SVERIGES ÅNGFARTYGS ASSURANS FÖRENING
The Swedish Club
Est. 1872

Navigational Claims

2014

www.swedishclub.com

Contents

Executive summary

Our statistics show that 50% of the cost of Hull and Machinery claims still relates to Navigational claims which we define as Collisions, Contacts and Groundings. This mirrors our previous publication in 2011.

Many of the navigational claims happened because procedures were ignored and the people involved did not communicate with one another effectively.

The following issues are still recurring:

- Poor lookout
- Lack of situational awareness
- Complacency

Poor lookout and lack of situational awareness is likely to continue to be the main cause of Navigational claims. How can a manager ensure that officers actually do look out of the window, plot traffic, don't agree on passing arrangements over the VHF, have a lookout on the bridge, follow the agreed passage plan and that the bridge team actually communicate with each other? This publication aims to highlight some of the preventive measures that could be adopted.

Suggested preventive measures:

- Have a detailed Navigation policy which includes descriptions and suggested settings for the bridge equipment
- Carry out a thorough audit of the navigation policy during the internal audit
- Implement a specific navigational audit
- The Master needs to understand the consequences of not following procedures. It should be clearly defined what the consequences are if the procedures have not been followed
- All crew members should be accountable for their own actions
- The superintendent in cooperation with the Master has to ensure that the vessel has proper charts and other essential information for the vessel to complete the voyage safely
- Have detailed familiarisation procedures which also verify that the officers have sufficient knowledge after completion
- Instructions on how the VHF should be used
- Implement a career plan which defines what training has to be completed for each position
- Training for all officers on how to communicate effectively
- Specific pilot training on how to incorporate the pilot into the bridge team
- All officers should receive training on how to identify risks and ensure they understand how to use risk assessments
- All officers should be trained on how to complete the passage plan correctly and know the risks of deviating from the plan

Many navigational claims are also caused due to loss of engine power. This once again emphasises:

- importance of following manufacturer's instructions
- only use original spare parts
- complete maintenance as required
- make sure to check that all steering is fully operational before entering or leaving port

Definitions

Bridge team: People on the bridge who have defined roles while the vessel is navigating. This should include the pilot

Closed loop communication: A closed loop sequence of orders may be illustrated as follows – the pilot orders – "starboard, steer three-five-five". The helmsman repeats the order verbatim – "starboard, steer three five-five". The pilot then closes the loop by confirming to the helmsman that the order was correctly repeated

CPA: Closet Point of Approach defines the distance the plotted target will be to own vessel

Double check: A check done by the person who completed the task to check that they didn't miss anything

ECDIS: Electronic Chart Display System that complies with International Maritime Organization (IMO) regulations

ENC: Electronic Navigational Charts are vector charts that conform to the ECDIS standard S-57

Grounding line: A defined area on the paper chart and/or electronic chart where the vessel will run aground if it enters

MRM: Maritime Resource Management

No go area: A highlighted area on the paper chart and/or electronic chart which is defined in the passage plan as an area the vessel should never enter as there might be a risk of grounding

OOW: Officer of the Watch

Point of no return: This is the point when the vessel has to stay committed to the decision to enter the port or any other critical area as deviation will not be possible safely

ROT: Rate Of Turn defines how fast the vessel is altering (Degrees/Minute)

Situational awareness: That the person is aware of factors and situations affecting the vessel at any given time

Turning radius: A set radius on e.g. the autopilot, which defines how large the alteration for the vessel will be

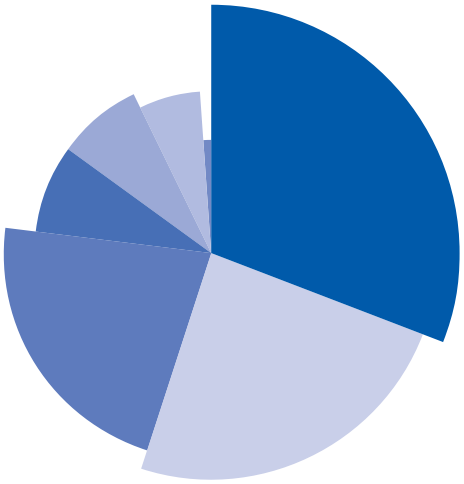
Two-person check: A check that needs to be done by two people to verify that the task at hand has been completed correctly

Introduction

After reviewing recent years' navigational claims, it becomes apparent that many of the causes are recurring. Some of the casualties happened because crew members deviated from procedures, didn't discuss what was happening or one person made a disastrous mistake. This is why there should be multiple officers on the bridge during critical operations so one person's mistake can be detected and rectified.

That the Officer Of the Watch (OOW) didn't follow the COLREG's or the company's Safety Management System is usually not the root cause to a casualty. The root cause is usually a combination of inexperience and issues within the organisation. This could manifest itself in the attitude that it has become acceptable to take unsanctioned risks and shortcuts. This will be discussed further in this publication.

