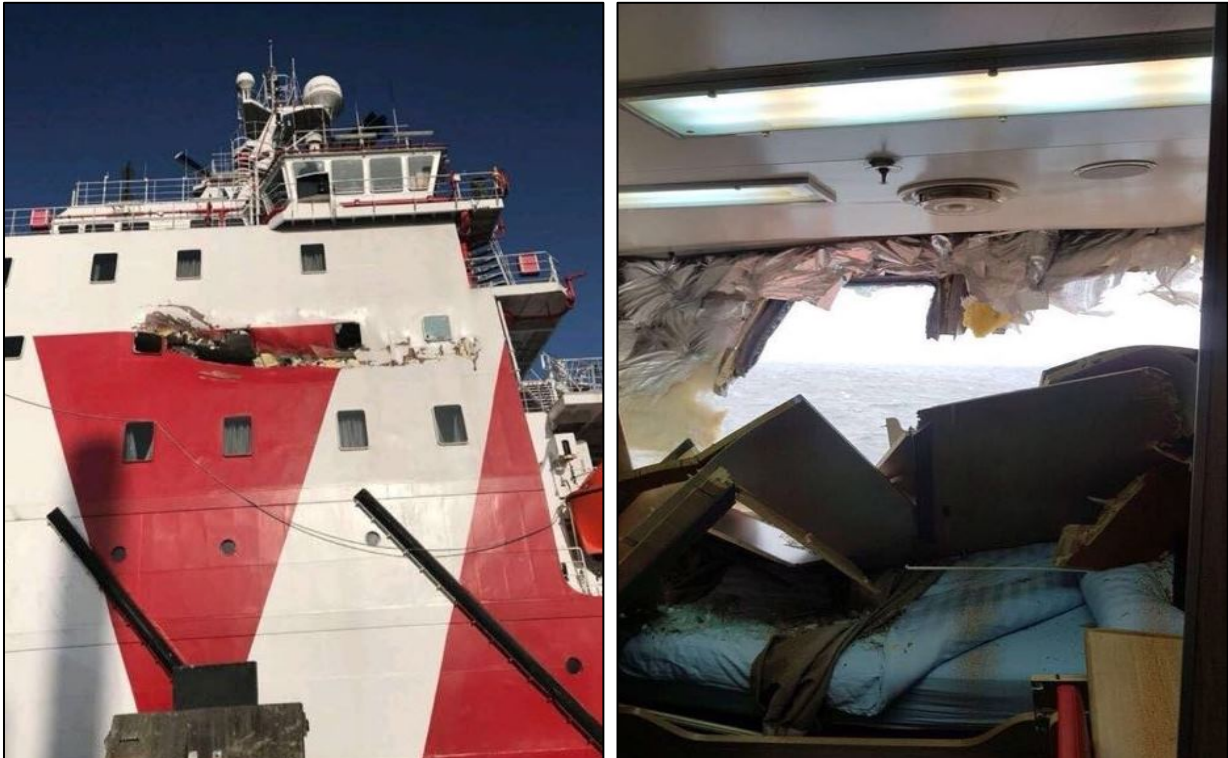


Chart showing the scene of the accident. Source: Navigational Chart 61, BSH

Due to deteriorating weather conditions, the ship collected fitters from TP AB01, a wind turbine under construction on the AOWF (also known as Arkona Becken Südost) in the Baltic Sea, where she was operating on behalf of VBMS and intended to leave the area again.

Just minutes after casting off, the master decided to test an emergency control system, which resulted in the loss of control of the ship. The wind and waves pushed the VOS STONE back against TP AB01. The chief officer regained control of the ship shortly before the collision but was unable to prevent it.



Damage to the VOS STONE after the first allision (shell plating torn open; cabin destroyed). Source: VBMS

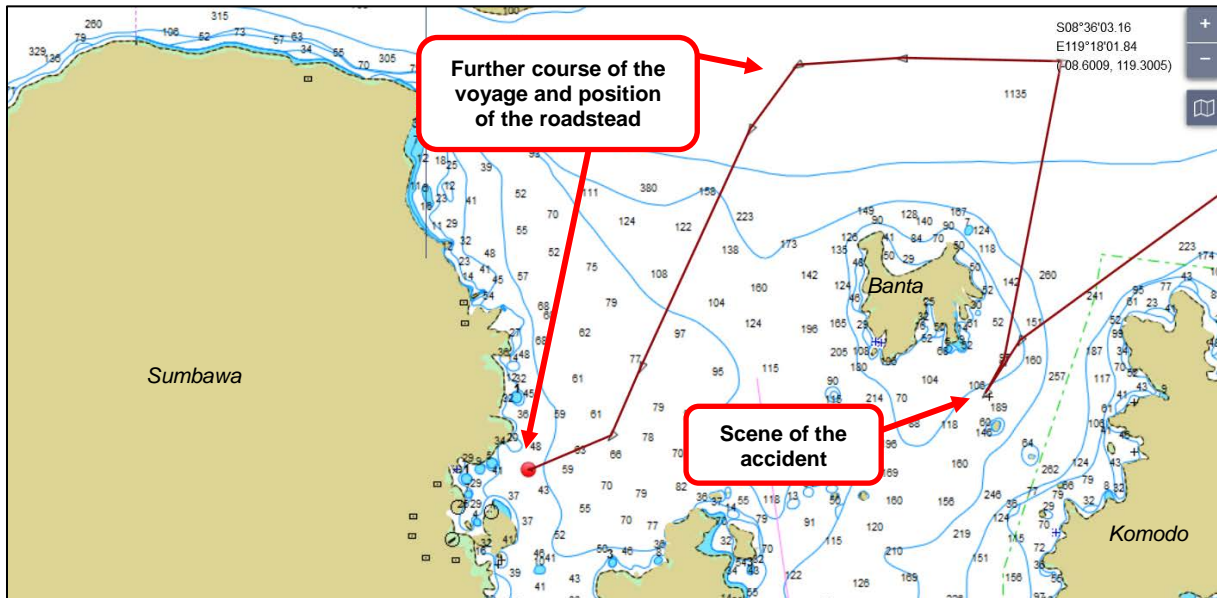
The platform sustained minor damage. Three crew members on board the VOS STONE suffered minor injuries as a result of the impact. The damage to the ship was so bad that she had to call at a shipyard.



Second allision: The loading crane rammed the platform. Source: VBMS

2.3 PAZIFIK – serious marine casualty

Another serious marine casualty occurred far away from home territory. The German-flagged liquefied gas tanker PAZIFIK sails in the waters between East Asia and Australia on a regular basis.



The scene of the accident and the further course of the voyage off the coast of Indonesia. Extract from Marine Traffic

The tanker (length: 205 m, breadth: 32 m) was en route from the Philippines to Australia on the morning of 9 July 2018 when she sailed onto a reef in Indonesian waters between the islands of *Komodo* and *Banta* and ran aground there. On 14 July 2018, the ship refloated with tug assistance after lightering ballast and the internal transfer of cargo and was towed to a roadstead off *Sumbawa*.



The PAZIFIK aground. Source: Owner

The PAZIFIK was subsequently towed to Singapore for damage assessment and repairs in a shipyard, where it was found that her underwater hull had suffered heavy damage and was

torn open over a length of 50 m. However, the cargo and fuel tanks remained undamaged, meaning there was no environmental pollution.



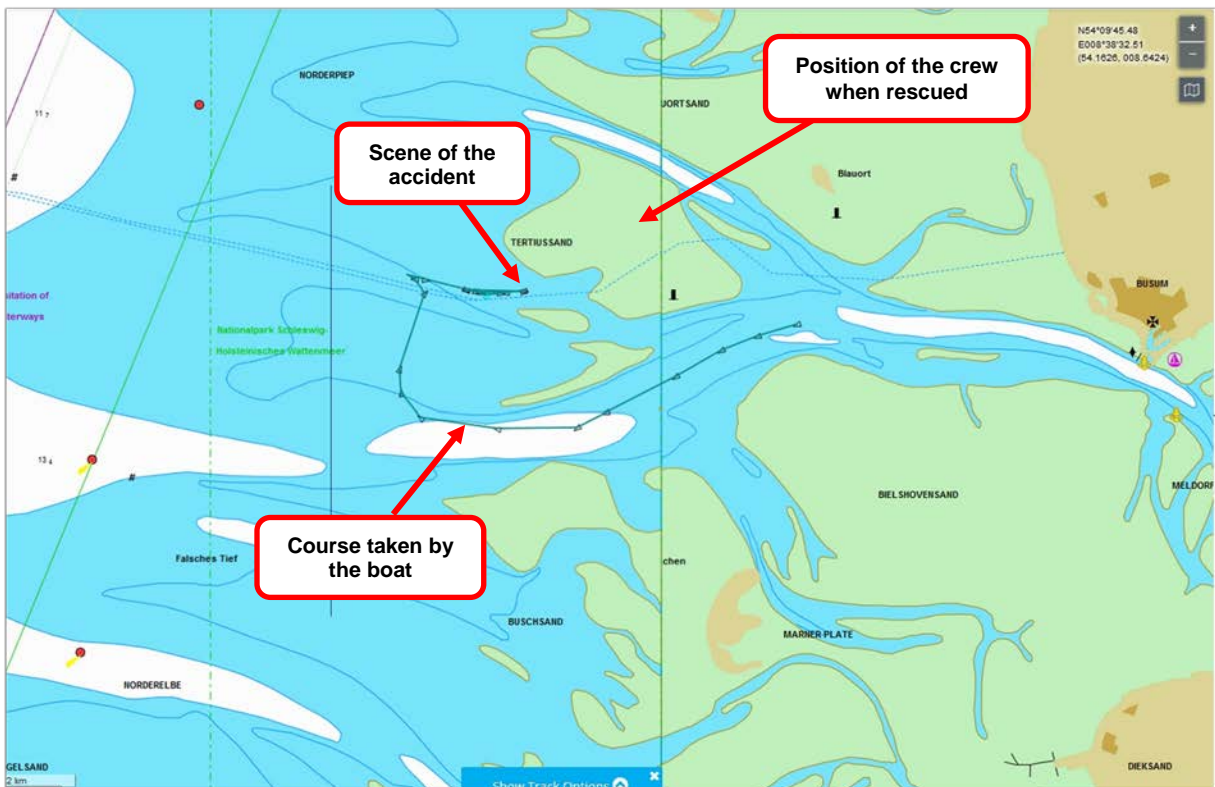
Heavy damage to the underwater hull found in the shipyard. Source: Owner

2.4 GEO PROFILER – very serious marine casualty

The next accident takes us back to Germany's coast. On 17 July 2018, the 7 m-long survey boat GEO PROFILER sailed into turbulent waters in the Wadden Sea off Büsum during a survey voyage for the offshore industry. The cause of this was a sudden increase in wind force from 4 Bft to 7 Bft. The crew was busy surveying and completely surprised. They discontinued their work immediately and started the return voyage without delay.



