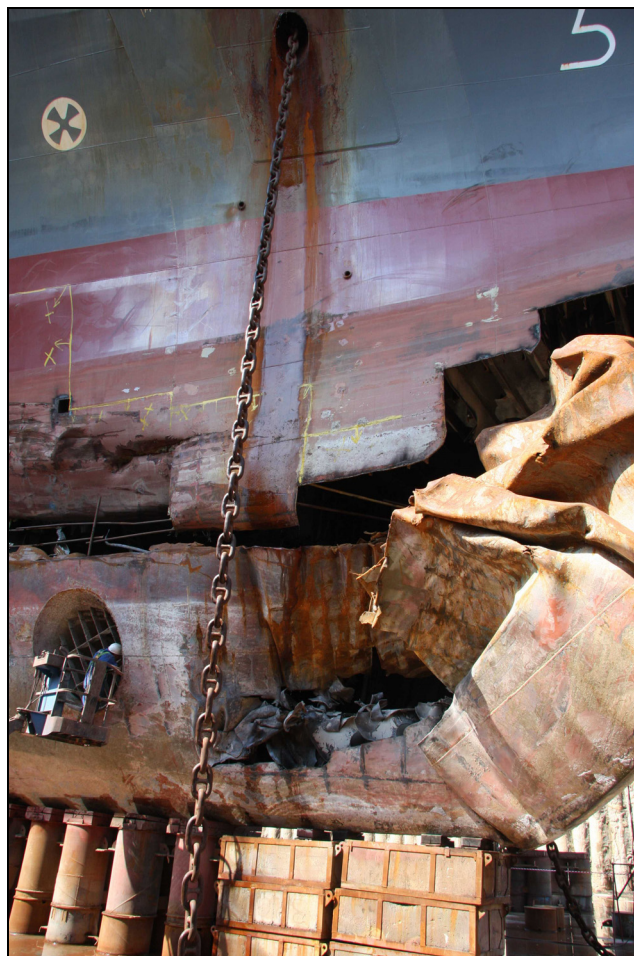




Bundesstelle für Seeunfalluntersuchung
Federal Bureau of Maritime Casualty Investigation
Federal Higher Authority subordinated to the Ministry of Transport,
Building and Urban Development

2009 Annual Report



June 2010

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The Federal Bureau of Maritime Casualty Investigation hereby publishes its statistics on casualties and serious incidents at sea together with a report of its activities in the last operating year.

1 Foreword

Safety in Sight

Last year, the Federal Bureau of Maritime Casualty Investigation (BSU) dealt mainly with personal accidents and collisions. Accident hotspots of this nature are by no means anything new; rather, they have already been central to the activities of the BSU in previous years. Of the 550 reports received by the BSU, there were over 200 collisions (40% vessel/vessel collision, 60% vessel/object collision) as well as a total of 22 fatalities and 43 injuries¹ reported. $\frac{4}{5}$ of all collisions, $\frac{1}{3}$ of the fatalities and just over half of the injuries occurred in merchant shipping.

In merchant shipping it was 'typical' occupational accidents during loading operations, tank cleaning, and handling the gangway or lines that became death-traps or led to severe injury; in the case of pleasure craft it was capsizing accidents and person over board incidents. The most serious marine casualty of the year also involved a pleasure craft: a sailing yacht capsized in January off the Atlantic coast of Morocco and caused the death of six young people². In this respect, the hazards associated with shipping, regardless of whether practised professionally or as a hobby, and similarly the mitigation strategies are generally well known. And yet the basic principles of one's own safety or the safety of other people on board are all too often neglected. However, as in previous years, it was also not possible to trace accidents back to one isolated cause in 2009. The conditions at the place and time of the incident were repeatedly a crucial factor for the sequence of events. Furthermore, indirect causes and facilitating factors that on many occasions were far removed from the actual event in terms of space and time often played a decisive role. The purpose of the investigation performed by the BSU is to record and present the complexity of an accident and then derive forward looking recommendations, which are detached from the finding of fault, liability or individual misconduct, for improving maritime safety and occupational protection for those employed on board sea-going vessels. Under certain circumstances the investigation also progresses in completely new directions. For example, in addition to the aforementioned 'typical' occupational accidents, merchant shipping saw a number of personal accidents on vessels in port or at anchor in 2009, which were not deployed because of the economic situation. Questions concerning required minimum manning levels and safe crew changeovers on non-deployed vessels at anchor, or stability in the event of ballast became a major part of the BSU's investigation in these cases.

¹ 12 other reported fatalities and 20 injuries were not classified as a marine casualty by the BSU due to the circumstances of the particular accident.

² BSU Report 015/09 published on 15 February 2010

The latter stability aspect turned out to be particularly interesting because the IMO's³ SLF⁴ Sub-Committee has already been discussing the development of a new generation of intact stability criteria for quite some time now; however, this very special form of stability-related accident has yet to be addressed in the ongoing debate. The stability-related aspects of the investigation were developed in close cooperation with the 'Institute of Ship Design and Ship Safety' of the Hamburg-Harburg Technical University (TUHH) and, in addition to the information in the BSU Investigation Report⁵, presented by the BSU in January 2010 at the 52nd Session of the SLF Sub-Committee in London.

In the case of collisions, the second most frequent type of accident, 2009 saw the technical aspect of the visibility of small vessels being investigated in particular by the BSU alongside the 'typical' question of the lookout. Indeed, this is not a new subject, but one that has not been so prominent in the investigations of the BSU in previous years; however, it is of great interest for both merchant shipping and pleasure craft. The AIS⁶ has been part of the carriage requirements for the majority of merchant shipping for several years. The potential added value provided by this system to collision prevention due to inclusion of the additional information it outputs in decision-making on the bridge was addressed by the BSU in various reports⁷. A corresponding lack of information was evident on vessels that did not have such carriage requirements; for example, tug and tows⁸ in the case of merchant vessels, but also pleasure craft. On the other hand, even voluntarily fitted AISs do not necessarily mean sufficient safety in terms of being identifiable on the bridge of a merchant vessel because AIS information may not be merged with other information there. Therefore, apart from the duty of every crew member to maintain a proper lookout, in the interest of the continued safety of all small vessels they must be aware of their own potential 'invisibility'. In darkness, restricted visibility or poor weather and especially in the vicinity of large vessels, the navigation lights of small vessels and their radar echoes are often overlooked or misinterpreted. In this respect, the use of an appropriate radar reflector should be a matter of course in the interest of increasing one's own safety.

The two discussed main areas of investigation 'stability' and 'visibility' make it possible to elucidate the initial statement, according to which attention must be drawn to the overall circumstances and factors that may be far removed from the actual accident in terms of space and time in an accident investigation. The prevailing weather situation at the scene has always been a crucial factor in these investigations. However, other factors involved decisions that were made a long time before the actual accident.

³ IMO = International Maritime Organization

⁴ SLF = Stability, Load Lines and Fishing Vessels' Safety

⁵ BSU Report 510/08 published on 2 November 2009

⁶ AIS = Automatic Identification System

⁷ Most recently in BSU Report 612/08 published on 1 December 2009

⁸ BSU Report 009/06 published on 2 July 2007

Decisions as to the sea area in which a vessel will sail as well as the number and competence of her crew members and considerations with respect to the seasonal weather periods that await the vessel there and whether she will still be safe with the specific load case if she has to weigh anchor in poor weather are not made locally. However, the crew has to operate immediately in the resulting conditions locally in an emergency. In the case of small vessels, considerations have been raised regarding the fundamental capability of the vessel and her crew with respect to the planned voyage, anticipated weather and visibility conditions as well as the required additional equipment prior to departure. In the event of an emergency only the decision on existing (additional) equipment being put into operation by appropriately qualified passengers in a timely manner then remains, provided that the necessary equipment is on board.

Keeping sight of one's own safety and that of others and the vessel is, to that extent, a requirement on every sea traveller, which begins long before casting off. And while in exceptional situations senses are as a rule sharpened, this is often not the case in supposedly routine situations which have been experienced on numerous occasions. This means that small deviations from the norm may be overlooked and thus represent the beginning of a chain of events which may end in an accident.

Head of the Federal Bureau of Maritime Casualty Investigation



Jörg Kaufmann

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2 Marine Casualties

2.1 Competence

The German Maritime Safety Investigation Law (SUG) builds on the Code for the Investigation of Marine Casualties and Incidents (IMO Code) published by the International Maritime Organization (IMO) in 1997 with its Resolution A.849(20)⁹.

This Act regulates the competence of the Federal Bureau of Maritime Casualty Investigation (BSU) to investigate accidents on sea-going vessels of all flags occurring within German territorial waters. This also includes traffic movements to and from ports on the navigable maritime waterways as well as incidents within the German Exclusive Economic Zone (EEZ). The BSU also investigates marine casualties on or involving vessels under German flag anywhere in the world. Additional rights of participation in international investigations arise when the BSU claims a "significant German interest in the investigation" of such events.

Sea-going vessels as defined by the SUG also include sea-going pleasure craft, meaning the BSU will also perform investigations on such vessels following incidents that have caused damage or danger.



Figure 1: Foundering of the SY Taube
Investigation Report 015/09 published on 15 January 2010

⁹ See para. 3 for the latest developments in international and European legislation.

2.2 Accident reports

According to the SUG, the Ordinance on the Safety of Shipping and the additional agreement between the Federal State and the five German Coastal States concerning maritime police law enforcement (Coastal Protocol), a duty to notify the BSU of incidents that have caused damage or danger exists. These duties concern, in particular, the ship's command of vessels under German flag, the waterway police of the German states, the German Federal Police and a number of other agencies.

