



Sjøfartsdirektoratet
Norwegian Maritime Authority



FOCUS ON
RISKS

2017

Director General of Shipping and Navigation, Olav Akselsen, hopes that the industry will benefit from «Focus on risks 2017.»

PHOTO: STEINAR HAUGBERG

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Focus areas pay off

The main task of the Norwegian Maritime Authority (NMA) is to work for safe shipping and the lowest possible negative impact on the environment from shipping. We have a broad approach to our work. When developing Norwegian and international legislation, in our preventive work, during supervision, document control and certification, we try to focus on the most effective measures when it comes to reaching our goal of safe and environmentally friendly ships.

For some years, the NMA has chosen to have special focus areas for our activities. The focus areas are chosen based on the findings from our annual risk assessment, and have been important for the NMA's prioritisations. The goal of a risk-based approach is to use the available resources in the most effective manner possible and so that efforts are directed at the areas that can yield the best results for the safe operation of ships and for the environment.

So far, experience shows that this approach pays off. If we compare the results from our inspections and surveys before and after a particular focus area has been chosen, we see large changes in reported deficiencies.

In 2014, the focus area was «Fire on board», in 2015 it was «Safe workplace on board» and in 2016 «Rest periods and manning». Every year we see a large increase in the number of non-compliances related to the focus area. For the present year, we see a particularly strong increase related to registration forms for rest periods, watchkeeping schedule and certificate for minimum safe manning.

We have had a reduction in the number of fires following the 2014 focus area. Even though we should be careful about stating a clear correlation, I think our choice of focus area increases the attention to the areas in question. Our findings from inspections and the issued orders to rectify have also contributed to removing many potential hazards.

The idea behind an annual risk assessment and choice of focus area has been a two-part idea. In addition to being an important tool for the NMA in our prioritisations, it is our intention that this report and the findings we make in our risk assessments will be relevant for the industry and be used as a tool on board the ships and in the company offices.

During the inspections, our surveyors have used special check lists prepared based on the selected focus area. The checklists have been published on our website, so that the crew and companies are able to use them for their own review of their operations. New this year is that we have included the checklist in this report, in order to show what our surveyors will focus on and to give the companies a useful tool.

I want to encourage everyone to use this checklist actively in their internal work and in ample time before our surveyors come to visit. This way, the industry itself can both prevent accidents and reduce the number of non-compliances found by the NMA.

Many of the findings made by our surveyors could indicate that some companies are not doing enough to prevent accidents. Inadequate HSE activities and lack of maintenance procedures speaks in many cases to a poor safety culture.

A positive attitude to safe operations starts at the top. The management in the company and on board are responsible for establishing routines and systems ensuring safe operations and that the crew are actively involved in the development of procedures and instructions.

Good routines for safe operations reduce the risk of accidents. Safety management has therefore been chosen as the focus area for 2017.

In this report, you can read more about the background for this choice, and what the NMA are planning to do in order to follow it up. You will also find information about risk scenarios, development in the number of accidents, findings from inspections and useful tips for safe operations.

I hope you will find the report interesting and useful.

*Olav Akselsen,
Director General
Norwegian Maritime Authority.*

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Photo: Magnus Jonas Fjell

Overall risk scenario 2016

The Norwegian Maritime Authority (NMA)'s risk assessment is based on 25 hazardous and accidental occurrences on different types of vessels. Six of these occurrences are considered high-risk events: grounding, collision, capsizing, fire, fall overboard and crush/impact injuries.

In the spring of 2016, the NMA updated the analyses on which the NMA's risk assessment is based. New of 2016 is that collision is also considered a high-risk event. Based on this assessment, six events in particular stand out as being high-risk.

Over the last ten years, the NMA has seen an increase in the reported number of casualties to ships. Fortunately, the increase is seen in less serious casualties. The number of serious casualties has remained stable.

The maritime industry is constantly evolving. Much of the development is inherently contributing to improved safety. Other parts of the development challenge the framework laid down by the

regulations, and one has to think outside the box in order to maintain a high level of safety. In addition to ensuring that innovation plays a part in maintaining or improving the established level of safety within the fleet, the NMA is working towards Norwegian innovation becoming the international standard. This will provide both a higher level of safety and new opportunities for the industry.

Grounding

In the period from 2006 to 2015, the number of groundings was on the rise, but has decreased somewhat since the peak year of 2011 and has remained relatively stable the last three years with between 84 and 87 occurrences each year. The general increase in groundings is found in the categories with less serious consequences. The number of groundings resulting in loss of vessel has remained stable, and the number of groundings causing serious damage has gone down. This may indicate an increased degree of reporting.

One fatality has been registered in connection with the 855 groundings in total with Norwegian commercial vessels over the last ten



years. During this period, we have seen several examples of groundings that have led to environmentally harmful discharges, but the majority of these are relatively small amounts of diesel or lubricating oil. A few occurrences with discharge of several thousand litres have been registered. The largest discharge from Norwegian vessels in connection with groundings in this period is 12,000 litres of marine gas oil.

The causal analyses point to human factors in particular as important causes why ships run aground. Lack of alertness or impaired judgement are key reasons. Underlying causes related to safety management, organizational conditions and hours of work and rest are flagged. Some groundings occur as a result of loss of propulsion power or steering control.

The number of orders to rectify related to groundings has been relatively stable the last five years, but increased slightly in 2015. The vast majority of orders to rectify related to this casualty event are

deficiencies in navigation equipment and propulsion and auxiliary machinery.

In a survey on maritime safety carried out by the NMA in the spring of 2016, 21% of deck officers replied that they sometimes, quite often or very often work more than 16 hours a day. 33% stated that they violate the provisions on hours of work and rest at least once a month. The survey furthermore showed that there is large room for improvement when it comes to voyage planning.

Groundings were an important reason why the NMA chose rest periods and manning as the focus area for 2016. Preliminary results indicate an increase in the number of findings related to factors attributed as important causes of groundings.