The survey boat GEO PROFILIER. Source: BSU



Course of the voyage, scene of the accident and position when rescued. Extract from Marine Traffic

Since the water had been receding for about 2.5 hours at this point, the boat was forced to contend with the steep sea that quickly developed. An outboard engine failed when a wave of about 2 m in height struck the stern. It was not possible to steer the boat in a controlled manner with only one engine and she broached, resulting in her taking on even more water. The second engine and on-board electronics then also failed. This led to the boat capsizing extremely quickly, making it impossible to send an emergency call. The crew members were only able to put on a life jacket or grab a lifebuoy. When it was found that the boat was missing at nightfall, a search and rescue operation was launched from several locations simultaneously. Rescue cruiser THEODOR STORM only sighted and rescued the two crew members on Tertius sand at about 1300 on the following day, however, where the crew members had drifted shortly beforehand. The water temperature stood at 20 °C. Both were rescued suffering from exposure and weakened but otherwise unharmed.



The GEO PROFILER is salvaged. Source: buoy tender TRITON

The boat was also salvaged virtually unharmed and repaired.

2.5 BALTIC BREEZE – serious marine casualty

The next investigation concerns the Singapore-flagged car carrier BALTIC BREEZE. The ship sailed out of the port of Drammen in Norway for Cuxhaven on 12 October 2018. She was proceeding to collect the pilot on the night of 14 October 2018 and had reached the south of Helgoland.



The BALTIC BREEZE at the pier in Cuxhaven. Source: BSU

At about 0200 in the morning, a fire broke out on board in the engine room, which was reported to the vessel traffic service immediately. A short while later the Central Command for Maritime Emergencies assumed overall control of the operation and ordered firefighters to proceed to the distressed vessel. The crew had already extinguished the fire using the ship's own equipment by the time the fire service had arrived. The ship was no longer under command and towed to Cuxhaven, where she was moored.

The BSU's investigators boarded the ship on the day after to begin the investigation. The engine room painted a picture of utter devastation. The trail of destruction left by the fire was fresh and still easy to see. The turbocharger showed signs of destruction reminiscent of an explosion.



The engine room after the fire. Signs of destruction on the turbocharger are clearly visible. Source: BSU

The turbocharger that caused the fire was removed for closer inspection. It was later decided that the ship would be scrapped due to the damage.

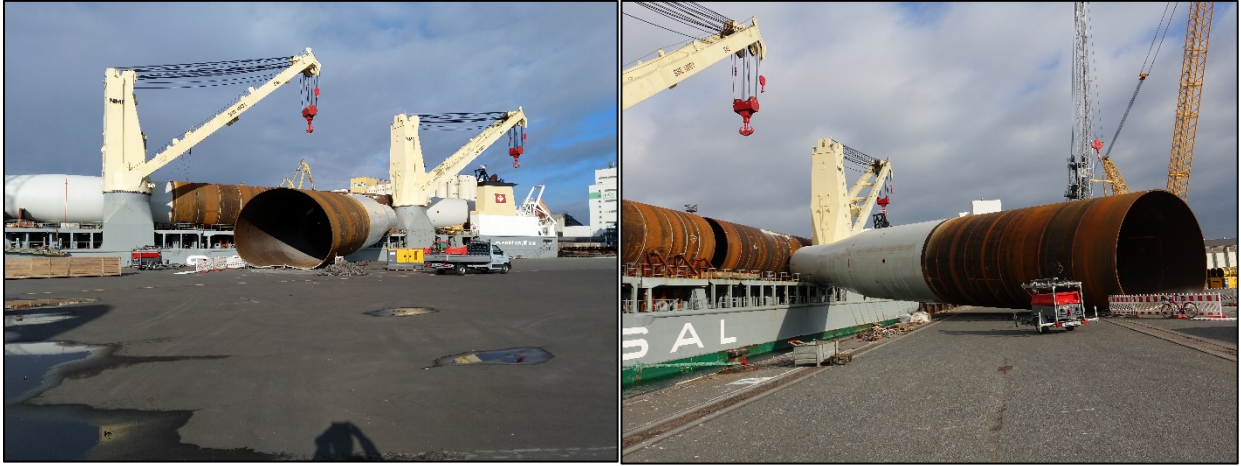
2.6 SVENJA – less serious marine casualty

The final accident to be discussed in greater detail in this annual report is of a slightly different nature because it occurred during a loading and unloading operation.



SVENJA transporting offshore wind turbine components. Source: Junge, Marine Traffic

The German-flagged heavy-lift cargo ship SVENJA was loaded with offshore wind turbine foundation piles in the international port of Rostock on 31 October 2018. She was headed for the 'Wikinger' wind farm, which is currently being constructed in the Baltic Sea. As the ship was being loaded using her own crane, a pile slipped out of the lifting unit and onto the deck of the ship and the pier. This pile and one that was already loaded were both damaged. The vibrations (the mass of one pile is almost 800 t) and ensuing violent movements on the ship resulted in three mooring lines parting. One person on board suffered minor injuries as a result. Other people ashore were able to move to safety in time and remained unharmed. The ship was pressed against the opposite side of the pier but only sustained minor damage. The damage ashore was also within reason.



The pile that slipped onto the pier damaged the ship and quay. Source: BSU



People ashore remained unharmed. Source: BSU

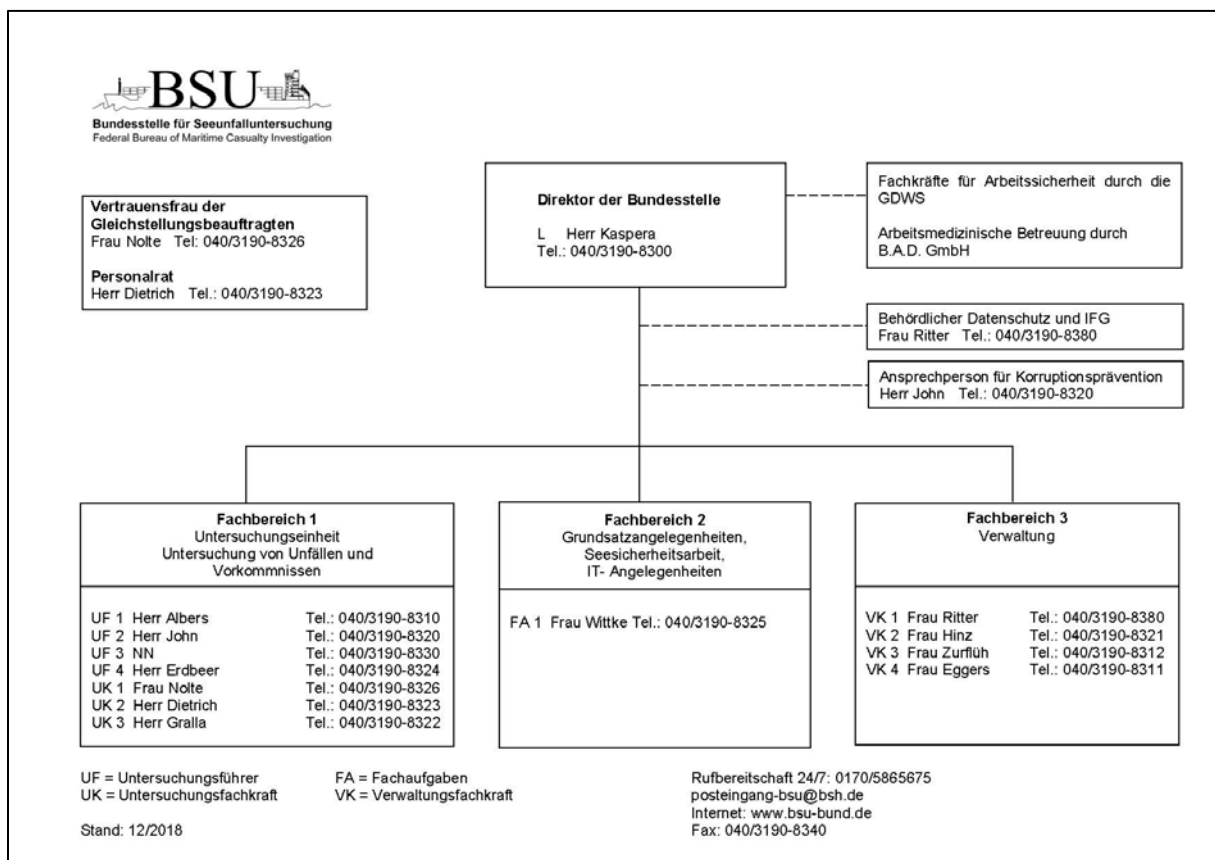
3. Organisation of the BSU

The BSU is managed by a director. He decides autonomously on whether an accident investigation should be initiated, or not. The director represents the BSU nationally and internationally and is also responsible for strategic planning and control, as well as for public relations.

The BSU is divided into three divisions. Despite the low headcount, the staff of the BSU have an extremely varied range of qualifications, which include shipbuilding, navigation, law, marine engineering and administration. In addition to the huge commitment with which staff members perform their duties, this diversity symbolises the work of the BSU and permits investigations based on comprehensive technical expertise.

3.1 The divisions

The BSU is divided into three divisions. There is a total of six civil servant posts and six salaried employee positions, some of which are filled part-time. Accordingly, the BSU was staffed by 13 people at the beginning of 2018. The staffing and structure were as follows on 31 December 2018:



BSU organisational chart at 31 December 2018

Division 1 – Marine Casualty Investigation –

Due to the retirement or absence of marine casualty investigation staff, 2018 was an especially challenging year for Division 1 in terms of staffing. Duties normally performed by seven investigators when all positions are filled had to be dealt with by only five staff members for long stretches. The BSU benefited from the fact that 2018 was a rather quiet year for accidents and that the SUG states that the decision as to which accidents should be investigated lies with the BSU itself. As a result, marine casualties and incidents could basically be dealt with very satisfactorily in principle, albeit on a smaller scale than usual. The processing of certain cases had to be put on hold, however.

An on-call service outside office hours is set up in Division 1. This means that investigators are available day and night and can visit the scene of an accident immediately if necessary. This can often pose a real organisational challenge at remote and/or inaccessible locations.