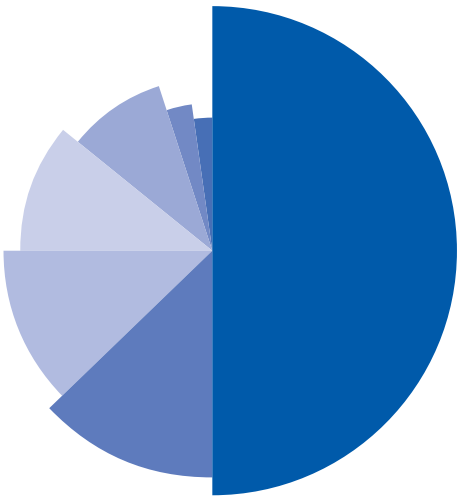
H&M: Claims distribution, cost, non-capped



- 31% Machinery or equipment
- 24% Grounding
- 22% Collision
- 8% Fire or explosion
- 8% Other HM
- 6% Contact
- 1% Heavy weather

2004 – 2013
Limit >= USD 10,000 (non-capped)

H&M: Claims distribution, frequency

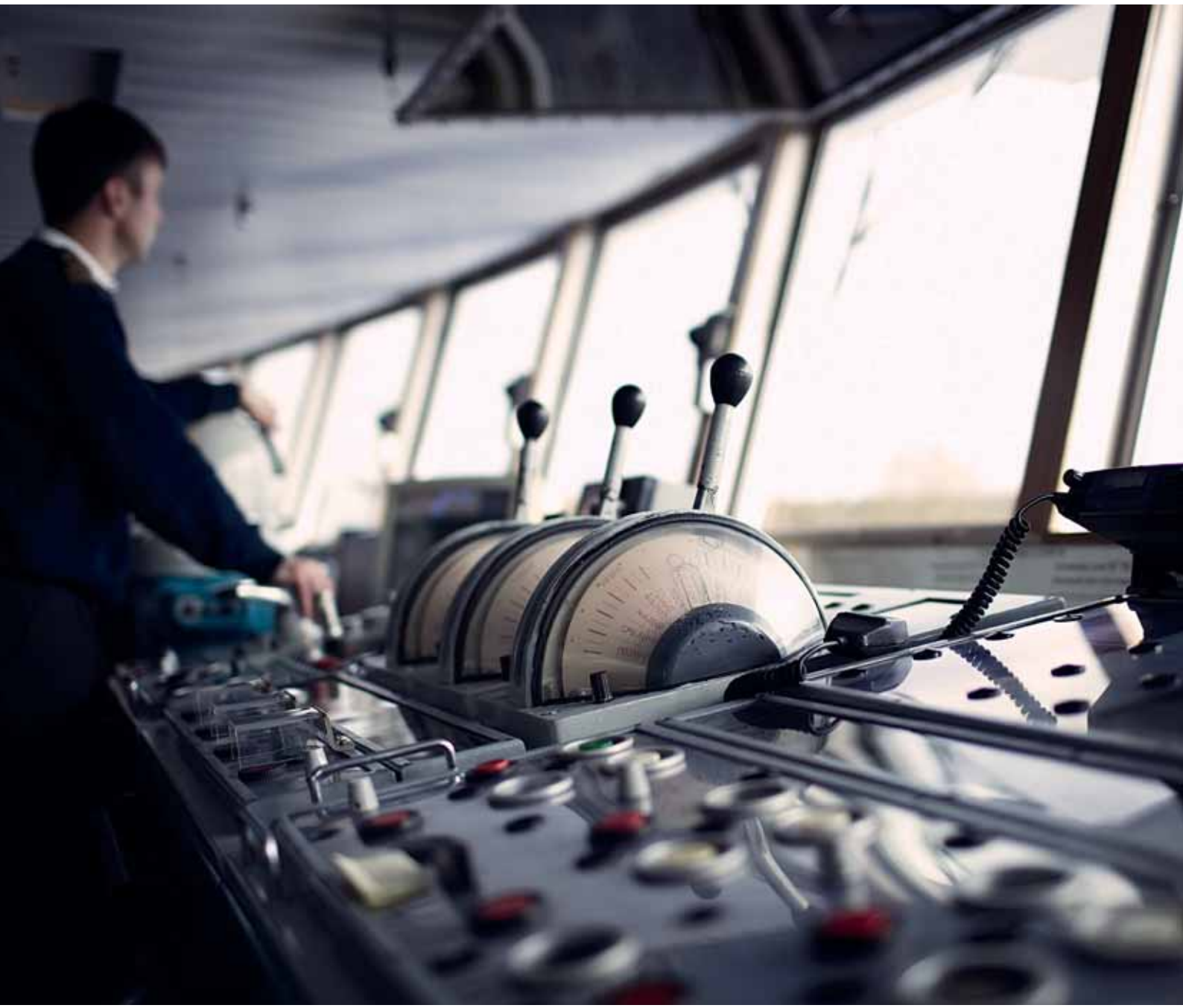


- 50% Machinery or equipment
- 13% Collision
- 12% Contact
- 11% Grounding
- 9% Other HM
- 3% Heavy weather
- 2% Fire or explosion

2004 – 2013
Limit >= USD 10,000 (capped)

Statistics

The consequences of a casualty for shipping companies are not purely financial, but also include: loss of lives, polluting the environment and loss of reputation, which is not included in our statistics.



