



DUTCH
SAFETY BOARD

Investigations

Within the shipping industry, the Dutch Safety Board has the legal obligation to investigate serious and very serious occurrences involving Dutch seagoing vessels. This obligation also extends to the investigation of serious and very serious occurrences involving or on board seagoing vessels in Dutch territorial waters. The Dutch Safety Board carries out these investigations in accordance with the Kingdom Act concerning the Dutch Safety Board and the EU Directive 2009/18/EC of the European Parliament and the European Union Council of 23 April 2009, establishing the fundamental principles governing the investigation and prevention of maritime accidents. When the Dutch Safety Board decides that no structural safety shortcomings are involved with regard to a serious incident, a description of the occurrence is sufficient. The main goal of the Dutch Safety Board is to prevent accidents or their consequences by determining lessons learned and formulating recommendations. Investigating who is to blame or liable is expressly not a part of the investigation by the Dutch Safety Board.

Shipping Occurrences Report

November 2020 - May 2021



Almost half of all compulsory sea shipping investigations undertaken by the Dutch Safety Board involve occupational accidents. These occasionally result in restricted but permanent injuries. In other occurrences, there is sadly not only a potential for but in fact an actual fatal outcome. Many of these occurrences do not take place while sailing but while carrying out work on board such as loading and unloading, undertaking (ad hoc) maintenance work, and while mooring and unmooring. As a rule, all of these tasks involve the use of heavy equipment in situations in which the safety risks are not always recognized.

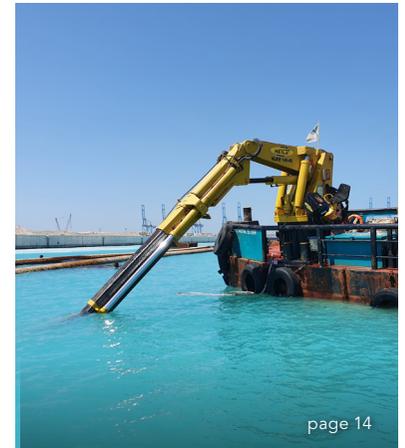
Mooring is one such activity involving considerable safety risks. The importance of recognizing safety risks during mooring operations was highlighted in two recently published reports about fatal accidents during mooring. Mooring operations require close collaboration between often multiple groups of stakeholders. Any change or upset in this cooperation can have major consequences.

In this 12th edition of the Shipping Occurrences Report, we focus our attention on a vital spearhead of good cooperation, namely clear and concise communication. Communication is essential to good understanding in everyday life, and all the more so for crews working on board.

Jeroen Dijsselbloem
Chairman Dutch Safety Board



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More about mooring



On 2 October 2019, a fatal accident occurred on board the Dutch cargo vessel *Damsterdijk* in the port of Ipswich (United Kingdom). While in port, the vessel had to be moved backwards over a distance of approximately 100 metres, in order to make space for another vessel. During this manoeuvre, the captain and first officer were present on the bridge. Three crew members, a cook/AB, a cadet and an able bodied seaman (AB) in charge, were present on the vessel's afterdeck. The seaman was responsible for the aft spring, while the cook/AB together with the cadet was in charge of the two stern lines. While moving the vessel, the cook/AB was hit by a broken mooring line. The impact of the mooring line on the body of the cook/AB caused severe injury to his left leg and possibly also internal injuries. Initially the victim remained conscious, but by the time the ambulance arrived approximately 40 minutes later, he was already unconscious. The cook/AB died later that day, in hospital.

The stern line became entangled in the ship's propeller due to lack of clear communication. The victim was not equipped with a walkie-talkie, and the orders of the mooring team leader had not been passed on. The mooring team leader was beyond the hearing range, and out of view of the victim and the cadet. As a result, the mooring team leader was unaware of what was happening on the afterdeck, and was unable to warn the victim in time.

The Dutch Safety Board published the findings of the investigation in April 2021, in the report 'Fatal accident due to breaking of stern line - Lessons to be learned about safe working and supervision'.



Damsterdijk, moored in the port of Ipswich (UK).

This occurrence cannot be seen in isolation. In November 2020, the Dutch Safety Board had previously published the report 'Fatal outcome following parting of mooring line - Lessons learned from the accident on board the *RN Privodino*'. On 28 June 2018, the Cypriot chemical tanker *RN Privodino* entered the Noordersluis lock at IJmuiden. The vessel was en route to Amsterdam. Shortly after the port forward spring had been paid out, it unexpectedly came under severe tension. The mooring team on the foredeck was no longer able to respond adequately in time, as a result of which the forward spring broke.

On the bridge of the *RN Privodino*, there had been miscommunication about the eventual position of the vessel in the lock, and unclear agreements had been reached on the individual responsibilities of the various parties, during the lock passage.

On the foredeck, the mooring team consisted of five people: the third mate, the boatswain, the motorman and two deckhands. The boatswain, who was operating the winches, was able to see that the forward spring was paid out and fastened around the bollard on the quayside. Because he had passed the lock at IJmuiden on more than 50 occasions, he assumed that this meant that the vessel was almost in position. Of his own volition, the boatswain then decided to place the forward spring under tension, without having received an order to do so. The forward spring broke and hit the motorman, with a fatal outcome.



RN Privodino in the lock at IJmuiden.. (Source: National Police)

In both accidents, unclear communication played a major causal role in the leadup to the occurrences.

Problem

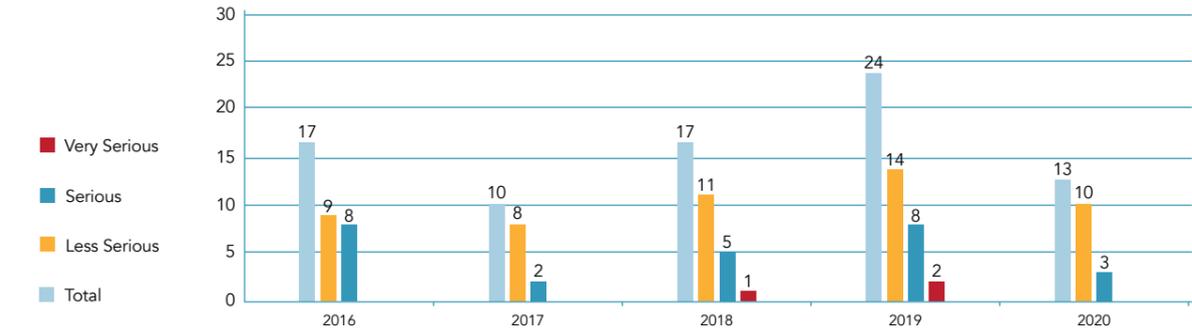


Figure 1: Overview per year of the number of mooring accidents resulting in personal injury. (Source: European Marine Casualty Information Platform (EMCIP))

A selection of reports from various foreign maritime investigation bodies¹ reveals that accidents continue to occur regularly during working with mooring lines. The consequences range from major equipment damage to personal injury among those involved, and in certain cases a fatal outcome. Being hit by a breaking mooring line or flying parts of the mooring gear, entrapment of limbs and entanglement in mooring lines are all examples of accidents with potentially serious consequences. This problem does not only affect sea shipping.²

Accidents of this kind also occur in inland shipping. The graph shows the number of mooring accidents that took place on board seagoing vessels registered in a country in the European Union or located in Europe at the time of the occurrence in the period 2016 through to 2020. These figures relate only to mooring accidents that resulted in personal injuries.



Crew preparing for a mooring operation in the lock at IJmuiden.

1 These reports include:
<https://dmaib.com/media/9137/pachuca-occupational-accident-on-14-december-2012.pdf> - Danish Maritime Accident Investigation Board (DMAIB) <https://mtip.gov.mt/en/msiu/Documents/MT%20FT%20Sturla-Final%20Safety%20Investigation%20Report.pdf> - Maritime Safety Investigation Unit (MSIU) https://assets.publishing.service.gov.uk/media/547c70c340f0b602440000cb/Dart_8.pdf - Maritime Accident Investigation Board (MAIB)

2 The Dutch Safety Board previously published two reports about mooring accidents with a fatal outcome: <https://www.onderzoeksraad.nl/en/page/2097/dodelijk-slachtoffer-bij-afmeren-in-sluis-9-september-2012> and <https://www.onderzoeksraad.nl/en/page/1531/tros-breekt-tijdens-afmeren-soyo---angola-1-april-2010>

More about mooring

Risk awareness

A mooring line is a source of numerous risks. Firstly when the line comes under tension. It is still too common for crew members to be present in the mooring line's snap-back zone, without being aware of the risks they are running. Due to the nature of the mooring operation, however, it is not always possible for crew members to avoid taking up a position within the snap-back zone of the mooring lines. This is all the more dangerous because there are often no visible indications that the line is about to break. If things do go wrong, then there is no time to respond. One possibility for reducing the risk of crew members being hit by a breaking line is the creation and marking of positions on deck from which they can work safely.



Clear communication and supervision during mooring operations.

Snap-back and snap-back zone

Snap-back is the spontaneous release of tension in the mooring line, when it breaks. The mooring line as it were snaps back to its original length whereby the two broken ends of the line recoil to or via their fixed point. Snap-back occurs in all types of mooring lines, be they steel or of plastic material. The snap-back zone is the route taken by the recoiling mooring line when it breaks.

This route is made complex because:

- the course taken by the mooring lines differs on each occasion, depending for example on the location of the vessel and the weather conditions;
- the elastic properties of the mooring lines used can vary widely;
- the path taken by the broken mooring line depends on the breaking strength of the line.