Division 2 – Technical Support for Marine Casualty Investigation –

The provision of technical support in the context of marine casualty investigations often poses a major challenge. Analysing and processing a wide variety of data read from the most varied of devices and software products requires extensive specialised knowledge, which the BSU can only make available from one post. In addition, the European Maritime Safety Agency (EMSA) database has to be administratively maintained. Due to the introduction of a new version of the European Marine Casualty Information Platform (EMCIP), various workshops and train-the-trainer courses were offered at EMSA in 2018. Staff of the BSU attended these and can now pass their knowledge on to other staff members.

Division 3 – Administration –

One focal point of the administrative work in 2018 was implementing the new data protection regulations. The European General Data Protection Regulation (GDPR) became fully effective on 25 May 2018 following a two-year transitional period and a new *Bundesdatenschutzgesetz (BDSG)* [German Data Protection Act] also entered into force. In particular, the responsible handling of personal data has always been a high priority and has always been guaranteed. Due to the introduction of the new data protection regulations, work processes had to be considered and adapted to accommodate the partly new data protection requirements at the BSU, too. The data protection statements and strategy were revised. Attention was also paid to the development of technical and organisational measures to ensure the continued enhanced protection of personal data. All staff members are made aware of this at regular intervals.

The working day of the four staff members of Division 3 was also dominated by other important administrative topics, such as procurement and finance, occupational health and safety, personnel support and training, as well as everything to do with recording accident notifications and publishing/sending investigation reports, safety recommendations and annual reports.

The position of representative of the equal opportunities officer was once more filled in 2018, meaning all the main representative positions that have to be involved in organisational and personnel decisions are now local again.

3.2 The budget

The performance of the BSU's duties also involves financial expenditure, of course. The BSU was allocated EUR 1,201,000 for the 2018 financial year. This was not required in full, however. Expenditure continues to centre on personnel costs, amounting to some EUR 787,000, and expenses incurred in the course of marine casualty investigations, amounting to EUR 52,000. Added to the above are travel costs of some EUR 20,000. Material administrative expenses were almost EUR 10,000 in 2018.

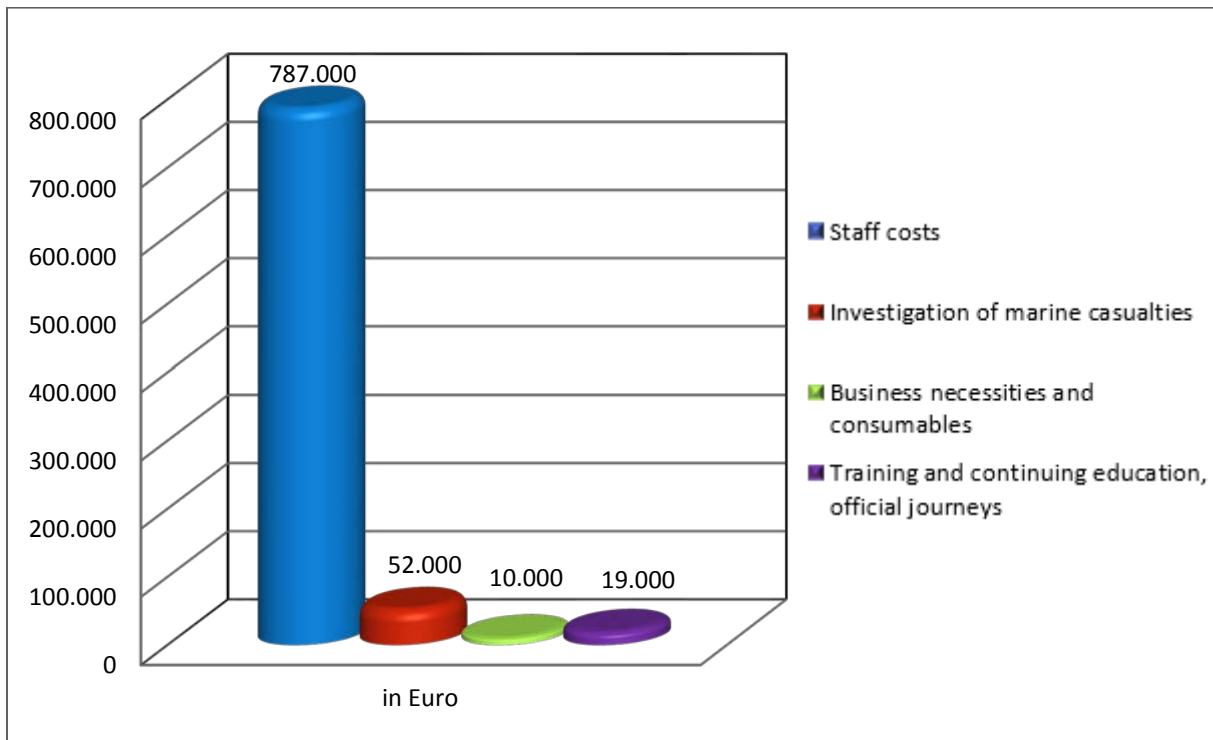


Chart illustrating the BSU's budget

While staff, training, continuing education, official journeys and material administrative expenditure is generally stable, it fluctuates considerably when it comes to marine casualty investigations. This is due to the question of how complex a marine casualty investigation is, e.g. whether external experts have to be engaged, whether evidence has to be recovered, etc.

4. Public relations

4.1 Publications

The work of the BSU is not the cause of much 'media hype' as a rule – not to mention the interest of the public at large. Even if there is no or only material damage, media interest (albeit normally local) increases when an accident happens on the doorstep, as it were. As a rule, unusual fatal accidents involving merchant shipping also receive special attention, while purely occupational accidents tend not to be of relevance to the press. Finally, provided they are actually investigated, dramatic accidents involving recreational yachts are addressed and commented on in trade publications, in particular. Once passenger ferries or even cruise ships are involved, media interest rises significantly, as can be seen from the foundering of the COSTA CONCORDIA in 2015, for example. Given the increased sensitivity to environmental issues throughout the population, the same applies to accidents on the German coast which result in marine pollution or in which there is a heightened risk of large-scale pollution, as demonstrated by the response to the accidents involving the GLORY AMSTERDAM in the autumn of 2017 and the MSC ZOE's loss of cargo at the turn of the year.

From the perspective of the BSU, this heightened interest is welcome given that the aim of an investigation is to make the findings for improving safety gained from it, which are reflected in the concluding safety recommendations, known to the widest possible audience. The benefits of an investigation arise not only from revealing gaps or deficiencies in safety simply to those directly concerned, but rather to every individual and agency interested in ship safety. Apart from reviewing the case in question, it is chiefly about preventing similar accidents and the related shortcomings in the future – in emergency management, for example. The conclusions of the BSU and above all the safety recommendations associated with them may and should be discussed as widely as possible, which is why we co-operate with the media to get our concerns and recommendations across to a wider audience.

Both Article 14 of Directive 2009/18/EC and Article 28 SUG stipulate that investigation reports and safety recommendations must be published. Actual publication is achieved through posting on the BSU's website, which is referred to in press releases. There is also a wide circle of interested parties to whom reports are sent regularly or on request. The BSU provides a newsletter for this purpose, which people can subscribe to on the website³. In addition, accident report summaries are publicised in German and English in the notices to mariners. Related articles also appear regularly in the THB (Täglicher Hafenbericht), a journal that is widely read in the shipping industry and thus reaches an audience potentially interested in marine casualty reports.

However, in view of existing legal regulations, the BSU can only provide general information on an accident, such as on the course of the accident or damage caused, until an investigation has been concluded with a report. Admittedly unsatisfactory vis-à-vis the members of the public concerned, this situation stems from the nature of marine casualty investigations. Since it concerns an investigation that must ignore questions of fault and liability, and where all parties involved must be given the opportunity to comment before its conclusion, detailed information on the cause of an accident or the factors facilitating it cannot be published beforehand.

³ https://www.bsu-bund.de/DE/Aktuelles/Newsletter/Newsletter_node.html.

4.2 Demonstration

The year 2018 also held a genuine novelty in store. For the first time in its history, there was a demonstration against an investigation report of the BSU in front of the office building.

We ought to say a few words about this in advance. An investigation procedure is not an administrative procedure in the formal sense. Although it does have the framework of an administrative procedure to some degree, the objective is an independent investigation that concludes with safety recommendations rather than an administrative act or contract under public law, meaning it is a sui generis procedure, which has elements of administrative procedure, criminal procedure and expert opinion. The investigation procedure is concluded with the publication of the report. All this is regulated in detail in the SUG. The right of appeal against parts or all of a report is not provided for. A reopening of the proceedings and thus subsequent amendment of a published investigation report if needed is only possible when new material evidence comes to light, which makes a reappraisal of events necessary, after completion of an investigation. An application for reopening proceedings can be made at the earliest six months after the publication of a report. If a person or body does not agree with the BSU's assessment of a fact or legislation, it is only possible to assert this before publication of the report in a statement made during the consultation period, and then only if this person or body is a stakeholder and as such has received the draft report. All others are excluded. The lack of a right of appeal against an investigation report is logical and closely linked with the purpose of a non-partisan safety investigation, which could not be achieved in the event of judicial vulnerability. Accordingly, an appeal cannot be lodged against investigation reports of the BSU. So much for the preamble and back to the event.



The demonstrators get ready. Source: BSU

The demonstration is due to the BSU's investigation report on the collision of the steam icebreaker STETTIN and ferry FINNSKY published in August.⁴ The assessments of the BSU and ensuing safety recommendations did not always meet with unanimous approval but rather were the subject of lively debate, some of which was quite intense and most of which was conducted on online social media platforms. The report was also the subject of varying news coverage in conventional media, such as the press, radio and TV, and was also dealt with in relevant trade publications and committees.

The steam icebreaker's operating association did not believe its side had been sufficiently acknowledged in the report and decided to hold a demonstration in front of the office building in order to draw attention to its view of events after correspondence with the BSU with a view to having the report changed failed to bear fruit. Accordingly, some 30 people gathered in front of the BSH office building on the morning of 7 September 2018. Signs were held up, slogans were shouted and whistles were blown. The police attended.

⁴ See page 12 of the 2017 Annual Report.



The operating association expresses its concerns. Source: Bild newspaper

The actual demonstration lasted about one hour and was extremely peaceful. The conversation between the spokesperson of the demonstrators and the director of the BSU upon the delivery of an open letter was also respectful. Questions were posed and answered.

