

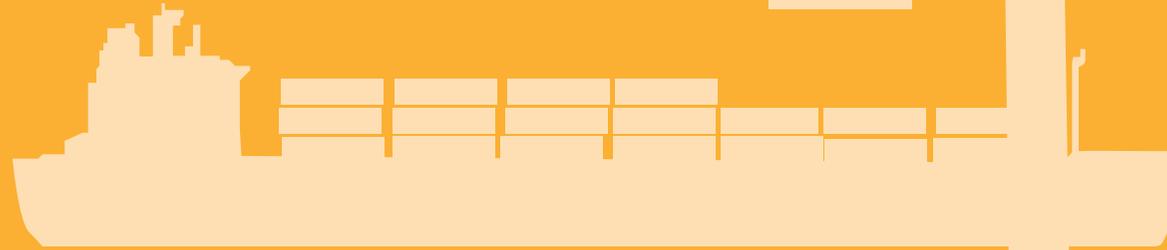


DUTCH
SAFETY BOARD

Investigations

The Dutch Safety Board has the legal obligation of investigating serious to very serious incidents involving Dutch vessels within the shipping industry. In addition, the obligation applies of investigating serious and very serious incidents that have involved sea 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 EU Directive 2009/18/EC of the European Parliament and European Union Council of 23 April 2009 establishing the fundamental principles governing the investigation of accidents in the maritime transport sector. When the Dutch Safety Board decides that no structural safety shortcomings are involved with regard to serious incidents by performing extensive investigation, a description of the occurrence is sufficient. The main goal of the Dutch Safety Board is to prevent accidents or the consequences thereof by determining lessons learned and formulating recommendations. Investigating who is to blame or liable is expressly not a part of the investigation of the Dutch Safety Board.

Shipping Occurrences Report



May - November 2017

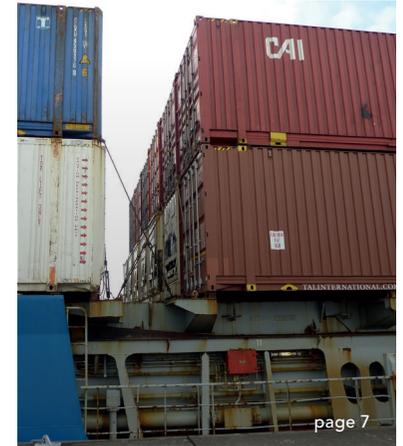


The shipping occurrences investigated by the Dutch Safety Board show that human action is often one of the causes of an accident, but sometimes also prevents occurrences. This report focuses on the most common human-related risk factors.

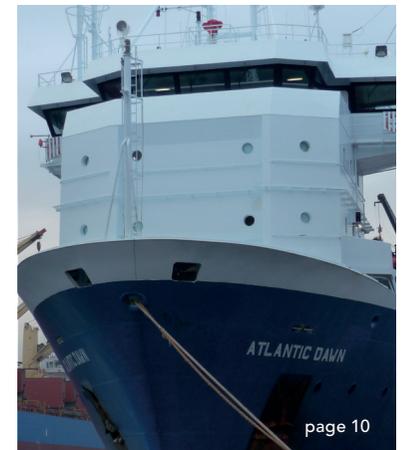
Safety on-board depends to a great extent on how crew anticipate on a quickly changing environment. For this they must always be aware of the risk factors. Partly this requires specific knowledge and experience that is related to working on a ship. These factors are in part sector dependent. Assessing them correctly therefore requires sector-specific know-how and experience.

Other risk factors are, on the contrary, more general in their nature and mainly also occur outside the shipping industry. An example is Fatigue. This causes significant risks during shipping operations, but also when driving a car. It is mainly the general non-sector linked risk factors that cause the most accidents in practice.

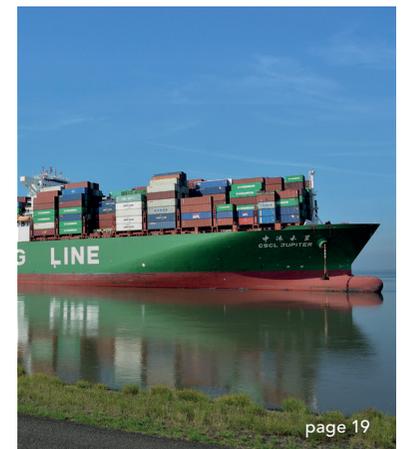
Tjibbe Joustra,
chairman of the Dutch Safety Board



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The Deadly Dozen

Twelve of the most frequently occurring people-related risk factors are summarised in Figure 1¹. This is also known as the *Deadly Dozen*². Despite the fact that everyone is aware of these risks, they still often occur.

To substantiate this, the 27 published investigations from prior editions of the Shipping Accident Report have been categorised based on these twelve most frequently occurring factors that have a negative impact on human actions in Figure 2. 69 risk factors have been identified during this analysis. This has shown that situational awareness and local practice are, by far, the most frequently occurring risk factors. These two risk factors are therefore further elaborated in the next paragraphs based on examples from previously published reports. The incidents that are used

1 This text has been put together based on the works of the Maritime and Coastguard Agency (MCA): The Human Element - a guide to human behaviour in the shipping industry and MGN520/520 Human element guidance – part 2/2 the deadly dozen.

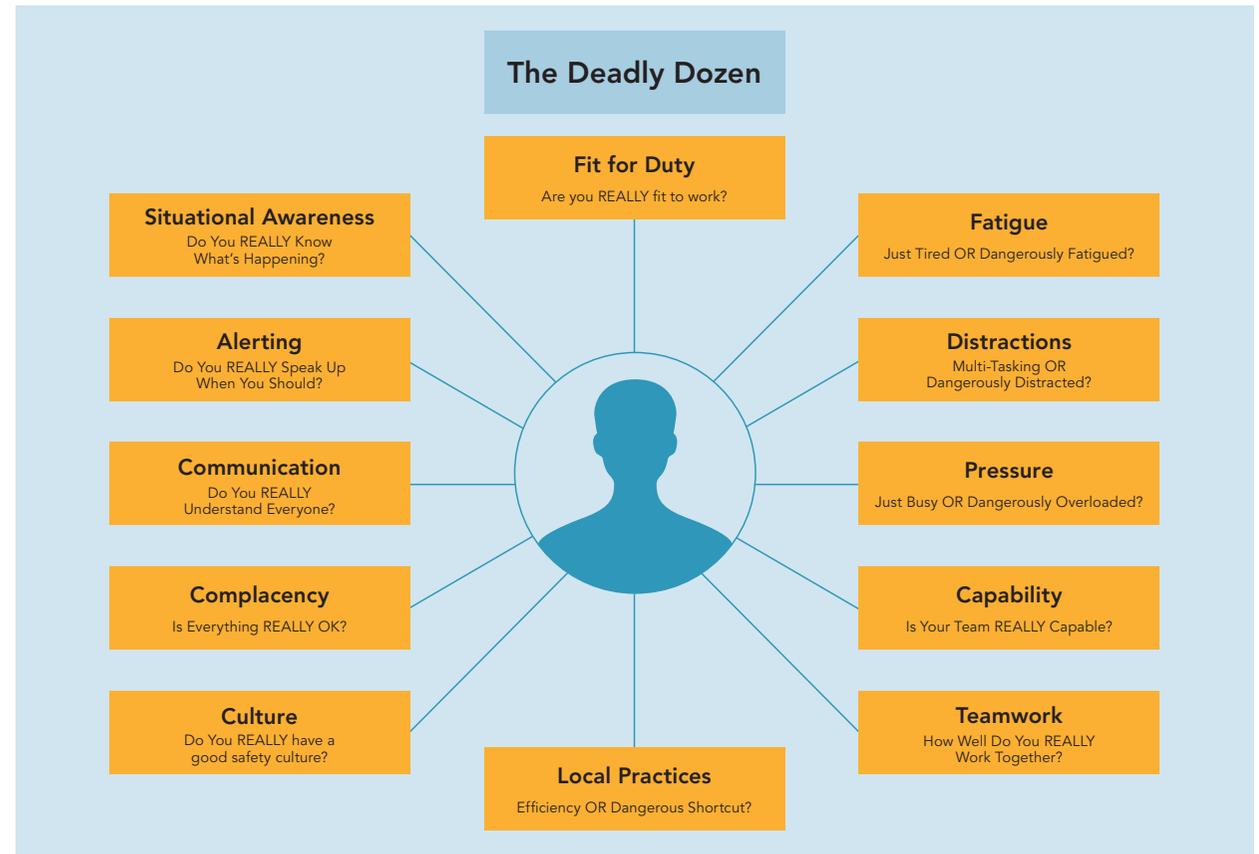


Figure 1: Deadly Dozen. (Source: MCA)

as examples can, to a large extent, be linked to the relevant risk factor. To conclude, tips are given that have the potential to prevent incidents and accidents.