Anyone standing in the snap-back zone is at risk of being hit by the end of the mooring line as it recoils or snaps back.

Secondly, risks occur during the running out of the mooring line, following coiling or warping. In this situation, the mooring line is on the deck, and the greatest risk is that a seaman will step into or onto a loop, at the moment that the mooring line comes under tension.

On board ships, there are different possible ways of creating and recognizing awareness of the risks that arise during mooring. Clear and concise communication is one of these. A recurring factor in the occurrences that take place during mooring and working with lines under tension is poor communication.

Well begun is half done

Careful preparation is the starting point for safe and efficient working practice. During operations like mooring, towing and shifting berths, huge forces are applied to lines, capstans and other equipment. This makes working with mooring lines a very risky activity. The persons involved in this work must above all be aware of *which* risks are involved in mooring and *when* they can occur. Only if risks are recognized can they be ideally managed.

Before a task or operation is started, it is crucial that the crew discusses a number of points. It must be perfectly clear to the entire team precisely what the task or operation involves, what the plan is, who is in charge, what the risks are and how they can be managed. Sound preparation makes communication during the task or operation more effective and simpler.

As a rule, crew members are required to have the appropriate training and qualifications in order to be able to adequately undertake tasks on board. To continue developing qualifications and knowledge, further training is essential. Throughout the sector, a wide range of resources are available to provide support to careful work preparation. In sea shipping, these resources are available in the Safety Management System (SMS).

First and foremost, the crew members themselves are responsible for correctly deploying these resources. However, the ship manager also has a moral and legal responsibility to provide the crew members with the correct means, so that they can carry out their work as safely and efficiently as possible. If the procedures are no longer sufficient or become too remote from practice, it is vital that they be adjusted to match the actual situation as precisely as possible.

Communication during mooring operations

Communication is about understanding and being understood. Miscommunication occurs when people fail to understand each other during talking and listening. In many accidents during mooring, it subsequently emerged that the method of communication or the communication itself were insufficient, both prior to and during the operation. In many cases there is an unconscious (tacit) assumption that each person's individual thoughts and ideas are the same as those of others.

What makes good communication during mooring operations complicated is that multiple groups of people are involved in the operation. As well as the ship's crew, itself divided into different groups, a pilot is also often involved in the mooring and unmooring operation. Tugboats can also be involved, as well as boatmen on the quayside, ready to receive the mooring lines.

Each of these stakeholders have their own tasks, which means that their objectives and interests may differ. It is accepted as a given fact that not all parties speak in the same working language. Communication in another language than the working language on board a ship is a recurring problem within the sector, both in sea shipping and inland shipping.³ Not only is it essential that crew members all speak the agreed working language when communicating with each other, other parties involved in the operation should also communicate in a language that can be understood by all parties. The participation by and individual role of these various parties means that efficient and effective communication, that is clear to everyone, is of vital importance.

Communication also means that the various stakeholders must be willing to point out when a task cannot be carried out safely, or when a situation is at risk of getting out of hand. This applies both prior to and during the operation. An extra dimension of this aspect is caused by the hierarchical system on board ships and between the various parties involved. This hierarchy can make it difficult for crew members to say 'no', even when it is necessary for them to do so. Crew members should be in a position at all times to be able to stop before things go wrong. Irrespective of their rank, age, nationality or gender.

The aim of good communication is to ensure that the method to be employed for the operation is clear to everyone. Clear and concise communication results in uniformity, understanding and clear expectations. In this way, it makes a major contribution to the safe and efficient implementation of the mooring operation. The following lessons are therefore important.

- No uncertainty may arise between all the parties involved, regarding the mooring position of the ship.
- One of the greatest hazards lies in working routinely. When crew members start to work routinely, they run the risk of making certain assumptions and acting in response to those assumptions, without waiting for explicit commands.
- Reaching agreements with all parties about the operation, and thoroughly discussing the operation in advance increases overall clarity and awareness of risks during the mooring operation itself. The overarching objective must be entirely clear to all parties involved. A briefing before the operation starts is the ideal method of laying down and reiterating agreements. This also means that agreements must be understood and confirmed by all parties.
- It is the responsibility of all crew members (and all other parties involved) to check whether the message itself is correct and to ask questions if anything remains unclear. Only then can effective communication be achieved.
- The risk of an accident is increased by the fact that crew members are not always informed of the precise nature of the commands, because they are not equipped with a walkie-talkie, or are not actively kept informed. To enable efficient communication between all parties involved, it is essential that correctly functioning walkie-talkies be issued to all parties.



Good cooperation and communication with the boatmen on shore is crucial.



Mooring operation in the lock of IJmuiden.

³ This problem emerged, for example, in the investigation into the collision on the Westerschelde between the river cruise ship Viking Idun and the chemical tanker Chemical Marketer. It turned out that the crew on board the Viking Idun had insufficient command of the working language in the Westerschelde shipping zone. In the response from Odfjell Management to the recommendations from the investigation into the oil spill in Rotterdam, the company recognized that communication between the various parties does not always take place in a common language. <https://www.onderzoeksraad.nl/en/page/13985/aanvaring-op-de-westerschelde-riviercruiseschip-viking-idun-en> https://www.onderzoeksraad.nl/nl/media/attachment/2021/6/23/reactie_odfjell_management.pdf

Accident classification

In this Shipping Occurrences Report November 2020 to May 2021, the Dutch Safety Board registers the description of accidents on board ships sailing under the Dutch flag or accidents that have occurred within Dutch territorial waters and reports published during this period.

- **Very serious:** accident where the ship is a total loss or where there have been fatal victims or serious environmental damage.
- **Serious:** accident involving a ship that cannot be classified as 'very serious' and where for example a fire, collision, grounding, etc. has occurred that has meant that the ship cannot continue to sail or causes environmental damage.
- **Less serious:** accident that cannot be qualified as 'very serious' or 'serious'.
- **Marine incident:** an event, or series of events, other than an accident that has taken place and is linked to shipping operations that put at risk the safety of the ship, a person on board or the environment or that would have put any of these at risk if it had not been rectified.
- **Serious injury:** injury suffered by a person that has meant that the person has been incapacitated for work for more than 72 hours within seven days after the date on which the accident took place.

This report lists occurrences from the following categories: *very serious, serious and serious injury*. In addition to data about the reporting period, a multiyear overview is also included. This provides a greater insight into trends.

In figures 2, 3 and 4, occupational accidents occupy a key position. The prevention of occupational accidents has also been awarded a prominent position in (international) rules. The international Maritime Labour Convention (MLC 2006), which contains these rules, is viewed alongside the SOLAS Treaty, the Marpol Treaty and the STCW Treaty as the fourth pillar of maritime regulations applicable on board seagoing vessels. MLC 2006 was drawn up under the flag of the International Labour Organization (ILO).

In addition, the Human Environment and Transport Inspectorate (ILT) has a supervisory role in the Dutch shipping sector. This role is focused on ensuring compliance with legislation and regulations on board ships.

Greater insight into the nature of these accidents can assist in increased safety awareness among employers, employees and other parties in the maritime sector.

For that reason, in Figure 5 of this report, occupational accidents are displayed on the basis of causes of injury. It is noticeable that entrapment, being hit by liquids/objects, falling/slipping/tripping/collision and falling from height are the most common types of occupational accident.

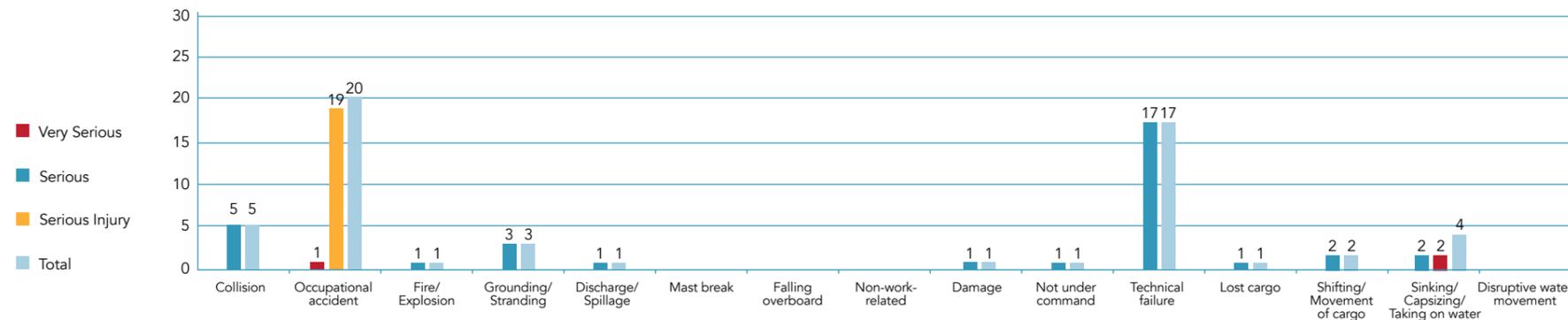


Figure 2: Serious and very serious accidents, sea shipping, period November 2020 to May 2021.