Fire

In the period from 2006 to 2015, the number of fires was increasing, with a peak of 35 occurrences in 2013. Over the last two years,



Photo: Vidar Strønstad

however, the number of occurrences has gone down. We have registered an average of 22 fires per year the last ten years, whereas the number of fires in 2014 and 2015 was 21 and 23 respectively.

Four fatalities were registered in the same period. Two of these occurred on the coastal ship Nordlys in 2011. Fire on large passenger ships is one of the casualty events we fear the most. However, these occurrences are very rare, and the larger vessels are also well equipped to handle most casualty events. Smaller vessels are more vulnerable, and are more often lost as a result of casualties.

Most fires start in the ship's engine room, and our causal analyses point to hydrocarbon leaks and electrical faults as main causes of fire. Insufficient maintenance and inspections are attributed as underlying reasons why faults arise or are not detected.

In the period from 2011 to 2015, the NMA saw a slight reduction in the number of non-compliances related to fire. Just under half of

the non-compliances were of such a serious nature that they needed to be rectified before the vessel was allowed to proceed. Most orders to rectify are issued for deficiencies of fire-extinguishing equipment, but faults in electrical installations and non-conformities related to drills and instructions also often result in orders to rectify.

In the survey on maritime safety carried out by the NMA in the spring of 2016, 56% of the engineers replied that they agreed fully or somewhat with the statement «the time and resources for maintenance and inspection of vessel and equipment is sufficient». Moreover, 22% were of the opinion that «on my vessel, minor modifications/maintenance is sometimes carried out by people not having the necessary competence (with the exception of training situations)».

Fire and explosion was the NMA's focus area in 2014.

Collision

Between 2006 and 2015 the NMA registered on average 19 collisions per year. We have seen a downward trend in these numbers over the last few years, but this trend was broken in 2015 when 24 occurrences were registered.

One fatality has been registered in connection with collisions on Norwegian ships the last ten years. Like groundings, most occurrences are less serious accidents resulting for the most part in cosmetic damage to the ship. However, at worst, collisions could ultimately have major consequences for both human life, the environment and material values. This is part of the reason the scenario «Collision at sea off the coast of Western Norway» is being discussed by the Norwegian Directorate for Civil Protection (DSB) in their report «National Risk Analysis».

The causal analyses for collisions point to many of the same causes as for groundings. However, they also point to the traffic situation in the waters in questions as well as the interaction between vessels.

Non-compliances related to collisions have had a weak downward tendency in the period from 2011 to 2015. The most common deficiencies are related to stability and construction. Next come, like for groundings, deficiencies in machinery and navigation equipment.

In the survey on maritime safety, 18% of deck officers replied that they never have the opportunity to have two navigators on the bridge, either due to manning or to regulations on hours of work and rest.

Capsizing

There has been a small reduction in the number of capsizings in this period. From a peak of nine occurrences in 2009, we have seen between one and four occurrences per year the last five years.

Despite of this, capsizing is the type of accident with the second highest number of fatalities in the period from 2006 to 2015, just behind occupational accidents. Over this period, a total of 30

persons lost their lives in altogether 16 capsizings. Closer to half of these perished in two major accidents; the Bourbon Dolphin in 2007 and Langeland in 2009. The Bourbon Dolphin accident had substantial consequences, and the NMA, in cooperation with the industry, has implemented several measures in order to avoid similar events from occurring. Most vessels that capsize are small cargo and fishing vessels.

The majority of capsizings result in foundering. Very few capsizings include records of environmentally harmful discharges. The reason for this is that only acute discharges are registered in the database. Foundered vessels carrying dangerous substances on board constitute a danger to the environment, and extracting these substances are connected with high costs.

The causal analyses point to cargo being incorrectly stowed or insufficiently secured as key reasons for capsizing. This impairs the vessel's stability, and could, when combined with flooding and effects from external forces, lead to a critical situation. Some vessel types, such as tugs and some fishing vessels, are exposed to strong external forces in connection with their operation. The NMA's analyses point to lack of knowledge with regard to stability in general and the vessel's operational limitations in particular as important underlying causes.

The number of issued orders to rectify has gone down over the last five years. This applies to both planned and unscheduled inspections. Findings related to watertight integrity and non-compliances with regard to the vessel's stability documentation are recurrent factors. One important cause is failure to update the vessel's stability documentation following modifications and alterations.

In the survey on maritime safety, 23% of the respondents disagreed with the statement that they have sufficient time for training on board.

Fall-related accidents

The number of fatalities from fall-related accidents in the period 2006-2015 is relatively stable, with an average of just above four casualties per year over the ten-year period. Around two-thirds of these were accidents where the person fell overboard. Most falls overboard occur on fishing vessels, but other vessel types are also represented. Fatalities from falls overboard have had a slight downward trend in the period. Fall-related accidents in general also show a decreasing tendency in this period, but falls overboard have a worrying increase. The increase could be due to an increased willingness to report.

Falls overboard occur from various vessel types. The NMA receives many reports about fall-related accidents from fishing vessels in particular. The majority of fatalities in connection with falls overboard happen in open waters, but a significant amount also occur in ports. The causal analyses point to several key causes, where uncertain work practice and lack of safety measures are important. Good routines for implementing and updating risk analyses are also important.

Findings from inspections connected with fall-related accidents have gone up these last years. This can probably be linked to the focus area «Safe workplace on board» in 2015. Most of the issued orders to rectify relate to preventive measures, including implementation of risk assessment. Another recurring issue is lack of emergency equipment on board for man overboard.

In the survey, 27% responded that they agree fully or partly that it is sometimes necessary to expose oneself to danger in order to get the job done. On the question of use of protective equipment, the vast majority, close to 80%, responded that their colleagues wear protective equipment. An even higher number of respondents, 87%, said that they tell their colleagues if they are not using the proper protective equipment.

Impact and crush injuries

The number of impact and crush injuries was declining rapidly in the start of the period 2006-2015, from an average of 110 incidents the first five years, to an average of around 70 the last five years. On average, impact and crush injuries have led to 1.4 fatalities per year the last ten years. This is also a type of accident where the NMA sees many serious injuries.