2 The Dirty Dozen or better known as the deadly dozen. Based on the Gordon Dupont's body of thought: https://www.skybrary.aero/index.php/The_Human_Factors_%22Dirty_Dozen%22

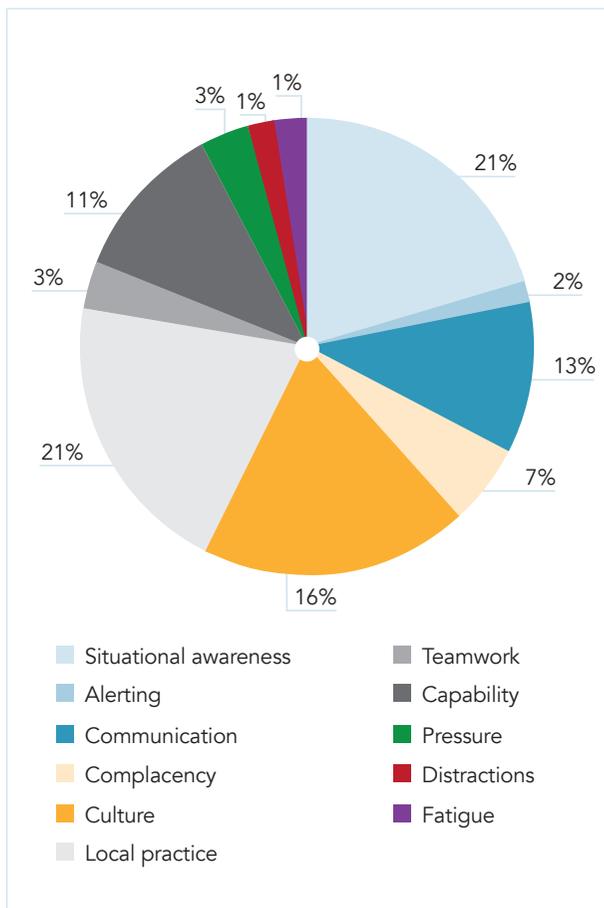


Figure 2: Distribution of the risk factors from 27 investigation reports from the Dutch Safety Board.

Situational Awareness – are you TRULY aware of what is happening?

'Situational awareness = understanding what is TRULY going on to, subsequently, assess the impact on your situation now and in the future.'

A defective situational awareness is a factor in many maritime accidents. This is usually caused by

- A lack of up-to-date information.
- The situation changes too quickly to retain the full picture.
- New and unique problems that are not understood.
- Too few capacities and experience.
- Distractions because of paperwork or other interruptions such as a smartphone.
- Complacency.
- Fatigue.

An example of an accident where situational awareness played a role is the collision between the Arklow Rambler and Atlantic Jupiter³ on Monday 8 February 2016. The collision occurred in anchorage area 4E, close to the Port of Rotterdam, where both ships were at anchor. Due to adverse weather conditions, the anchors of both ships provided insufficient grip and both ships drifted from their position. The Atlantic Jupiter decided to hoist anchor and wait for the weather to improve while under power. During the manoeuvre, the distance between both ships became increasingly smaller, up until the point at which a collision was unavoidable.

The following issues emerged from the investigation that have an impact on the situational awareness:

- The Arklow Rambler and the Atlantic Jupiter did not maintain sufficient distance to be able to respond to an unexpected situation. They were under the impression that everything would be OK. (*complacency*)
- The raising of the anchor of the Atlantic Jupiter and the subsequent manoeuvre caused there to be insufficient control of the ship. The captain on the Atlantic Jupiter was not aware of the effect that the wind and current would have on his ship after hoisting the anchor. Although the captain had much experience as a sailor, this was the first time as a captain, which meant that comparable manoeuvres had not often been made alone. (*too few capacities and experience*)
- Immediately after the collision, not enough attention was given to safe navigation on-board the Atlantic Jupiter, because of which a second collision almost occurred. The crew was distracted by alarms, internal communication and damage to inventory and could not see that a second dangerous situation was unfolding. (*the situation changed too quickly to retain the full picture*)
- The communication between the parties involved was also unclear prior to, during and after the collision. The ships did not use Standard Marine Communication Phrases (SMCP) and the urgency of the situation was not included in the messages. This meant that Maas Approach VTS was not aware for a long period of the collision and it took too long for assistance to be started. (*a lack of up-to-date information*)

³ Dutch Safety Board report – Collision in anchorage area: <https://www.onderzoeksraad.nl/en/onderzoek/2323/collision-in-anchorage-area-8-february-2016>

The Deadly Dozen

Local practice – efficient OR dangerous shortcuts?

“Local practice = behaviour and actions that are applied locally and deviate from the official documented practice. Also known as breach of procedures.”

Correct implementation and behaviour are essential for safety. Procedures have been designed to ensure that work is performed correctly, safely, legally and based on the expected standard. Practice may, however, deviate from the expected implementation of procedures and behaviour. When attention is not paid to these deviations, this behaviour becomes the new standard with all the risks that this entails.

There are many reasons why such behaviour deviates from the expected standard such as:

- Official procedures for the implementation thereof are unclear, difficult to follow or do not work at all.
- The described equipment is not available.
- Training is not effective and people believe they are performing their work correctly.
- Supervision and monitoring is not effective.
- The culture of safety is not effective or there is a lazy attitude.

- Too few people or resources are available to implement the procedures as intended.
- Shortcuts are more suitable or easier.
- People do not completely understand the risks of their actions.

An example where the local practice played a significant role in the creation of an accident is the accident on-board of the Dutch cargo vessel Hudsonborg⁴ in the course of which the first officer died due to a lack of oxygen when checking the cargo. The hold contained zinc concentrate that extracted oxygen from the air.

The following emerged from the investigation:

- Despite the fact that the access doors to the hold had been provided with warning labels that stated “confined space”, the first officer did not take sufficient measures or was not encouraged to do so. (The culture of safety is not effective or there is a lazy attitude supervision and monitoring of colleagues is not effective.)
- The procedures that apply to checking the cargo did not fit in well with the situation in practice. In accordance with the procedure, five persons should have taken part in the activities that apply when entering a confined space. The vessel had a total crew of eight on-board. To check the cargo, a relatively short and easy job, implementing the entire procedure would have had an impact on the crew that was far too large and therefore this was not performed in this way. (Too few people or resources are available to implement the procedures as intended.)
- In this case, three different safety sheets and a work permit had to be kept side by side for the cargo check to arrive at the correct procedure to be followed. This is not practical for a simple job. (Official procedures for the implementation thereof are unclear, difficult to follow or do not work at all.)

The past six editions of the Shipping Accident Report contained 27 summaries of published reports and 173 serious incidents that were reported but not investigated extensively. Most of these accidents and incidents can potentially be prevented when human understanding, actions and behaviour are adjusted. Not just the crew on-board vessels, but also people in the wider maritime system such as vessel owners, operators and CEO's.