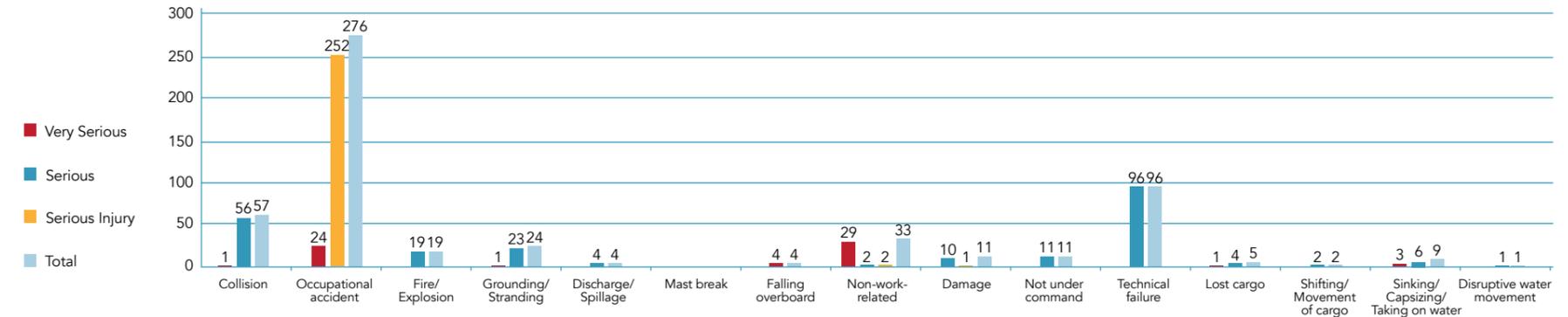


Figure 3: Serious and very serious accidents, sea shipping, period January 2016 to May 2021.

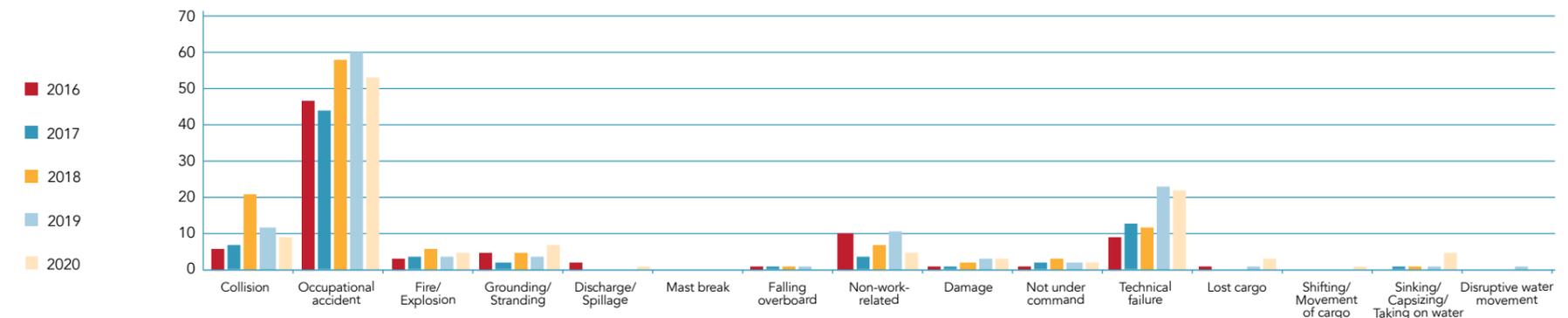


Figure 4: Serious and very serious accidents, sea shipping, period January 2016 through to 2020, per year.

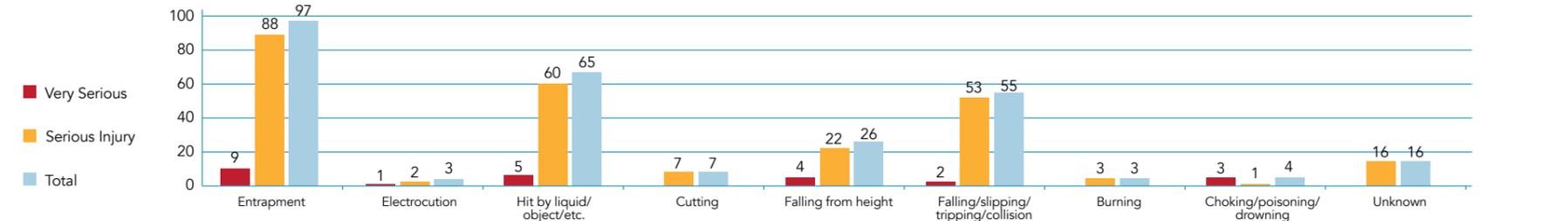


Figure 5: Occupational accidents linked to the cause of injury, sea shipping, period January 2016 to May 2021.

Published reports

We first cite three reports that relate directly to the article 'More about mooring' in this Shipping Occurrences Report. Two of these investigations were published by the Dutch Safety Board.

Fatal outcome following mooring line break, RN Privodino, IJmuiden, 28 June 2018

On 28 June 2018 at 21.02 hours Dutch time, the Cypriot chemical tanker RN Privodino entered the Noordersluis lock at IJmuiden. The vessel was en route to Amsterdam. Shortly after the port forward spring had been paid out, it unexpectedly came under severe tension. The mooring team on the foredeck was no longer able to respond adequately in good time, as a result of which the mooring line broke. The section of mooring line that was connected to the on-board winch recoiled, and struck a crew member, he was killed instantly.

Because the accident occurred in the Netherlands and involved interaction between the ship and the lock, this investigation was carried out by the Dutch Safety Board. The Marine Accident and Incident Investigation Committee (MAIC) from Cyprus participated in the investigation on behalf of the flag state of the vessel, as a state with a substantial interest.

The spring broke because, with the spring already wrapped around the bollard on shore, the vessel was still moving forward when the forward spring on the mooring line winch was transferred from the storage drum to the tension drum, at which time the forward spring could no longer be paid out quickly enough. This transfer was carried out without the relevant instructions being issued.

The mooring team leader on the foredeck was unable to monitor the actions of the operator, a motorman, of the mooring line winch and was also not informed of those actions. The mooring team leader had no view whatsoever of the motorman. At that moment, the motorman was in a dangerous position on the foredeck of the RN Privodino, in the snap-back zone of the forward spring.

As part of the analysis of the accident, four missing and failing barriers were identified. As a consequence, the following conclusions can be drawn:

Slowing down the vessel on time

It can be concluded from this accident that lock procedures must be a fixed element of the information exchange between pilot and crew members that form part of the bridge team. The intended final position in the lock must be precisely agreed on, and any individual vision on that position must be verified among the members of the bridge team. A critical attitude towards each person's role and responsibility with respect to sharing information and issuing advice; the personal task agreed on within the bridge team and the fulfilment of that task by other members of the bridge team, is a precondition for smooth cooperation on the bridge. This conclusion naturally applies to all members of the bridge team, including the pilot.

Only place the spring under tension when the vessel reaches its final position in the lock

When mooring ships, it is crucial that the ship be stationary in the final position when the instruction is given to tension the mooring lines. This could prevent similar accidents. That moment can only be determined by the bridge team, because the ship is being sailed from the bridge. The signal to start safely tensioning the mooring line may therefore only be issued by the bridge team.

There were no procedures on board to guarantee this situation. In practice, the moment of issuing a signal was regularly determined by the crew on the foredeck. In this case, it was determined by the boatswain, for whom the placing of the forward spring around the bollard was the signal to start placing the mooring line under tension.

Intervention by mooring team leader (supervision)

It can be concluded that the implementation of tasks by crew members whose role is to supervise safety should not be hindered by burdening them with other tasks.

This must be guaranteed by the Safety Management System (SMS), and the processes must be structured in such a way that timely signals are issued if bottlenecks occur, and by identifying the measures to be taken.

The workload on the mooring team leader could not be reconciled with the importance of supervising all crew members on the foredeck from the point of view of safety, because the mooring team leader was required to simultaneously carry out multiple tasks. These tasks were not placed in order of priority in the SMS.

In response to occurrences previously investigated by the Dutch Safety Board, the importance of good physical supervision on board was discussed in a thematic piece about safety during loading operations in the Shipping Occurrences Report (SOR)⁴. This also applies to mooring and unmooring.

Working outside the snap-back zones

During mooring and unmooring, large parts of the foredeck of the RN Privodino were considered unsafe working areas and marked accordingly. Because the areas that were actually dangerous changed depending on which mooring line was used and how it was guided over the deck, in the sudden occurrence of a dangerous situation, it was no longer possible to rapidly determine where a safe position could be sought. In addition, it was not possible to determine from which safe position the work could be carried out. During the accident, the motorman was located in the so-called snap-back zone of the breaking mooring line.

The full report 'Fatal outcome following parting of mooring line - Lessons learned from the accident on board the RN Privodino' is available both in English and Dutch on the Safety Board's website: <https://www.onderzoeksraad.nl/en/page/17800/fatal-outcome-following-parting-of-mooring-line---lessons-learned>

Fatal accident due to breaking of stern line, Damsterdijk, Ipswich, United Kingdom, 2 October 2019

On 2 October 2019 at around 09:45 hours local time, in the port of Ipswich (United Kingdom) a fatal accident took place on the Dutch cargo vessel Damsterdijk. While in port, the vessel had to be moved backwards over a distance of approximately 100 metres, in order to make space for another vessel. During this manoeuvre, the captain and first officer were present on the bridge. Three crew members, a cook/AB, a cadet and an able bodied (AB) seaman in charge, were present on the vessel's afterdeck. The seaman was responsible for the aft spring, while the cook/AB together with the trainee was in charge of the two stern lines. While moving the vessel, the cook/AB was hit by a broken mooring line. The impact of the mooring line on the body of the cook/seaman caused severe injury to his left leg and possibly also internal injuries. Initially the cook/AB remained conscious, but by the time the ambulance arrived after approximately 40 minutes, he was already unconscious. The cook/AB died later that day, in hospital.

The investigation revealed that a number of underlying factors contributed to the occurrence of the accident.