Immediate causes

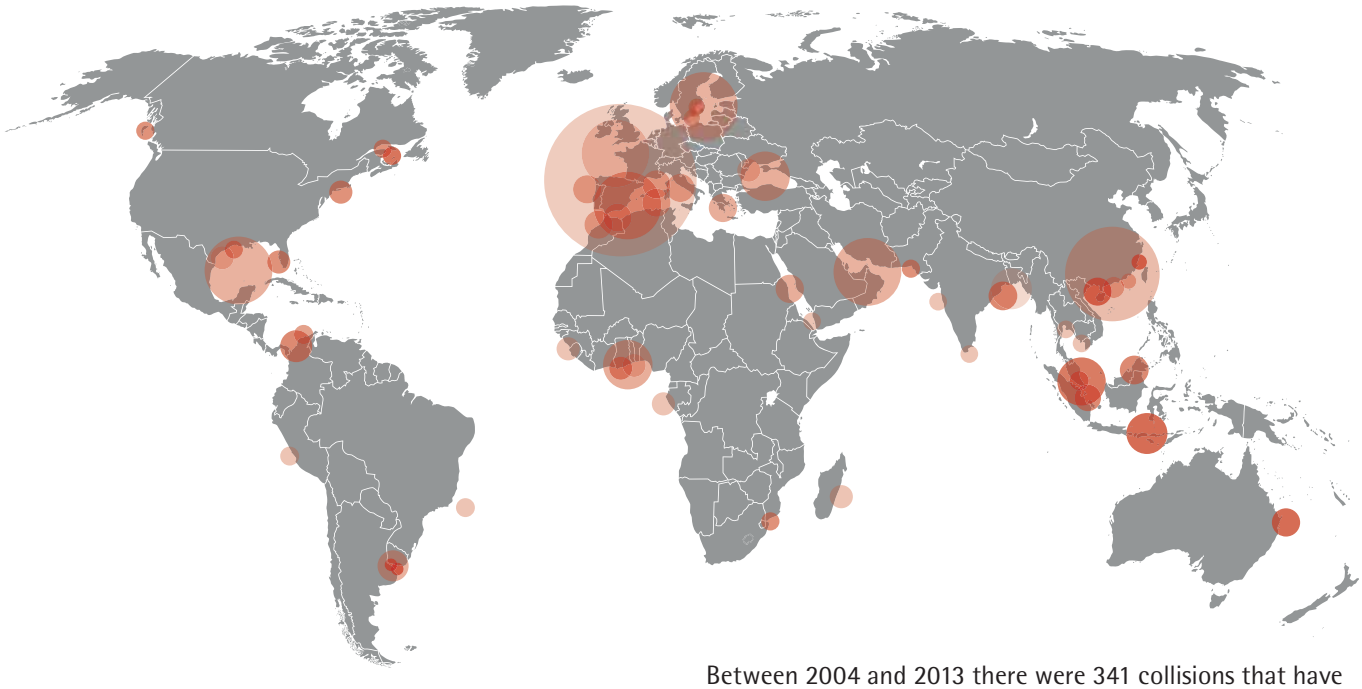
The immediate cause is usually not the root cause of a casualty. But to be able to identify the root cause the immediate cause has to be identified and rectified. When sailing in congested waters, dense traffic or close to land, risks are increased which needs to be acknowledged. To be prepared for these risks it is imperative that the OOW is aware of errors and the limits of his navigation equipment. Making assumptions about displayed information and being complacent by not verifying the information are also contributing factors to accidents. We would identify these as immediate causes.

What we can also see is that many of the navigational claims happen because the manager's procedures have been ignored. If these procedures had been followed, the accident could have been prevented – but just having procedures is not enough. The procedures need to be up-to-date and actually assist the crew in their work.

The time and effort that the crew or superintendent has to invest in complying with procedures should result in a safer vessel with an improved safety culture. Procedures need to make sense and be there for a reason and not just to comply with regulations. The managers need to ensure that their Superintendents and safety departments are inspecting and verifying that correct procedures are implemented and followed, and also identify why the procedures were not followed in the first place.

Collision

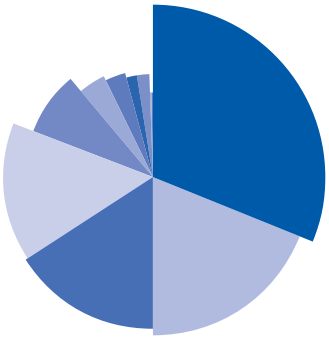
World map of collisions



Between 2004 and 2013 there were 341 collisions that have incurred a cost more than USD 10,000 with an average cost of more than USD 900,000 for all vessel types.