More information about “the human element” and the deadly dozen can be found on the Maritime & Coastguard Agency website. The original documents of Gordon Dupont can be found on the Sky library as well as references to other interesting sources about this topic.

https://www.skybrary.aero/index.php/The_Human_Factors_%22Dirty_Dozen%22
<https://www.gov.uk/government/publications/human-element-guidance-12-significant-people-factors-in-maritime-safety>

4 Dutch Safety Board report – Suffocation caused by entering a cargo hold: <https://www.onderzoeksraad.nl/nl/onderzoek/2032/verstikking-door-betreden-ladingruim-12-maart-2014>

Accident classification

In this Shipping Accident Report the Dutch Safety Board presents the description of incidents on-board ships sailing under the Dutch flag or incidents that have occurred within Dutch territorial waters and published reports during the period between 1 May 2017 and 1 November 2017.

Every accident has been classified based on seriousness. The categories match EU Directive 2009/EC/18:

Very serious: accident where the ship is a total-loss or there have been fatal victims or serious environmental damage.

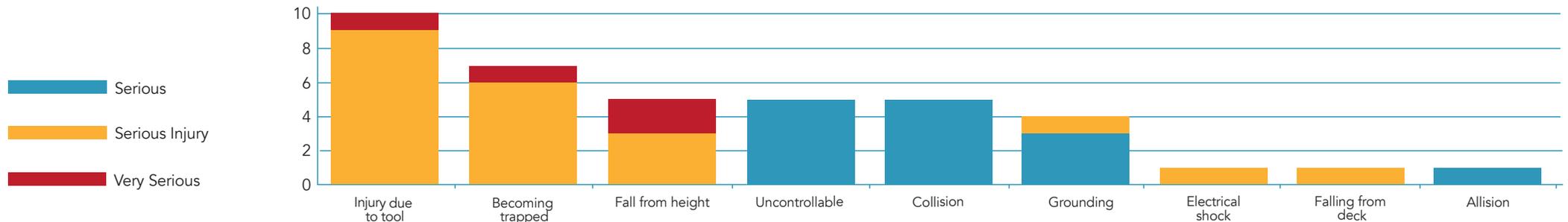
Serious: accident involving a ship that cannot be classified as 'very serious' and where, for example, a collision, grounding, etc. has occurred that has meant that the ship cannot continue to sail or causes environmental damage.

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 would have put any of these at risk if it had not been rectified.

Serious injury: injuries 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 incidents from the following categories: *very serious*, *serious* and *serious injury*. It also includes the incidents that relate to the Dutch Safety Board's priorities.



Accidents with the classification: Very Serious, Serious and Serious Injury between 1 May 2017 and 1 November 2017 classified per type.

Published reports

Grounding of the semi-sumersible rig Transocean Winner because of loss of tow with the ALP Forward, Isle of Man, 8 August 2016

On 8 August 2016 at 06:52 LT the Marshall Islands registered semi-sumersible rig Transocean Winner came aground on the Isle of Lewis (Isle of Man) after the Dutch registered tow ALP Foreward lost its tow with the rig. The tug and tow was on passage from Stavanger, Norway to Valletta, Malta when it encountered severe weather prior to the accident. The effect of the wind and waves on Transocean Winner led to the loss of ALP Forward's ability to control the direction and speed of the tug and tow. After being dragged backwards by the tow for over 24 hours, the tow line, weakened by the repeated sudden loadings, parted and the tug was unable to pick up a new tow line with the Transocean Winner.

An investigation was carried out by the British *Marine Accident Investigation Branch* (MAIB) due to this accident that resulted in the following findings:

- The effects of the wind on Transocean Winner meant that ALP Forward lost control over the direction and speed of the tug and tow. The tug's master did not have the required information and it was therefore impossible for the master to make the correct assessment of the effect on the tow and the impossibility of the tug to retain its position in such weather conditions. This meant that he could not adjust his journey planning on time and find shelter.
- The planning of a passage so close to the coast left little distance for the tug and tow to drift. When ALP Foreward lost control, the Transocean Winner coming aground was only a matter of time even if the tow line had not parted.
- The tow line was in a poor condition, there was insufficient catenary in the deployed tow line which led, in the weather conditions, to repeated sudden loadings resulting in the tow line parting. It is quite possible that a new tow line would have also parted under the same conditions.

Classification: Serious

The full report can be found on <https://www.gov.uk/maib-reports/grounding-of-semi-submersible-rig-transocean-winner-after-the-loss-of-tow-from-tug-alp-forward>

Fatal accident because of becoming trapped between two containers, MS Alma, Moerdijk Port, 18 May 2016

On Wednesday 18 May 2016 a crew member died on-board of the container ship Alma when loading containers. The ship was anchored at the Central Port of Moerdijk. During the loading activities, the crew member climbed on the roof of a container while another container that had been positioned on top was being lifted sideways. The top container was placed back while the crew member was still on the lower container. After the accident, investigators of the Dutch Safety Board went on-board to carry out an investigation.

The Dutch Safety Board concluded at the following conclusions based on the investigation:

- The victim died because a container was put back while he was still under it.
- There were no clear and consistent agreements about the teamwork between the team on-board and the one onshore about loading and unloading activities at the port. This also meant that there was no coordinating and unique supervision and responsibility role. The investigation led to doubts about safety awareness on a management level. Due to a lack of supervision with regard to the implementation on the work floor, it was effectively left to the work floor to remove observed safety risks. The investigation showed that this could result in the activities being performed based on a personal viewpoint without aiming for a joint safety perspective.

Classification: Very Serious

The full report can be found on <https://www.onderzoeksraad.nl/nl/onderzoek/2344/dodelijk-ongeval-door-beknelling-tussen-twee-containers>



Position in-between the containers.

Broken mast on the Amicitia, Harlingen, 21 August 2016

On 21 August 2016 the master of the historic sailing ship Amicitia was about to turn his ship into the port of Harlingen, the final destination of a sailing week in the Wadden Region. A German family was on-board consisting of twelve people. Three of them were helping on the forward deck furling the foresail. Suddenly, the wooden mast broke and the 6.5 metre top fell on to the foredeck together with a number of parts. The three people on the foredeck did not survive the accident.

The Dutch Safety Board investigated what the direct cause of the mast breaking was and which structural safety shortcomings caused this accident from which lessons could be learned:

Wood rot

Although the mast breaking came as a complete surprise to those involved, the investigation showed that a process of at least four years preceded this. Water penetrated deeply into the mast during this period after which it could not leave the mast any more. This water started a rotting process in due course in the inside of the mast. The wood rot continued to such an extent during the last two years that the mast lost nearly all its strength.

A lack of expertise on the master's side and maintenance personnel

It is generally known that wood rot can occur in a wooden mast. If identified on time and treated appropriately, it does not have to put the safety of the mast at risk. It is therefore important that the mast is checked regularly with regard to potentially vulnerable places. There was no maintenance plan for the involved mast and the mast was not checked regularly. This meant that changes and vulnerable places were not seen. The master trusted the expertise of the maintenance personnel because he lacked the expertise himself.

Deficiencies with regard to certification

The master who was also the owner of the involved ship did not just trust the expertise of the maintenance personnel that he had called in. The mast certificate issued in 2012 that had a validity period of up to 2018 also convinced the master that this safety critical part of his ship met all requirements. The private inspection body had indeed inspected the mast more than four years prior to it breaking after which the relevant certificate was issued. Although this certificate is valid for at most 2.5 years in accordance with the law, the inspection body wrongly specified on the certificate a validity period of six years. This created the impression that the mast still had a valid certificate when the accident occurred while it had already elapsed for some time in reality.