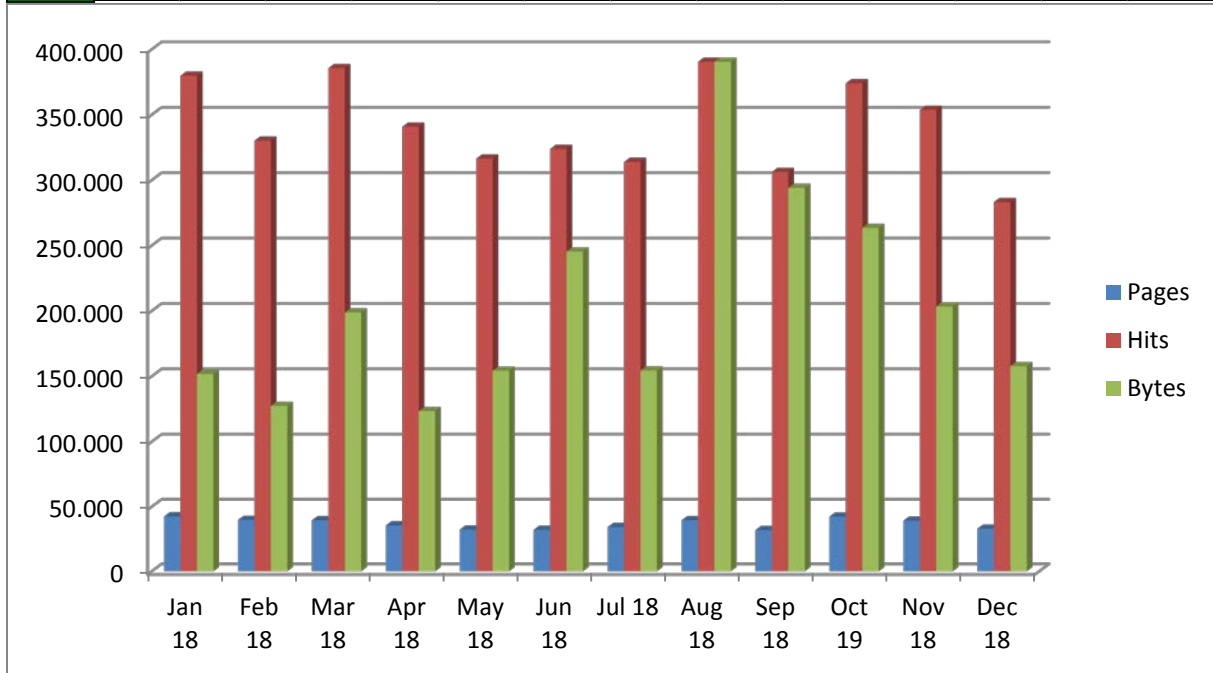
Of course, the BSU cannot and must not change an investigation report subsequently because one of the interested parties has a dissenting opinion. There is neither a legal means of doing this nor was there any reason to. One can certainly argue about the way displeasure is expressed or about one or the other technical papers. That a BSU report triggers such a wave of debate is basically positive, however. The BSU can only recommend measures for increasing safety. Deciding on them is the responsibility of others – and this usually only happens in the wake of an exchange of views. Discussion is therefore a necessary part of increasing safety.

4.3 The BSU's website

Among other things, the BSU's website offers visitors the opportunity to obtain information on the activities and structure of the BSU, the historical development of marine casualty investigation, as well as the legal foundation. Visitors are also able to subscribe to the BSU's newsletter there. Of even greater interest will certainly be that every accident report and safety recommendation published since the BSU was founded can be viewed on the website. This information is usually fully or for the most part accessible to people with disabilities.

As mentioned above, public interest in the accident reports of the BSU varies greatly. This is clearly visible from the webpages opened and corresponding downloads. The below graph shows the number of pages and hits, as well as the volume of bytes downloaded per hit.

Month	Jan 18	Feb 18	Mar 18	Apr 18	Mai 18	Jun 18	Jul 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18	total
Pages	42.405	39.718	39.444	35.452	32.233	32.047	34.169	39.427	31.874	42.298	39.103	32.902	441.072
Hits	379.790	330.083	385.597	340.790	316.363	323.811	313.886	390.467	306.241	374.069	353.686	283.194	4.097.977
Bytes	42,3	35,48	55,4	34,38	43	68,42	43,04	108,85	81,97	73,42	56,66	43,98	686,9



This summary once more highlights the public interest in the STETTIN/FINNSKY report. The report was published in early August 2018 – the month in which by far the most content was downloaded.

4.4 Lectures, training, miscellaneous

The numerous events that staff of the BSU attend as experts, where they contribute to a lively exchange of experience with lectures and their specialist knowledge, should not go unmentioned in this section. In addition to the conferences discussed in the section on 'International', the BSU's experts are also called upon to give presentations or to contribute their expertise in panel discussions at national events on ship safety. These include such diverse events as the German Council on Jurisdiction in Traffic, the Maritime Safety Committee, as well as training courses at the Waterway Police Academy or at the pilot associations, at which the excellent co-operation between everyone involved is intensified. Although many of these events are not open to the general public, they do have an impact on it through the decisions and recommendations made there. Staff members of the BSU gave 16 different lectures in 2018, six of them on an international stage.

The BSU's expertise is also called for internally. For example, one of the BSU's experts participates in the working group on occupational safety of the Federal Waterways and Shipping Administration. The aim here is to improve safety requirements for work on public authority ships, floating equipment or in ports.

5. International

Maritime shipping has always been and remains a predominantly international business. The same applies to marine casualty investigation. Although each flag and coastal State generally has its own investigating authority, international interdependence not only makes co-operation necessary and beneficial, it is also an international requirement. For example, investigations concerning different countries (e.g. flag State on the one hand and coastal State on the other) involve close co-operation between the respective authorities. This can range from simply assisting with data collection to a joint investigation.

Influenced by this international character and based on the common international legal standards, a working relationship that reaches beyond accident investigation and is marked by the spirit of co-operation has developed with other countries, which is reflected in joint fora, workshops or political bodies. More than just exchanging experience or harmonising investigative activities, the aim is also to develop proposals for new safety regulations, the need for which arises from the accidents investigated, which are then addressed within the IMO based in London, UK. The Marine Accident Investigators' International Forum (MAIIF) and its European regional forum the European Marine Accident Investigators' Forum (EMAIF) are particularly noteworthy here. Close contact is also maintained with the Lisbon-based EMSA.

The BSU sends its experts to the respective bodies and committees to contribute the experience gained in Germany.

5.1 IMO – III

Experts from the BSU participated in the German delegation to the III (Implementation of IMO Instruments) Sub-Committee at the International Maritime Organisation in London again in 2018, first and foremost in the Casualty Analysis Working Group. This year once more saw the Working Group focus on the future organisation of lessons learnt and the analysis procedure – with the difference that this time consensus was found and also recognised in the Sub-Committee's plenary session. The most important and for external stakeholders visible change will be that the country carrying out the investigation will publish the lessons learnt going forward. Lessons learnt can be interpreted as safety instructions for the general public, which can be gained from an accident investigation. In the future, the BSU will set up a separate category on its website, where it will publish such safety instructions.

5.2 EMAIF and MAIIF

The marine casualty investigation authorities assembled in the usual manner again and shared information on the latest developments and findings in 2018.

The **EMAIF** meeting of the European authorities was held in Reykjavik, Iceland, this year. Representatives of 24 European countries, as well as guests from European institutions (e.g. the EU Commission and EMSA), as well as from Canada, the United States, Marshall Islands and Antigua & Barbuda attended. The safety of fishing vessels, where accident figures at European level (those with a fatal outcome, in particular) have more or less stayed consistently high for years, was once more a key issue this year. Increased safety in this area cannot be achieved with improved equipment alone, but rather safety regulations must be stepped up and the attitude of the actual fishermen must also change – the path ahead is long and arduous. The second focus was on visualising or improving the accessibility of accident reports to the public in order to raise awareness of the work of the investigating authorities. Short films with depictions of an accident on internet platforms, participation of the authorities on Twitter, Facebook, etc. or press conferences for the presentation of new

reports were put forward here, for example. The BSU is currently focusing on the latter option.

TSIB Singapore hosted the annual international forum of marine casualty investigation authorities, **MAIF**, this year. Representatives of 31 member countries were present, as were guests from international organisations like the IMO, IACS (International Association of Classification Societies) and IMPA (International Maritime Pilots' Association). It was pleasing to note that countries from Southeast Asia that do not yet operate within the auspices of the MAIF, such as Indonesia, Vietnam and Malaysia, attended for the first time as guests. It is important to explain two of the main topics in greater detail:

- A meeting on ongoing investigations was held for the first time at the MAIF. This involved the investigating country presenting the status quo and progress of an accident investigation. The investigators failed to make any progress at certain points and the audience was asked for its technical assessment or advice. Since it was possible to draw on a wealth of experience and find similarities to older cases, this approach proved to be successful immediately and will be continued.
- After lively debate, the representatives present decided that the MAIF should call on the IMO to revise the *Casualty Investigation Code* (MSC.255/84), which sets the international legal basis and standard for marine casualty investigations. It is now ten years since the Code entered into force and sufficient experience has been gained to make a revision of some of its provisions seem appropriate. To this end, a working group was set up to prepare a draft for the next III Sub-Committee meeting in the summer of 2019. The BSU will be making a contribution here.

In addition to the thematic points, there were also changes in personnel at the MAIF. Present for the last time, some members of the first hour were set to embark on a well-deserved retirement, e.g. representatives of France, New Zealand and Germany. Finally, the long-standing general secretary, Nick Beer, who has played a major role in shaping the MAIF with his enormous experience, his pronounced technical knowledge and his diplomacy is also worthy of mention. Staff changes also affected other areas this year. The chair of the MAIF, Marc-André Poisson, is also retiring and Lianne van de Veen from the Netherlands, the hitherto deputy, has been elected as his successor. Elisabeth Juel from Norway successfully applied for her position when it became vacant. This gives the otherwise very male-dominated forum a modern touch.

5.3 EMSA

The EMSA continued to be extremely active in 2018. In addition to workshops and working groups focusing on ship safety, firefighting on ro-ro passenger ships, accident investigation and personal interviews, etc., which experts from the BSU also attended, the main topic was the rollout of the completely revised **EMCIP** database. Even though the launch was accompanied by numerous teething problems right at the beginning, the benefits of the new version quickly became apparent. Rather than just being a database, it is now increasingly becoming a user-friendly tool that provides an excellent means of analysis due to the numerous input and evaluation methods. The new database was released in the summer of 2018 and the BSU has been working with this tool since then.