The IMO Code prescribes that international reports from the investigative agency for marine casualties of an affected coastal state be forwarded to the competent agency of the flag State(s) of the vessel(s) involved in an accident.

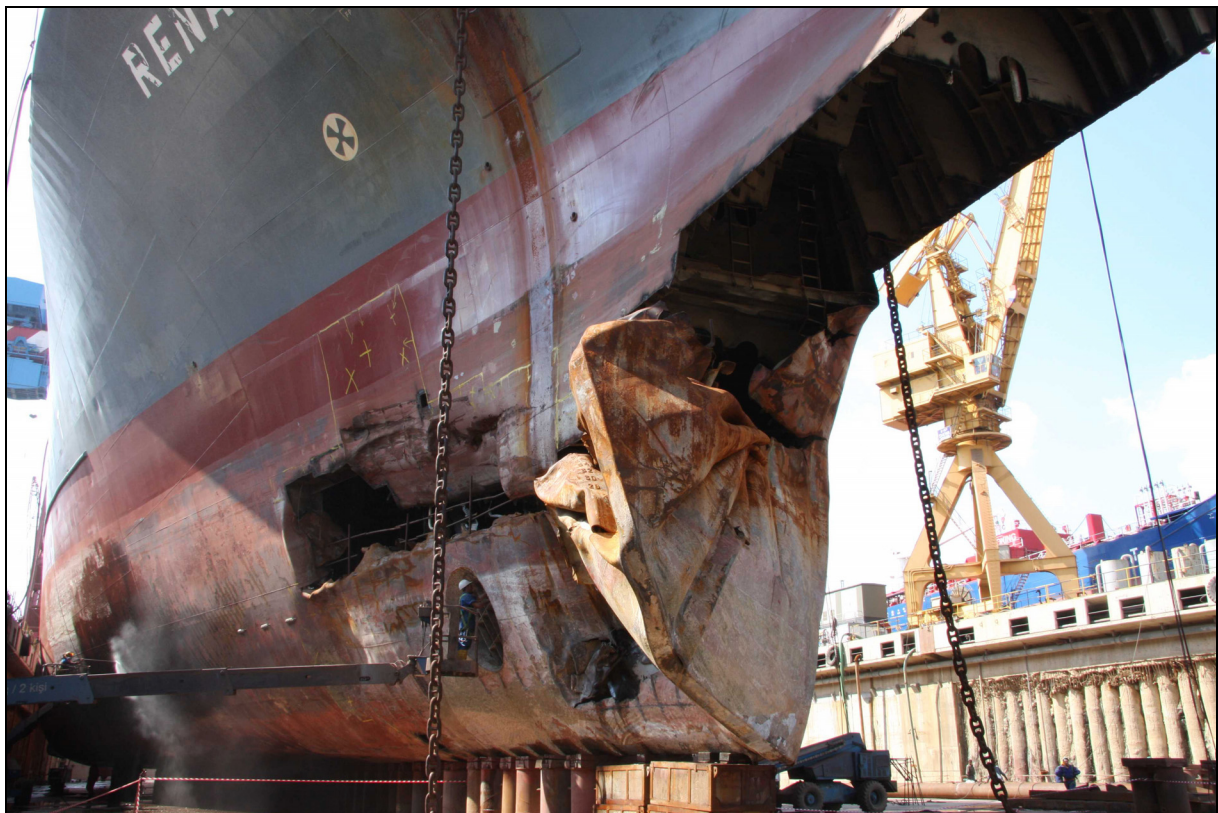


Figure 2: Serious marine casualty. Collision between the 'Renate Schulte' and the 'Marti Princess'
Ongoing marine casualty investigation by the BSU on 31 December 2009; joint investigation with
second participating Flag State Malta

The BSU is on-call at all times and can therefore be reached 24/7.

Phone numbers and office hours of the BSU:

Monday to Thursday:	0730 to 1600
Friday:	0730 to 1500
Phone number of the Secretariat:	+49 (0)40-3190 -8311 -8321
Fax number:	+49 (0)40-3190 -8340

Officer on-call outside office hours: **+49 (0)170-58 65 675**

Email reports: posteingang-bsu@bsh.de

The website of the BSU www.bsu-bund.de

also has a questionnaire available under 'Downloads' entitled 'Sea/Marine Accident Report Form', which contains the most important details when reporting a marine casualty to the BSU.

The telephone numbers of the Secretariat, the fax number and the email address are only manned during the office hours stated above. The BSU officer on-call must be notified of any incident via the mobile number provided outside office hours.

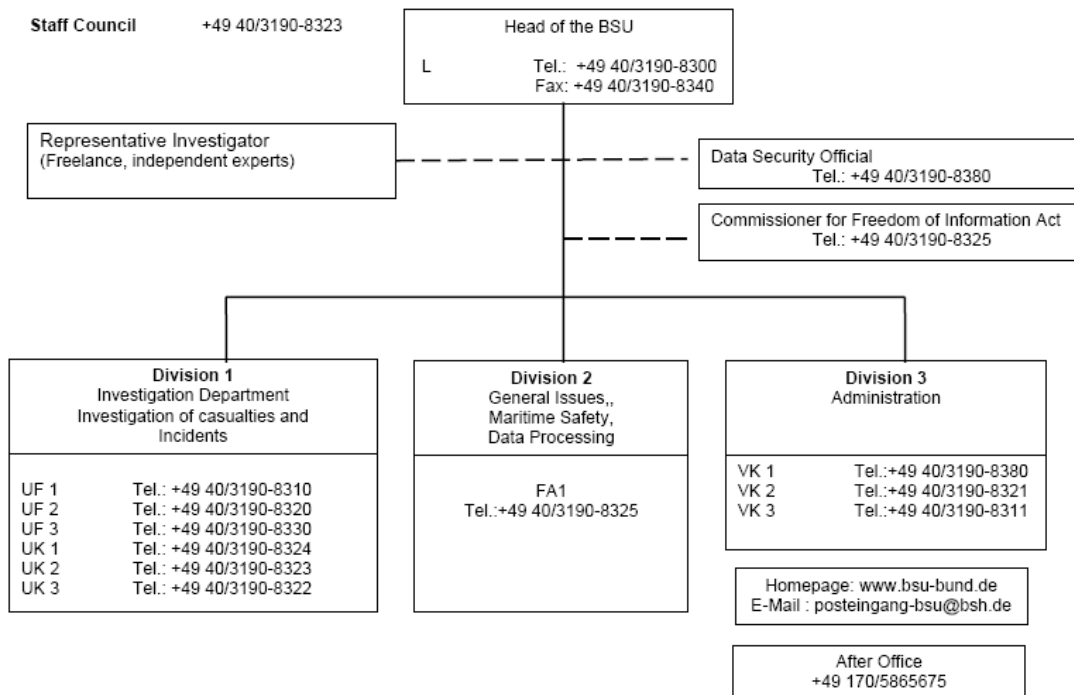


Figure 3: BSU organisational chart

2.3 Marine casualties reported in 2009

"Incidents that have caused damage or danger are, in the context of the operation of a vessel in maritime navigation, events that have caused or led to

1. the death, disappearance or serious injury of a person;
2. the loss, presumed loss, constructive total loss, grounding, abandoning or collision of a vessel;
3. damage to the marine environment as a result of damage to one or several vessels or any other kind of material damage;
4. danger to a person or vessel or the risk of heavy damage to a vessel, an off-shore structure or the marine environment."
(See art. 1 para. 2 SUG)

Depending on the **consequences**, according to the IMO Code such events are divided into the following categories of **marine casualty** or classified as an **incident**:

Very serious marine casualty (VSMC):

Fatality, total loss of a vessel or an accident with more than 50 t of pollutant discharge

Serious marine casualty (SMC):

Accident which is not classified as a VSMC, but where support from outside the vessel is needed to cope with the consequences (medical assistance, towing support, fire fighting, and the like)

(Less serious) marine casualty (LSMC):

All marine casualties not classified as VSMC or SMC

Incident:

Near misses with dangerous side effects and so-called minor cases with only marginal damage

The majority of reports made to the BSU are categorised as **Incidents**. These are generally entered in the BSU's database and statistically evaluated. However, marine casualties are significant for the actual investigative work of the BSU, especially **VSMCs** and **SMCs**.

A **total** of 137 (122)¹⁰ marine casualties were reported to the BSU in 2009. These are made up of 91 (75) LSMCs, 26 (31) SMCs and 20 (16) VSMCs.