H&M collision: Number of claims and category

2004 – 2013
>= USD 10,000

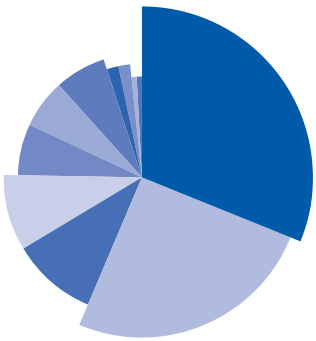


Vessel Type

192	Container	50	Roro	11	Offshore
116	Bulker	23	Miscellaneous	2	Combination
98	Tanker	19	Passenger/Ferry	1	Unknown
92	Dry Cargo	11	Reefer		

H&M collision: Number of claims and category, immediate cause

2004 – 2013
>= USD 10,000

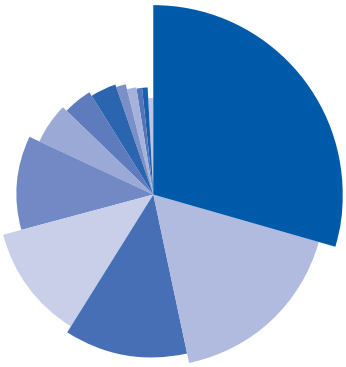


Value

38	Lack of situational awareness	8	Faliure to set priorities
31	Not applicable	2	Failure to utilise available data and resources
12	Insufficient watch-keeping	2	Failure to comply with standard procedures
11	The ship losing her manoeuvrability	1	Faliure to challenge incorrect decisions
8	Collision regulation	1	Failure to communicate intentions
8	Underestimating natural forces (interaction)		

H&M collision: Vessel location

2004 – 2013
>= USD 10,000



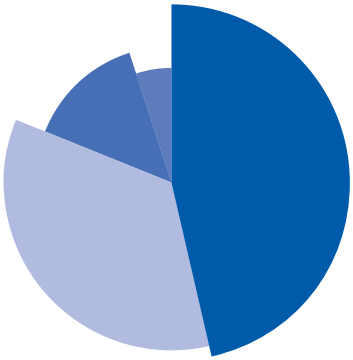
Value

96	Port	11	Open sea, outside EEZ >200M
55	Anchorage area	5	Unknown
40	Costal water, within 12 NM	4	Traffic Separation Scheme
38	Open sea, inside EEZ 12-200M	3	Shipyard
36	Port approach	3	Inland water
17	River	2	Archipelago
13	Canal		

About 70% of the collisions have happened in congested waters and if we include coastal waters that figure increases to 80%. This is an unsurprising statistic as most vessels will be at greatest risk when approaching or leaving port.

H&M collision: Pilot onboard

2004 – 2013
>= USD 10,000



Value

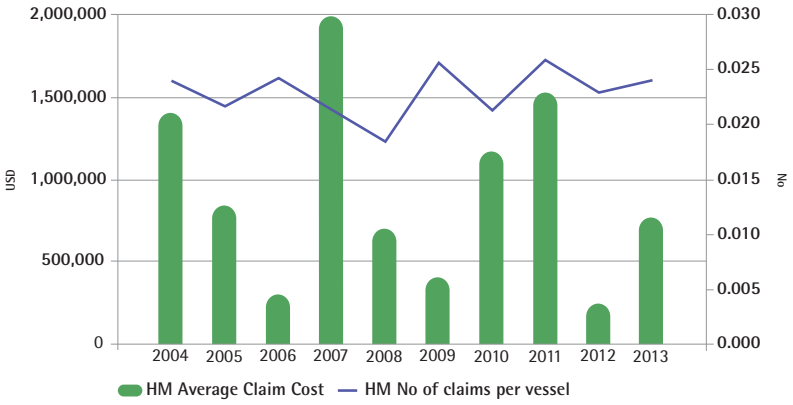
150	No
112	Yes
44	Unknown
16	Not applicable

A pilot has been onboard during 30% of all collisions. This does not mean, however, that the pilot has been at fault – it means that the assistance of the pilot has not been successful. There has been a failure in the communication between the pilot and the bridge team. This is something that needs to be acknowledged and it is important for managers and the pilot organisation to train on communicating correctly within the bridge team.

The bridge team also has to ensure that the pilot is included and the pilot has to ensure that he explains his intentions and agrees upon a plan with the Master. It is when this fails that accidents occur. Correct communication is key.