The offices of EMSA in Lisbon, Portugal. Source: sea-alarm.org

The 8th **PCF** (Permanent Co-operation Framework) meeting of EU Member States was held in July. While the MAIIF and EMAIIF forums discussed above focus on practical work and sharing experience, the PCF is more concerned with the legal framework and procedures within the EU. One of this year's focal points was the legal framework associated with the introduction of the new EMCIP (input requirements, procedures for data exchange, etc.). Another topic was co-operation between the PCF and HELCOM (Baltic Marine Environment Protection Commission), which so far has entailed considerable duplication for member countries of each organisation. A good solution has been developed here and is currently being implemented.

The PCF also had personnel issues to address in 2018. The hitherto chair, Steve Clinch from the United Kingdom, has resigned for reasons of age. Jonas Bäckstrand from Sweden was elected as his successor. Ron Damstra from the Netherlands was confirmed as deputy. Representatives of the United Kingdom bid farewell because it was not certain (and remains so at the time of preparing this annual report) whether the PCF will be able to welcome its representatives as a member in 2019. Allow us to make a personal interjection at this point: One can think what one will about BREXIT. For marine casualty investigations at European level its effect will be hugely debilitating. This is not only due to our dependable, amiable and technically highly experienced colleagues from the British Isles. Above all, it is due to the fact that as a seafaring nation the United Kingdom has a particular interest in marine casualty investigation, which has enormous political significance. This is reflected in the excellent material and human resources, as well as in the expertise of the MAIB (Marine Accident Investigation Branch). Other countries, including Germany, can only look on with admiration and perhaps a degree of envy. We are pleased to report that co-operation in other committees, such as the MAIIF or EMAIIF, will be continued.

6. Statistics

6.1 General information and explanatory notes

This statistics section first requires a number of explanations.

Article 1a SUG defines the term 'marine casualty' as being any event that has at least one of the following consequences:

- the death or serious injury of a person caused by or in connection with the operation of a ship;
- the disappearance of a person on board a ship caused by or in connection with the operation of a ship;
- the loss, presumed loss or abandonment of a ship;
- material damage to a ship;
- the grounding or constructive total loss of a ship or the involvement of a ship in a collision;
- material damage caused by or in connection with the operation of a ship;
- environmental pollution resulting from damage to one or more ships caused by or in connection with the operation of one or more ships,

and any event caused by or in connection with the operation of a ship that poses a risk to a ship or a person or the consequences of which could cause serious damage to a ship, an offshore structure or the environment (incident, Article 1b SUG).

Depending on the consequences, German law states that the generic term 'marine casualty' be divided further into

very serious marine casualty (VSMC)

Fatality, constructive total loss of a ship or an accident with substantial environmental pollution.

serious marine casualty (SMC)

Marine casualty not classified as a VSMC, which includes but is not limited to

- the failure of the main engine;
- substantial damage to the accommodation spaces;
- serious damage to the ship's structure;
- a leak in the underwater shell plating with which the ship becomes unseaworthy;
- pollution, regardless of the volume of pollutants released, and/or
- an accident that necessitates towing or shore-based assistance.

less serious marine casualty (LSMC)

Any marine casualty not classified as a VSMC, SMC or incident (as defined above).

incident (as defined above).

With regard to 'incident', there is a discrepancy between German law, on the one hand, and the internationally applicable regulations of the IMO and EU, on the other. Although the definition of 'incident' is similar in the international regulations, the wording is not identical. Beyond that, and more important in terms of practice, an 'incident' is not the same as a marine casualty according to international rules, while the SUG deems it a sub-category of a marine casualty.

This discussion is not just purely academic. In particular, the aforementioned definitions are of significance because they apply throughout Europe and form the basis for entries in the European marine casualty database, EMCIP, and for the IMO database, GISIS. Incidents are not stored there as marine casualties, while this is the case with the German database. This explains the discrepancy between the corresponding statistics.

Accidents or incidents involving only recreational yachts or small fishing vessels are not recorded in Europe. Since there is still a requirement to report such accidents, the BSU maintains an internal database for this purpose. Moreover, the law does not apply to inland waterway vessels, ships of war, troop ships and other ships owned or operated by Germany's federal or state governments and used only on government non-commercial service.

As a consequence of that, the BSU not only attends to the EMCIP and GISIS databases in accordance with international legislation, but also/additionally has its own (simplified) internal database to maintain. This occasionally leads to discrepancies.

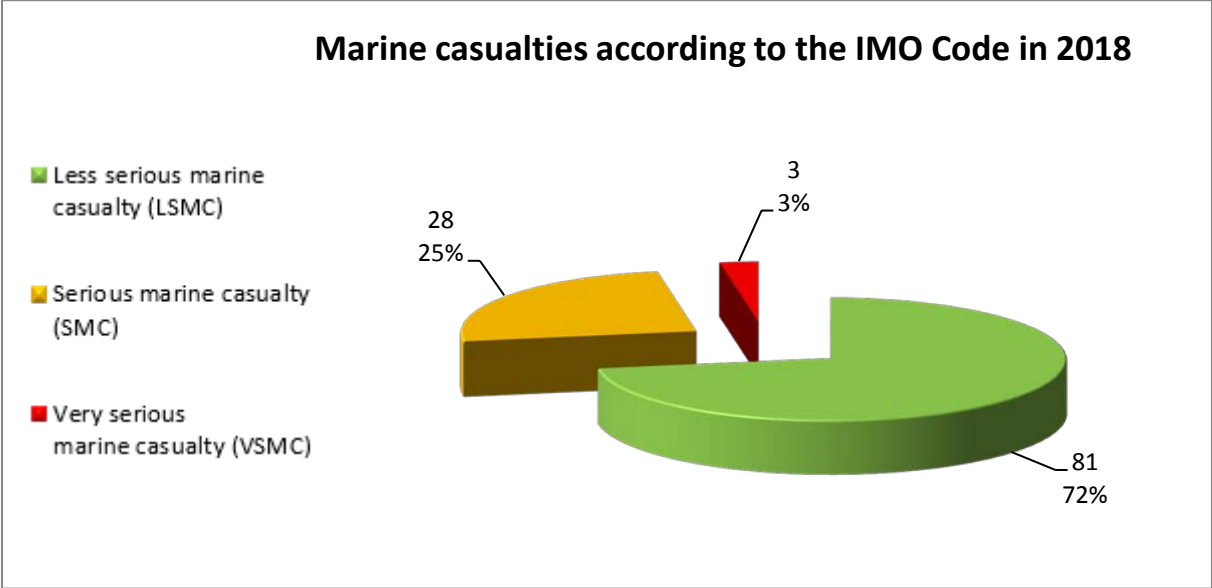
Although **other casualties (OCs)** are marine casualties, they do not fall under the scope of international or national regulations, specifically Article 1(3) SUG cases. They primarily concern accidents that only involve recreational yachts used for non-commercial reasons, as well as navy or other government ships.

The **non-casualty (NC)** category encompasses any other report that does not concern a marine casualty, e.g. accidents involving vessels for inland navigation on inland waterways, or passengers on ferries or cruise ships and crew members in general falling ill.

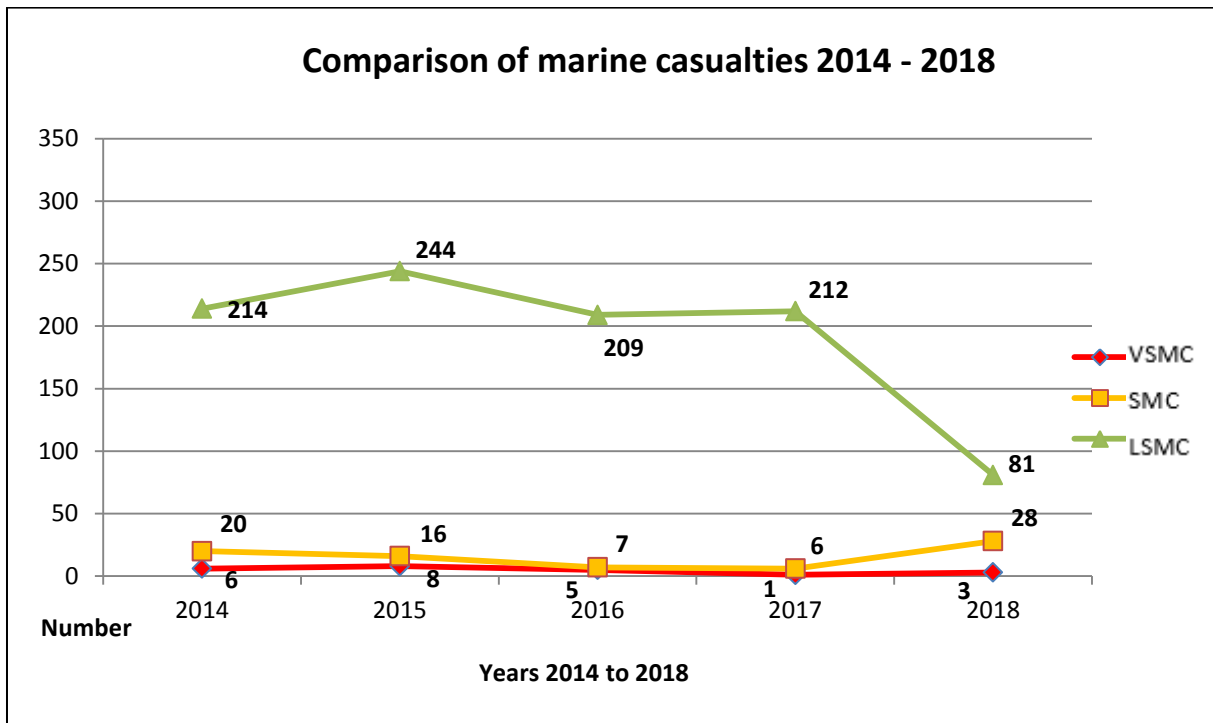
The **total number of reports** has increased by more than 10% year-on-year (516 in 2017 compared to 577 in 2018). The main reason for this seems to be the increased awareness of hazards which on closer examination are not cases of relevance to the BSU or SUG. The number of reports classified as NC has almost doubled (from 55 to 105). This increase alone nearly accounts for the increase in global reporting.



The figures have changed considerably in the categories of international significance: incident, LSMC, SMC and VSMC. There was a sharp decrease in the number of LSMCs but a sharp increase in the number of incidents and VSMCs. The reason for this is a change in the classifications based on international regulations, in particular IMO Resolution MSC.255(84). Accordingly, only a collision between two ships is regarded as a LSMC. Allisions between a ship and an immovable structure (especially ashore) are only classified as a LSMC when the damage is substantial. Damage beneath the materiality threshold is regarded as an incident. However, the will of the international community is such that a SMC always exists when an accident necessitates shore-based assistance, i.e. simply if a tug had to pull a distressed vessel that had grounded after an engine failure back into the fairway. Even if this leads to somewhat peculiar results at times, the BSU applies the international rules of classification accordingly. The statistics presented here and below are therefore based solely on the international systems and definitions.