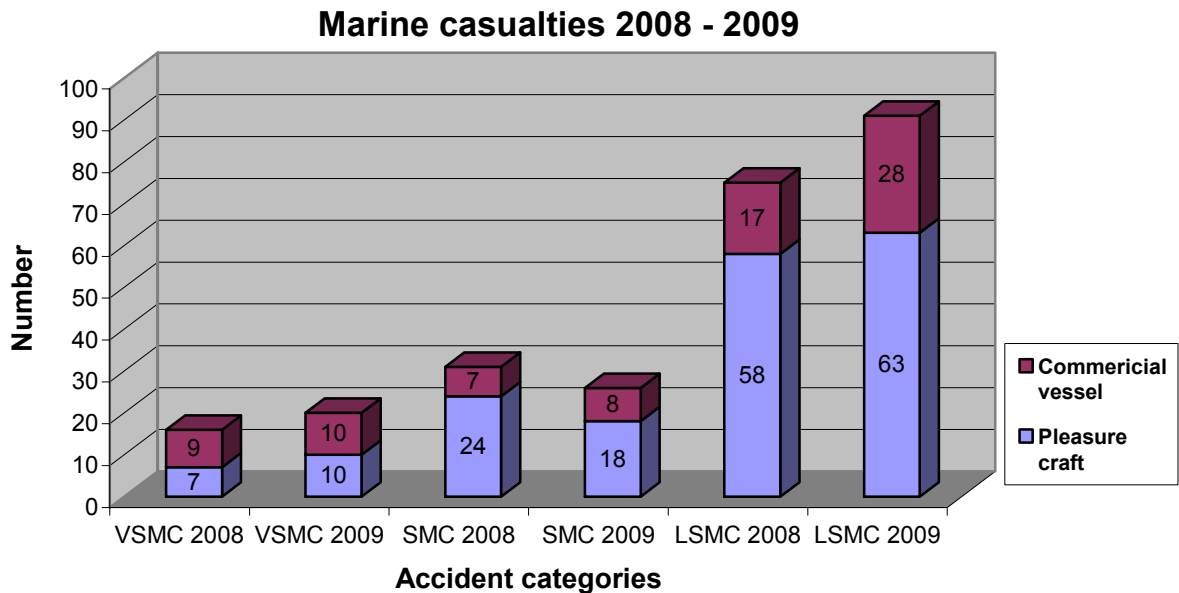


Figure 4: Marine casualties reported to the BSU 2008 - 2009

The accident figures for the categories marine casualty and very serious marine casualty have again risen slightly in the past year, the category serious marine casualty has dropped slightly. Compared with the five-year mean, in the past year marine casualties and very serious marine casualties are just above average and serious marine casualties just below.

¹⁰ The previous year's figures are shown in parentheses

German waters

There were 117 marine casualties in German waters. These are regardless of flag and type of operation of the vessel(s) involved and are made up of 85 LSMCs, 19 SMCs and 13 VSMCs. 76 of the 117 reported marine casualties concerned merchant vessels (including fishing vessels).

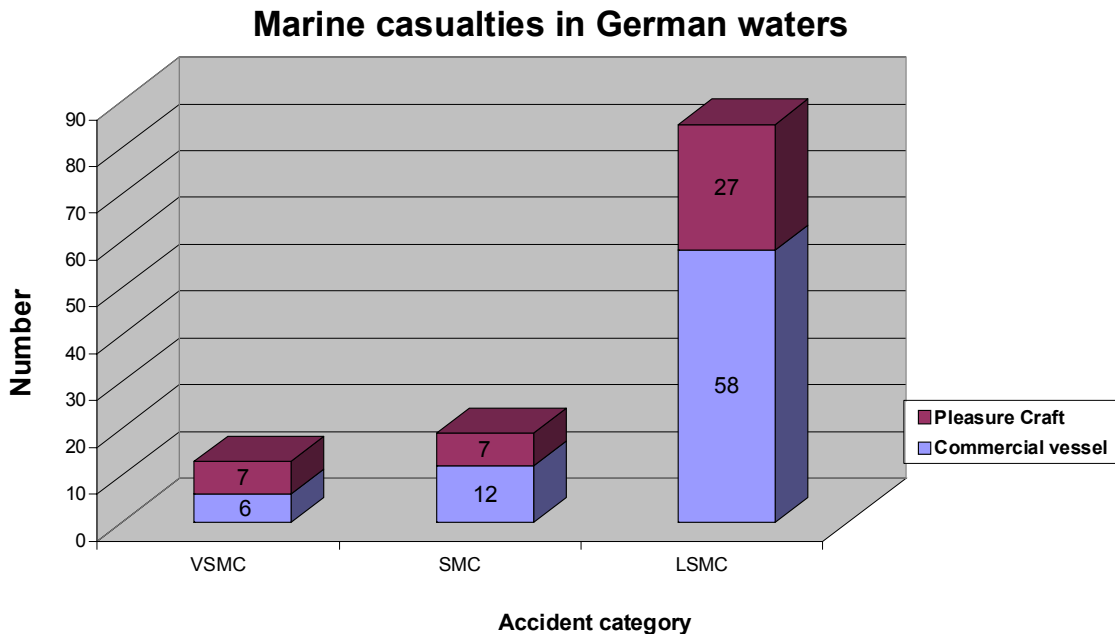


Figure 5: Marine casualties in German waters in 2009

Sea-going vessel traffic movements in the various sections of Germany's territorial waters (not including traffic in transit off the German coast outside the sections) have dropped from approximately 282,000 to 261,000¹¹. There were 76 marine casualties involving merchant vessels in 2009 and 66 in 2008. The accident rate in 2009 thus rose only marginally from 0.23⁰/₁₀₀ to 0.28⁰/₁₀₀ and remains at a satisfactory low level.

German merchant shipping

Irrespective of the scene of the accident, there were 37 marine casualties on board merchant vessels **under German flag** (26 LSMCs, 6 SMCs and 5 VSMCs) and 11 marine casualties on board fishing vessels (10 LSMCs and 1 VSMC). On 31 December 2008, there were 624 merchant vessels and about 80 sea-going fishing vessels registered under German flag¹².

There were 37 marine casualties involving the 624 German merchant vessels in 2009 as compared with 41 marine casualties on 645 vessels in 2008.

¹¹ Source: Traffic data from the Vessel Traffic Services of the Waterways and Shipping Directorates North and North-West

¹² Source: Federal Maritime and Hydrographic Agency

In consequence, statistically the German shipping affected by an accident last year was 5.9% as compared with 6.4% in the previous year. At an unchanged 80 sea-going fishing vessels the rate in 2009 with 11 marine casualties was 13.75% as compared with 11.25% (9 marine casualties) in 2008. The rate for the fishing industry is thus about twice as high as that for commercial shipping.

Pleasure craft

43 marine casualties occurred on pleasure craft (27 LSMCs, 6 SMCs, 10 VSMCs), of which 36 (20 LSMCs, 6 SMCs, 10 VSMCs) on vessels under German flag. 5 other marine casualties (3 LSMCs, 2 SMCs) occurred on board traditional vessels under German flag.

14 people lost their lives in 8 of the 10 VSMCs, where the above mentioned capsizing of the Taube alone led to 6 fatalities. In a different capsizing incident 2 people drowned, 5 drowned following a person over board situation, 4 of these were sailing single-handed. The remaining fatality occurred during an attempt to clear a sail tangled in the rigging. The other 2 VSMCs were total losses after a collision and engine explosion.

At 10, the number of VSMCs involving pleasure craft was equal to merchant vessels. Compared with 2008, the number of VSMCs and SMCs are virtually unchanged; however, there was an increase in LSMCs. Compared with the 4-year mean, VSMCs and LSMCs were above average and SMCs were below.

Fatalities and injuries

26 of all the reports received concerned incidents with a total of 34 fatalities. The BSU did not treat 12 of the 34 fatalities as a marine casualty due to the circumstances of the respective case. Of the remaining 22 fatalities, 8 occurred in merchant shipping (7 due to falls, 1 due to a head injury) and 14 concerned pleasure craft (see above).

54 incidents (30 merchant shipping, 24 pleasure craft) with a total of 63 injuries were reported to the BSU in 2009. While falls were the main cause of injury in both merchant shipping and pleasure craft in 2008, the causes were spread more widely in 2009. In merchant shipping, the number of accidents caused by falls, during deck, loading or machinery work and that were line-related was more or less the same. In terms of pleasure craft, injuries while working on machinery, after collisions or falls and that were weather-related were numerically equal in 2009.

Personal accidents accounted for nearly 25% of all marine casualties reported to the BSU in the past year and thus, as was the case in 2007 and 2008, constituted one of the BSU's main areas of investigation. In addition to these personal accidents, at approximately 30% of all reports classified as a marine casualty, collisions in particular, represented another focus of the investigative work of the BSU.

2.4 Marine casualties reported in 2005-2009

The five-year overview shows only slight fluctuations in the **very serious** (VSMCs) and **serious marine casualties** (SMCs), whereas the (less serious) **marine casualties** (LSMC) were subject to greater annual fluctuations. Compared with the five-year average, the figures for 2009 for very serious marine casualties and marine casualties are slightly above the average; however, they are slightly below for serious marine casualties. In relation to the number of sea-going vessels under German flag and the number of traffic movements within German territorial waters, the level continues to remain low.