An important cause of impact and crush injuries is use of heavy work equipment such as winches and cranes, where the employee is pulled in or caught between something with great force. Underlying causes are identified as intense work pressure and lack of understanding of the risks. Some employees work alone, which means that there is nobody around to provide first aid should an accident happen. The NMA points to better and systematic work with risk assessments along with proper training on board as important measures, in addition to better adaptation of work stations.

The number of non-compliances related to impact and crush injuries has gone up the last five years. In this area as well, the statistics will be affected by the NMA's focus area in 2015. Most order to rectify relate to insufficient safety measures, such as safeguarding of rotating equipment. We also find non-compliances related to maintenance and training.

In the survey on maritime safety, 10% of the respondents agreed fully or partly with the statement «on my vessel, tasks involving risks are always executed in accordance with the relevant procedures». 31% of respondents stated that they have to violate the procedures in order to get the job done.

Focus area in 2017

Safety management

Lack of procedures for work operations and weaknesses in organisation, management and communication are recurring causal factors in reports following marine casualties. In 2017, the surveyors from the Norwegian Maritime Authority will therefore have an increased focus on safety management systems.

In several of their investigation reports, the Accident Investigation Board Norway has pointed to the need for supplementary rules on safety management systems on vessels. The Norwegian Maritime Authority (NMA) finds systematic safety management to be an important instrument in order to prevent accidents. Increased focus on safety culture and safety management systems and less detailed controls in our supervisory work is also in line with the international development.

Systematic work

Safety management is about establishing a system for achieving and maintaining a high level of safety, so that risks can be more easily managed. Simply put, it is about improving the end result by laying the proper groundwork. By establishing an organisational structure where management, planning, responsibilities, routines, procedures and resources are described, the operation can become safer and more effective. Working systematically with safety management and learning from your own and other's experiences will in time create a good safety culture on board. In order to achieve continuous improvement of safety management, incidents need to be systematically reported and followed up, and the system itself must be evaluated on a regular basis.

How to succeed with the establishment of a safety management system

The safety management system needs to be adapted to the business and the business activities. It is important that the persons on board develop an ownership to the system. Each procedure can with advantage be written by the personnel carrying out the task in question in the day-to-day operation. They are the ones who are the most familiar with the work.

The challenge is often making the system as simple and clear as possible. That is to say, that activities should have the goal of preventing injuries to people and damages to material, installations and the environment. The system should be easy to maintain and practical to use in the daily work. If the systems are too comprehensive, particularly in operational work descriptions, they could prove counterproductive.



Photo: Steinar Haugberg

Focus area in 2017



The main parts of the management system should describe main activities, which often include:

- operative tasks
- maintenance
- internal and external communication
- risk assessment
- emergency preparedness
- resources and competence
- handling non-compliances
- document control
- quality control (evaluation and internal control)

Within each subject, it should be considered whether there is an existing and adequate description of how the activity should be carried out, managed and controlled. The final step is to verify that the procedures cover the relevant legal provisions, to make sure that the safety management system satisfies the minimum requirements of the legislation.

Legislation

Safety management is by no means new to the industry. In a maritime context, the term is often associated with the International Safety Management (ISM) Code, which lays down general rules for the safe operation of ships. All vessels covered by the Regulations on safety management systems for Norwegian ships and mobile offshore units must comply with the ISM Code and carry a valid Safety Management Certificate. In addition, the Ship Safety and Security Act requires all shipping companies to establish a safety management system in the company's organisation and on board each ship, in order to identify and control risks and ensure compliance with the legislation and internal safety requirements. Vessels required to have an ISM system are also covered by a separate audit regime. At present, all vessels are required to imple-



Photo: Jan Roald Jonassen

ment safety management in the company, even if they are not covered by the ISM requirement.

Regulatory amendment in force from 1 January 2017

A proposal for amendments to the Regulations on safety management systems for Norwegian ships and mobile offshore units has been prepared, which provides supplementary provisions on safety management systems for commercial vessels that are not required to have a safety management system in accordance with the ISM Code. The amendments are planned to enter into force on 1 January 2017.

There are no proposed requirements for certification or external audits, but it is proposed that the company should conduct an annual evaluation of its system. The NMA will carry out supervision of the safety management system in order to verify compliance with the requirements.



Photo: Magnus Jonas Fjell



Photo: Jan Roald Jonassen



Photo: Jan Roald Jonassen



Photo: Steinar Haugberg

We see this as a joint project where the industry and the NMA hope to share experiences and play off each other's strengths. The goal is improved safety management and a better safety culture on board. The NMA expects that the requirements for a safety management system will lead to fewer accidents and unwanted incidents. Strengthened control through improved safety management is also expected to lead to increased operational reliability, efficiency and profitability.

Rooted in the company's management

There are some critical success factors for succeeding with the establishment of a safety management system. All levels in the organisation must be given the opportunity to contribute to the development of the system, and the company must commit to following the provisions laid down for the safety activities through written procedures, responsibilities and reporting. Nevertheless, the work has to start in the company's management:

- The management must develop a deliberate strategy for implementing the system in the organisation and create involvement in the subject.
- They should set goals and ambitions for the safety, and ensure that the necessary resources are made available in order to reach the goals.
- The management must also see to that the employees get sufficient knowledge about the safety work in the organisation and that they are familiarised with the documentation describing responsibilities and procedures.
- They must motivate employees to be sufficiently aware of safety in their everyday activities, and facilitate continuous improvement and learning.
- The management should contribute to creating an environment where the employees feel encouraged to report unwanted incidents.