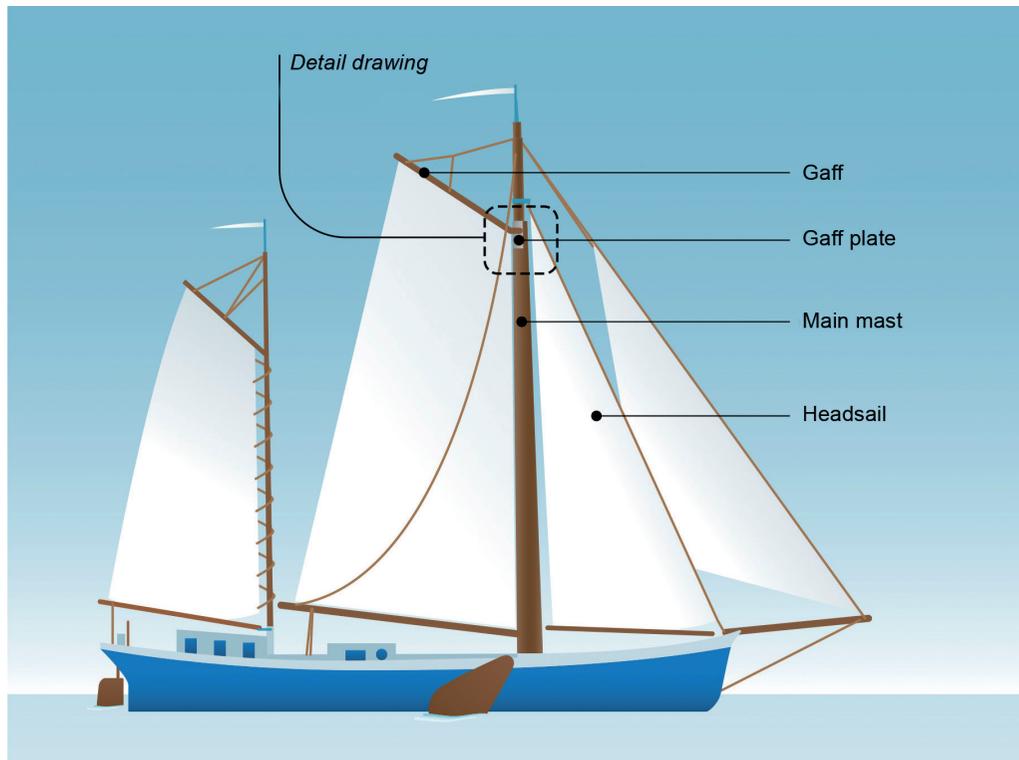
Amicitia after the accident. (Photo: CAMJO media/Jaring Rispens)

Deficient supervision by the Human Environment and Transport Inspectorate

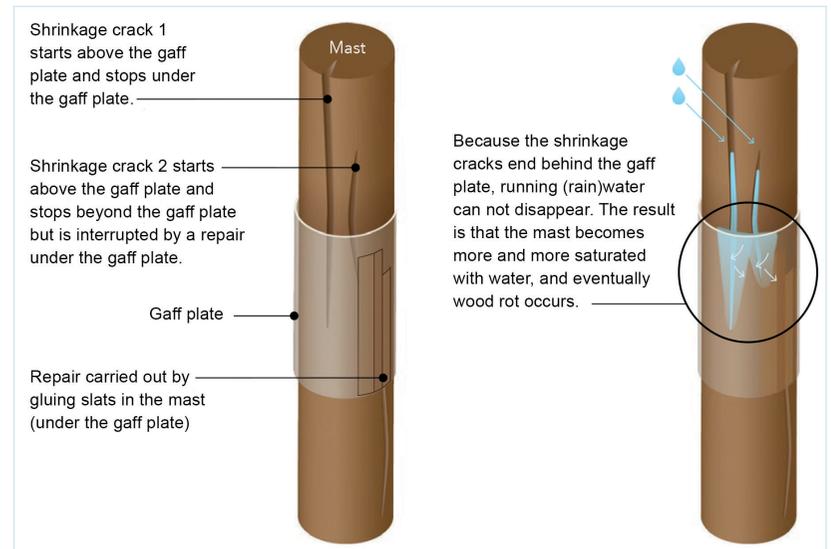
Inspection bodies are given their jobs by the government: The Human Environment and Transport Inspectorate (ILT) has mandated the inspection and certification of ships to private inspection bodies. The Minister of Infrastructure and the Environment has final responsibility within this system. It is essential that the Inspectorate has an overview on behalf of the Minister on the quality of the inspections of the inspection bodies in order to fully assume its responsibility. The investigation has shown that the ILT does not have this overview with regard to the inspection of sailing passenger ships. The ILT basically does not supervise the inspection method of sailing passenger ships and essential parts such as masts are not checked with regard to the supervision that the ILT carries out directly on-board of ships.

Classification: Very Serious

The full report and animation can be found on <https://www.onderzoeksraad.nl/nl/onderzoek/2264/mastbreuk-zeilschip-harlingen>



Amicitia clipper infographic.



Saturation process

Electrocution in a tank, MS Atlantic Dawn, Saudi Arabia, 17 October 2016

On Monday 17 October 2016 a crew member died on-board of the Dutch heavy cargo ship Atlantic Dawn. He was involved in painting work in an unused dirty water tank in the engine room when the ship was anchored near the coast of Saudi Arabia. After the accident, investigators of the Dutch Safety Board went on-board to carry out an investigation.

The Dutch Safety Board concluded at the following conclusions based on the investigation:

- The victim probably died because he was electrocuted. He had a cable with him on which a fitting and plug had been added in a messy manner; it was a faulty assembly. The victim probably grabbed hold of the phase through an opening where the fitting was. A safe voltage was not being used.
- It is possible that the victim underestimated the risk of working with electricity on-board. The risks of electricity are more significant when working in a confined space. In addition to the shown risk of electrocution, this also entailed a fire and explosion risk.
- If we keep all the risks of paintwork in a confined space in our minds, it is doubtful that this work in the tank should have been performed by the ship's crew at that time.



Atlantic Dawn.

Classification: Very Serious

The full report can be found on <https://onderzoeksraad.nl/en/onderzoek/2371/electrocution-in-tank>



Involved cable in tank. (Photo: Netherlands Forensic Institute)

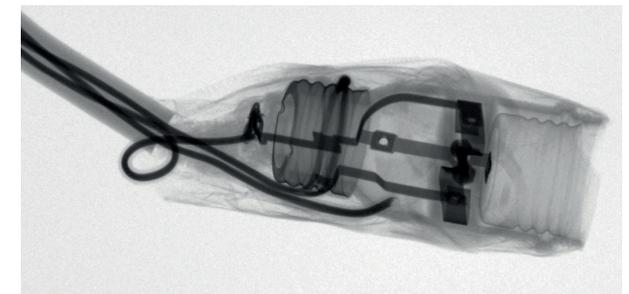


Figure Fitting as connected on the cable. (Photo: Netherlands Forensic Institute)

Grounding, Nova Cura, Greece, 20 April 2016

On 20 April 2016 the Dutch cargo ship Nova Cura was making its way from Eregli on the Black Sea (Turkey) to Aliaga (Turkey). The ship was loaded with 4,400 tons of steel products. AT 09.55 the Nova Cura run aground in the Mytilini Strait (to the north of Lesbos) at cruising speed. This made all double bottom tanks leak and they filled up with water as did the engine room and the bow thruster room. The ship was a total-loss. The digital chart in the ECDIS (Electronic Chart Display and Information System) indicated that the sea at the position where the ship was should be 112 metres deep. The ship, however, had sailed into the shallows of the Lamnas Reef in the Mytilini Strait. After the accident, investigators of the Dutch Safety Board went on-board to carry out an investigation.

The investigation showed that the voyage preparations on-board the Nova Cura were made for the route to Izmir that runs to the west of Lesbos. When the destination become Aliaga, the route was changed. The new route run to the north of Lesbos and new voyage preparations were not made for this. Although new waypoints were set, no other information was used in changing the route. The Pilots for the area were not consulted for potential hazards, the sector lights were either not identified and the available ENC (Electronic Navigational Chart) was not checked for reliability.