Marine accidents reported to the BSU

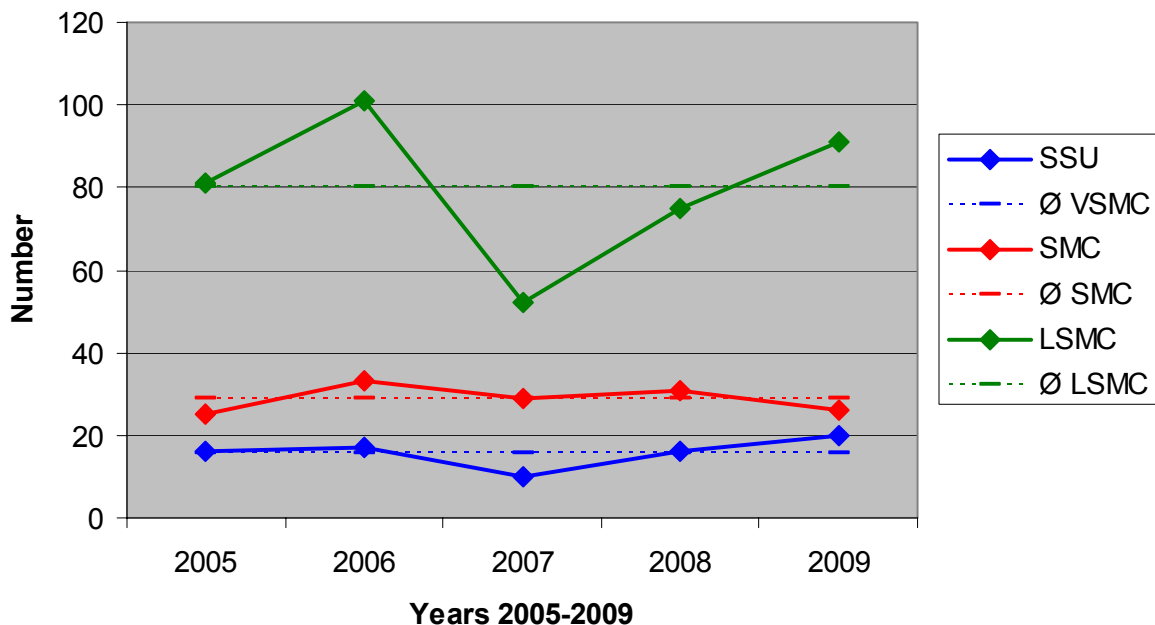


Figure 6: Marine casualties reported since 2005

2.5 Marine casualty investigations and reports in 2009

Marine casualty investigations and reports

According to the IMO Code, all flag States should ensure that a marine casualty investigation is conducted after every very serious marine casualty occurring on board one of their vessels. If the accident occurs in the waters of another state, that coastal state may also conduct the marine casualty investigation. The flag State should then preferably also participate in this investigation. Beyond that, other marine casualties may also be investigated. Due to advancement of the IMO Code to a binding instrument, this worldwide requirement for all SOLAS contracting states has taken on a more mandatory character since 1 January 2010.

An even greater commitment to perform marine casualty investigations and publish investigation reports will apply for the Member States of the European Union in the future following implementation of Directive 2009/18/EC¹³, which is required by no later than 17 June 2011.

The basic principle of marine casualty investigation is to not sanction the parties involved in the accident, but to motivate them to prevent future accidents and include them in a safety partnership. In conformity with the above international and European standards, the German SUG also states that the investigation of a marine casualty shall serve "neither the ascertainment of facts for the purpose of attributing fault so as to create disadvantages to any individual nor the determination of blame, liability, or claims. However, an investigation should not abstain from presenting the causes fully because culpable behaviour or liability may be derived from the outcome of the investigation¹⁴." The objectives of a government agency whose procedures facilitate penalising wrongful conduct and/or determining liability are fundamentally different to those of the BSU.

The findings of an investigation are presented in the investigation reports of the BSU. This concluding report of a marine casualty investigation is not compiled and published by the BSU for the purpose of determining fault or clarifying questions of liability, but rather to contribute to improving safety at sea in a forward looking manner. The Head of the BSU may not be issued any instructions whatsoever as regards either the initiation or scope of an investigation or the content of the investigation report. He, or in his absence his deputy, decides on such matters with absolute independence. Statistical data on all reported accidents, regardless of the decision on a possible investigation, are collected in the BSU database and analysed at any event.

However, the BSU generally produces and publishes a 'full' report with a comprehensive evaluation of the accident and any safety recommendations arising therefrom. Those affected are then given the opportunity to comment on a confidential draft which is sent to them prior to publication. Legitimate comments are accounted for by the BSU in the final report. Investigations not having resulted in new perceptions for the improvement of safety of maritime traffic can be concluded with a summary report. This report may be limited to a depiction of the accident, does not comprise a safety recommendation, and is then published in summary form without further involvement of those affected. Investigations not leading to sustainable conclusions in view of cause, circumstances and promoting factors of the course of the accident can be discontinued at any time of the investigation without publication of an investigation report, and by drawing up a completely internal report¹⁵, where appropriate.

¹³ See para. 3 for details 'International, European and National Developments'

NB: the "old" IMO-Code was not replaced by the adoption of the new Code. In fact the Resolution A.849(20) does still exist and is given a binding character to the EU-member states by the reference to the EU-Guideline, which did not exist before in this way.

¹⁴ (See art. 9 (2) SUG)

¹⁵ An internal report summarizes all perceptions gained so far in an investigation and constitutes a basis in case new findings should make a revision of the investigation procedure necessary.

All the reports published by the BSU can be found, sorted by year of publication, on the BSU website www.bsu-bund.de under 'Publications'. The IMO as well as the European Union also receive the investigation reports published.

Overview 2009

- In 2009, the BSU initiated the investigation of 33 reported incidents.
- 6 of these incidents were discontinued in 2009 and 2 more at the beginning of 2010 after a preliminary investigation.
- The remaining 25 cases were classified as VSMC, SMC or LSMC and thoroughly investigated as part of a main investigation.
- 5 of these main investigations were conducted jointly with other states or the BSU supported the lead investigating state and 20 main investigations were conducted by the BSU alone.

- 3 VSMCs reported to the BSU in 2009 involving pleasure craft were not investigated. One case concerned a sailing yacht which was destroyed by an engine explosion and foundered. The two crew members suffered burns but could be saved. The second case concerned a former fishing vessel operated as a pleasure craft, which sank outside German waters without the exact position of the wreck being known. The single-handed sailor sent an emergency call by mobile phone and was found floating in the water several hours later; however, he died in the helicopter while being taken to hospital. In each case, the vessel involved in the accident was not available for an investigation. Both cases were discontinued by the BSU after a preliminary investigation. The third case concerned the grounding in Denmark of the yacht of a single-handed sailor who was not on board. A survey of the vessel did not reveal any evidence in relation to the actual accident and therefore this case was also discontinued after a preliminary investigation.
- 1 VSMC occurred in 2009 in the cargo hold of a merchant vessel under a foreign flag in a German port. A crew member who was significantly intoxicated fell from a ladder while leaving the cargo hold and died. The BSU informed the competent flag State, which did not wish to conduct a marine casualty investigation and therefore the BSU also discontinued this case after a preliminary investigation. In another fatal accident a crew member of a vessel under a foreign flag in a German port fell from a ramp while boarding. The BSU also informed the competent flag State in this case and supported it in the ensuing marine casualty investigation.

- 26 investigations from previous years were still open as of 1 January 2009.
- 26 investigations were completed in 2009, 2 of these were discontinued by the BSU and 1 by the competent flag State.
- The BSU summarised two cases in one report for reasons of similarity on two occasions.

- 21 investigation reports were published, of these there were 12 'full' and eight summary reports plus 1 joint concluding report in cooperation with another state.

27 investigations were still ongoing as of 31 December 2009.



Figure 7: Serious marine casualty. Collision between the SY 'Mahdi' and the MF 'Schleswig-Holstein'

(Source: German Federal Police)

Marine casualty still under investigation by the BSU on 31 December 2009

Main reports in 2009

Of the investigations completed in 2009, the reports on the serious marine casualty involving the 'LT Cortesia' (Report No. 001/08) and the very serious marine casualty involving the 'Chicago Express' (Report No. 510/98) are of particular significance.

Serious marine casualty 'LT Cortesia'

The grounding of the 'LT Cortesia' on the 'Varne' sandbank in the English Channel on 2 January 2008 resulted in neither injuries or environmental damage nor substantial damage to the vessel or cargo. The grounding was not, as in other cases, caused by a missed course change, technical failure or suction effects. Rather, this grounding was based on a conscious decision to change course in response to the navigational situation; however, the nautical chart being used was misinterpreted. The BSU has already investigated cases¹⁶ similar to this in the past. However, these occurred in sea areas that do not belong to the main shipping routes and for which the existing nautical charts are based on old material and measurements which are in part unreliable. Neither of these factors applies to the English Channel. Moreover, in this case an electronic chart system was used on board.

¹⁶ BSU reports 455/05 published on 15 January 2007 and 167/08 published on 2 February 2009

The latter made this case interesting for the BSU, in particular with regard to the upcoming carriage requirements concerning ECDIS¹⁷.



Figure 8: Serious marine casualty CMV 'LT Cortesia'

(Source: MAIB)

Joint investigation with the MAIB, UK
Investigation Report 001/08 published on 15 March 2009

Very serious marine casualty 'Chicago Express'

On 24 September 2008, one crew member died and the master was very seriously injured on the bridge of the container vessel 'Chicago Express', four other crew members were also slightly injured in the superstructure as the ship rolled in heavy weather. Apart from the actual lurching of the vessel, the high level of stability and resulting considerable acceleration when righting were of particular interest. Accordingly, the issue of the stability of container vessels was looked at extensively in the investigation by the BSU. In 2009, two other fatalities occurred on the bridge of container vessels in ballast. The stability aspect therefore remained topical and interesting, not least in the light of the discussions on the development of a new generation of intact stability criteria held by the IMO Sub-Committee on Stability, Load Lines and Fishing Vessels' Safety (SLF), which have already been in progress for some time now.