A high level of safety in the company starts with the management. ►



Issues 2017

Nr	Issues
1.1	The responsibilities and authority of the shipping company and the master
1.1.1	Has the Company established a safety management system?
1.1.2	If the vessel have two or more crew members, is the organization and responsibilities concerning HES described? The responsibilities of the Company, Master and the rest of the crew?
1.2	Resources and personnel - training and development of expertise
1.2.1	Is the Master familiar with the safety management system, and are procedures and routines described in the system implemented on board?
1.2.2	How does the Company and the Master ensure that the crew members have the qualifications required to hold their position and carry out their duties on board?
1.2.3	If a training manual for the vessel is required, is it up to date and readily available on board?
1.2.4	If the vessel has a deck crane, can training of the operators be documented?
1.2.5	Are there adequate routines for familiarization of new personnel and after change of crew?
1.2.6	Is the safety management system available in the working language on board?
1.3	Operation on board and risk assessments
1.3.1	Have risk assessments for dangerous operations on board been prepared? Request examples.
1.3.2	Is the Master familiar with the stability limitations of the vessel, and have circumstances which may have unfavourable influence on the stability been assessed?
1.3.3	Has the work equipment, which may pose special risk to the safety of those who work on board, been identified? What is done to reduce the risk connected to the use of this equipment?
1.3.4	For those vessels comprised by the requirements of a safety representative, inquire whether a safety representative is elected and if training is given.
1.4	Emergency preparedness
1.4.1	Request plans for fire drills and rescue exercises. When was the last exercise carried out? Is this documented?
1.5	Non-conformities, accidents and hazardous occurrences
1.5.1	Has there been any accidents or hazardous occurrences on board?
	Follow-up questions: Was the incident reported to the relevant authorities? (NMA, NAV). Were measures taken to prevent recurrence?
1.6	Maintenance and critical equipment
1.6.1	Do you have a system for maintenance management onboard? A plan describing what, when and how.
1.6.2	Has the Company identified critical equipment on board? If yes, are plans and measures described in case such equipment should fail?
1.6.3	Check the maintenance history on especially high-risk equipment which is not subject to periodic maintenance. For instance shackles and slings, straps and wires.
1.7	Relevant documentation available
1.7.1	What are the routines for ensuring that the documentation in the safety management system are available to all personnel onboard?
1.7.2	How is it ensured that an updated version of the documentation is readily available? Who is responsible for updating the documentation?
1.8	Internal review - including continuous improvement
1.8.1	Does the Company review the safety management system annually?

The legal basis of and guidelines to the check list will be included in the final checklist that will be published on www.sdir.no



Photo: OPD

Heidi foundered in February 2015: Poor stability lead to capsizing

The vessel foundered during a diving assignment in the Bjerkøy inlet on 16 February 2015. The three people on board abandoned into a workboat that was moored to Heidi.

The workboat Heidi broke free from its mooring while they were preparing a diving operation. The diving foreman drove the vessel in a circle while awaiting a new mooring line. Estimates from the Accident Investigation Board Norway (AIBN) show that the total deck cargo on board caused the vessel's stability to be very poor to begin with.

In addition, a low forward freeboard resulted in water flooding the deck, which in turn penetrated the hull through damage to the gooseneck and non-tight hatch covers. The bilge water was not drained in a satisfactory manner. In practice, this meant that the vessel's stability and back-up stability was non-existent. Heeling forces from the use of the rudder combined with sideways movement of bilge water contributed to capsizing and foundering.

The company had developed a safety management system for its general operation, where project management and work processes

were described in detail. However, this system did not cover operational limitations, risk assessments and maintenance of vessel and equipment. A safety management system established in accordance with the intentions of the Ship Safety and Security Act could have facilitated this.

The AIBN advises the company to review their internal procedures in order to ensure better management of the vessel safety, and to prepare stability calculations for the vessel based on established stability standards.

The accident has similarities with several other accidents investigated by the AIBN involving workboats/cargo vessels of less than 15 metres in overall length.

The AIBN has in several cases found the documentation and understanding of the vessels' stability and operational limitations to be lacking. The findings made by the AIBN in this investigation as regards the vessel's stability and the safety management of the vessel's operations are therefore not unique.



Photo: Freddy Silden

Leif Roald foundered in January 2015: Grounding in demanding waters

The fishing vessel Leif Roald ran aground on the bank Brakan in the inlet Hustadvika on 17 January 2015. The crew of nine abandoned into a liferaft, and were later rescued by two other vessels.

Leif Roald fishing on Haltenbanken in 2014. Photo: Freddy Silden

Hustadvika is a challenging area to navigate, and careful planning and good situational awareness is necessary to ensure a safe voyage. The crew had sailed these waters before, and considered the route from Troms to Møre og Romsdal as a routine voyage.

The voyage was not planned using Norwegian sea charts on paper, neither were paper charts used underway. The voyage was checked using a chart plotter and a radar, along with the navigator's visual observations of the waters. When the accident occurred, only one of the vessel's two radars was in use, and the echo-sounder was turned off.

The skipper and the company had planned for the vessel sailing around the clock by using an additional navigator. This resource

was not put to use in order to strengthen the navigation in demanding waters. A lookout was not posted, and the skipper was alone in the navigation.

In the crucial minutes before the grounding, the skipper's focus was directed at a north-going vessel coming towards them, hence Leif Roald did not follow the course that was saved from a previous voyage. The skipper's understanding of the situation in this phase was primarily based on what he was visually observing, along with information from the chart plotter and the radar.

The company had not prepared a detailed written procedure for how a voyage should be planned and executed. This voyage is therefore considered representative for how the vessel had been operating before.

Based on the investigation, the Accident Investigation Board Norway recommends the company to review their internal procedures and to commence establishing and implementing procedures for the planning and safe execution of voyages.



Photo: SHT

Ordinary seaman lost her life: Person overboard from the cargo ship Nysand

An ordinary seaman fell overboard and drowned as Nysand was leaving berth at Forusstranda on the evening of 24 October 2008.

The ordinary seaman had been on the quay to release the lines, and the master started manoeuvring the vessel away from the quay without ensuring that the ordinary seaman was safely back on board. Right after departure, the ordinary seaman was observed hanging from the outside of the railings before she not long thereafter fell into the sea. A search was initiated from the vessel's rescue boat, and assistance was requested from the Joint Rescue Coordination Centre via VHF. The person was observed in the water by a helicopter that had arrived to take part in the search, and resuscitation was immediately attempted on the ordinary seaman. By then, she had been in the water around 45-50 minutes, and was pronounced dead shortly thereafter.