The AB had a combination of tasks; he was actively involved in handling the mooring lines, as well as being tasked with monitoring and supervising the afterdeck. The cook/AB also had a combination of his own work and issuing instructions to the inexperienced trainee.

Communication became unclear because the cook/AB was not issued with a walkie-talkie and the AB in charge was beyond his field of vision and out of hearing due to the nature of the work. During mooring and unmooring, the afterdeck is a hazardous zone where a mooring line can snap back, if it breaks. The afterdeck or snap-back zone were however not marked as such, or indicated with signals.

The necessary number of crew members for the mooring and unmooring procedure as described in the crew/manning plan did not match the manning certificate or the number of crew members present.

The AB had not taken sufficient rest hours prior to the incident, and there was no clean working deck.

Based on this investigation, the Dutch Safety Board issued five recommendations to four different parties.

The full report 'Fatal accident due to breaking of stern line - Lessons to be learned about safe working and supervision' is available both in English and Dutch on the Safety Board's website: <https://www.onderzoeksraad.nl/en/page/15477/fatal-accident-due-to-breaking-of-stern-line---lessons-to-be-learned>



Damsterdijk.



Spring winch with split drums on board the RN Privodino. (Source: RN Privodino)

⁴ Shipping Occurrences Report November 2018 – May 2019

Broken mooring line, Sturla, Terneuzen, 1 May 2020

On 1 May 2020, a crew member suffered serious injuries on board the Maltese-flagged ship Sturla, following the breaking of the spring line. Another crew member suffered minor injuries. The spring line became overloaded during mooring in the Westsluis lock in Terneuzen. The analysis shows that the line was in good condition, but that its breaking load was markedly less than the certified breaking strength.

The mooring gear on board was inspected monthly, as described in the instructions from the ship manager. The most recent inspection had been carried out one week prior to the occurrence. The mooring gear, including the spring line, were then in good condition.

At the time of the occurrence, the spring line had been in use for around four months on board the Sturla. The line was also inspected at least every month by the crew. Optical microscopy examination of the broken line showed no cuts, fraying, broken strands, fused fibres or weakening due to UV radiation, oil or chemicals. During the breaking load test, however, it emerged that the breaking strength of the line had decreased by more than 50% of the certified breaking strength. Because it was unlikely that the condition of the line had deteriorated to such an extent in just four months, the possibility of a fault in the material of the line could not be excluded.

One of the points for attention that emerged during the analysis of the information is that there are almost no indications that a mooring line is about to break. The clues that are present are subtle or almost entirely absent. Crew members therefore find themselves in a situation in which the failure of a mooring line remains unnoticed and as a result untreated. Also because the ship manager took a series of actions, no recommendations were issued by the MSIU in this investigation.

The full report is available on the website of the Maltese Marine Safety Investigation Unit:
https://mtip.gov.mt/en/msiu/Documents/MT%20FT%20Sturla_Final%20Safety%20Investigation%20Report.pdf

Unclear situation during pilotage operation resulted in collision, Pollux vs Nord Taurus, Schelde area, 21 January 2018

On the morning of 21 January 2018, the Dutch pilot station vessel Pollux and a Panamanian bulk carrier collided in the Schelde area. The collision took place during a pilotage operation while the pilot was being disembarked from the Panamanian ship by the pilot station vessel Perseus. The pilot vessel Pollux was located nearby but had no active role in the operation. The fact that two pilot vessels identifiable as such were located close together during a pilotage operation is exceptional in general shipping, but is a regular occurrence in the Schelde area, for reasons of efficiency. In this case, the situation resulted in confusion. As a result, the collision became unavoidable.

A system whereby two pilot vessels are located close together during a pilotage operation can result in confusing situations, in particular if a pilot vessel that is not participating in the operation is nonetheless clearly recognizable as a pilot vessel. At the time of this collision, the Pollux was carrying its pilot lights, creating the impression on board the bulk carrier that the vessel was in fact monitoring the pilotage operation, and was on hand to offer assistance, if necessary. However, this was not the case. The captain of the Pollux did not recognize the risk of collision with the Nord Taurus until it was too late. This resulted in a risky situation that eventually led to the collision.



Pollux.

Work was carried out routinely, and a number of safety barriers failed. Space was created for assumptions that were not assessed. Both the Nord Taurus and the Perseus assumed that the Pollux was monitoring the pilotage operation and was on hand to offer assistance, if necessary. They therefore both also assumed that the Pollux would change heading, so as to not hinder the course to be followed by the Nord Taurus. This occurrence teaches us that it must be clear to all parties in and around a pilotage operation exactly how the manoeuvres are to be undertaken. There must be no room for unassessed assumptions.

The full report 'Perception of pilotage - Collision between pilot vessel and bulk carrier in the Scheldt area' is available both in English and Dutch on the Safety Board's website:
<https://www.onderzoeksraad.nl/en/page/18178/beleving-van-het-beloodsen---aanvaring-tussen-loodsvaartuig-en>



Nord Taurus. (Source: Patrick Deenik)

Serious accident during pilot change, Marfaam, Kiel Canal, Germany 13 January 2019

On 13 January 2019, during the pilot transfer halfway along the Kiel Canal (Germany), the canal helmsman failed to find a handhold when climbing onto the pilot ladder. This took place early in the morning, in the dark, and in poor weather conditions. The canal helmsman fell almost four metres, head first, onto the deck of the pilot vessel. He suffered a fractured skull, broken ribs and a ruptured spleen.

The investigation undertaken by Germany's Federal Bureau of Maritime Casualty Investigations (BSU) determined that among others the handholds for the canal helmsman when climbing ladders were not of the correct diameter, and offered insufficient grip to be sufficiently safe. There are several sister pilot vessels, representing a real risk of repetition for canal helmsmen when boarding the vessel via the pilot ladder.

In response to the investigation, the BSU issued a series of recommendations. The full report is available on the website of the Federal Bureau of Maritime Casualty Investigations (BSU):
https://www.bsu-bund.de/SharedDocs/pdf/EN/Investigation_Report/2020/Investigation_Report_19_19.pdf?__blob=publicationFile&v=5

River cruise safety inadequate, Viking Idun vs Chemical Marketeer, Westerschelde, 1 April 2019

On 1 April 2019, shortly after midnight, a collision took place on the Westerschelde between the Swiss river cruise ship Viking Idun and a Maltese chemical tanker. Both ships suffered considerable damage. There were 171 mainly elderly passengers and 49 crew members on board the cruise ship. At the moment of the collision, the majority of passengers were sleeping in closed cabins, and a number suffered minor injuries as a result of the impact. The chemical tanker was transporting a cargo of benzene, heptane and methanol. The collision tore a large hole in the outer skin of the tanker. The use of double-walled tanks for the storage of chemicals prevented the spillage of very toxic substances.

Certainly in the light of the growth experienced by the river cruise sector, and the large numbers of passengers transported on board these ships, there is a clear need for additional attention for safety. This need is further heightened because many of the passengers have restricted capacity to cope independently. This led to a series of recommendations aimed at improving safety in the river cruise sector.

Competence of crew not tested

The river cruise ship Viking Idun was in compliance with all statutory requirements for on river cruise ships. The crew members were also in possession of the necessary certificates to allow them to sail in Dutch waters. Nonetheless, the Safety Board notes that these statutory requirements are not always sufficient. The crew of the Viking Idun had insufficient knowledge of the complex Westerschelde navigation zone. They also had insufficient command of the English language, as a result of which communication by VHF marine radio was poorly understood. In addition, for the passage of the Westerschelde, the captain decided not to place those crew members with the most extensive knowledge of the navigation zone on the bridge. The decision was also taken to not call in the assistance of a pilot. The conclusion of the Safety Board is that, although the crew members were correctly authorized, they were insufficiently competent.

Complex navigation zone

The Westerschelde is one of the most heavily used areas of water in the world, where inland navigation traffic, sea shipping and recreational shipping come together, day and night. This intensive traffic, combined with narrow navigation channels, shallows, strong currents and tidal effects make this a high-risk navigation zone. The Safety Board concludes that despite the complexity of the area, the knowledge and competence of the crew members of inland navigation ships are not subject to any additional requirements. This differs from the situation in areas of comparable complexity, such as the Rhine.

Supervision of river cruise ships

The investigation by the Safety Board reveals that this collision was not a unique event. The growing popularity of river cruises demands improvement to the level of safety in this sector. Large numbers of passengers, many of them with limited capacity to cope independently, travel on these waters each year.

The Dutch Safety Board has issued recommendations aimed at improving safety in the inland navigation sector, and specifically the river cruise sector, in the Netherlands. A recommendation was also submitted to the Minister of Infrastructure and Water Management to improve the effectiveness of the supervision of river cruise ships and to tighten up the competency requirements for crew members of river cruise ships in the Schelde area.

The full report 'Collision on the Western Scheldt, river cruise ship Viking Idun and chemical tanker Chemical Marketer' is available both in English and Dutch on the Safety Board's website:
<https://www.onderzoeksradaad.nl/en/page/13985/aanvaring-op-de-westerschelde-riviercruiseschip-viking-idun-en>



Damage to river cruise ship Viking Idun.



Damage to the Chemical Marketer.