¹⁷ ECDIS = Electronic Chart Display and Information System; the phased mandatory fitting of SOLAS vessels with ECDIS from 1 July 2012 as well as the necessary amendment of SOLAS Chapter V/19 were adopted at the 86th Session of the IMO Maritime Safety Committee in May 2009

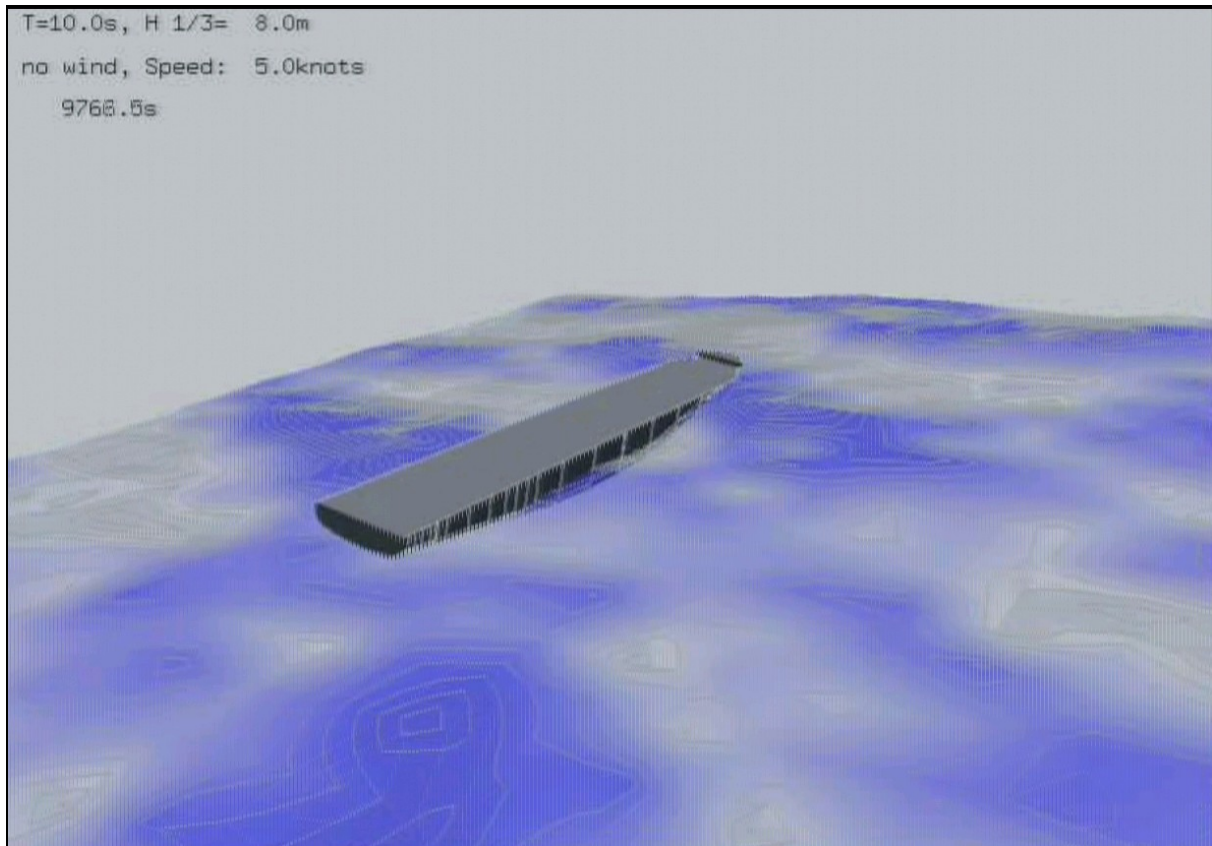


Figure 9: Very serious marine casualty CMV 'Chicago Express'

Expertise on heavy rolling motions in a head sea at slow vessel speeds
Institute of Ship Design and Ship Safety, TUHH
Investigation Report 510/08 published on 2 November 2009

2.6 Safety recommendations in 2009

The purpose of a marine casualty investigation is to reduce the risk and consequences of future marine casualties and thereby contribute to improving maritime safety. To that end, lessons learned from an accident investigation are compiled as safety recommendations and usually published in the concluding report. The addressee of such a recommendation is the agency that seems most capable of taking steps to rectify the identified safety gap.

Irrespective of the stage of the investigation, preliminary safety recommendations can be issued by the BSU whenever it seems evident that the identified safety gap requires immediate attention.

In 2009, the BSU issued safety recommendations in 11 concluding reports but did not publish any preliminary safety recommendations.

All the recommendations published by the BSU are available, sorted by year of publication, for reading on the BSU website www.bsu-bund.de under 'Publications'.

2.7 Accident hotspots in 2009

In addition to the above-mentioned fatal accidents on the bridge of container vessels in ballast, as in previous years 2009 saw a number of fatalities and injuries in accidents involving supposedly routine tasks on merchant vessels. In contrast to 2008, there was no strong emphasis on fall-related accidents last year, but rather a wide spread of approximately the same number of accidents involving falls, during deck, loading or machinery work and that were line-related.

In terms of pleasure craft, fatalities due to drowning after capsizing or falling overboard were the focus of the investigative work of the BSU in 2009. However, eight of 14 fatalities were linked to two capsizing accidents, the respective circumstances of which were quite unique. A fundamental problem in this area in relation to pleasure craft is therefore not given. The fatality while untangling a sail in the rigging also represents a tragic, one-off incident. In the five cases of drowning after falling overboard, the issue of taking steps to protect oneself from actually falling overboard and the use of life-jackets also remained a central focus of the investigations by the BSU in 2009. The issue of taking steps to protect oneself becomes especially relevant when a pleasure craft is being sailed single-handedly. Getting back on board is difficult when other people are still on board¹⁸; however, for a single-handed sailor it is almost impossible and falling overboard almost always ends fatally.

Pleasure craft and traditional vessels were involved in 35% of the marine casualties reported to the BSU, which represents a slight increase compared to 2008. However, as in previous years merchant shipping was the main focus of the BSU in 2009. Nonetheless, it is striking that half of all very serious marine casualties involved pleasure craft, which also accounted for $\frac{2}{3}$ of all fatalities.

Nearly 40% of the incidents reported to the BSU and almost 30% of those classified as a marine casualty were related to a collision and therefore represented the second focus of the work of the BSU in 2009. The issues related to the equipping and manning of the bridge associated with this were addressed extensively in the 2008 Annual Report¹⁹ and remain valid.

Accident rates are consistently low in relation to the traffic volume in the sea areas for which the BSU is responsible. However, it is glaringly apparent that in the Baltic Sea with adjacent ports the number of marine casualties reported to the BSU increased from 25 (4 VSMCs, 5 SMCs, 16 LSMCs) in 2008 to 45 (7 VSMCs, 8 SMCs, 30 LSMCs) in 2009. Merchant vessels saw a slight increase from 13 (0 VSMCs, 4 SMCs, 9 LSMCs) to 17 (2 VSMCs, 3 SMCs, 12 LSMCs) reported marine casualties.

¹⁸ BSU reports 356/07 published on 15 April 2008 and 149/05 published on 1 April 2006

¹⁹ BSU 2008 Annual Report published on 15 May 2009

In the case of pleasure craft, the increase from 12 (4 VSMCs, 1 SMC, 7 LSMCs) to 28 (5 VSMCs, 5 SMCs, 18 LSMCs) reported marine casualties was considerably higher. However, an accident hotspot in terms of locality could not be derived from this for 2009 as this increase occurred for the first time in the past year and is primarily due to the increase simply in marine casualties.

2.8 Analysis of Voyage Data Recorders in 2009

The analysis of Voyage Data Recorder (VDR) recordings during a marine casualty investigation continues to gain in importance. The mandatory requirement for merchant vessels on international routes with a gross tonnage of more than 3,000 to carry full-spec. or simplified Voyage Data Recorders must be fully implemented by 1 July 2010. These devices are therefore increasingly found on board vessels involved in an accident. However, operating inefficiencies also continued to be found in 2009. The ship's command was either not provided with clear instructions to perform an incident backup on a Voyage Data Recorder following an incident or not trained in the operation of the incident backup, which ultimately led to the data for the period relevant to the accident being overwritten. In contrast, in technical terms the capability to analyse backed up data following an accident has improved. Where in previous years problems in terms of the audio quality of bridge microphones being insufficient, missing records from individual sensors or the complete failure of the VDR recording were experienced, in 2009, the BSU was able to analyse the recordings read out from all 11 Voyage Data Recorders in connection with a marine casualty.

The IMO continues to drive forward the revision of the performance requirements for Voyage Data Recorders globally. The data recorded by Voyage Data Recorders will support the work of marine casualty investigation agencies even more effectively after implementation of these improved performance requirements.

3 International, European and National Developments

The revision of the IMO Code for the Investigation of Marine Casualties and Incidents²⁰ published in 1997, which aims to develop this hitherto purely recommendatory instrument into a new and mandatory code, was completed on 1 January 2010. The revised version of this code was adopted by the IMO MSC²¹ as an Annex to Resolution MSC.255(84). An amendment to the International SOLAS²² Convention was simultaneously adopted as an Annex to Resolution MSC.257(84). Due to the new Regulation 6 in SOLAS Chapter XI-1, the revised code will be a worldwide binding instrument for all SOLAS contracting states for the investigation of marine casualties²³. The amendment entered into force on 1 January 2010. The new CIC²⁴ consists of three parts, of which parts I and II are mandatory and part III continues to contain supplementary guidelines on a recommendatory basis.