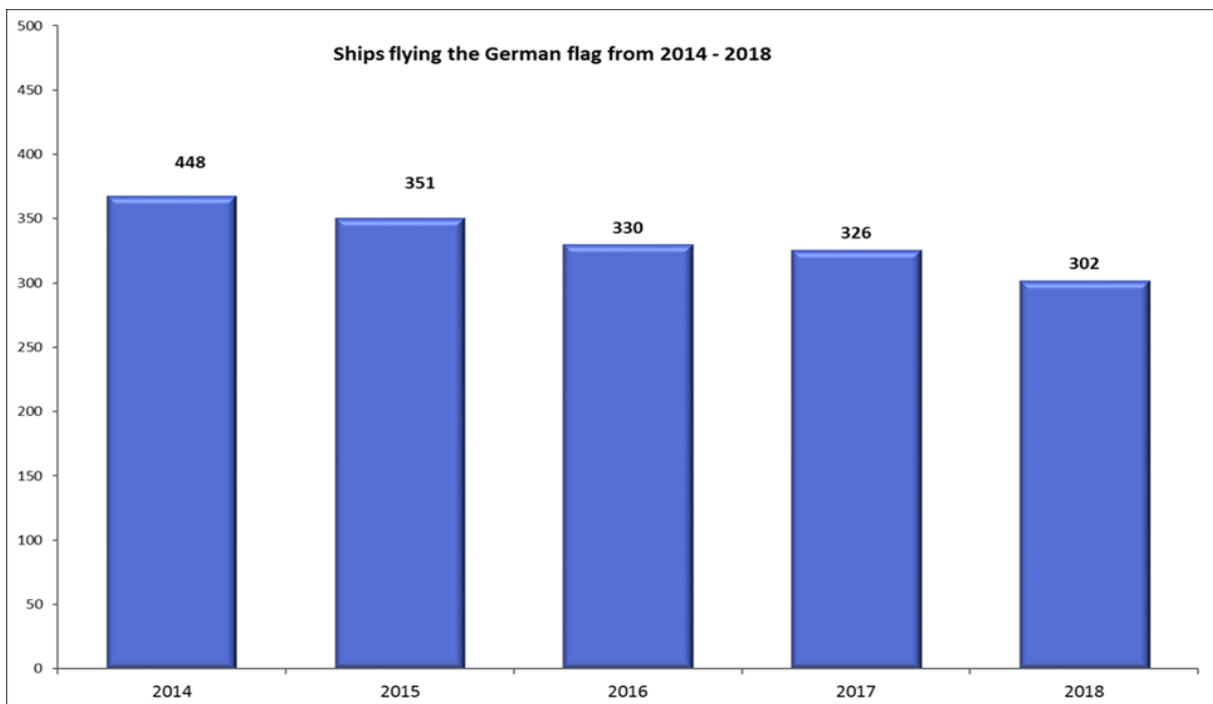


The following table summarises the trend over the past five years. Since the classification rules are now applied purely according to international rules going forward, comparability with previous years is difficult to establish.



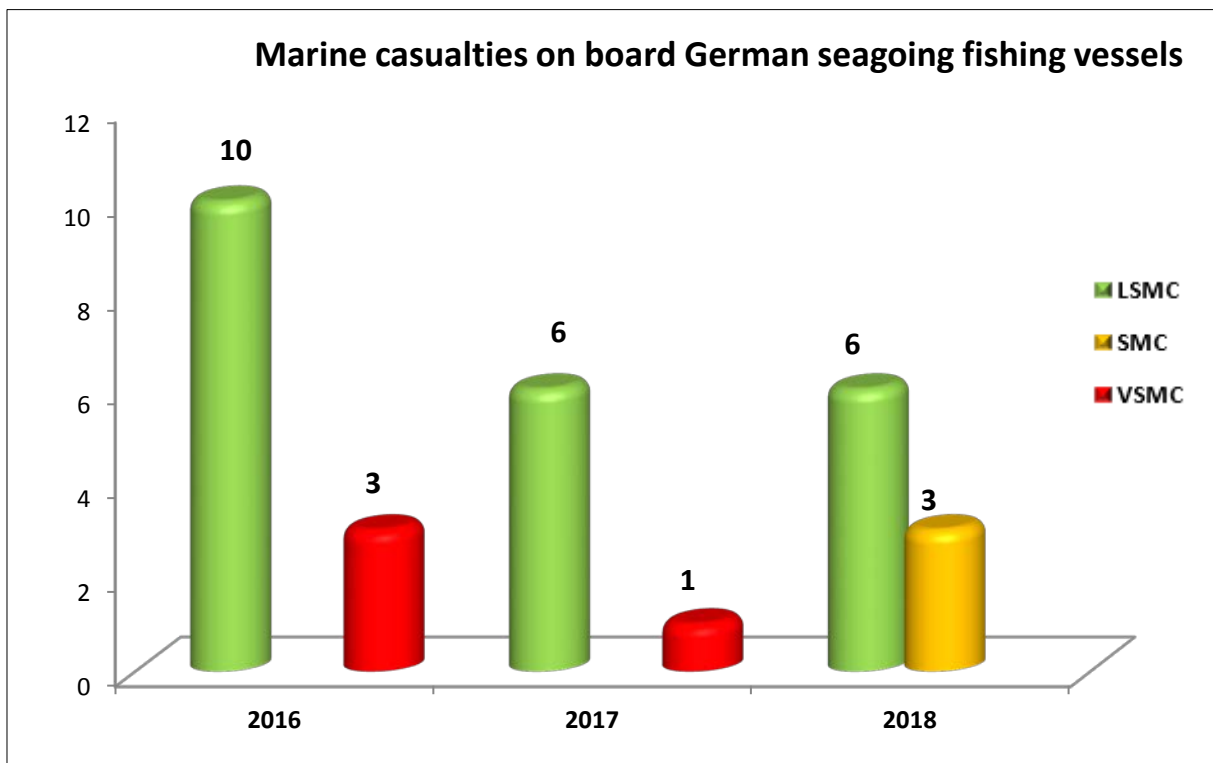
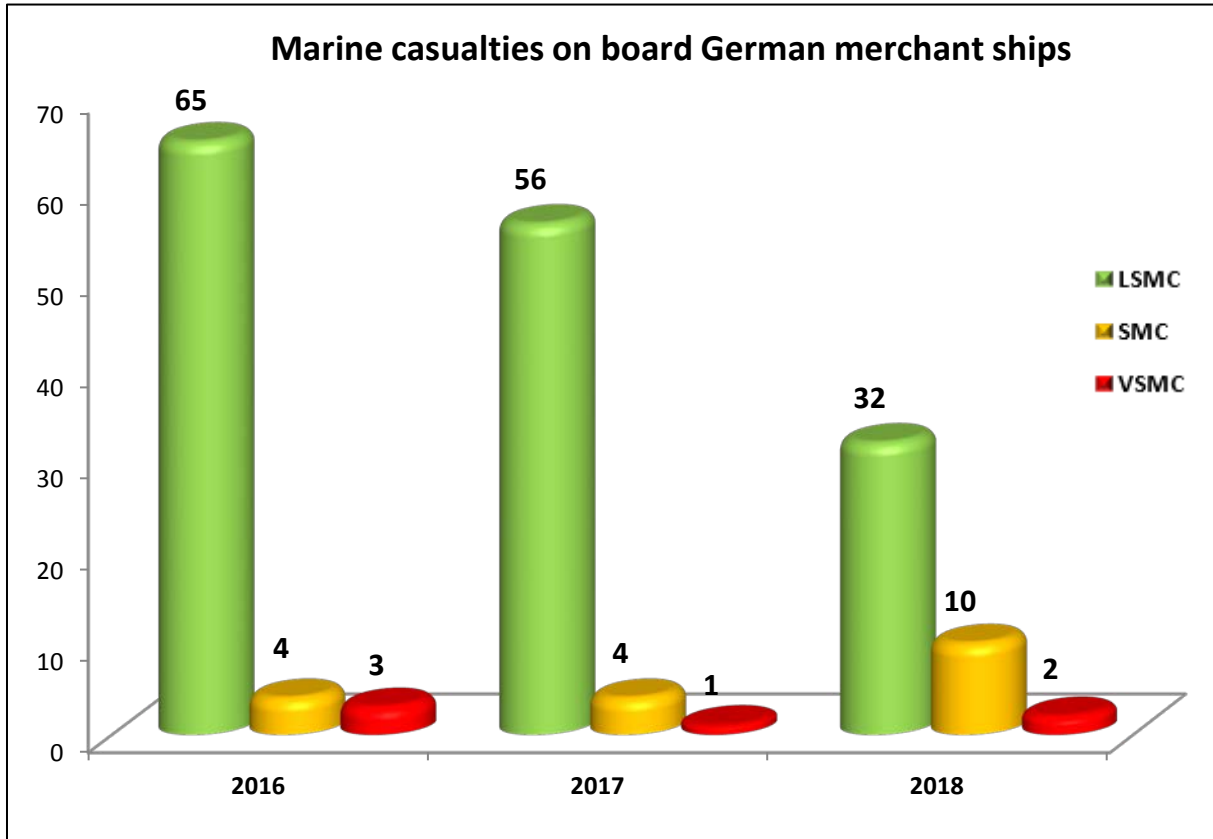
6.2 Ships flying the German flag⁵

The number of merchant ships registered under German flag once more fell to a greater extent than last year in 2018. Only 302 merchant ships now fly the German flag. Unfortunately, Germany's merchant fleet is still on a downward trend.