Following the investigation, the Dutch Safety Board draw the following conclusion:

- Adequate voyage preparations contribute to safe navigation. ECDIS incorporates various information sources, but this is of no use if the information that is available is not consulted. Even allowing for the fact that the actual position of the Lamnas Reef shallows deviated from their location in ECDIS, the Nova Cura would not have travelled to that position in the first place if adequate voyage preparations had been made when the route was changed. The use of ECDIS must be supplemented by all other available tools to support safe navigation.

In addition to this conclusion, the following structural safety shortcomings were identified:

- When using ECDIS, crews can overestimate the reliability of ENC's that may be very low. Checking the CATZOC and consulting pick reports are therefore essential for a safe navigation.
- When hydrographic services convert very old nautical charts into ENC's, they tend to overlook practicality issues and the expectations that users have of a relatively new system such as ECDIS. By converting old paper nautical charts into ENC's, hydrographic services unintentionally foster the mistaken assumption among users that the information is up to date.
- ECDIS is a relatively new, state-of-the-art navigation system, which may create the impression that it guarantees highly accurate navigation. This can lead to the crew overestimating the reliability of the information at their disposal or even neglecting to check it. As new technology gains traction, traditional skills fall out of use and seem to disintegrate altogether.
- ECDIS technology is capable of offering much more information than the user is able to process. In addition, the retrieval of information from the system is not always intuitive. ECDIS users must be made more aware of this issue, which should be highlighted in the ECDIS user instructions and system training. It should also be a factor in the future development of ECDIS.

Classification: Very Serious

The full report can be found on <https://onderzoeksraad.nl/en/onderzoek/2380/digital-navigation-old-skills-in-new-technology-20-april-2016>



Nova Cura.



Route to Aliaga to the north of Lesbos (red) and route to Izmir to the west of Lesbos (black). (Source: GR4APP01)



Position of the Nova Cura on the Greek sea chart.

Crew member trapped between accommodation and hatch cover crane, Stettin (Poland), 2 December 2016

On 2 December 2016 a crew member died on a cargo ship sailing under the Dutch flag. The ship was loading at the port of Stettin in Poland during rainy weather conditions. During loading at around half past two in the morning, one of the hatches on the rear side had to be moved. The hatch cover crane was used for this but the wheels of the hatch cover crane slipped on the rails. Sand was scattered on the rails to give the wheels more grip. The hatch cover crane with the hatch eventually moved, but when it arrived at the location where the hatch had to be positioned, the wheels again slipped and the hatch cover crane continued its movement over the rails. The victim was clamped in-between the hatch and the accommodation and died on site.

The *State Commission on Maritime Accident Investigation (PKBWM)* from Poland started an investigation into this accident. The PKBWM published its investigation report in October 2017.

Classification: Very Serious

The full report can be found on <http://pkbwm.gov.pl/images/Reports/Raport-Daan--wersja-koncowa-09-08-2017-r--ENG.pdf>

Started investigations

Fire in an engine room, Maas Approach, 26 June 2017

On 26 June 2017 a fire started in the engine room of a Dutch cargo ship. The crew managed to extinguish the fire after which the ship was towed to the port. The ship was on its way to Rotterdam and was already at the approach to the port. Two crew members were injured by the fire and the ship suffered serious damage. The Dutch Safety Board started an investigation into this accident.

Classification: *Serious*



Photo of the emergency assistance. (Photo: Floris Visser)

Collision leads to a ship running aground, Nauw van Bath, 20 September 2017

In the morning of 20 September 2017, a collision took place between a cargo ship sailing under the Liberian flag and an oil tanker sailing under the German flag after which the German ship ran aground. The oil tanker had a higher speed than the cargo ship and collided with the cargo ship. During the overtaking manoeuvre just before the Nauw van Bath, a curve in the river Wester Schelde, the starboard bow of the oil tanker hit the middle of the cargo ship on the starboard side, which meant that the oil tanker could no longer take the curve and, subsequently, ran aground.

The Dutch Safety Board started an investigation into the incident together with the Bundesstelle für Seeunfalluntersuchung (BSU, German Maritime Casualty Investigation, Germany) and the Federale Instantie voor het Onderzoek van Scheepvaartongevallen (FOSO, Federal Agency for the Investigation of Shipping Accidents, Belgium).

Classification: *Serious*

Investigation started by foreign authority with the Netherlands as the State with substantial interest

A crew member falls overboard when recording draught marks and drowns, Trois-Rivières (Canada), 29 September 2017

The third mate of a cargo ship sailing under a Dutch flag was given the instruction on 29 September 2017 by the first officer to survey the current draught. The ship was moored at starboard at the quay in the port of Trois-Rivières, Canada. Once the first officer noticed after approximately half an hour that the third mate had not yet returned from his job, it was observed that the pilot ladder was hanging overboard on the port side. The third mate was no longer on the pilot ladder and he was not found after a search on-board. The MOB procedure was started and the coastguard and port authorities were informed at the same time. A SAR operation was started but without result. The currents on location are very strong. The local authorities and the Transportation Safety Board of Canada came on-board for an initial investigation. The body of the victim was found a few days later.

The *Transportation Safety Board of Canada* (TSB) started and investigation into this incident. The Netherlands is a State with substantial interest and the Dutch Safety Board supports the investigation where needed.

Classification: Very Serious

Incidents that have not been extensively investigated

Shattered foot, Ostborg, port of Landskrona (Sweden), 22 March 2017

A crew member had a shattered foot on-board of the cargo ship Ostborg sailing under the Dutch flag during activities involving an intermediate bulkhead . The incident happened during the afternoon of 22 March 2017 in the Swedish port of Landskrona. After filling material had been removed on both sides of the bulkhead, the fixing pins of the intermediate bulkhead were removed by one of the crew members. The bulkhead, however, had not yet been secured, collapsed and fell due to this on the foot of the crew member.

Classification: Serious Injury

Fisherman is trapped between a rope and loses a fingertip, Deo Juvante (YE170) Wadden Sea, 3 May 2017

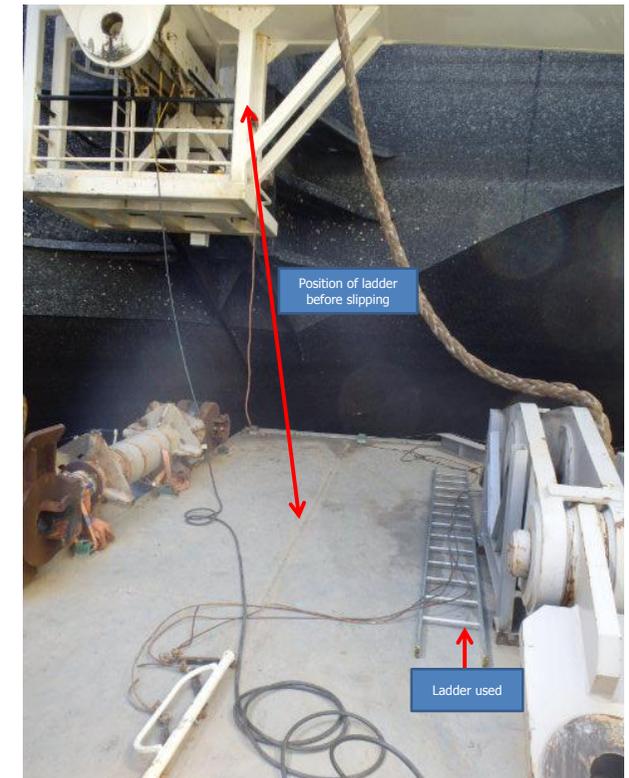
On Thursday 3 May 2017 a crew member on-board of the Deo Juvante fishing ship sailing under the Dutch flag (YE170) was trapped between a rope and lost his finger tip. The ship was sailing on the Wadden Sea near Texel (the Netherlands) at that moment.