At European level, as part of the 3rd Maritime Safety Package Directive 2009/18/EC establishing the fundamental principles governing the investigation of accidents in the maritime transport sector²⁵ was adopted on 23 April 2009. Member States must implement this in national legislation by 17 June 2011. This Directive facilitates the mandatory and uniform investigation of marine casualties in the European Union, on the basis of Resolution A.849(20), when the accident occurs on board or with the participation of at least one vessel under the flag or in the waters of an EU Member State. In addition to the actual investigation of marine casualties, part of this Directive also provides for the central collection and analysis of accident data in a European database²⁶ by the EMSA²⁷.

Key points of both the IMO Code and the EU Directive are the investigation of marine casualties in the interest of safety and not to clarify fault and liability by a permanently established and independent investigative body as well as the international cooperation of all states with a significant interest in an accident. Adoption of the Directive means that these key points are legally binding for the Member States of the European Union. As these points have already represented the fundamental basis for investigating marine casualties since June 2002 following implementation of the SUG and formation of the BSU in Germany, the amendments required due to implementation of the EU Directive are manageable. Nonetheless, details will change or require redefinition. For example, the deadline for commenting on draft reports of the BSU has halved from 60 days now to 30 in the future.

²⁰ Resolution A.849(20)

²¹ MSC = Maritime Safety Committee

²² SOLAS = Safety of Life at Sea

²³ Resolution A.849(20) continues to remain in force alongside that

²⁴ CIC = Casualty Investigation Code

²⁵ Official Journal of the European Union L 131 of 28 May 2009, p. 114 et seq.

²⁶ European Maritime Casualty Information Platform (EMCIP)

²⁷ EMSA = European Maritime Safety Agency

The investigation of marine casualties involving fishing vessels of less than 15 m in length, pleasure craft and traditional vessels is not required by the Directive. However, in this regard national requirements may exceed the scope of the Directive.

The BSU supports the trend towards increased international cooperation in the area of marine casualty investigation associated with the IMO Code and EU Directive. Joint investigations with other flag and coastal States and/or those with a significant interest which involve the sharing of information lead to more extensive findings and better acceptance of the final results, the concluding report, and not least the safety recommendations. The BSU has established a network with other investigative agencies required for that through active participation in the MAIIF²⁸ and its European section²⁹. The sharing of information about current accident-related developments around the world and enhancing investigation procedures also takes place in these forums.

²⁸ MAIIF = Marine Accident Investigators International Forum

²⁹ European Marine Accident Investigators Forum (EMAIF)

4 Public Relations

All publications of the BSU are published on its website www.bsu-bund.de, which was redesigned in 2009. In addition to the investigation reports and safety recommendations, it also contains annual reports, information about marine casualties currently under investigation, background information on the BSU and its investigation procedures as well as important legislative and regulatory texts. The BSU makes every effort to provide this information in German and English. However, there is usually a delay before English versions are available. Furthermore, the BSU also provides links on its website to other institutions concerned with the investigation of marine casualties.

The newsletter, which the BSU first sent out to 200 recipients back in 2004, now informs 993 registered participants about current investigation reports and press releases. Only a small number of reports are printed; these are sent to the press, nautical colleges and archives in accordance with a distribution list and the parties directly involved in the accident. However, it is also possible to request a printed version from the BSU or print the report from the internet.

The public relations work of the BSU in 2009 also saw it giving lectures on marine casualty investigations and their findings. As has been the case in previous years, the audience comprised primarily shipping companies, pilots, waterway police, federal police as well as pleasure craft associations and clubs. Presentation of a modern investigation was also the subject of lectures held by the BSU in front of the German Society for Maritime and Naval History as well as at the Annual General Meeting of the British Nautical Institute in Newcastle.

The BSU also noted increased demand by students who are writing dissertations relating to the investigation of marine casualties as part of their studies. Where possible, the BSU provides data for scientific analysis in an anonymised form in order to also support increased dissemination of the results of its work via this channel.

5 Annual Statistics in 2009

5.1 Investigated marine casualties that were concluded with an investigation report in 2009

	Published	Report No.	Date of accident	Name of vessel	Type of vessel	Nationality	Scene of accident	Type of accident
1	15/01/2009	047/08	31/01/2008	Schleswig-Holstein	Passenger ship	Germany	Port of Fredericia/DK	Collision
2	02/02/2009	167/08	09/04/2008	Pacific Challenger	Container vessel	Germany	Papua New Guinea	Ground contact
3	15/03/2009	001/08	02/01/2008	LT Cortesia	Container vessel	Germany	English Channel	Ground contact
4	15/03/2009	299/08	21/06/2008	Laboe/Röde Orm	Passenger ship/ Sailing yacht	Germany/ Germany	Kiel Firth	Collision
5	15/04/2009	149/08	04/04/2008	Wilhelmine/ Pavel Korchagin	Tug boat/ General cargo vessel	Germany/ Russia	Norderelbe	Collision
6	15/04/2009	400/08	04/08/2008	Polarstern	Passenger ship	Germany	North Sea/Helgoland	Personal accident
7	04/05/2009	404/08	03/08/2008	Sinus	Sailing yacht	Germany	Swedish waters	Personal accident
8	04/05/2009	422/08	04/08/2008	Aredi	Sailing yacht	Germany	Waters off Rügen	Personal accident
9	15/05/2009	*578/08	16/11/2008	Helgoland	Fishing vessel	Germany	70 nm west of Stavanger	Personal accident
10	02/06/2009	250/08	01/06/2008	Artur Becker/ Raba	Training vessel/ General cargo vessel	Germany/ Poland	Off Rügen	Collision
11	15/06/2009	491/08	14/09/2008	WMS Groningen	Container vessel	Cyprus	Elbe, Wittenbergen	Swell
12	01/07/2009	504/08	20/09/2008	Polaris/ Crowbreeze	Ro-Ro cargo ship/ General cargo vessel	Germany/ Netherlands	Kiel Canal, km 55	Collision
13	15/07/2009	617/08	16/12/2008	Freya	Chemical tanker	Netherlands	Elbe, km 735	Collision
14	15/08/2009	211/08	16/05/2008	Finnlady	Ferry	Finland	Port of Lübeck-Travemünde	Collision
15	01/09/2009	212/08	18/05/2008	Ruiloba	Container vessel	Spain	Bremerhaven	Personal accident
16	01/10/2009	254/08	30/05/2008	Norfolk Express	Container vessel	Germany	Gulf of Suez	Ground contact
17	15/10/2009	107/08	12/03/2008	Hope Bay/ Oceanic	General cargo vessel/ Tug boat	Netherlands/ Germany	Neuwerk roads	Collision
18	02/11/2009	510/08	24/09/2008	Chicago Express	Container vessel	Germany	Hong Kong roads	Personal accident (typhoon)
19	15/11/2009	548/08	26/10/2008	Beluga Sensation/ Jerome H.	Container vessel/ Bulk carrier	Gibraltar Antigua & Barbuda	Port of Kiel	Collision
20	15/11/2009	619/08	17/12/2008	Grete Bruhns	Fishing vessel	Germany	Ditzum	Explosion
21	01/12/2009	612/08	12/12/2008	OOCL Finland/ RMS Saimaa/ Nordic Diana	Container vessel/ Bulk carrier General cargo vessel	Great Britain/ Antigua & Barbuda/ Netherlands	Kiel Canal, Brunsbüttel	Collision

* Investigation report of the flag State in cooperation with the BSU

5.2 Investigated marine casualties that were concluded with an internal investigation report in 2009

	Date	Report No.	Date of accident	Name of vessel	Type of vessel	Nationality	Scene of accident	Type of accident
1	Discontinued 18/09/2009	553/07	07/11/2007	OOCL New York/ Wan Hai 501	Container vessel/ Container vessel	Germany/ Singapore	Indian Ocean	Collision
2	Discontinued 24/06/2009	563/08	07/11/2008	Ever Champion	Container vessel	Germany	Elbe buoy number 114	Ground contact
3	Discontinued 26/02/2009	39/09	06/02/2009	Amur 2525	General cargo vessel	Russian Federation	Port of Hamburg	Personal accident
4	Discontinued 19/05/2009	81/09	11/03/2009	*Stoc Marcia	Chemical tanker	Cyprus	Kiel Canal, km 5	Water contamination
5	Discontinued 01/09/2009	310/09	05/08/2009	Our Solution	Motorboat	Germany	Travemünde	Fire/ Explosion
6	Discontinued 09/11/2009	415/09	24/09/2009	Algoma Discovery	Bulk carrier	Bahamas	Unterweser Brake	Ground contact
7	Discontinued 27/10/2009	417/09	24/09/2009	Seeadler	Sailboat	Germany	Møn Island/DK	Personal accident
8	Discontinued 19/11/2009	495/09	19/11/2009	Finnmaid	Ro-Ro passenger ship	Finland	Port of Lübeck	Fire/ Explosion