In their investigation, the Accident Investigation Board Norway has chosen to focus on the general systems which are essential for the safe operation of ships, instead of individual elements that could have had a negative impact on the outcome of the accident.

The investigation uncovered central deficiencies with regard to safety management and working environment in the company and on board, and insufficient follow-up from the authorities. The investigation also uncovered that the legislation does not define the scope of safety management systems for cargo ships of less 500 gross tonnage.

Following the accident, the company has implemented a safety management system based on the ISM Code in the company and on board.

In their investigation report, the Accident Investigation Board Norway recommends the Norwegian Maritime Authority to ensure systematic supervision and control of compliance with the HSE regulations and safety management system for cargo ships of less than 500 gross tonnage. Further to prepare specifications on the scope of a safety management system for this ship category.



Photo: Polar Tugs AS

Chanko foundered in April 2014: Drifted towards land and hit a rock

The tug Chanko lost propulsion power north of Senja just after midnight on 22 April 2014. It drifted toward land where it hit a rock, took in water and foundered. The crew was rescued by a rescue vessel shortly thereafter. Nobody was physically injured.

When Chanko experienced problems with its propulsion, the captain decided to stop the main engine. Since the current did not lead them as far south as expected, the vessel drifted straight toward the island of Edøy, where it ran aground.

The investigation of the accident showed that the company had not established emergency preparedness procedures to ensure that the shore-side was available to reply to communications from the vessel in emergencies. The captain therefore did not receive the necessary assistance in his evaluation of the situation when Chanko started to drift.

A well-functioning safety management system could have ensured that the shore-side was available around the clock.

Closed communication over mobile phones was used for nearly all the communication that the vessel had with Vardø vessel traffic services and with the rescue vessel. VHF was only used right before they ran aground, when communicating with the rescue vessel and with Bodø radio.

Based on this, the Accident Investigation Board Norway recommends the company to review their internal procedures and to commence establishing and implementing a safety management system for their vessel operation.

The Norwegian fleet:

More vessels flying the Norwegian flag

By the end of 2015, 11,639 commercial vessels were registered in a Norwegian ship register, whereof 535 were registered in the NIS and 11,104 in the NOR. This constitutes an overall increase of 121 Norwegian-registered vessels compared to 2014. The number of NIS vessels has gone up by around 2.5%, whereas the number of NOR vessels has gone up by around 1%.

The Norwegian merchant ship fleet consists of vessels registered either in the Norwegian Ordinary Ship Register (NOR) or in the Norwegian International Ship Register (NIS). Any Norwegian ship of 15 metres in overall length and upwards (cf. section 11 of the Norwegian Maritime Code), and all mobile offshore units (cf. section 507 of the Norwegian Maritime Code), are required to be registered in one of the mentioned Registries unless entered in the ship register of another country (cf. section 1 of the Norwegian Maritime Code). It is furthermore possible to register a vessel voluntarily on several other grounds.

Of the in total 11,639 commercial vessels registered in the Norwegian ship registers, 6,083 are fishing vessels, 3,816 are cargo ships, 1,227 are passenger ships and 513 are other vessels. The group «Other vessels» is a collective category consisting of, among others, floating cranes, barges, lifeboats, fish farms and similar. In addition to the commercial vessels, just over 7,700 recreational craft are registered. These recreational craft are on average 12 metres long.

Increase in the number of cargo ships

The growth of the Norwegian fleet is mostly due to an increase in the number of cargo ships. Whereas 3,630 cargo ships were registered in a Norwegian ship register in 2014, this went up to 3,816 in 2015. Cargo ships is a complex group, and consists of everything from small workboats to large cargo ships. The four largest vessel groups within the cargo ship segment are smaller workboats, general cargo ships, supply ships and oil tankers.

At the same time as the number of cargo ships has increased, the number of passenger ships and fishing vessels has gone somewhat

down. From 2014 to 2015, the number of passenger ships went down by 12, and fishing vessels by 66. These are vessels which have previously been registered in the NOR, and the reduction is probably mainly caused by a natural phase-out of older or damaged vessels.

The age composition of the fleet

The average age of the ships has changed relatively little between 2014 and 2015. Whereas the average Norwegian fishing vessel was 38.1 years in 2014, this has gone up to 38.7 years in 2015. For cargo ships, the average age has decreased from 22.6 to 22.31 years, while the average age of passenger ships has increased from 38 years in 2014 to 38.6 years in 2015. In practice, this means that the fleet has for the most part remained the same, but that some newer vessels have been added.

The difference in age is relatively large, and can vary a lot between the different subgroups. The ferry fleet, for instance, has an average age of 32 years in 2015, whereas catamarans have an average of 8.5 years. The average age can also vary between registers. Cargo ships registered in the NOR have an average age of 24 years in 2015, while NIS-registered cargo ships are only 12 years old on average.

Gross tonnage

Of the 11,639 commercial vessel in total, around 52% have registered gross tonnage. The overall tonnage of the Norwegian fleet constitutes just above 17,500,000 gross ton at the end of 2015. This is an increase of around 4.2% compared to the previous year. Cargo ships is by far the largest contributor to the tonnage. Of 6,083 fishing vessels, 2,920 are listed with gross tonnage. The average tonnage thereof is 144. In comparison, the average tonnage for cargo ships is 9,230 and for passenger ships 967. Note that the actual tonnage will be somewhat lower, as vessels of less than 15 metres are not required to measure their tonnage, and therefore will not contribute to reducing the average.