Grounding due to engine problems, Z-575 Hein Senior, Vlieland, 12 October 2020

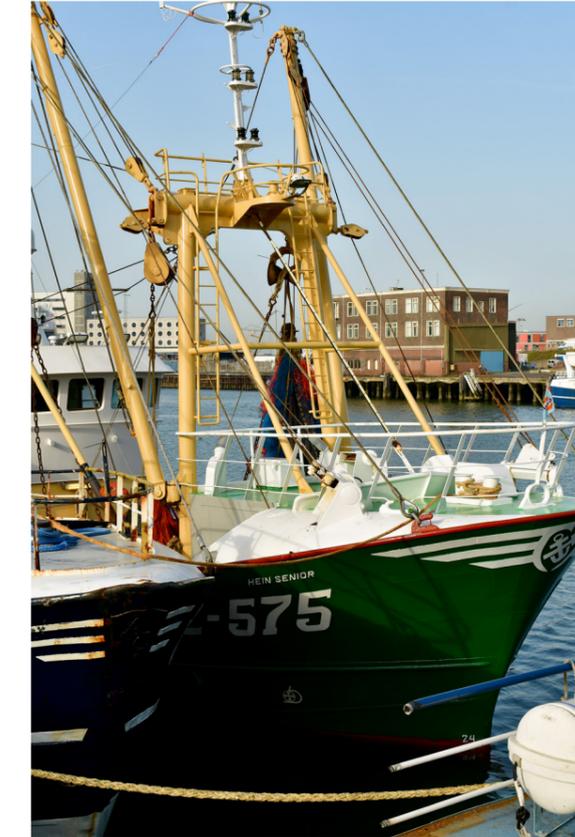
On Monday 12 October 2020, at around 03.45 hours, the main engine of the fishing vessel Z-575 Hein Senior failed while the vessel was sailing inside the Zuider Stortemelk fairway, north of the island of Vlieland. The direct cause of the shutting down of the main engine was the failure of a solenoid valve in the gearbox. As a result, the vessel lost all propulsion and the Z-575 Hein Senior started drifting towards the coast of Vlieland. Because no anchor was set and there were no vessels in the vicinity to offer towing assistance, the Z-575 Hein Senior ran aground at 04.10 hours.

As the tide rose, the Z-575 Hein Senior was refloated by the tugboat Hunter. The main engine was by this time back in operation, and the fishing vessel was able to sail to the port of Harlingen, under its own power. The damage was restricted to damage to the propeller blades. The propeller has now been replaced.

During the period when the Z-575 Hein Senior was drifting, the decision was not taken to lower the anchor. The crew focused all its attention on repairing the main engine and establishing a possible towing connection to another vessel. During an inspection, it subsequently emerged that the anchor was stuck in the hawse. At a certain point, the clump for the nets had been thrown overboard, to slow down the vessel. There were no procedures or instructions on board to prevent the vessel running aground in shallow water. No emergency exercises were held.

FOSO/FEBIMA (Belgium) issued a series of recommendations to various parties, in response to this occurrence. These recommendations are focused on developing inspection and an appropriate Safety Management System (SMS) on board fishing vessels.

The full report is available on the website of FOD Mobility:
https://mobilit.belgium.be/nl/resource/report_z575_hein_senior



Z-575 Hein Senior.

Completed investigations without report

Fatal accident, Coastal Boxer, Port Khalifa, Abu Dhabi, United Arab Emirates, 3 March 2020

On 3 March 2020, at 18.40 hours local time,⁵ the crew of the Coastal Boxer were called up to bring a pipeline (a so-called sinker pipeline) above water, and to install an additional pontoon. At that time, the Coastal Boxer was part of a project in Port Khalifa in Abu Dhabi. The pipeline had sunk and become filled with sand.

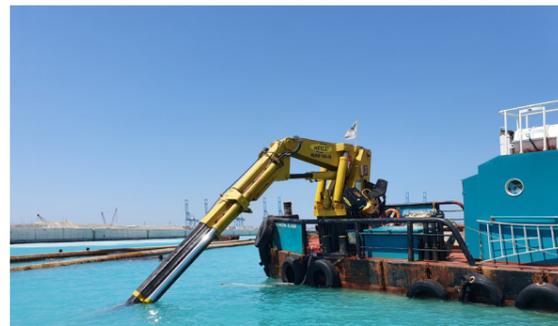
The initial plan, based on the instructions from the project manager of the client, was to clear the pipeline by blowing air through the pipeline, with an air compressor. As the work progressed, the plan changed. According to the changed plan, the crane of the Coastal Boxer should be used to lift the pipeline before inserting pontoons beneath the pipeline section. To prevent the pipeline from breaking, the Coastal Boxer was instructed to raise the pipeline in collaboration with the Multi Cat M16. No estimate was available for the weight of the pipeline or the required lifting capacity. The crew used a steel wire sling and manoeuvred the Coastal Boxer into position. The chief engineer, a seaman, a welder and the client's project manager were present on the deck of the Coastal Boxer, while the first officer, also team leader, was present on the bridge. The chief engineer operated the crane of the Coastal Boxer.

The lifting operation began at 22.40 hours. During the lifting of the pipeline, another pontoon (which had previously been inserted beneath the pipeline) broke free, and was launched out of the water by its own buoyancy. The pontoon ended up on the chief engineer in the crane of the Coastal Boxer. The impact knocked the chief engineer into the water.

The seaman on deck immediately jumped into the water to rescue the chief engineer, and together with the people on board the Coastal Boxer brought him onto the deck. The chief engineer was transferred to shore and then to hospital, by ambulance. He died in hospital as a result of his injuries.

Because the pontoon was no longer supporting the pipeline, while the pipeline was still suspended from the crane of the Coastal Boxer, the vessel started to heel to port. The angle of heel was such that everyone was immediately required to evacuate the Coastal Boxer.

Following the incident, it emerged that the pontoon that had broken free had not been connected to the pipeline.



Coastal Boxer during the accident (Source: Acta Marine)

Immediately following the incident, the Abu Dhabi Port Authorities, the client and the Abu Dhabi Maritime Investigation Board launched an investigation. The main focus of this investigation was to examine the local organization and supervision at the work location. Acta Marine carried out its own investigation, focused on lessons for the operator. The Dutch Safety Board was unable to travel to Abu Dhabi in March 2020, in connection with the restrictions due to the emerging COVID-19 pandemic.

Started investigations

Capsizing and sinking of beam trawler, UK-171 Spes Salutis, North Sea, 9 December 2020

On 9 December 2020, the beam trawler UK-171 Spes Salutis capsized and sank. At the time, the vessel was sailing on a westerly heading, approximately 10 nautical miles north of the Rottumerplaat. The vessel was beam trawling at the time.

After the skipper had been helped out of the wheelhouse, the three-man crew climbed onto the keel. One of the crew members was able to notify the home front via a mobile telephone. When the trawler sank, the crew members were able to swim to, activate and climb into the life rafts. Shortly afterwards they were rescued by the fishing boat TH-10 Dirkje.

The Dutch Safety Board launched an investigation. This investigation was eventually combined with the investigation into the sinking of the beam trawler UK-165 Lummetje. The UK-165 capsized and sank on 28 November 2019. The two crew members on board both died.

The combined investigation is now concluded. The report 'Capsizing and sinking of fishing vessels - Lessons learned from the occurrences involving the UK-165 Lummetje and the UK-171 Spes Salutis' is available in both Dutch and English on the Safety Board's website: <https://www.onderzoeksraad.nl/en/page/15703/kapseizen-en-zinken-viskotters---lessen-uit-de-voorvallen-met-de-uk>

Classification: Very Serious

Loss of fishing vessel, northwest of Dieppe, France, 23 December 2020

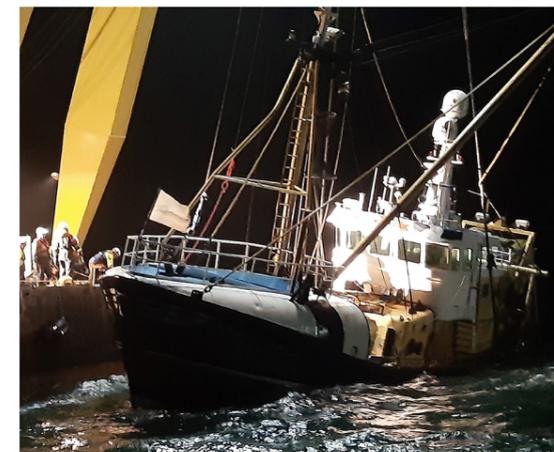
In the afternoon, 20 nautical miles northwest of Dieppe, a Dutch fishing vessel sank to a depth of 30 metres, while fishing. The authorities and vessels in the area were notified, and were able to rescue all five crew members from the water.

The Dutch Safety Board has launched an investigation.

Classification: Very Serious



Dutch fishing vessel lost on 23 December 2020 off Dieppe (France).



Recovery of the UK-171 Spes Salutis that sank on 9 December 2020. (Source: National Police)

⁵ Local time United Arab Emirates is UTC+4.

Started investigations

Severe heel after shifting cargo, Norwegian Sea, Norway, 5 April 2021

A Dutch cargo vessel experienced problems off the Norwegian coast near Ålesund, whilst in heavy weather. At the time of the occurrence, winds were gusting at force 8 to 9, with waves in excess of eight metres. The vessel was sailing from Bremerhaven (Germany) to Kolvereid (Norway). The cargo in the hold had shifted, subsequently punching holes in a number of ballast water tanks. As a result, ballast water leaked into the hold. Due to the bad weather, the shifting of the cargo and the water in the hold, the vessel started to heel severely. The twelve crew members were evacuated and the vessel was towed to Ålesund.

The Dutch Safety Board has launched an investigation.