* Investigation by the flag State in cooperation with the BSU

5.3 Ongoing investigations at 31 December 2009

	Report No.	Date of accident	Name of vessel	Type of vessel	Nationality	Scene of accident	Type of accident
1	557/08	28/10/2008	Covadonga	Chemical tanker	Panama	Brunsbüttel Lock	Personal accident
2	41/09	12/02/2009	Vasi/ Birthe Theresa	Chemical tanker/ Chemical tanker	Cyprus/ Singapore	Kiel Canal, km 95	Collision
3	51/09	17/02/2009	Gitte/ Skania	Fishing vessel/ Ferry	Germany/ Bahamas	16 nm east of Rügen (EEZ)	Collision
4	56/09	28/02/2009	Christa/ Odin	Fishing boat/ Sports vessel	Germany/ Germany	Timmendorf (Poel)	Collision
5	094/09	29/03/2009	Kelbo	Sailing yacht	Germany	Off Majorca	Personal accident
6	168/09	26/05/2009	Hoegh London/ Maersk Racer/ Maersk Newark	Ro-Ro cargo ship/ Container vessel/ Container vessel	Norway/ Great Britain/ Liberia	Bremerhaven	Collision
7	230/09	27/06/2009	Renate Schulte* Marti Princess	Container vessel/ General cargo vessel	Germany/ Malta	Turkish waters	Collision
8	231/09	29/06/2009	Aurora/ Transanund	General cargo vessel/ Container vessel	Cyprus/ Cyprus	Elbe, km 650.5	Collision
9	282/09	21/07/2009	YM Tianhin	Container vessel	Germany	Kaohsiung/Taiwan	Personal accident
10	286/09	20/07/2009	Cross Match	Sailing yacht	Germany	Off Bornholm	Personal accident
11	301/09	04/08/2009	Ece Nur K.	Chemical tanker	Turkey	Bützfleth	Personal accident
12	350/09	24/08/2009	Schleswig- Holstein/ Mahdi	Ferry/ Sailing yacht	Germany/ U.S.	Fehmarn Belt	Collision
13	391/09	15/09/2009	CCNI Guayas	Container vessel	Germany	Port of Hong Kong	Personal accident
14	457/09	19/10/2009	Noormann/ Pontoon HH2016	Tug boat/ Work pontoon	Germany/ Germany	Bodden waters off Rügen	Capsize
15	474/09	04/11/2009	Den Blaa	Sailboat	Germany	Heikendorf beach	Personal accident
16	496/09	21/11/2009	S. Gabriel	General cargo vessel	Germany	Azores	Ground contact
17	510/09	02/12/2009	Spring Panda/ Liquid Gold	General cargo vessel/ Chemical tanker	Netherlands/ Liberia	Elbe buoy number 115	Collision
18	520/09	16/10/2009	Frisia Lissabon	Container vessel	Liberia	Waters around Borkum	Personal accident
19	524/09	15/12/2009	Finnmaid*	Ro-Ro passenger ship	Finland	Port of Rostock	Personal accident
20	533/09	27/12/2009	Pingi	Sailing yacht	Germany	St. Peter-Ording	Personal accident

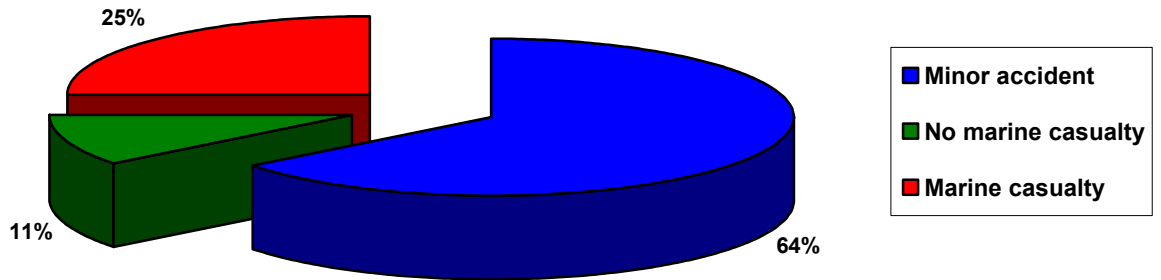
* Joint investigation by the flag State and the BSU

5.4 Ongoing investigations at 31 December 2009, published in the first quarter of 2010

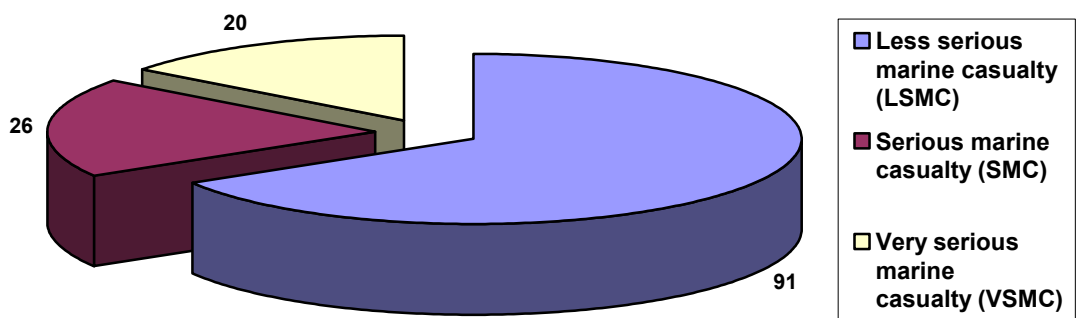
	Published	Report No.	Date of accident	Name of vessel	Type of vessel	Nationality	Scene of accident	Type of accident
1	15/01/2010	642/08	15/12/2008	Santa Alina	Container vessel	Germany	Port of Lomé/ Togo	Personal accident
2	15/01/2010	114/09	30/03/2009	MOL Utility	Container vessel	Germany	Port of Tanga/ Tanzania	Personal accident
3	01/02/2010	255/08	01/06/2008	Marfeeder/APL Turquoise	Container vessel/ Container vessel	Germany/ Singapore	Outer Weser	Collision
4	01/02/2010	161/09	21/05/2009	Quintett	Sports vessel	Germany	Oste estuary/ Elbe	Capsize/ Personal accident
5	15/02/2010	015/09	20/01/2009	Taube	Sailing yacht	Germany	Atlantic coast Morocco	Capsize/ Personal accident
6	01/03/2010	020/09	12/01/2009	Hanse Vision/ Birka Express	Container vessel/ Ro-Ro cargo ship	Cyprus/ Finland	Kiel Canal, km 8.85	Collision
7	15/03/2010	218/09	17/06/2009	Yohjin	Car carrier	Panama	Port of Bremer- haven	Personal accident