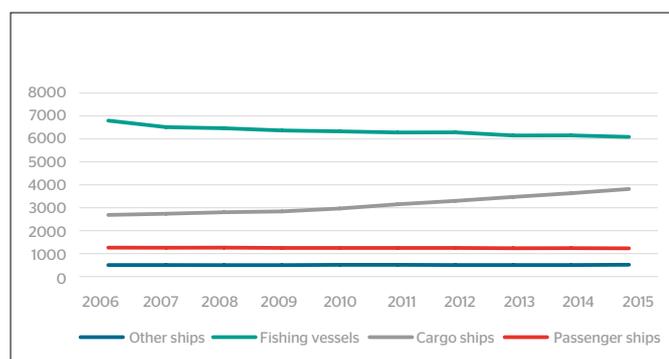


Figure 1: Development of number of commercial vessels NOR/NIS 2006-2015

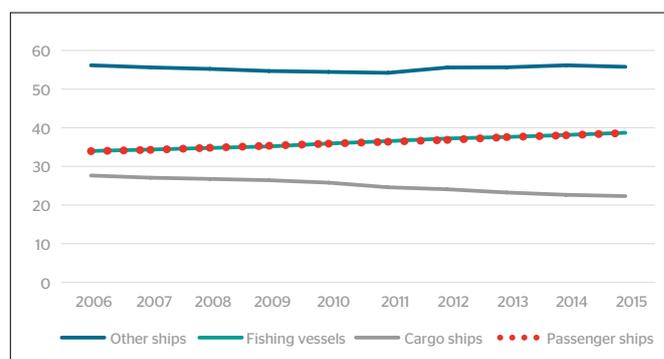


Figure 2: Development in average age per vessel group

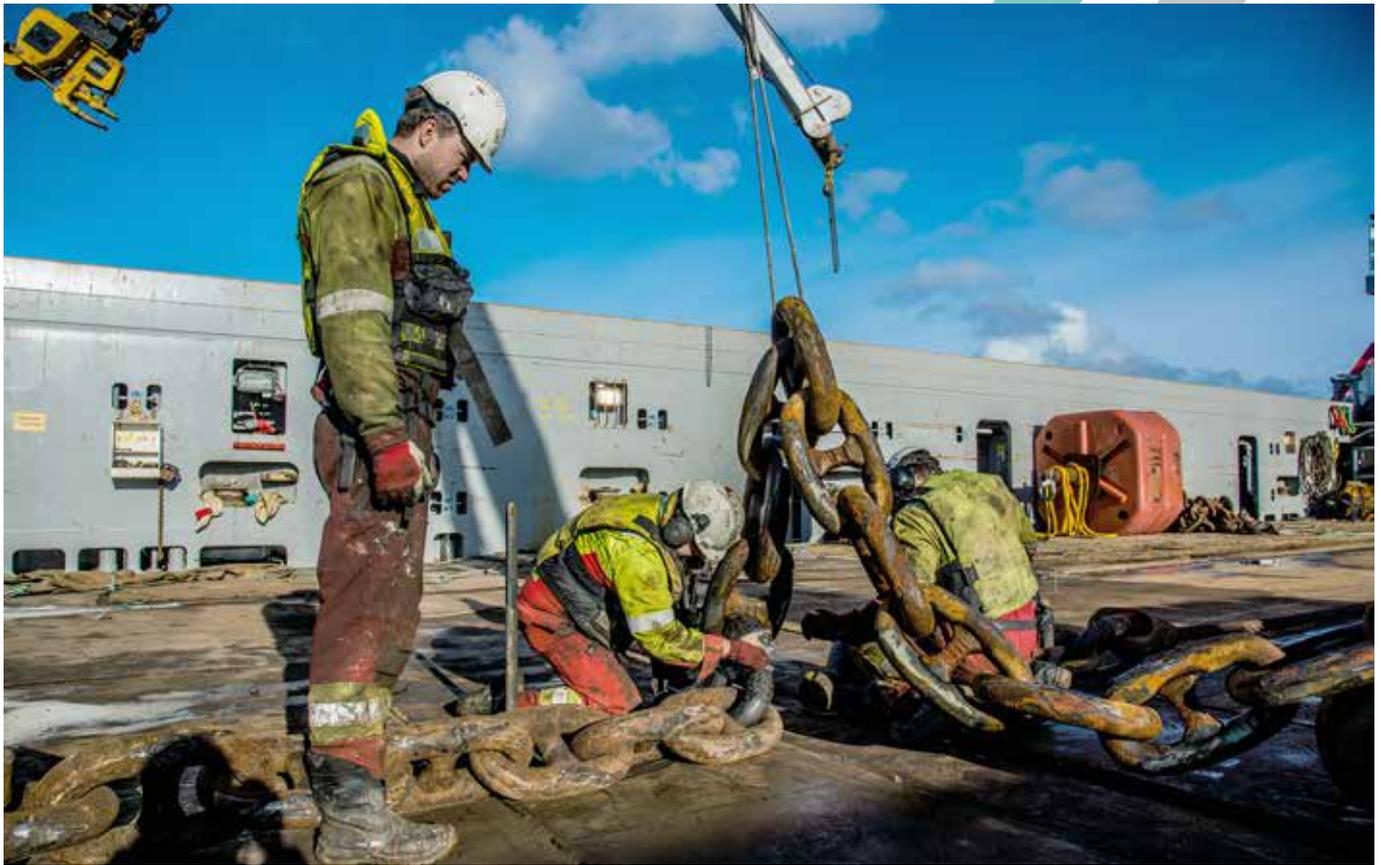


Photo: Bjarne Hovland

Marine casualties:

An increase in the number of total losses in 2015

22 ships were lost in 2015, compared to 9 the year before. The vast majority of these ships were smaller fishing vessels. Fortunately, in most cases the crew on board were rescued. Only one of a total of seven fatalities in 2015 was caused by the total loss of a ship. The remaining six fatalities were exclusively a result of occupational accidents. This illustrates the importance of the Norwegian Maritime Authority's focus on a safe workplace in 2015.

The Norwegian Maritime Authority (NMA) has registered a total of 473 marine casualties involving Norwegian-registered commercial vessels in 2015. This is an increase of 35 accidents compared to 2014. Despite of this, the number of accidents in 2015 is still below the average for the five-year period (476).