Classification: Serious



Dutch ship in trouble in the Norwegian Sea. (Source: Mateo Witte)

Investigations started by foreign authority with the Netherlands as a State with substantial interest

Two stevedores suffer serious injuries, Cristobal, Panama, 27 January 2021

In the port of Cristobal in Panama, a cargo of steel girders was being unloaded from a Dutch cargo vessel. The work was carried out by local stevedores in the port of Cristobal, who were responsible for both attaching the cargo to the crane, and operating the ship's cranes. The stevedores made use of their own slings for this purpose. While lifting the cargo, these slings broke, causing the steel girders to fall. Two stevedores were hit by the falling girders. One of the two stevedores lost both legs, the other one foot.

Classification: Serious



Ship on board which two stevedores suffered serious injuries. (Source: Peter Beentjes).

Serious accidents involving stevedores carrying out loading and unloading work on board Dutch ships in foreign ports occur with some regularity. Elsewhere in this report, in the chapter 'incidents that have not been extensively investigated', another accident is described involving two stevedores. They were also working on board a Dutch vessel in a foreign port.

The scope of (international) regulations is currently insufficiently transparent to determine the extent to which these accidents are covered by the vessel's operations, or the vessel's safety management system. The Dutch Safety Board is closely monitoring this topic and developments in this area.

Grounding in the approach to the port of Rauma, Finland, 16 February 2021

Early in the morning, a Dutch Ro-Ro cargo vessel ran aground just outside the navigation channel, in the approach to the port of Rauma. Several double-skinned tanks were punctured, and one of the engine rooms started making water. The vessel was able to reach the port of Rauma under its own power, where it was safely moored. There were no injuries and no oil leaks.

The Finnish Safety Investigation Authority (SIA) has launched an investigation.

Classification: Serious



Vessel that ran aground close to Rauma.

Incidents that have not been extensively investigated

Collisions

Engine failure and collision with buoy, Wadden Sea, 11 November 2020

As a result of engine problems, the Dutch fishing boat SL-42 Jan Cornelis III required towing assistance. Assistance was provided by a fellow fishing boat ARM-18 Joris Senior. The fishing boats were operating on the Wadden Sea, above Texel and Vlieland, when they passed too close to the buoy VL2A. As a result, the SL-42 collided with the buoy. The skipper of the SL-42 warned the skipper of the ARM-18, and attempted to avoid the buoy, by applying the rudder and operating the bow thruster, but to no avail. The skipper of the SL-42 later stated that he had not seen the buoy. The buoy was damaged due to the collision.

Classification: Serious

Collision in lock, Terneuzen, 1 December 2020

In the Westsluis lock in Terneuzen, the inland shipping tanker Lagun, with a cargo of gas oil, ran into the seagoing vessel Maxi, that was already in the lock. The Lagun suffered minor damage. The unladen seagoing vessel Maxi, that was sailing under the flag of Antigua and Barbuda, suffered a tear in the ballast tank in the stern part, just above the waterline, as a result of the collision. Ballast water leaked out of the tank. The Maxi returned to Ghent (Belgium) where it was moored for repairs. The vessel eventually headed out to sea from Ghent, two days later.

Classification: Serious

Hull damage following collision, Kiel Canal, Germany, 24 February 2021

A collision took place on the Kiel Canal, resulting in damage to the Dutch cargo vessel Rimini. The collision was caused by the failure of the also Dutch cargo vessel Treville, travelling in the opposite direction, to maintain position close to the correct canal side. Despite evasive manoeuvres by both vessels, a collision between the port bow and port stern section of both vessels could not be avoided. The damage to the Rimini was such that it had to be repaired before the ship could continue its journey. Both vessels were sailing under pilot guidance.

Classification: Serious

Collision with moored ship, Köping, Sweden, 13 March 2021

In the port of Köping in Sweden, the Dutch LPG tanker Coral Ivory collided with the moored Dutch cargo vessel Isis. The collision was caused by problems with the adjustable propellor on the Coral Ivory. The damage to the Coral Ivory consisted of a dent measuring two metres by half a metre, that had to be repaired before the ship could continue its journey. The damage to the Isis was limited to paint marks from the Coral Ivory.

Classification: Serious



Damage to the Coral Ivory. (Source: Anthony Veder)



On site repair to the Coral Ivory. (Source: Anthony Veder)

Occupational accidents

Deckhand suffers serious injuries following accident with hatch crane, Puurs, Belgium, 18 August 2020 (late notification)

A serious accident took place on board the Dutch cargo vessel Eemshorn, resulting in injuries to one crew member. At the time of the accident, the vessel was moored in the Brussels-Scheldt Maritime Canal, at Puurs. The crew had closed the hatches of the hold, using the hatch crane. The hatch crane was then used to return the safety cages to their storage area. The hatch crane was operated from a location that had no direct view of the cages. One deckhand was standing close to the cages when the cage was hit by a spreader. The cage toppled, trapping the seaman.

The seaman was subsequently transported to a local hospital, with apparent minor injuries. Once at hospital, it emerged that he had in fact suffered serious internal injuries. Further complications arose during the hospital treatment. It eventually became clear that the seaman had suffered permanent injury as a result of the accident and hospital treatment.

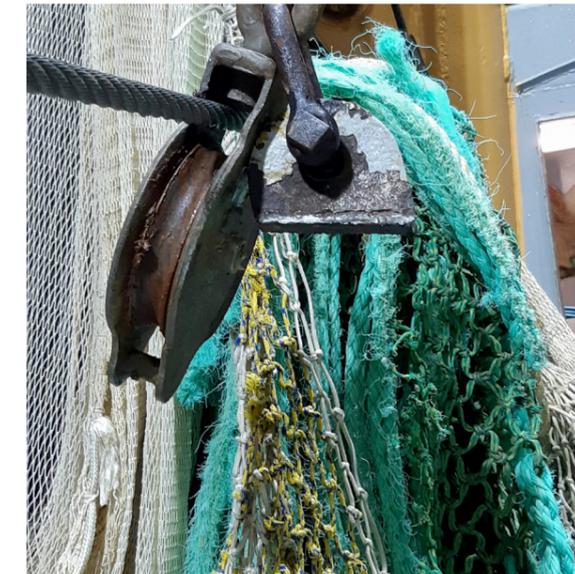
Classification: Serious injury

Serious accident while setting gear, North Sea, 30 November 2020

In the early morning, a crew member suffered serious injuries on board the Dutch fishing boat WR-23 De Vrouw Geertruida. The KNRM lifeboat from Den Helder evacuated the injured crew member, for transport to hospital, by ambulance.

While setting the fishing gear, the port gear initially became caught behind the bulwark. After the skipper slightly raised the boom, the gear jerked free. As a result, a steel eye attached to the wheelhouse broke off. A steel tackle (block) through which a steel cable was passed under tension was attached to the eye. As a result of the eye breaking loose, the cable pulled taut between the next block and the winch. The block hit the victim hard on the back of the head, as it broke free.

Classification: Serious injury



The block on board the WR-23 that hit the victim.

Incidents that have not been extensively investigated

Injury to hand, North Sea, United Kingdom, 2 December 2020

On board the Dutch offshore support ship Living Stone, the crew were in the process of retrieving a cable from the seabed. An ROV (remote operated vehicle) was deployed for this purpose. The ROV was attached to a cable, connected to a winch on board the ship. The ROV had to be manoeuvred further away from the ship, which meant that more cable had to be paid out. This involved the use of a capstan. While carrying out this task, the fingers of a crew member became trapped between the cable and the capstan. As a result he lost the tips of two fingers. The decision was taken to have him evacuated by the coastguard. The accident took place on the North Sea, approximately 80 nautical miles east of Hull.

Classification: Serious injury



Living Stone. (Source: Peter Beentjes)

Accident while closing the deck hatches, Glomfjord, Norway, 10 December 2020

While fastening the deck hatches, a fastening rod broke off on board a Dutch cargo vessel. The accident took place in the port of Glomfjord. The rod hit one seaman on the middle finger. The seaman was transported to hospital, where he received 18 stitches. As a result of the injury, he was out of work for four weeks.

Classification: Serious injury



Arklow Beach. (Source: Peter Beentjes)

Hit by mooring line, Punta Ricon, Panama, 10 December 2020

While unmooring the FWN Bonafide in Punta Rincon in Panama, a seaman suffered injuries. The seaman was working on the stern part, hauling in the mooring lines. While hauling in the line around the warping head of the winch, it became caught in the propeller. The mooring line broke and the seaman was hit by the snap back. Examination in hospital revealed that he had broken his arm. The seaman was repatriated, as soon as he was fit to travel.

Classification: Serious injury

Trapped leg, Rotterdam, 13 January 2021

In the Alexanderhaven in Rotterdam, the first officer of the Finnish-flagged ship Misana trapped his leg. He was transported by ambulance to hospital, where he underwent surgery.

Classification: Serious injury

Injured hand from entrapment, Den Helder, 14 January 2021

An incident took place on board the Dutch-flagged walk-to-work ship Kroonborg, whereby a crew member broke two fingers and bruised a third. At the time, the crew was in the process of unrolling a hose across the hydraulically powered hose reel, when the injured crew member placed his hand on part of the structure. As soon as the reel began to turn, his hand became trapped between two parts. The victim was taken to hospital for treatment. The operator and the client have launched an internal investigation.

Classification: Serious injury



Left: Hose reel on board the Kroonborg. Right: Position where the crew member injured his hand on board the Kroonborg. (Source pictures: Wagenborg)

Broken wrist following entrapment, North Sea, 16 January 2021

While travelling from Lauwersoog to Helgoland (Germany), an accident took place on board the Dutch fishing vessel UK-12 Hoop op Zegen. A crew member trapped his hand, breaking his wrist, during work. The wrist was put in a plaster cast in Helgoland, before the crew member was able to return to Lauwersoog on the boat. He was unable to work for five weeks.