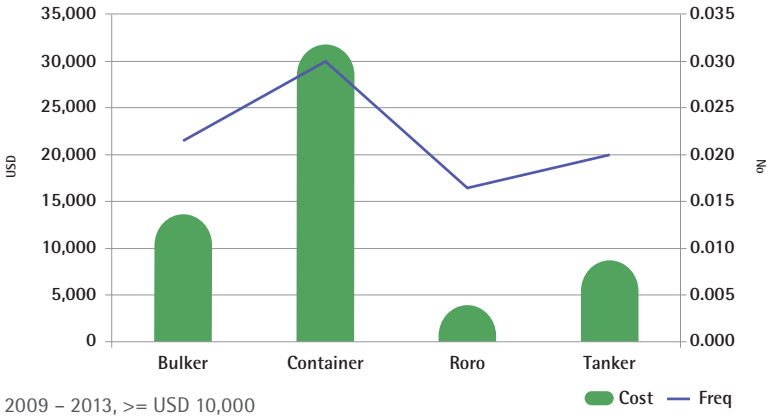
It has to be remembered that the Master is ultimately legally responsible for the safety of the crew and vessel. It is not acceptable for the bridge team to relax and think that the pilot is in charge, as the pilot is an advisor and the final decision always rests with the Master.

H&M collision: Average claim cost & frequency



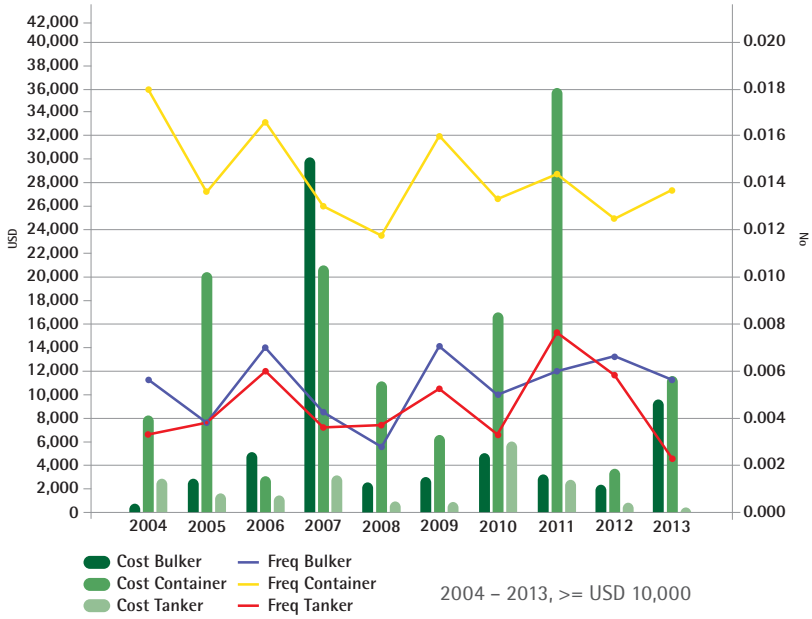
2004 – 2013, >= USD 10,000 (Non-Capped)

H&M Collision: Claim cost & frequency as per insured vessel



2009 – 2013, >= USD 10,000

H&M Collision: Claim cost & frequency as per insured vessel



2004 – 2013, >= USD 10,000

The graph to the left shows the average claim cost for an H&M collision for the chosen vessel types.

Collision cases

These cases illustrate the problems that precede many collisions; poor communication between both vessels and bridge team members, lack of preparation for the risks, tunnel vision and lost situational awareness have all been recorded.

Many collisions happen because the OOW failed to follow correct procedures like calling for extra resources, reducing speed or plotting the target concerned. This is similar to losing situational awareness, which means that the OOW is not fully alert to the factors affecting the vessel at any given time. Reducing speed does enhance situational awareness.

As we can see most collisions happen in congested areas, usually while entering or leaving a port. This is of no surprise and emphasises that the bridge team needs to be prepared for the increased risks. Additional resources need to be added to the bridge team when needed, such as another officer or lookout. If the manager has clear procedures on how this should be achieved it will improve safety.

Synopsis one:

The vessels collided in congested waters. It was just after dusk, good visibility and calm seas. Vessel A was a container vessel maintaining a speed of 25 knots when it collided with vessel B, which was a bulker. Damages were so severe that vessel B actually split in half. There was no dedicated lookout on vessel A and the OOW didn't notice the bulker until a couple of seconds before the collision. The OOW on vessel A did not have situational awareness and did not recognise vessel B as a risk.

Causes:

The OOW on vessel A did not follow the manager's procedures as there was no lookout at night and also maintained high speed in congested waters. During the OOW's watch the Master visited the bridge several times but did not voice his concern about the lack of lookout or the speed.

Synopsis two:

Vessel A was affected by the bank effect and could not complete the alteration around the river bend. This caused the vessel to continue straight forward and it collided with a moored vessel. During the entire river passage vessel A maintained high speed and was positioned to the starboard side of the river.

Causes:

The bridge team did not discuss the operation with the pilot in detail and the Master did not have proper charts for the area and did not challenge the pilot.

Synopsis three:

Vessel B totally disregarded the COLREGS. Vessel A did recognise vessel B as a threat and did try to alter course but unfortunately it was impossible to avoid the collision. The situational awareness could have been better on vessel A's bridge. MRM was not practiced on the bridge of vessel A and there were no specific CPA requirements in the navigation policy.