5.5 Overall reports and marine casualties reported in 2009

Overall reports to the BSU

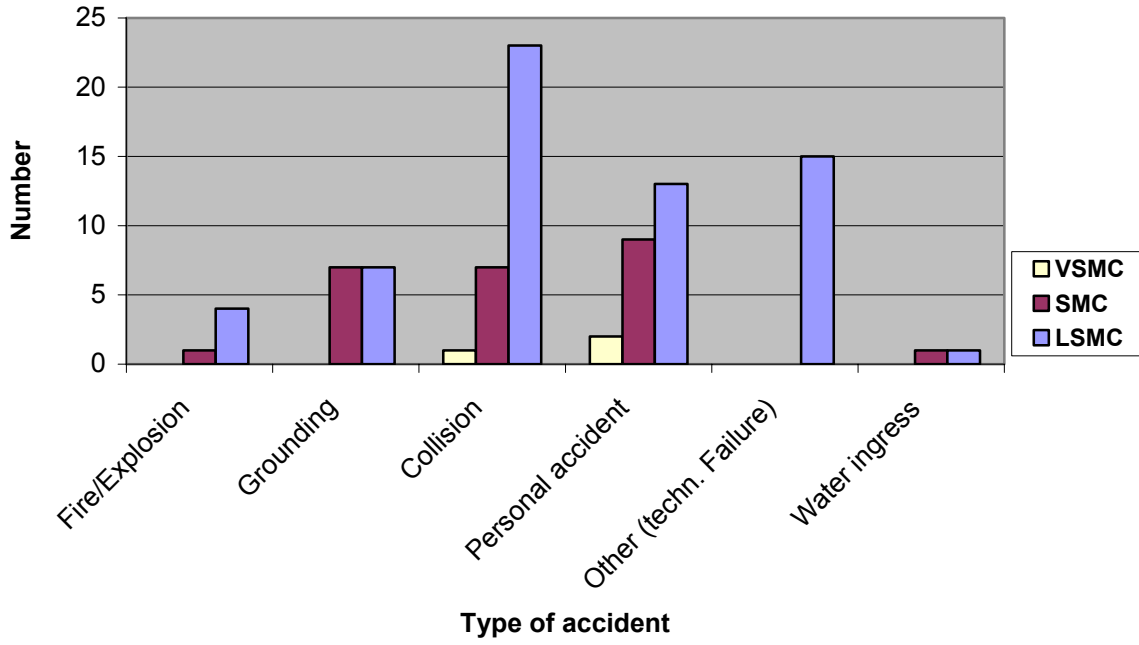


Marine Casualties according to IMO-Code

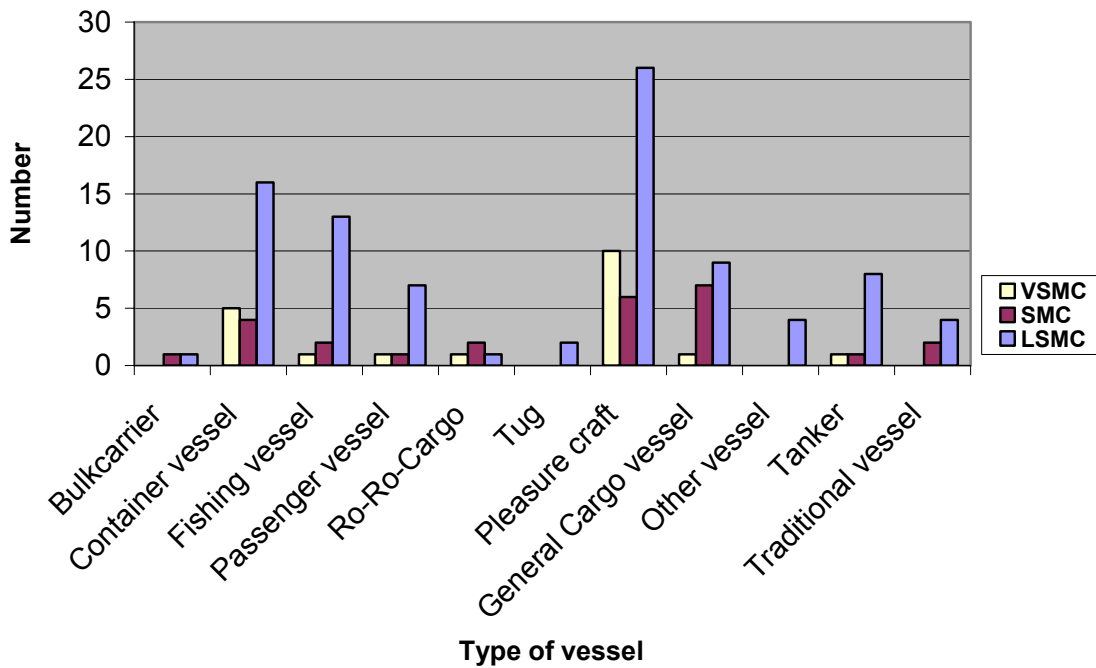


5.6 Breakdown of marine casualties by type of accident and vessel

Breakdown by type of accident

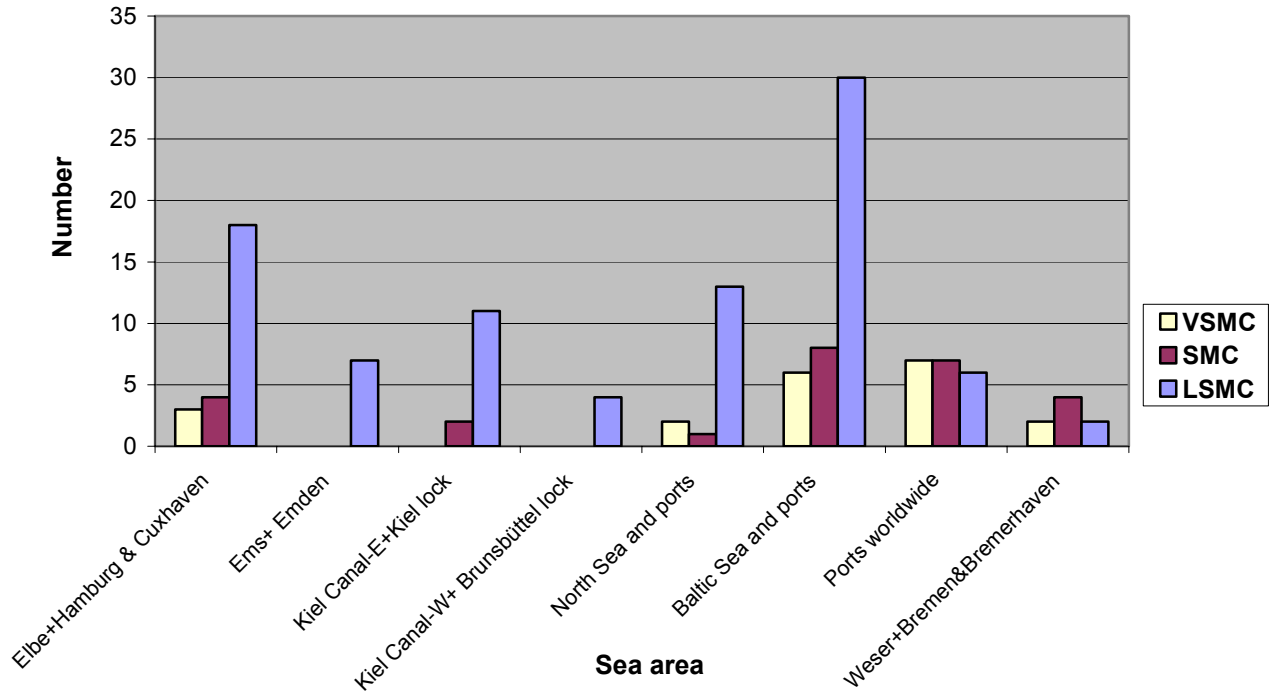


Breakdown by Types of vessel

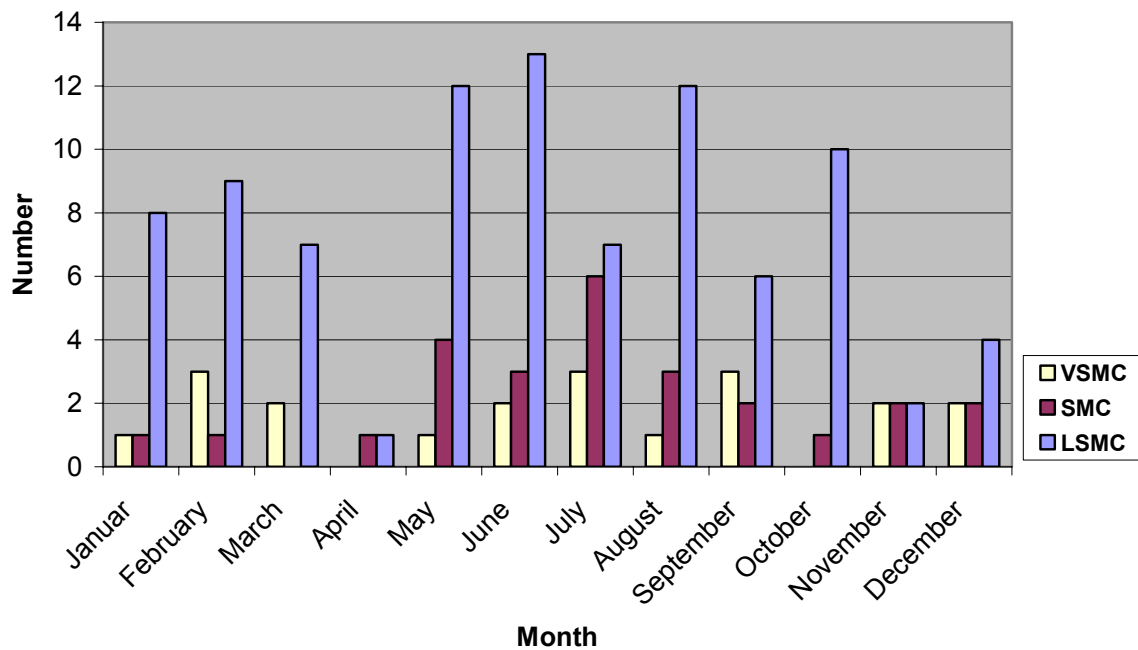


5.7 Breakdown of marine casualties by sea area and month

Breakdown by sea area

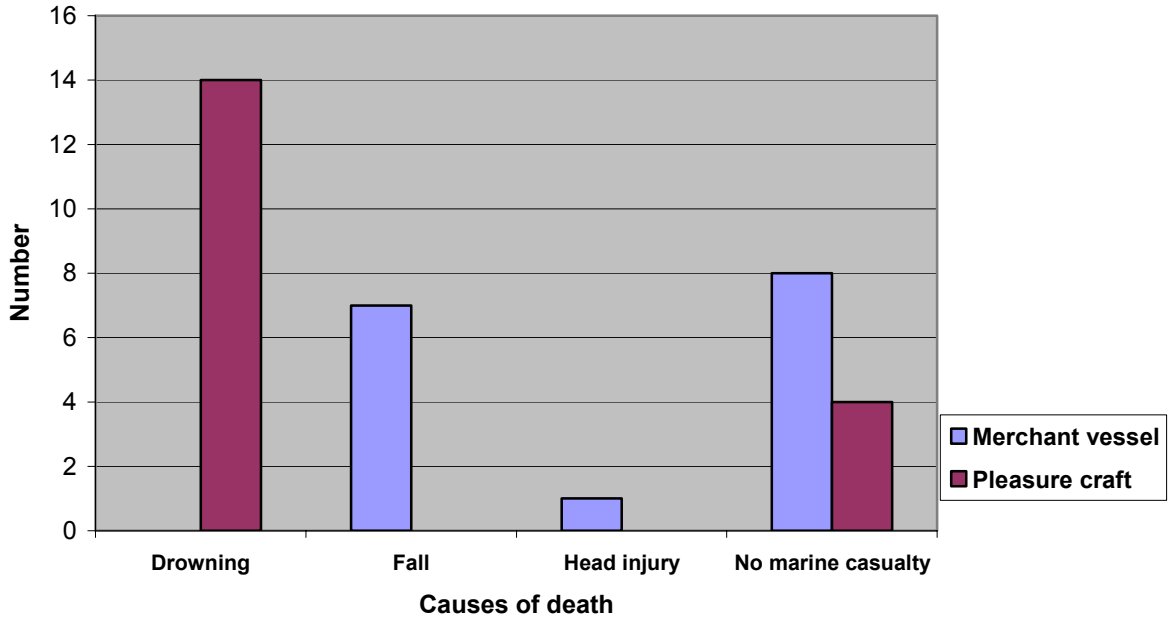


Breakdown by month



5.8 Breakdown of marine casualties by cause of death and injury

Breakdown by causes of death



Breakdown by injuries