Classification: Serious injury

Slip during work, Vlaardingen, 6 February 2021

On board the Dutch cargo vessel Lady Alida, the second mate slipped while adjusting the lashing of steel reels. In the port of Vlaardingen, he was in the process of tightening a tensioning strap with a ratchet. The ratchet slipped on one tooth and slipped out of position. As a result, the second mate himself slipped and broke his leg. He had to be transported to hospital by ambulance.

Classification: Serious injury



Lady Alida.

Incidents that have not been extensively investigated

Foot injury while using high-pressure hose, German Bight, Denmark, 24 February 2021

While sailing in the German Bight in Danish waters, the crew of the Dutch cargo vessel Terschelling was cleaning the hold with a high-pressure cleaner. One of the crew members damaged his safety boot with the hose. The force of the high-pressure cleaner caused a serious injury to one of his feet. After consulting the Radio Medical Service, a medical evacuation was considered necessary. The vessel subsequently entered the port of Esbjerg, where the crew member was disembarked. Hospital examination revealed among others a torn ligament in the injured foot. The safety boots the crew member was wearing were shown to be unsuitable for use with a high-pressure cleaner.

Classification: Serious injury

Trapped finger, La Paz, Mexico, 8 March 2021

On board the Dutch passenger ship Nieuw Amsterdam, an accident occurred near La Paz in Mexico. Crew members were moving a heavy wire coil with a trolley. When the trolley was rolled into the hatch opening it toppled and the coil slipped off, seriously trapping the middle finger of one of the crew members.

The crew member visited the hospital on shore. Following hospital treatment, he was flown home, and was unable to work for between three and six weeks.

Classification: Serious injury

Broken foot, Spain, 23 March 2021

The first mate on board the Dutch cargo vessel Noest broke his right foot when he slipped on deck, after catching his foot behind a hatch. While still in port, the first mate disembarked for hospital treatment.

Classification: Serious injury



Noest. (Source: Eddie Walker)

Trapped finger, Nigg, United Kingdom, 24 March 2021

During loading operations in the port of Nigg, a seaman on board the Dutch cargo vessel Eemslift Ellen injured his finger. He caught his finger between the cargo and the wooden block beneath it. He was transferred to hospital for an operation which saved his finger.

Classification: Serious injury

Injured arm and hand, Dutch coast, 29 March 2021

In bad weather, an accident occurred on board the Dutch beam trawler UK-46 Willeke. While raising a full net, a fishing line broke, causing the net to end up partly in the sea and partly on deck. To maintain balance, once of the crew members took hold of the bulwark, at which point a (steel) cable dragged across his hand. The open wound caused by the cable was treated on board, before the boat returned to IJmuiden, to allow the crew member to be further examined in hospital. Examination revealed that the crew member had broken his arm in two places.

Classification: Serious injury



UK-46 Willeke. (Source: Peter de Klerk)

Injured hand, Dutch coast, 30 March 2021

While working on board the BRU-40 Luctor et Emergo, the pneumatic system lost pressure. While inspecting the generator, a crew member put his hand too close to the rotor pack, causing serious injury to two fingers. The crew member was transferred to hospital by the Dutch lifeboat service KNRM. He underwent an operation on both fingers the next day.

Classification: Serious injury

Trapped finger, La Palice Anchorage, France, 21 April 2021

The second mate of the Dutch cargo vessel Arklow Beach was preparing to drop anchor. As he withdrew the locking pin from the ground stopper, the anchor chain came under tension, trapping his finger between the locking pin and the ground stopper. In the incident, the second mate suffered an injury to his finger. Following hospital treatment, he was sent home.

Classification: Serious injury



Arklow Beach. (Source: Arklow Shipping)

Stevedore suffers fatal injury during loading work, Taranto, Italy, 29 April 2021

A fatal accident took place in the port of Taranto in Italy, resulting in the death of a stevedore. The stevedore was on board the Dutch cargo vessel Veendijk, loading the ship with turbine blades. After loading the final turbine blade in the second layer, two stevedores started climbing to unhitch the hooks. One stevedore, the victim, climbed up the front side, and the other the rear side. While the hook on the rear side was still engaged, the stack fell, at which point the dock crane started lifting. As a result, the stevedore at the front fell from height, landing on shore. The fall proved fatal.

Classification: Serious injury



Veendijk. (Source: Patrick Westeel)

Incidents that have not been extensively investigated

Two crew members injured following fall from ladder into tank, Westerschelde, 29 January 2021

Two crew members of the Maltese tanker Aland suffered injuries after entering an empty cargo tank, on the starboard side. The first mate entered the tank first, followed by the seaman. The seaman lost his balance and fell onto the mate, at which point they both fell further. Neither crew member lost consciousness. At the time of the occurrence, the vessel was sailing out of the Westerschelde.

The oxygen percentage in the tank was measured by the crew, and subsequently by the emergency services. There was sufficient oxygen. There were no toxic substances measured. A manhole watch was also in place. The measurement was carried out low in the tank, using a certified gas meter.

Following examination in hospital, one of the two crew members, the first mate, returned to duty on board the Aland. The seaman suffered a ruptured liver and bruising of the spleen. He was repatriated to his home country.

Classification: Serious injury

Fire on board

Fire on deck, off the coast of Florida, Atlantic Ocean, 24 December 2020

While sailing from New York in the United States to St. Marc in Haiti, a fire raged on board the Dutch cargo vessel Beauforte, shortly before midnight. The cargo of second-hand cars that were being transported burned in the fire. Two hours later, the fire was brought under control.

An investigation into the damage was subsequently started in Willemstad on Curaçao. There was severe damage to the fore part of the vessel, including damage to the deck hatches, ventilation pipes, electrical wiring and switches, a watertight access door to the fore part, fire hydrant and fire hose.

The cars were loaded in New York, under the responsibility of local stevedores. According to the procedure, the battery of the car must be disconnected. The key is left in the ignition, but the ignition should be switched off. These aspects must be checked by the stevedores. During the investigation into the fire, it emerged that the battery in one car had not been disconnected, and the ignition was left switched on.

Classification: Serious



Burned-out cars on board the Beauforte. (Source: Vertom Bereedungs gmbh)



Left: Access door to the fore part of the Beauforte. Right: Fire damage to the cargo of the Beauforte. (Source pictures: Vertom Bereedungs gmbh)

Groundings

Grounding due to running off course, Oude Maas, 17 November 2020

The United Kingdom-flagged ship Kathy C ran off course due to a steering error during her journey from Seville (Spain) to Moerdijk, on the Oude Maas. The ship then ran into the bank. Samples were taken around the ship and no leaks were discovered. The ship was then refloated with tugboat assistance. At the time of the incident, the ship was sailing under pilot orders, with a junior pilot at the helm.

Classification: Serious

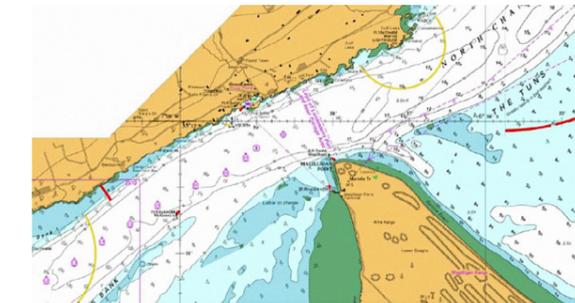
Grounding, Lough Foyle, Northern Ireland, 29 December 2020

In the morning, the Dutch-flagged chemical tanker Thun Liffey ran aground at Lough Foyle in Northern Ireland. Shortly beforehand, the vessel had set out from the port of Londonderry, under ballast. The grounding happened shortly after the pilot had transferred to the pilot boat.

A strong northwesterly wind was blowing at windforce 7 to 8 at the time, and the vessel was sailing with the ebb tidal current. Because of the weather and local sea conditions, the pilot boat asked the Thun Liffey to change heading to starboard, in order to create a lee for the pilot boat. This would enable the pilot boat to come alongside in calmer waters, and allow the pilot to transfer safely. On board the Thun Liffey this request was complied with. The strong wind approaching the vessel at an angle from the port however meant that after the pilot had disembarked, the boat was not able to turn back to port quickly enough, whereupon it ran aground on a sandbar.

Eventually the vessel was refloated at high tide with tugboat assistance, and subsequently anchored nearby. An inspection by divers revealed no damage that would influence the seaworthiness of the ship.

Classification: Serious



Location of the grounding of the Thun Liffey.

Grounding following rudder problems, North Sea, 11 January 2021

Early in the morning, the Dutch fishing boat YE-172 Piet Hein was sailing on the North Sea above Ameland, when she experienced rudder problems. The skipper then decided to run the boat aground, off the coast of Ameland. With the ship high and dry, the problems were repaired. As the tide rose, the boat once again floated free and continued its journey.

Classification: Serious



YE-172 Piet Hein.

Incidents that have not been extensively investigated

Material in the net, North Sea, 23 February 2021

The Dutch fishing boat TX-19 Elisabeth Christina was sailing on the North Sea, when its propeller became entangled with material. Reversing to free the material proved ineffective. Eventually the boat was taken under tow by a fellow fishing boat, the OD-1 Maarten Jacob, and taken to the port of IJmuiden for repair and inspection.