Classification: Serious Injury

Crew member falls on the prow and breaks his arm and elbow, Pioneering Spirit, 9 May 2017

A crew member of the Maltese crane ship Pioneering Spirit broke his arm and elbow on 9 May 2017 at around noon when he fell because a ladder slid away while he was climbing it. The ship was moored at the Alexia haven in Rotterdam.

Classification: Serious Injury



Ladder working position on the Pioneering Spirit. (Photo: Allseas)

Incidents that have not been extensively investigated

Open bone fracture because a block flew off, Jan Senior (ARM7), Westerschelde, 18 May 2017

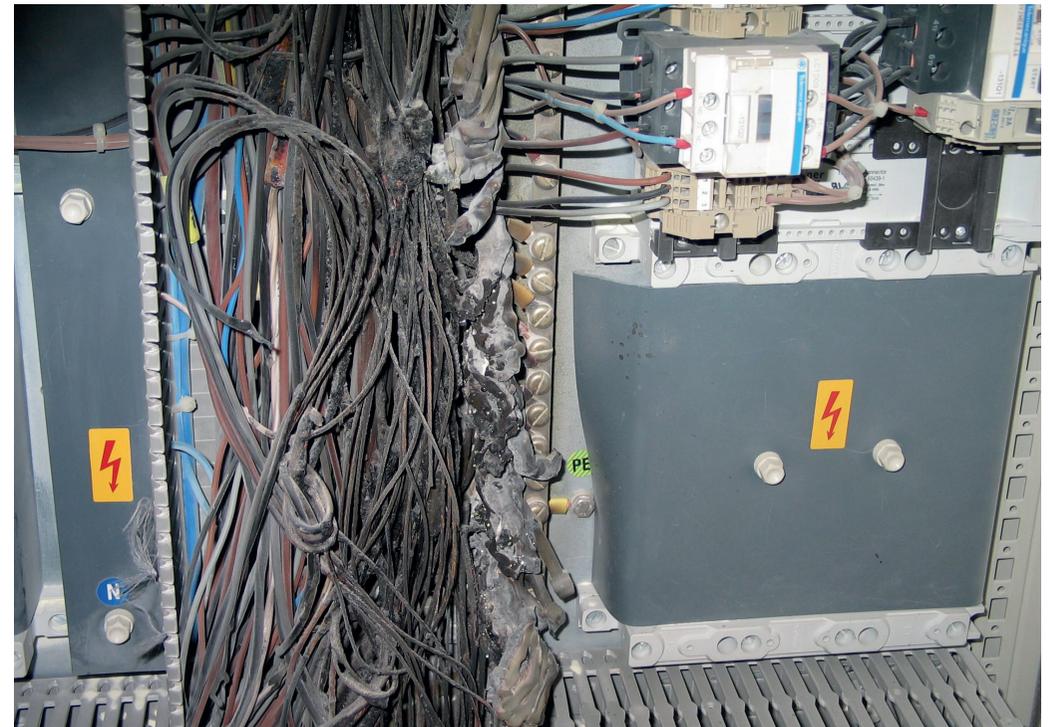
A crew member was injured on-board the Dutch fishing vessel (ARM 7) Jan Senior on 18 May 2017. The crew member suffered a complex bone fracture on his right arm while working on deck. The victim was putting away the fishing tackle using the warping end. On the portside of the deck house a closing device of the warping end became loose and hit the arm of the victim. The vessel was on the Westerschelde on its way to Vlissingen at the time of the accident.

Classification: Serious Injury

Fire in the engine room, Hydra, Kiel Canal, (Germany), 27 May 2017

On 27 May 2017 fire broke out in the engine room on-board the Hydra cargo ship sailing under the Dutch flag. The fire was quickly discovered and could be put out with a powder fire extinguisher. The possible cause was a short-circuit. Despite the fact that the fire was quickly discovered and put out, there was considerable damage to the main switchboard. The main engine was no longer operational, after which the ship was sent against the quay of the Kiel Canal at a slow speed. Two tugs later on picked up the ship and took it to Brunsbüttel. The cause of the fire is unknown.

Classification: Serious



Main switchboard with burnt-out parts on the Hydra. (Photo: Bundesstelle für Seeunfalluntersuchung)

Head injury after falling auxiliary spud, Artemis, Moerdijk, 29 May 2017

An auxiliary spud became loose and hit a crew member's head during lifting activities on-board the ship Artemis sailing under the Dutch flag on 29 May 2017. The auxiliary spud, a wooden block to secure something, was lifted up by a soft sling using a handle. The handle, however, became loose during lifting. The block initially fell on a discharge pipe after which it changed direction and hit a crew member's helmet and face. The crew member suffered several fractures.

Classification: Serious Injury



The block with where the handle should be. (Photo: Van Oord Dredging and Marine Contractors)



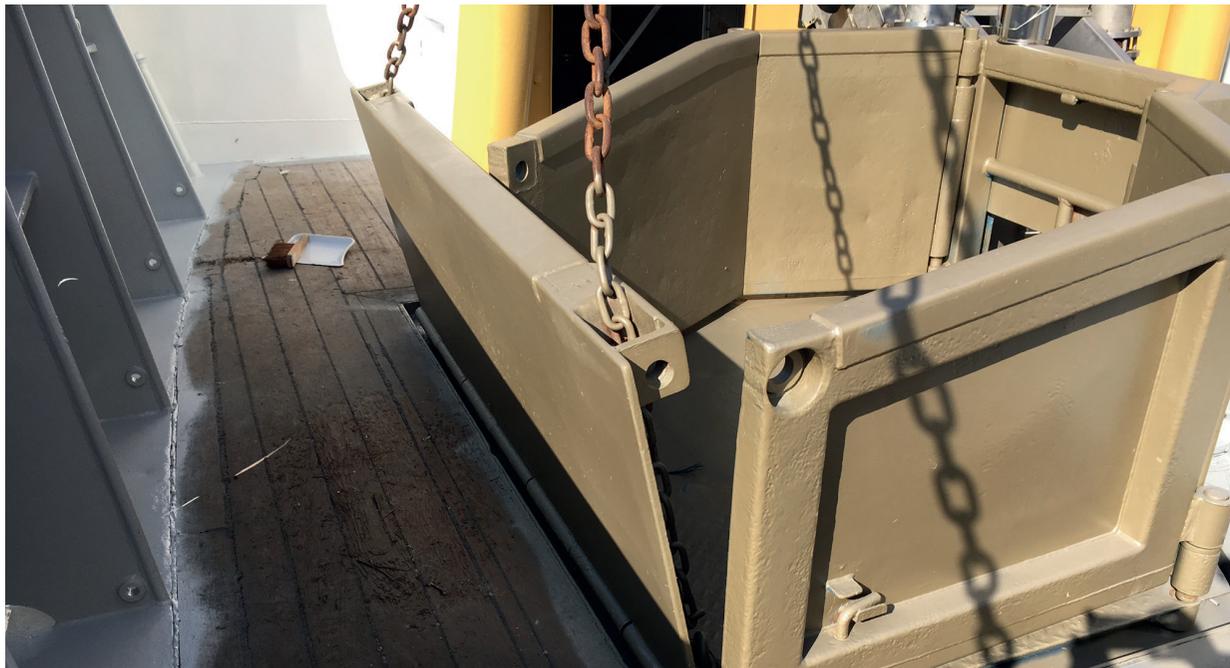
The block and the discharge pipe. (Photo: Van Oord Dredging and Marine Contractors)

Incidents that have not been extensively investigated

Broken leg due to a falling hatch, Jacob Cornelis (SCH45), Stellendam, 19 June, 2017

On 19 June 2017 a crew member broke his shin bone and fibula on-board the Dutch fishing vessel Jacob Cornelis (SCH145). The crew was preparing the vessel for docking that was about to happen. The tanks had been provisionally folded away for paintwork. The crew was busy taking the jumper blocks to shore to have them overhauled. The block was lifted using the jumper wire and pulled to shore by the crew. When lifting one of the jumper blocks from on-board, it hit the side door of the tank. The side door folded down and this meant that the lower leg of the victim became trapped between the side door and the bulwark. Next, the crew quickly lifted the side door again and freed the victim.