Of the 473 accidents in total, 245 were casualties to ships and 228 were occupational accidents. These accidents involved damage to 253 vessels and 190 injuries overall. Please take note that we only include injuries on personnel resulting in a registered work absence exceeding 72 hours. The reason for this criterion is because it allows

us better backwards-comparability. Injuries sustained by passengers and other persons onboard are included independent of work absence. Seven people lost their lives as a result of marine casualties involving Norwegian commercial vessels, which is one less than in 2014. The number of total losses increased from 9 in 2014 to 22 in 2015.

Casualties to ships

Of the 253 vessels in total that were involved in casualties in 2015, around 34% were groundings, while 20% were contacts and 9% were collisions. In other words, navigation-based occurrences constituted 63% of all vessel occurrences in 2015. An overview of the number of ships involved in the various casualty events is found in figure 1.

Among the 22 total losses, the recurring causes were flooding (six), fire/explosion (five), grounding (four) and capsizing (three). The remaining four occurrences were caused by contact, collision, rough weather and one unknown cause¹. Of the lost vessels, 18 were fishing vessels, 2 were cargo ships and 2 were passenger ships. Most of the lost fishing vessels were smaller vessels.

¹ This was the case of the vessel Øyskys, a small taxi craft that sank at berth, without known cause.



Photo: Christopher Bryan Miraran Sebastian

Occupational accidents and injuries

The NMA registered a total of 190 injuries in 2015. Whereof 7 were fatalities and 183 were injuries. As before we have limited ourselves to incidents which entail work absence exceeding 72 hours for crew members, or incidents that involve passengers or other persons on board the vessel. Six of the incidents in 2016 were a result of casualties with a ship and 184 were a result of occupational accidents. Compared to 2014, this is a reduction of four injuries. The average number of injuries per year on Norwegian commercial vessels the last five years is 197.

Most injuries were impact/crush injuries and injuries from falls on board. In total, these types of injuries constitute almost 71% of all injuries in 2015. Among the fatalities, three were caused by falls overboard, two were falls on board, and one was caused by crush/impact injuries. In addition, we have registered one fatality as «other occupational accident», this occurred in connection with the loss of a ship. Six of the seven fatalities overall were persons working on board the ships. The majority of these were at work when the accident occurred.

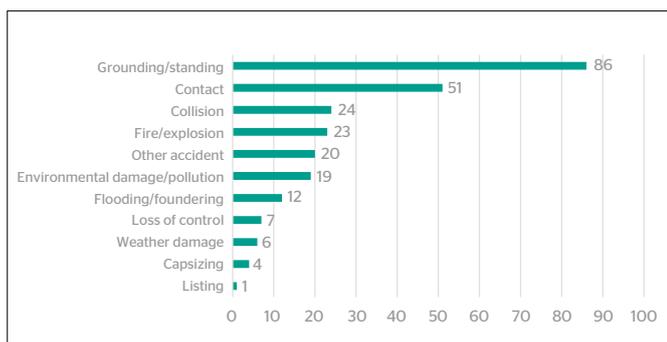


Figure 1: Number of Norwegian-registered commercial vessels involved in casualties, 2015

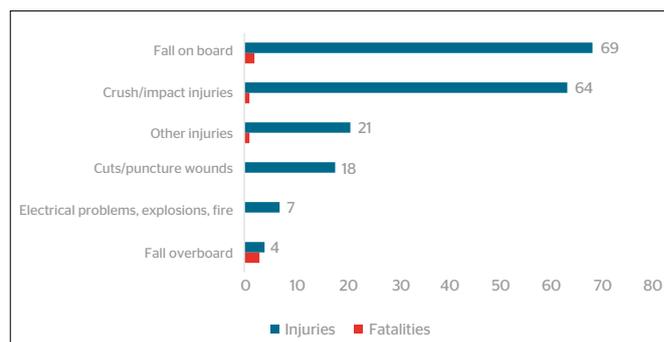


Figure 2: Number of injuries and fatalities on Norwegian commercial vessels, 2015



Focus area for port State controls in 2016 – MLC, 2006

At the same time as the Norwegian Maritime Authority (NMA) has its dedicated annual focus area in connection with flag State controls, Paris MOU is carrying out a separate campaign for its port State controls, a so-called Concentrated Inspection Campaign (CIC). In 2016, the CIC is focusing on the implementation of MLC, 2006.

The topics for the annual Paris MOU campaigns are based on areas where high levels of deficiencies have been encountered, or where new convention requirements have recently entered into force. The MLC, 2006 entered into force in 2013, and they now want to get an overview of how this has worked in practice.

This year's campaign will be held from 1 September to 30 November. If the vessel undergoes a port State control during this period, the inspector will go through a checklist.

Paris MOU publishes the checklist in advance to give the industry time to prepare.

The NMA recommends all Norwegian-registered ships calling at foreign ports to prepare for this year's campaign by going through the following points:

“White list” identifies the best shipping nations

Norway is in the top five in the exclusive set of nations with the best ship registers.

Europe's coastal states along with Russia and Canada collaborate under the Paris memorandum of understanding (MoU) on this listing system, with white for the quality flags, grey for the average performers and black for the worst. ▶



Photo: Steinar Haugberg

“Staying high up the white list is very important for Norway as a flag state,” says Alf Tore Sørheim, section head for inspection and emergency preparedness at the NMA. The country occupied 15th place not many years ago. Sørheim gives the credit for this progress to the industry, the reputable classification societies and the work done by the NMA.

“We took some steps to help pull Norway up the ladder. That included providing good information to the shipping companies and classification societies. We’re trying to detect companies or vessels with unfortunate records before they end up being detained abroad. These companies are being closely monitored, with inspection and guidance used to reverse negative trends. The companies have taken this seriously, and have mostly been good at changing course where necessary. Norway wouldn’t have been able to climb up the list without good collaboration between industry and government.”

A white-list flag is required for a ship to be designated as low-risk. That represents a stamp of quality and means the vessel will be

inspected less frequently. Ships on the grey or black lists could be subject to more frequent checks.

Statistics show that Norwegian-flag vessels were inspected almost 1 500 times over three years, resulting in 15 detentions.