Causes:

Vessel B completely disregarded the COLREGS and vessel A tried to stay clear. It is probable that vessel A could have made an evasive manoeuvre a bit earlier but vessel B's total lack of following the rules was the main contributor to the collision.

Synopsis four:

Vessel A was inbound and vessel B was outbound. The pilot on A had agreed upon meeting starboard to starboard with vessel B. The pilot on A noticed that vessel B suddenly altered to starboard and he could clearly see the red light. The pilot on A called the pilot on vessel B but did not receive any response. The pilot ordered hard to port and to reduce the engine. The Master told the pilot to order hard to starboard and instead stop the engine. The pilot ordered full astern. Shortly afterwards the vessels collided.

Causes:

There were confusing orders on the bridge, the Master told the pilot to go hard to starboard after the pilot had ordered hard to port. Communication failed.

Synopsis five:

The collision happened during the evening in a traffic separation scheme. The bridge was manned by one officer and a cadet, with no lookout present. For the officer this vessel was much larger than his previous vessels and it had different bridge equipment than that he was used to. The settings on the autopilot were set to a rudder limit of 15° and a rate of turn of 10° per minute but this had not been verified by the OOW when he took over the watch. The vessel altered very slowly but the OOW did not notice this. Visibility was about 6 miles, there was a rough sea, the wind was from the NE at force 8-9, which was almost directly ahead. Vessel A had a course of 030° and a speed of 23 knots. Vessel B was 10 miles away, fine to port and proceeding in the same direction at a speed of 2.5 knots. Four minutes before the collision, vessel B was 1.4 miles away with a CPA of 0.16 miles. The officer hesitated in deciding on which side to pass vessel B. When he had made up his mind, it was too late.

Causes:

The officer did not verify the settings of the bridge equipment and did not analyse the situation and risks. He had poor situational awareness.

Synopsis six:

The Master was on the bridge by himself on vessel A. It was after 10.30 in the morning and the weather and visibility was good. The Master noticed a target on the radar which was on the vessel's starboard bow with a distance of 7m. The Master could also see the vessel through the window. He estimated that the other vessel would pass about 1m ahead. When the vessel was about 5m away he called it on the VHF. He did not receive an answer. He called a couple more times but there was no answer. He monitored the vessel and was sure it would pass his bow. Suddenly he thought the vessel was altering towards him. The vessel was about 1.5m away. The Master had not done anything until now. He switched to hand steering and put the wheel hard to port. Two minutes later the vessels collided.

Causes:

The Master did not alter when he had plenty of time and room as he assumed the vessel would pass ahead. If it is possible, it is always advisable to alter at an early stage before a situation is created. Vessel A was the give way vessel and should have altered for vessel B.

Synopsis seven:

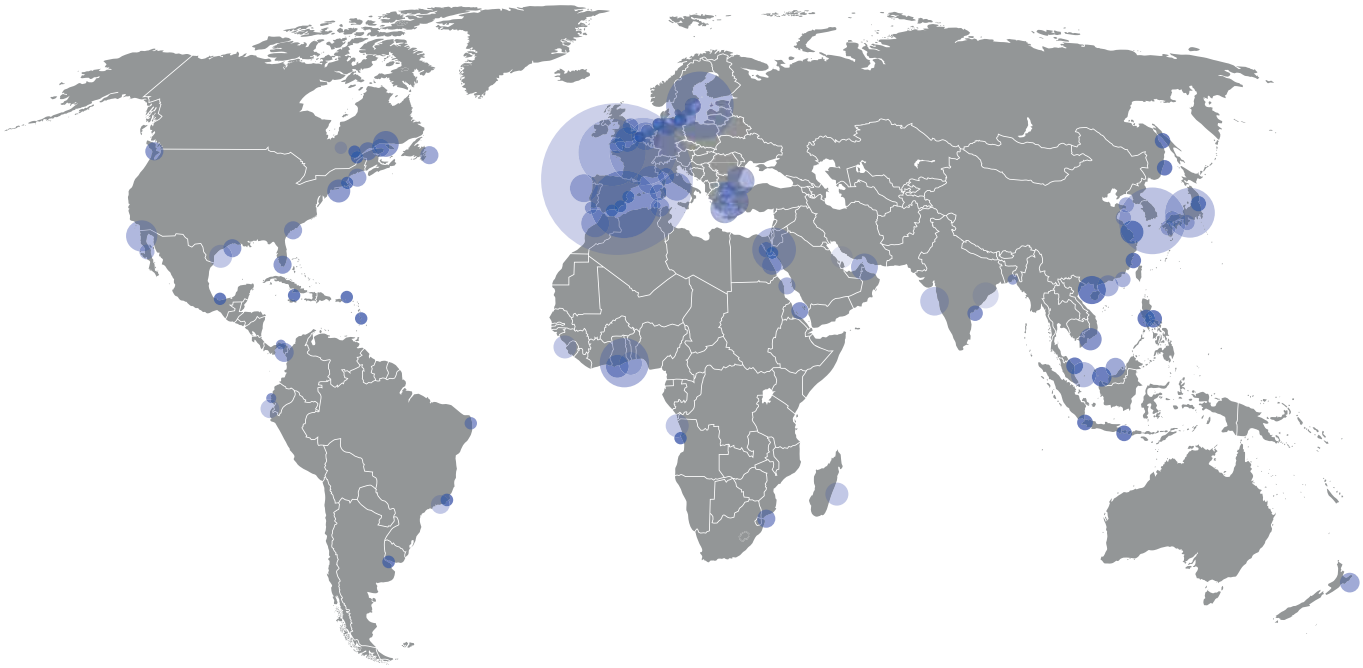
Vessel B, a small coastal bulker was the give way vessel as it was on the port bow of vessel A. Just before the collision vessel A did alter to port and vessel B to starboard. This caused the vessels to be on collision course and they finally collided. There was no efficient communication between the vessels as vessel B called on the VHF in Chinese to vessel A but no one on vessel A could understand Chinese. Neither of the vessels made any alteration to prevent the collision.