Classification: Serious Injury



Jacob Cornelis side door and bulwark. (Photo: Jacob Cornelis owner)

Main engine failure, Flevoborg, Cap Santé, (Canada), 21 June 2017

The main engine failed on the cargo ship Flevoborg sailing under the Dutch flag on 21 June 2017. The ship had left the Port of Montreal loaded with maize. The ship did not have any propulsion anymore because the main engine failed. This meant that the ship ran aground with a speed of 13 nautical knots to the south of Cap Santé in Canada. The chart shows that this is a rocky area. The ship's gradient on starboard was approximately 3 degrees. Various tanks were gauged, but inflow of water or outflow of fuel was not involved in any way. The ship could be refloated by a tug during the next high tide. Next, the ship was tugged to the Port of Quebec for inspection of the ship and the repair of the main engine.

Classification: Serious

Leg broken in engine room, Westerdam, Mediterranean Sea, 2 July 2017

On 2 July 2017 a crew member on board the Dutch cruise ship Westerdam broke his leg during pulley tackle activities in the engine room. The crew was hoisting up the manifold of a diesel generator. The manifold was hurled and hit one of the crew members on his leg.

Classification: Serious Injury

Hand trapped between the dock bulkhead and wall, Rolldock Sun, Kuwait, 28 July 2017

The hand of the first officer was trapped when moving a temporary dock bulkhead on-board the cargo ship Rolldock Sun sailing under the Dutch flag on 28 July 2017. The ship was moored at the Port of Shuaiba, Kuwait.

A section of the temporary dock bulkhead had to be lifted with a crane. The temporary dock bulkhead moved in the direction of the dock wall during lifting. The first officer tried to stop the movement with his hand and a few of his fingers became trapped.

Classification: Serious Injury



Temporary dock bulkhead in the crane against the dock wall. (Photo: RollDock Shipping)

Adrift barges damage sea ship, Arklow Brook, Nieuwe Zeehaven Zaandam, 4 August 2017

Two barges (Imperial I and Imperial IV) became adrift because of high winds in the evening of 4 August 2017 and drifted towards the Dutch cargo ship Arklow Brook. On-board of the Arklow Brook they had been busy unloading that day. When the barges hit the ship, the crew was resting. The Arklow Brook suffered such damage that they were not allowed to continue sailing straight away.

Classification: Serious



Damage to the Arklow Brook. (Photo: ILT)

Container ship runs aground, CSCL Jupiter, Nauw van Bath, 14 August 2017

On Monday morning on 14 August 2017 the container ship CSCL Jupiter that sails under the flag of Hong Kong run aground in the Nauw van Bath. The ship had left the Port of Antwerp to complete a voyage to Hamburg. While making the manoeuvre to take curve in the Nauw van Bath, the rudder became stuck. Emergency measures had no effect and the CSCL Jupiter run aground. The passage on the Wester Schelde to and from Antwerp was closed completely for shipping traffic. On Monday evening on 14 August 2017 the ship was salvaged at high tide. The ship was, subsequently, towed to the Port of Antwerp. The CSCL Jupiter did not have any visible damage to the outside.

Classification: Serious



CSCL Jupiter runs aground. (Photo: Police)



CSCL Jupiter runs aground. (Photo: Police)

Incidents that have not been extensively investigated

Fire in the engine room, Maersk Pembroke, Irish coast, 21 August 2017

On the Maersk Pembroke container ship sailing under the Dutch flag a fire broke out in the engine room during the evening of 21 August 2017. The ship was approximately 125 miles from the coast to the south west of Ireland at that time.

The automatic fire alarm system was triggered by a fire indication in the engine room. The engineers investigated the cause of the fire alarm system being triggered. They saw smoke and flames when they entered the engine room. They closed the engine room access point and immediately activated the quick-closing valves.

After the fire-extinguishing team arrived at the engine room entrance, they reported dense smoke and heat. They were then called back. The decision was taken to



The generator of the Maersk Pembroke after the fire. (Photo: Maersk Pembroke crew)

allow CO2 into the engine room. After a headcount and closing the engine room ventilation valves, CO2 was allowed in. This extinguished the fire. During the blackout that the ship experienced, she was temporarily Not Under Command. After ventilating the engine room, the crew managed to restore the power supply through two generators and the ship was towed back to Rotterdam with the assistance of two tugs.

Classification: Serious

Injured because of falling oil drum, Alessandro DP, Rotterdam, 30 August 2017

On 30 August 2017 the tanker Alessandro DP was in the Port of Rotterdam loading oil drums from a barge that lay alongside it. When lifting the last pallet on to the ship, it broke and two oil drums fell down. A crew member who was giving instructions at that time regarding where the lifted pallet needed to be placed was hit by one of the drums. He suffered serious head and neck injuries.

Classification: Serious Injury

Serious burns when performing work on a boiler, CMA CGM Brazil, Rotterdam, 3 September 2017

During the night of 3 September 2017 work was being performed on the boiler on-board the container ship CMA CGM Brazil. The boiler had been switched off and emptied. The crew member who was performing the work was hit by hot water/steam and he suffered serious burns. The boiler was not completely empty.

Classification: Serious Injury

Blackout and burns due to a shower of sparks, Maersk Rosyth, Rotterdam, 7 September 2017

Whilst the Maersk Rosyth was putting to sea on 7 September 2017, it suffered a blackout. The blackout was due to a short-circuit in the main switchboard, which created an electric arc in the engine room. The electric arc caused slight burns to one of the engineers who observed a smell of burning prior to the short-circuit and was checking the relevant junction box. The tugs that came to help managed to keep the tanker in the fairway and towed the ship back to its mooring berth.

Classification: *Serious*

Crew member loses his finger tip, Schillhorn, North Sea, 7 September 2017

A crew member was injured on-board the fishing vessel Schillhorn (HA36) on 7 September 2017. When lubricating one of the conveyor belts he became trapped and lost a fingertip. The ship suctions shells and mainly fishes for razor clams. The ship was on its way to Stellendam when the accident happened.

Classification: *Serious Injury*

Seriously injured crew member during lifting activities, Aragonborg, Farsund (Norway), 20 September 2017

The Dutch cargo ship Aragonborg was moored in the Port of Farsund (Norway) on 20 September 2017 when the crew was involved in lifting activities. A hook got stuck and the victim and another crew member climbed up to release it. While they were trying to release the hook by slackening the lifting cable, the hook suddenly detached and the cable was put under tension. The victim was hit in the shoulder and was thrown against the railing. He suffered multiple injuries.

Classification: *Serious Injury*

Fall from a ladder, Maersk Palermo, Port of Halifax (Canada), 23 September 2017

On 23 September 2017 the Maersk Palermo arrived in the Port of Halifax. Two reefers with live lobsters were, amongst others, being loaded at the port. An engineer would supervise both containers during the voyage to Germany. Shortly after leaving the port, this engineer was busy filling the refrigeration system of the reefers. He was performing these activities while standing on a ladder. On top of one of the containers there was a sheet of Plexiglas that the engineer wanted to grab. He needed to stretch to achieve this and, once he had grabbed the sheet, he lost his balance. He fell from the ladder and ended on the deck below falling approximately 3.5 metres. He suffered a head wound and pain to his lower back.