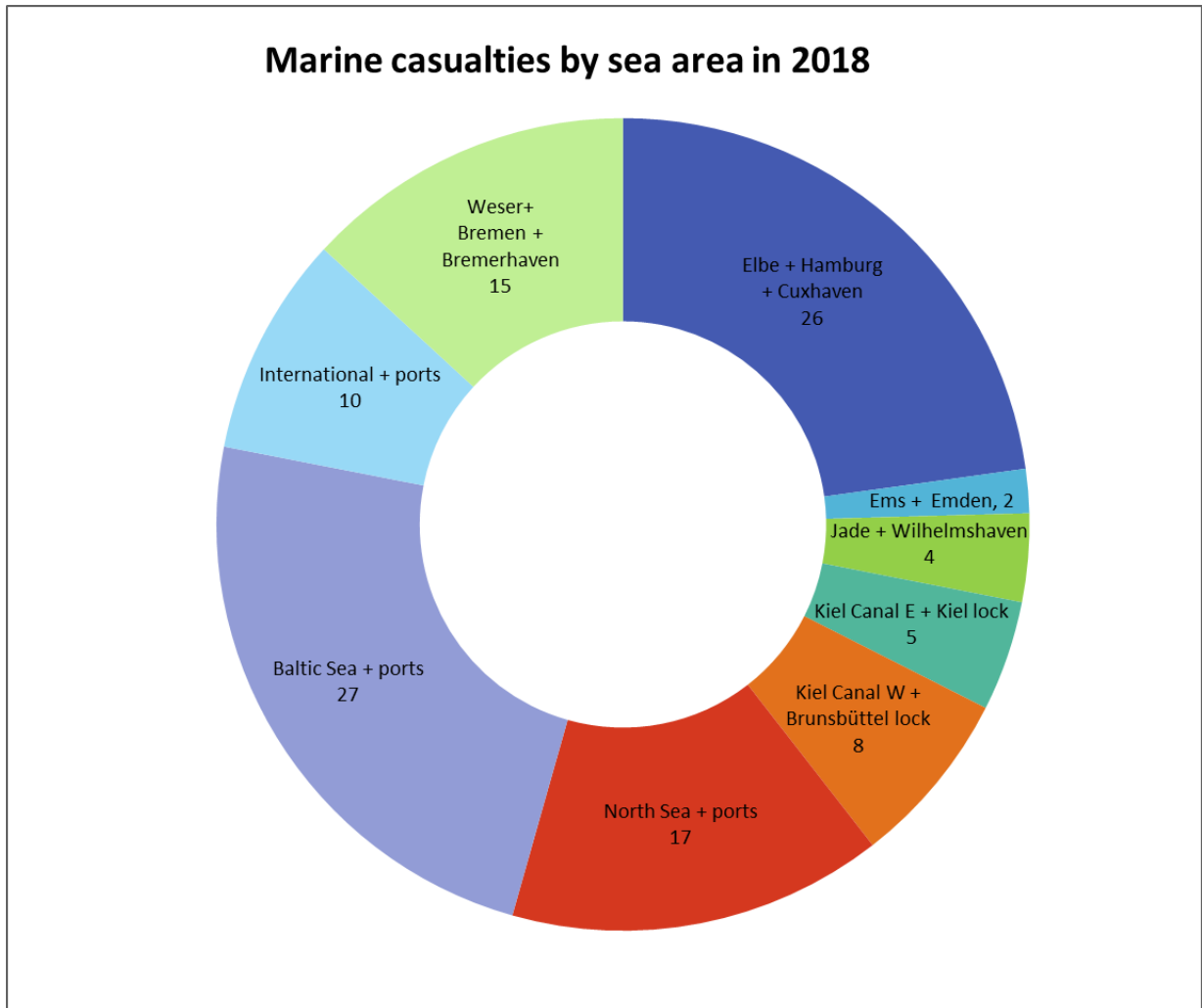
⁵ Source: Federal Maritime and Hydrographic Agency.

Overall, fewer marine casualties occurred on merchant ships and fishing vessels flying the German flag in 2018 than in the two years previous. As explained, this is caused by the revised classification of incidents, however.



6.3 Distribution of marine casualties by sea area

The distribution of accidents (LSMC and above) within German sea areas has remained virtually unchanged. Areas with the highest volume of traffic (Elbe from Cuxhaven to Hamburg) are also the sea areas with the highest accident figures in 2018, as reflected by the second presentation on the chart, in particular. The figures indicate that accidents on the Kiel Canal are declining in 2018, which to a large extent is also due to the revised classification, however.

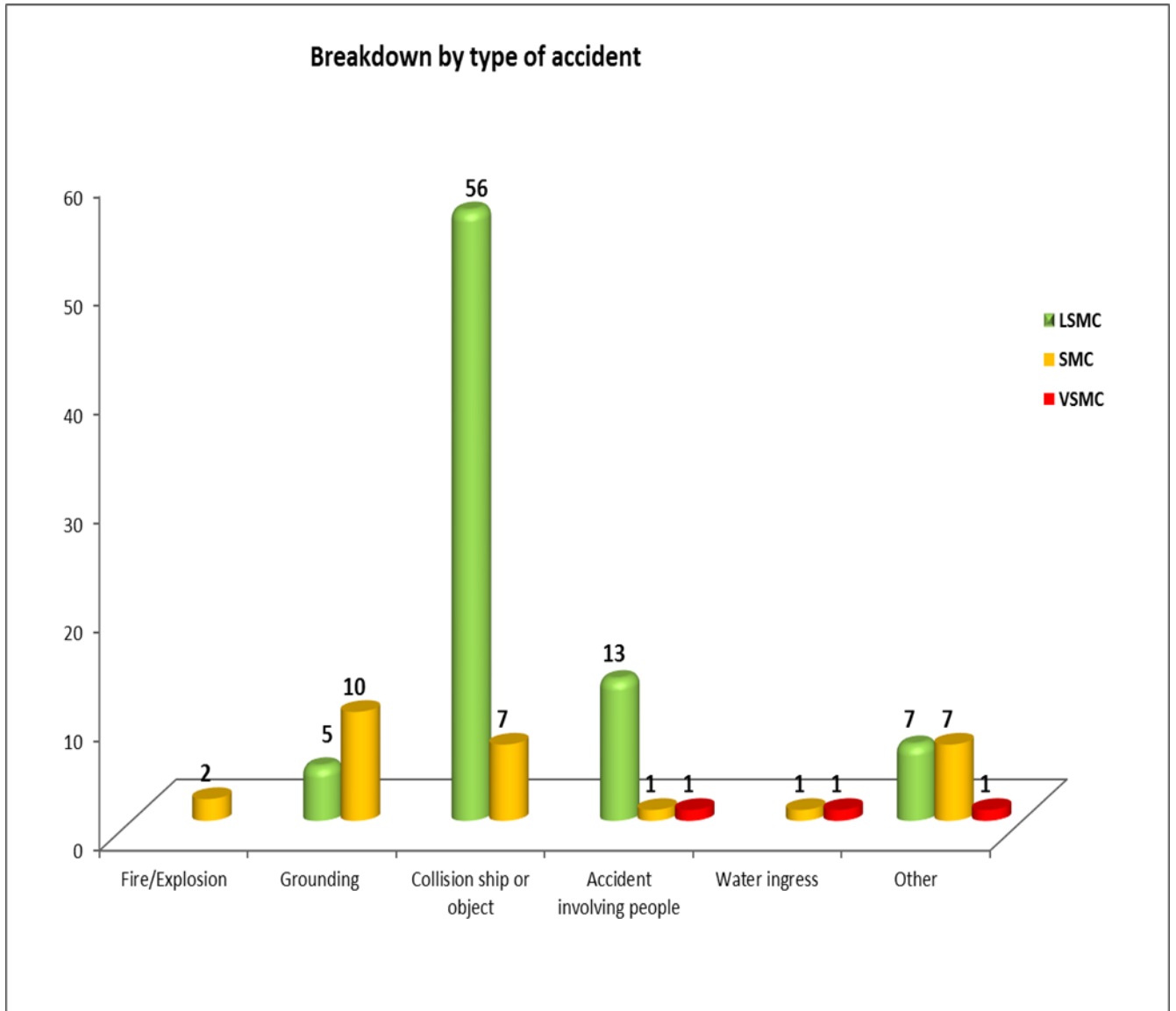


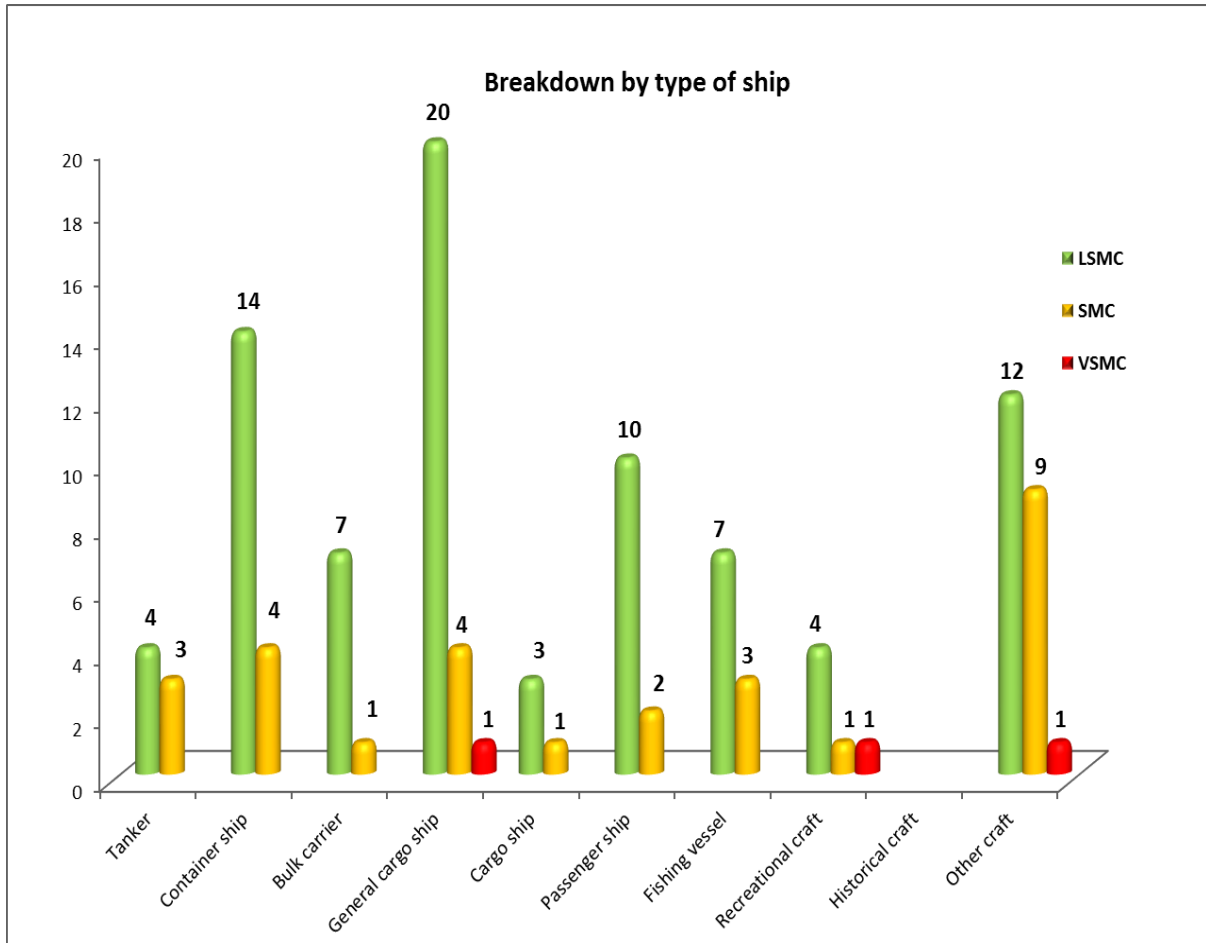


6.4 Distribution of marine casualties by type of accident and type of ship

There were differences to the figures for 2017 in the distribution of accidents by type of accident and type of ship. As stated above, the LSMC figures for so-called contacts, i.e. allisions with immovable structures, have decreased. At the same time, the SMC figures have increased due to the quite frequent use of tug assistance.