Classification: Serious

Technical failures

Broken fire extinguisher pipe, La Coruña, Spain, 6 December 2020

En route to Amsterdam, the bow thruster hold in the fore part of the Dutch cargo vessel Zealand Delilah filled with water. The operator decided to immediately order the vessel to enter the port of La Coruña, where she was safely moored, a few hours later. In port, work was started on pumping the hold empty, while divers went in search of a tear or hole in the hull, underwater. No damage to the underwater parts of the ship was discovered. When the bow thruster hold was emptied, a broken-off fire extinguisher pipe was discovered.

Classification: Serious



Broken fire extinguisher pipe Zealand Delilah. (Source: Q-Shipping)

Engine failure, North Sea, 24 December 2020

The English shipping traffic control observed a Dutch cargo vessel, Merel V, sailing across the North Sea just outside English coastal waters, with an unusual heading. It later emerged that this was caused by engine failure, and that the captain had decided to sail on what he considered to be a safe route. Shortly afterwards the engine shut down completely, and the vessel was towed to the Netherlands, for repairs.

Classification: Serious

Fault in main engine, North Sea, 2 January 2021

The Dutch shortsea coaster Amadeus Aquamarijn was towed into the port of Scheveningen by the tugboat Sea Bronco. Originally the vessel had been en route for Rouen. Several days earlier, during the night, the vessel had suffered problems with its main engine, namely unusual noises, unusual temperatures and an alarm that instructed them to reduce power as quickly as possible. In consultation with the operator's Engineering Department, the decision was taken to anchor the vessel, to shut down the main engine and to investigate the situation. Following investigation and consultation, it was decided to not restart the engine, to prevent further damage.

The vessel was then towed to Scheveningen. The engine underwent further investigation in port. An inlet valve on one of the cylinders had broken, and had caused damage inside the engine.

Classification: Serious



Amadeus Aquamarijn. (Source: De Bock Maritiem)

Survey ship loses rudder and makes water, North Sea, 4 January 2021

Libertas, a Dutch survey ship, was travelling from Rotterdam to Calais (France). While on the North Sea, off the coast of Stellendam, the vessel suddenly started a sharp turn to starboard, without a rudder command having been issued. It became clear that the cause was the disappearance of the rudder from the rudder stock. The vessel then started to make water, but this situation was rapidly brought under control by deployment of a pump. The Coastguard was notified and a tugboat and rescue helicopter quickly arrived at the scene. The vessel was subsequently successfully towed to a safe port. An investigation carried out by the owner revealed that the loss of the rudder was caused by an unforeseen error in the design. In response, an immediate alteration was made to the construction of the securing mechanism, an improvement that was also implemented on the vessel's sister ships. Following this construction change, the ship was once again deployed at sea.

Classification: Serious



Securing mechanism of the rudder stock on the Libertas. (Source: Braveheart Maritiem)

Engine failure off Stavanger, Norway, 16 January 2021

The Dutch oil/chemical tanker Thun Greenwich experienced engine problems while en route to Asnaes in Norway, when the main engine shut down automatically during the course of the morning. Due to the loss of propulsion, the ship started to drift. The chief engineer restarted the engine, and the ship was able to continue its journey. The cause of the problem was not identified.

The main engine once again shut down in the afternoon of the same day. Once again, the vessel began to drift, and it proved impossible to restart the main engine. A tugboat reached the Thun Greenwich in the evening of 17 January and towed the ship to the port of Leirvik. Once in port, an inspection of the main engine revealed that air had found its way into the lubricating oil system. This caused a temporary loss of lubricant, resulting in the overheating of the cylinders.

Classification: Serious



Thun Greenwich. (Source: Andy Mahon)

Incidents that have not been extensively investigated

Loss of propulsion following engine damage, Canada, 22 January 2021

45 Nautical miles east of Nova Scotia, the Dutch cargo vessel Singelgracht experienced engine problems. The piston rod bearing in cylinder two of the main engine broke free. For some time, the ship had no propulsion, and in good weather conditions drifted in a westerly direction, at a speed of around one knot. One day later, in the evening, with tugboat assistance, the Singelgracht was towed into the port of Halifax (Canada) where the main engine was repaired.

Classification: *Serious*

Steering gear problems, Bay of Biscay, Spain, 23 January 2021

While travelling from Ribadeo (in Spain) to Brake (Germany), the Dutch cargo vessel Sagasbank experienced problems with its steering gear. The crew attempted to solve the problem on board by maintaining manoeuvrability with emergency steering, but their attempts proved unsuccessful. This made tugboat assistance necessary and the ship was towed to the port of Aviles in Spain. The cause of the problems with the steering gear remains undiscovered.

Classification: *Serious*

Loss of propulsion, North Sea, 25 January 2021

In the afternoon, the British-flagged fishing vessel TH-7 Amadeus experienced problems with the gearbox of its propulsion system. At that time, the boat was sailing on the North Sea, off the island of Vlieland. Following a failed attempt to repair the gearbox, the boat was towed into the port of Harlingen.

Classification: *Serious*

Towed into port following problems, North Sea, 27 January 2021

Off the Dutch coast, at night, the Bahama-flagged standby safety vessel Eagle was towed to IJmuiden by the fishing boat O-81 Jaidy. While under tow, the towing line broke on two occasions. The problems on board the Eagle that made towing assistance necessary remain unclear.

Classification: *Serious*

Engine failure off Borkum, Germany, 7 February 2021

As a result of engine problems off Borkum in the German Bight, the Dutch cargo vessel Peak Bilbao was no longer able to manoeuvre. The ship, with a cargo of plasterboard, was travelling from Poland to England. Due to particularly poor weather conditions, the crew was unable to carry out repairs at sea.

The German emergency tugboat Nordic set course for the out-of-control vessel. At the same time the Towing Assistance Team (TAT) based in Nordholz was transported to the vessel by a German federal police helicopter. The TAT established an emergency towing connection and the Nordic took the Peak Bilbao in tow.

In the morning of 9 February, the German tugboat Bugsier 10 took over the towing operation. The tugboat with the Peak Bilbao in tow reached the port of Wilhelmshaven in the evening. In port, an examination was made of the main engine and repairs were started. The cause was eventually identified as damage to the injector bush of the main engine.

Classification: *Serious*



Damage to the injector bush of the main engine of the Peak Bilbao. (Source: Crew of the Peak Bilbao)

Faulty fuel pump, Amsterdam, 12 February 2021

The Russian-flagged bulk carrier Grumant arrived in IJmuiden, but suffered a blackout while exiting the Noordersluis lock. It then proved impossible to restart the main engine. The vessel was towed to the Afrikahaven. Following further investigation, a fault was discovered in a fuel pump plunger. The crew was able to solve the problem independently.

Classification: *Serious*

Engine failure, Kiel Canal, Germany, 21 February 2021

During a passage of the Kiel Canal, the Dutch cargo vessel Beaumare experienced problems with its main engine. Because the service plug in the oil line between cylinder head five and the rocker arm had not been removed, damage occurred in and around the cylinder head. The engine could no longer be started. The vessel was temporarily moored in the canal, and subsequently towed to Brünsbittel by two tugboats, where repairs were carried out on the main engine.

Classification: *Serious*

Engine problems, North Sea, 27 February 2021

The Dutch cargo vessel Sprinter experienced engine problems while en route from Amsterdam to Poland. At the time the vessel was sailing north of Ameland. After anchoring up, the vessel was subsequently towed to the Eemshaven.

Classification: *Serious*

Loss of steering due to technical defect, Westerschelde, 2 March 2021

The Marshall Islands-flagged oil tanker Okyroe experienced technical problems while sailing on the Westerschelde. At the time, the tanker was travelling fully laden from Antwerp in Belgium to Lagos in Nigeria. The cooling sheath of one of the ship's cylinders broke, so the main engine had to be shut down. As a result the vessel lost steering, and set anchor in the navigation channel in order to prevent drifting. Three tugboats and a Rijkswaterstaat vessel subsequently towed the tanker to a safe anchorage. The crew repaired the defect engine and the ship was able to continue its journey, the next day.

Classification: *Serious*

The Dutch Safety Board in three questions

1

What does the Dutch Safety Board do?

Living safely, working safely, safety. It seems obvious, but safety cannot be guaranteed. Despite all knowledge and technology, serious accidents happen and disasters sometimes occur. By carrying out investigations and drawing lessons from them, safety can be improved. In the Netherlands the Dutch Safety Board investigates incidents, safety issues and unsafe situations which develop gradually. The objective of these investigations is to improve safety, to learn and to issue recommendations to parties involved.

2

What is the Dutch Safety Board?

The Dutch Safety Board is independent of the Dutch government and other parties and decides for itself which occurrences and topics will be investigated.

The Dutch Safety Board is entitled to carry out investigations in virtually all areas. In addition to incidents in aviation, on the railways, in shipping and in the (petro-)chemical industry, the Board also investigates occurrences in the construction sector and healthcare, for example, as well as military incidents involving the armed forces.

3

Who works at the Dutch Safety Board?

The Board consists of three permanent board members under the chairmanship of Jeroen Dijsselbloem. The board members are the public face of the Dutch Safety Board. They have extensive knowledge of safety issues.

They also have extensive administrative and social experience in various roles. The Safety Board's bureau has around 70 staff, two-thirds of whom are investigators.

Visit the website for more information www.safetyboard.nl.



DUTCH
SAFETY BOARD

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This is a publication of the Dutch Safety Board. This report is published in the Dutch and English languages. If there is a difference in interpretation between the Dutch and English versions, the Dutch text will prevail.

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Photos

Photos in this edition, not provided with a source, are owned by the Dutch Safety Board.

Source photos frontpage:

Photo 2: Acta Marine

Photo 3: Vertom Bereedungs gmbh