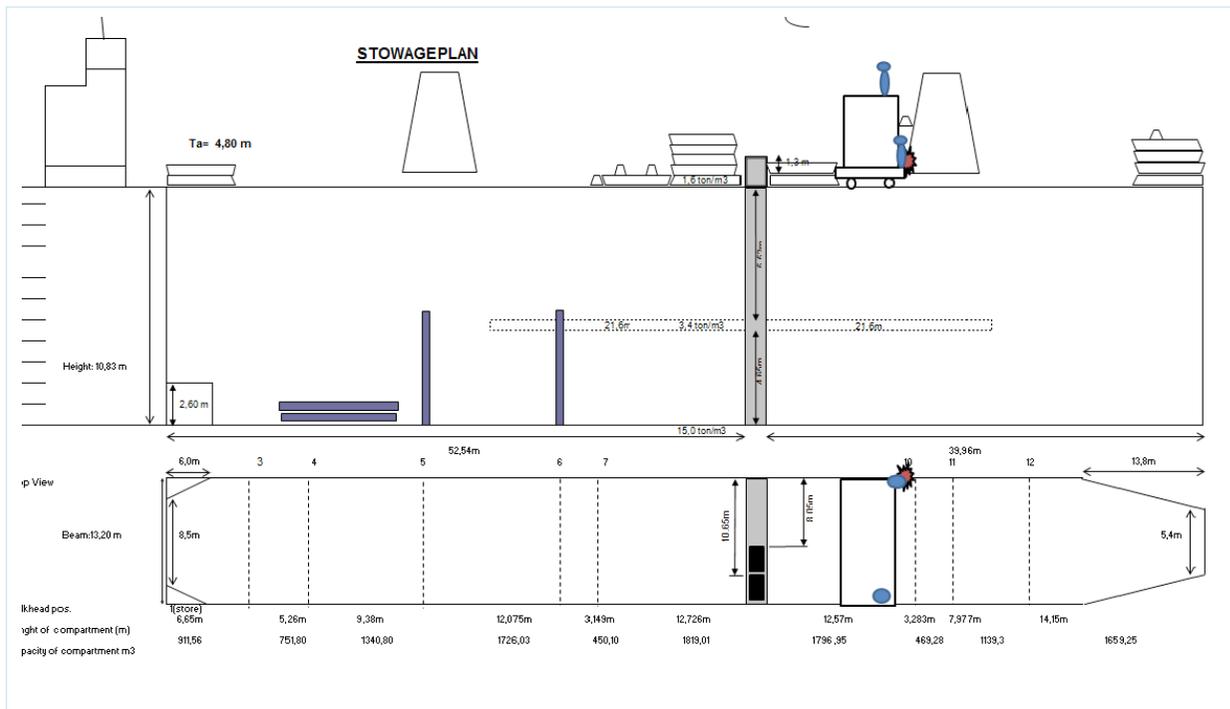
Classification: *Serious Injury*

Incidents that have not been extensively investigated

Crew member breaks his lower leg while preparing the hold, Onego Trader, (Sweden), 29 September 2017

A crew member on-board of the cargo ship Onego Trader sailing under the Dutch flag suffered serious injuries to his lower leg on 29 September 2017 when closing the cargo hatches using a hatch cover crane. The crew member was helping his colleague who was operating the hatch cover crane grabbing and moving the hatch covers when he became trapped between the hatch cover crane and the crane base. The ship was anchored at the Port of Gothenburg when the accident happened.

Classification: Serious Injury



Situation sketch of becoming trapped Onego Trader. (Source: Kustvaart Harlingen)

Medical evacuation after fall in engine room, Symphony Star, Bay of Biscay, 30 September 2017

On 30 September 2017 the chief engineer who was on-board of the Dutch cargo ship Symphony Star fell from a higher situated engine platform and suffered a serious leg injury. The ship was sailing in the Bay of Biscay and had just switched from MGO to HFO when one of the fuel pumps on the main engine falteral. The chief engineer climbed on to the engine platform to resolve the problem when he lost his balance and fell backwards on to the deck that was below.

Classification: Serious Injury



Symphony Star engine platform. (Photo: Symphony Shipping)

Propulsion problems, Lady Anne-Lynn, Mediterranean Sea, 2 October 2017

On 2 October 2017 the Dutch cargo ship Lady Anne-Lynn had problems with the main engine gear. This meant that the ship no longer had any propulsion. The ship was towed to Palma de Mallorca for repairs.

Classification: *Serious*

Electrician became trapped and lost a fingertip, Maersk Kampala, Iskenderun (Turkey), 13 October 2017

The Dutch container ship Maersk Kampala was moored in the port of Iskenderun (Turkey) on 13 October 2017 when an electrician lost a fingertip of his left index finger when opening a watertight door (between the engine room and the passageway). The electrician put his finger in the hole where also a padlock can be put through to lock the door. Next, he operated the door to open it.

Classification: *Serious Injury*

Chief engineer breaks his ankle, Avonmouth (United Kingdom), 14 October 2017

The Dutch cargo ship Arklow Bank was moored in the Port of Avonmouth (UK) on 14 October 2017 when the chief engineer slid on the afterdeck and broke his ankle. The accident took place around 23:30 LT. It is possible that the afterdeck was slippery because of mist.

Classification: *Serious Injury*

Employee gets stuck and hurts foot, North Sea, 17 October 2017

During the transfer from the Dutch Offshore supply ship Kroonborg to a gas platform on the North Sea on 17 October 2017 an employee got stuck on a movement compensating gangway. The victim was an employee of the gas platform and on his way to start his service.

Classification: *Serious Injury*

Crew member becomes trapped between a hatch cover and suffers hand injuries, Atlantic Ocean, 18 October 2017

On 18 October 2017 the Dutch heavy lift vessel Yacht Express was sailing from Genoa (Italy) to Port Everglades (United States) via the Atlantic Ocean when a crew member's hand got trapped between a hatch cover and suffered serious hand injury. After consulting the Radio Medical Service, the decision was taken to sail to a port on the Azores instead. The injured crew member was taken off board here.

Classification: *Serious Injury*

Injured crew members after an explosion and fire on-board, Atlantic Symphony, Rotterdam, 18 October 2017

A fire broke out in the Port of Rotterdam on Thursday, 18 October 2017 on-board of the chemical tanker Atlantic Symphony sailing under the flag of Hong Kong. The ship was carrying coconut oil. After an explosion in one of the tanks, a shooting flame that had a height of 50 metres followed. One of the crew slipped on deck because of the fright and was injured. He was treated on site by ambulance personnel. Two other crew members became unwell because of the fumes from the hold. They were treated at a hospital. The fire brigade had the fire quickly under control and the area was not at risk.

Classification: *Serious Injury*

The Dutch Safety Board in four questions

1

What does the Dutch Safety Board do?

When accidents or disasters happen, the Dutch Safety Board investigates how it was possible for them to occur, with the aim of learning lessons for the future and, ultimately, improving safety in the Netherlands. The Safety Board is independent and is free to decide which incidents to investigate. In particular, it focuses on situations in which people's personal safety is dependent on third parties, such as the government or companies. In certain cases the Board is under an obligation to carry out an investigation. Its investigations do not address issues of blame or liability.

Recently the Dutch Safety Board reported about digital navigation: old skills in new technology, about the mortar accident in Mali and about the new year's safety risks.

2

What is the Dutch Safety Board?

The Safety Board is an 'independent administrative body' and is authorised by law to investigate incidents in all areas imaginable. In practice the Safety Board currently works in the following areas: aviation, shipping, railways, roads, defence, human and animal health, industry, pipes, cables and networks, construction and services, water and crisis management & emergency services.

3

Who works at the Dutch Safety Board?

The Safety Board consists of three permanent board members. The chairman is Tjibbe Joustra. The board members are the face of the Safety Board with respect to society. They have extensive knowledge of safety issues. They also have wide-ranging managerial and social experience in various roles. The Safety Board's office has around 70 staff, of whom around two-thirds are investigators.

4

How do I contact the Dutch Safety Board?

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Credits

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.

January 2018

Photos

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

Sources photos frontpage:

Photo 2: Atlantic Dawn

Photo 3: Police