Photo: Steinar Haugberg

N°	QUESTIONS	YES	NO	N/A
1*	Are seafarers under the age of 18 excluded from tasks that are likely to jeopardize their safety or health? Standards A1.1. para. 4			
2*	Are all seafarers holding valid certificate(s) attesting medical fitness? Standard A1.2. para. 1			
3**	Have all seafarers successfully completed their training for personal safety onboard? Regulation 1.3. para. 2			
4.1**	Do all seafarers have a copy of their seafarers' employment agreement? Standards A2.1. para 1 (a)			
4.2**	Are the seafarers' employment agreements in compliance with minimum standard required by MLC? Standards A2.1. para 4			
5	If private recruitment and placement service has been used, does it meet the requirements of the MLC, 2006? Standard A1.4. para. 2 and para 9			
6	Are records of inspections of seafarer accommodations carried out by the master (or another designated person) available for review? Standard A3.1. para. 18			
7	Are frequent inspections carried out by or under the authority of the master, with respect to supplies of food and drinking water, all spaces and equipment used for the storage and handling of food and drinking water, and galley and other equipment for the preparation and service of meals documented? Standard A3.2 para. 7			
8	Has a ship's safety committee been established on board regarding ships on which there are five or more seafarers? Standard A4.3. para. 2d			
9*	For a ship not being required to carry a medical doctor, is there on board at least one seafarer, holder of a certificate of training in medical first aid or in medical care that meets the requirements of STCW? Standard A.4.1. para. 4c			
10**	Are all seafarers provided with a copy of on-board complaint procedures applicable on the ship? Standard A5.1.5 para. 4			
11**	Have all seafarers received monthly accounts of their payments due and amounts paid? Standard A2.2, para. 2			
12	Was the ship detained as result of the CIC?			



REPORTS AND INVESTIGATIONS:

WHEN ACCIDENTS HAPPEN

The Norwegian Maritime Authority uses data from reported accidents to prepare statistics. The data is compared to reports from the police. In addition, media is monitored regarding matters concerning accidents.

THE NORWEGIAN MARITIME AUTHORITY

Maritime casualties and severe occupational accidents must be reported verbally to the Rescue Coordination Center or to the Norwegian Maritime Authority as soon as possible. All severe accidents and incidents must be reported in writing to the Norwegian Maritime Authority within 72 hours. You may also report electronically by logging into Altinn.

Incidents refer to accidents that have caused an immediate danger to someone's life, a shipwreck or substantial damage to the environment. Through the receipt of information about near miss accidents, the Norwegian Maritime Authority gets information that can be used to improve safety on board.

Together with information from other available sources, the reports are the basis for registration into the accident database at the Norwegian Maritime Authority.

THE ACCIDENT INVESTIGATION BOARD

The most severe accidents are investigated by the Accident Investigation Board (AIBN). The purpose of the investigation is to determine what happened and why. The objective is to avoid similar accidents in the future.

In accordance with legislation, the AIBN shall investigate all accidents at sea involving Norwegian passenger vessels, as well as accidents involving other Norwegian vessels, including fishing vessels, when crew, captain or other people on board have or are presumed to have lost their lives or have been severely injured.

Furthermore, the AIBN shall investigate accidents involving foreign vessels in Norwegian territorial waters, as well as accidents involving foreign vessels in other waters when the flag state gives their permission or it is in accordance with international law that Norwegian jurisdiction is exercised. The Accident Investigation Board may also investigate other accidents, including those involving leisure crafts, if identification of the cause-effect relation can contribute to increased safety at sea.

All reports from the AIBN are available to the general public.

Who is responsible for what?

THE RESPONSIBILITIES AND ROLES OF THE NORWEGIAN MARITIME AUTHORITY

The Norwegian Maritime Authority (NMA) is an administrative and authoritative body with the superior objective to be an attractive flag state with a high level of safety for life, health, property and the environment. The NMA is subordinate to the Ministry of Trade, Industry and Fisheries (NFD), and its activities are governed by political decisions, allocations, commissions and international obligations.

Some of the main tasks of the NMA are supervision of Norwegian registered vessels and the companies operating these vessels, inspection of foreign ships in Norwegian ports and the registration and follow-up of accidents.

In its work to prevent accidents, the Norwegian Maritime Authority shall in the years to come, strongly emphasize that shipping companies comply with safety management systems, and will focus more on safety culture and less on detail control during inspections.

An important tool in this work is the transition to risk-based supervision, which will be a leading focus in the work of the Norwegian Maritime Authority. The consequence of risk-based inspections will be that focus is put on those areas gaining safety and the environment the most.

The NMA shall also be a visible and clear driving force in the international regulatory work, for instance through participation in organizations such as IMO, ILO, Paris MoU and EU.

THE RESPONSIBILITIES OF THE SHIPPING COMPANIES

The primary obligation of the shipping company is to ensure that the construction and operation of the ships is in accordance with the Ship Safety and Security Act and the regulations founded on this act. In order to ensure compliance with acts and regulations, the shipping company also has a duty to establish, implement and develop a document based and verifiable safety management system - both throughout the shipping company's organization and on each individual ship. The objective of the safety management system is to identify and manage risk, as well as ensure that requirements stipulated in or pursuant to acts, or in the safety management system itself, are complied with.

In those instances where the shipping company also is the employer, they have an equal obligation to ensure that the requirements of the Ship Labour Act and its regulations are complied with.



SUPERVISION: Some of the main task of the NMA is to carry out inspections onboard Norwegian registered vessels and their shipping companies, as well as registration and follow-up of accidents.

Photo: Steinar Haugberg

In those instances where the shipping company is not the employer, the responsibilities of the shipping company is more limited according to the Ship Labour Act.

THE ROLES AND RESPONSIBILITIES OF THE EMPLOYEES

The employees onboard a ship have a primary obligation to participate. The captain has a distinct responsibility to participate in the establishment, implementation and development of the safety management system and shall in addition, contribute to the adherence to the safety management system onboard and that the system functions as intended.

Others working onboard shall contribute to the adherence of the safety management system in accordance with the job description of the position they hold.