As regards the type of ship, it should also be pointed out that 'Other' includes seagoing ships covered by the SUG that have yet to be mentioned, e.g. tugs, pilot boats and offshore supply vessels.





6.5 Investigation of accidents involving recreational yachts by the BSU

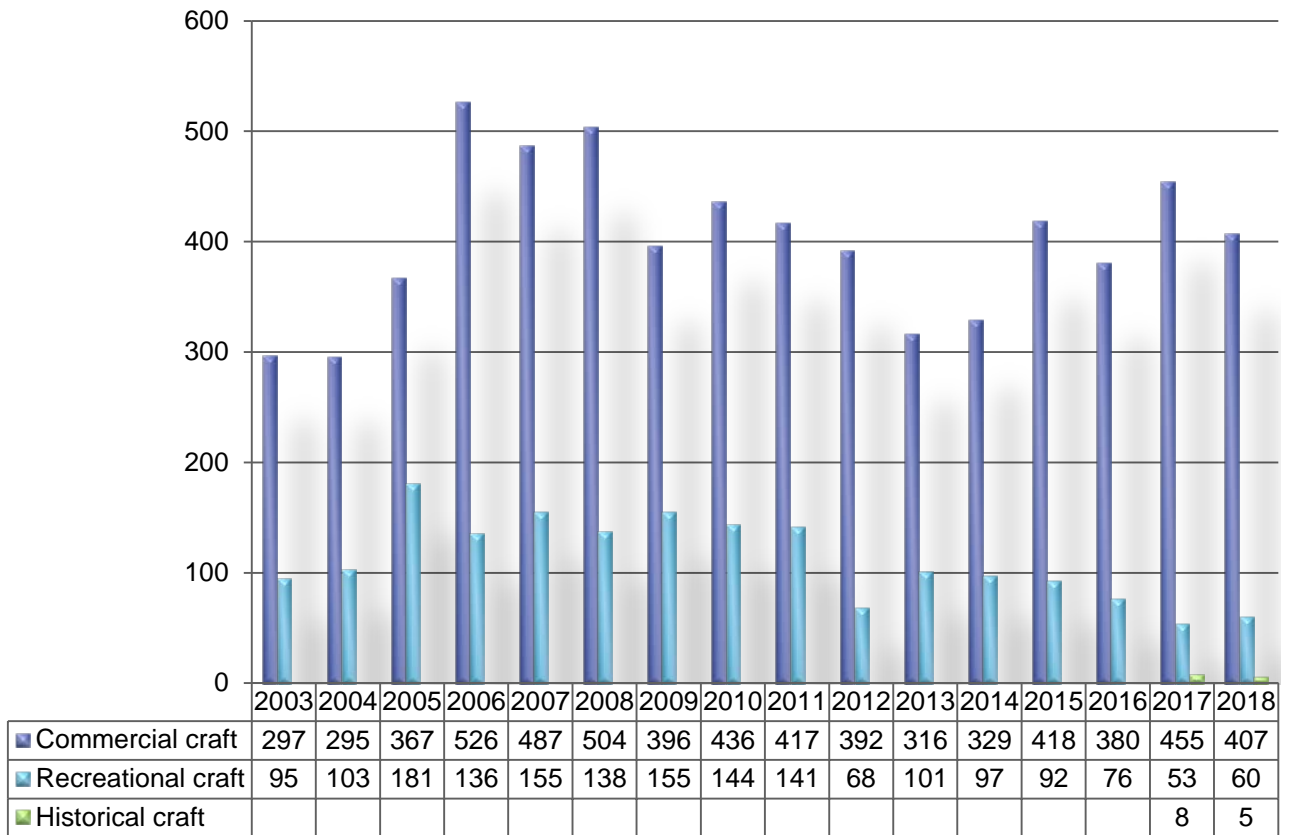
Since the reform of the SUG in 2011, accidents involving recreational yachts not used commercially and outside German territorial waters or fishing vessels of less than 15 m are no longer investigated by German authorities.

However, the legislator established a saving clause (Article 1(4) SUG) for marine casualties that involve such recreational yachts in German waters and Germany's EEZ or fishing vessels of less than 15 m in length. The BSU may continue to investigate such cases if it is expected that the findings will increase maritime safety, in particular by improving applicable regulations or equipment for maritime navigation.

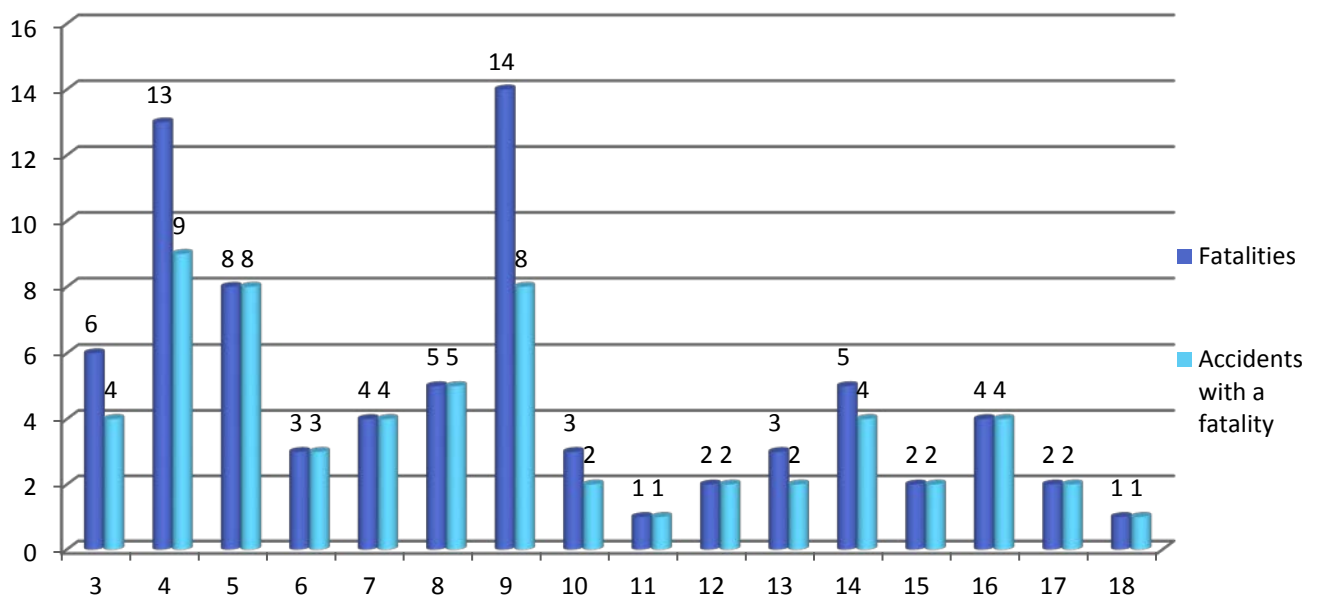
Regardless of the foregoing, there is still an obligation to report such accidents to the BSU under Article 1 of the *Verordnung über die Sicherung der Seefahrt (SeeFSichV 1993)* [German Ordinance on the Safety of Shipping], meaning statistics for such cases are at least possible. Inasmuch, this statistical section should continue to deal with accidents involving recreational yachts. The number of reported accidents in the recreational craft sector has been falling for years. It was little more than one third of the number reported in 2009, for example. 2018 is also historically low with only one fatal accident involving a recreational yacht. In the best case, this means that safety is becoming increasingly important in the recreational yacht sector, too.⁶

⁶ Shown separately in the table for the first time in 2017, traditional vessels had been allocated to merchant ships in previous years.

Reports to the BSU regarding the recreational yacht sector from 2003 to 2018



Fatalities in the recreational yacht sector from 2003 to 2018



6.6 Published investigation reports

It is appropriate to close the statistics section and thus also this annual report with the summaries of the published investigation reports (including interim).

The BSU published six investigation reports in 2018. Cases 1 and 2 were summarised in one report due to their similarity.

	Published	Report no	Date of accident	Name of ship	Type of ship	Flag	Scene of accident	Kind of accident
1	28/05/2018	455/15	20/11/2015	MSC Katrina	Full container ship	Panama	Elbe estuary	Cargo fire (charcoal)
2	28/05/2018	58/16	21/02/2016	Ludwigshafen Express	Full container ship	Germany	Red Sea	Cargo fire (charcoal)
3	14/06/2018	431/15	26/10/2015	Thetis D	Container ship	Liberia	Bay of Kiel	Engine damage and fire
4	30/07/2018	423/16	20/11/2016	Meridian/ MV New Yorker/ MSC Diana	Multipurpose carrier/ full container ship/ full container ship	Germany/ Liberia/ Panama	Bremerhaven	Collision
5	02/08/2018	289/17	12/08/2017	Stettin/ Finnsky	Steam icebreaker/ferry	Germany/ Finland	Warnemünde	Collision
6	13/09/2018	136/15	25/05/2015	Purple Beach	Multipurpose carrier	Marshall Islands	North Sea, German Bight	Chemical reaction in the cargo
7	25/10/2018	160/17	24/05/2017	Wissemara	Cog (replica)	Germany	Wismar	Line accident

The BSU also published two interim investigation reports in 2018.

	Published	Report no	Date of accident	Name of ship	Type of ship	Flag	Scene of accident	Kind of accident
1	29/03/2018	71/17	21/03/2017	Jan Maria	Fishing vessel	Germany	Atlantic (off Angola)	Collision with pirogue with fatal consequences
2	29/10/2018	408/17	29/10/2017	Glory Amsterdam	Bulk carrier	Panama	North Sea (off Langeoog)	Grounding