Causes:

There was no situational awareness and risks were not properly analysed.

Contacts

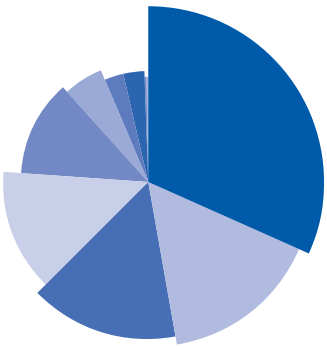
World map of contacts



There have been 330 contact casualties, which have incurred a cost of over USD 10,000 each with an average cost of more than USD 270,000 for all vessel types.

H&M contact: Number of claims and category

2004 – 2013
>= USD 10,000

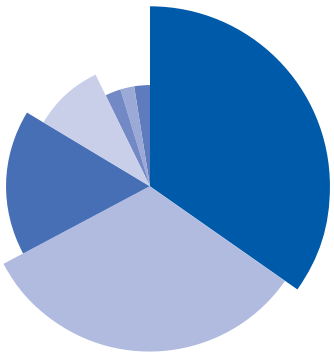


Vessel Type

180	Container	69	Dry Cargo	2	Reefer
88	Tanker	31	Passenger/Ferry	1	Combination
86	Bulker	16	Offshore		
77	Roro	16	Miscellaneous		

H&M contact: Number of claims and category, individual factors

2004 – 2013
>= USD 10,000

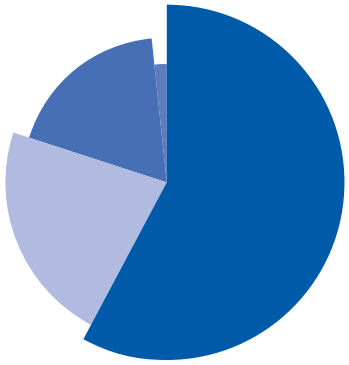


Value

15	Lack of situational awareness	1	Navigational error
14	Manoeuvering failure	1	Faliure to communicate intent and plans
7	Error in judgement/decisions	1	Lack of supervision
4	Lack of teamwork		

H&M contact: Pilot onboard

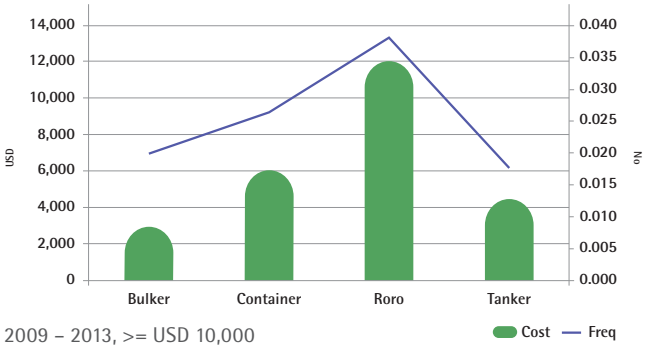
2004 – 2013
>= USD 10,000



Value	
177	Yes
67	Unknown
56	No
5	Not applicable

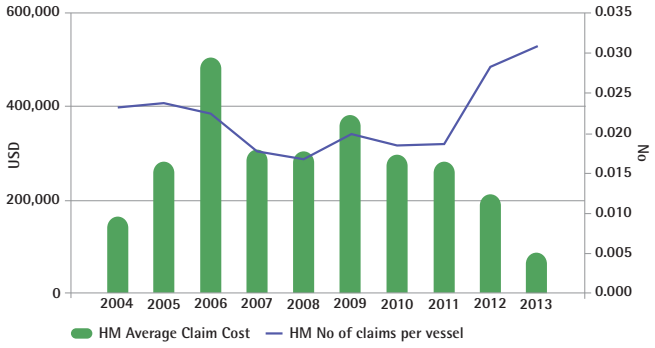
A pilot has been onboard during 58% of the contacts.

H&M contact: Claim cost & frequency as per insured vessel



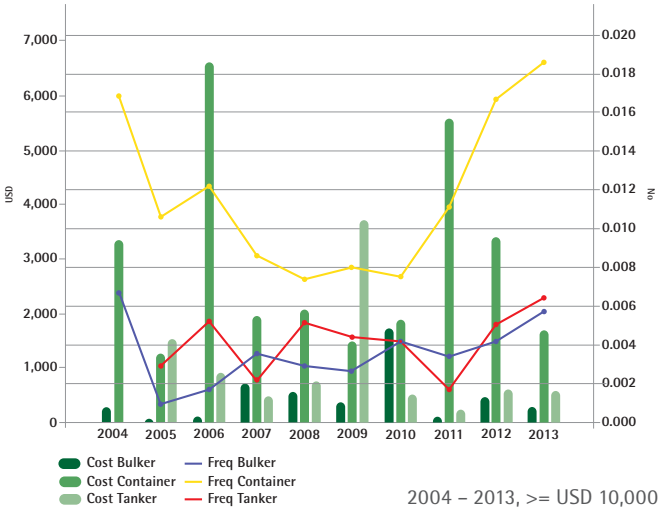
2009 – 2013, >= USD 10,000

H&M contact: Average claim cost & frequency 2004-2013



2004 – 2013, >= USD 10,000

H&M contact: Claim cost & frequency as per insured vessel



2004 – 2013, >= USD 10,000

Contact cases

When a vessel makes heavy contact with stationary objects such as its berth, the causes of such incidents are generally similar to the causes of vessel collisions. Investigation uncovers poor communication, incomplete risk analysis, a loss of situational analysis, and a lack of assertiveness from less senior members of the crew.

Synopsis one:

Vessel A made contact with vessel B while berthing. The engine did not respond to the Master's command, as there was low air reservoir pressure. The Master had many years experience but had not commanded a large vessel like this and this was his first contract with the company. A pilot advised the Master while berthing. While berthing there was only 15m of clearance to the other vessels. This concerned the Master but he did not stop. During a ship handling course a trainer had said that it would be good for the Master to get some more ship handling training. This was not provided.

Causes:

Do not take risks, if you feel unsure stop and further analyse the situation until you are comfortable. If you rely completely on the pilot and do not acknowledge the feeling that this is not the best action or even unsafe, then stop and assess the situation. This might cause a slight delay but this is something that has to be done when there is a real risk of the vessel hitting the quay or another vessel. It is important that the Master manages to explain to the pilot and manager that they have to stop until the Master is happy to proceed. It is a tough decision, but one that has to be taken. If it is noticed that training is required it is essential that the required training is given. Otherwise accidents like this can happen. The Master was not used to this kind of vessel and the manager had noticed this, but the correct actions were not taken.

Synopsis two:

It was night and the pilot boarded. Two tugs were connected to vessel A, one on the bow and one on the stern. The engine had been tested before the pilot boarded and the pre-arrival checks had been completed. The pilot had been given the pilot card. The vessel was scheduled to berth starboard side. In order to effect this turn the vessel was required to carry out a 180 degree turn to port. The vessel lined up and started to turn, suddenly the main engine failed to respond to an astern order. Several repeated orders, from slow astern to full astern, were commanded from the bridge telegraph but with no response. The Chief Engineer was operating the telegraph on the bridge at this time and he attempted to transfer control to the engine control room and engine side. However, this was not completed before the vessel made contact with a moored tug. The tug was seriously damaged and sank rapidly. Own vessel suffered significant damage to the bulbous bow and forepeak, which was filled with water.

Causes:

This shows the importance of being prepared for all situations. Here the engine shut down as if the vessel had dropped anchor and had more tugs connected it might have prevented the situation.

Synopsis three:

Vessel A departed from the terminal in the morning. The Master, pilot, chief officer and helmsman were on the bridge. There was no proper pilot brief as there was no specific plan and no discussion about risks regarding the departure. The vessel was facing downstream and departed under pilotage. Another vessel was known to be proceeding upriver and approaching the area and it appears that the pilot decided to head further to the south side of the river in order to pass the other vessel. By the time the pilot ordered port helm in order to head downriver, the vessel was caught in the flood tide and the bow started to swing to starboard. A tug was standing by but could not assist, as it had been let go just after departure. The vessel increased power ahead but continued swinging to starboard, proceeding directly across the river at a speed of around 7 knots and heading for a vessel berthed at the terminal on the south bank. At this point the Master feared that the risk of collision was imminent, relieved the pilot and ordered full astern in order to reduce the speed and also take advantage of the transverse thrust effect of the right hand propeller to swing the bow further to starboard. At the same time the anchor was dropped but it was too late. As a result of these actions the vessel's bow cleared the berthed vessel by about 30m but the vessel made heavy contact with the berth at a speed of about 4 knots.

Causes:

In this case the Master did actually relieve the pilot. It is not often we see this but the actions of the Master in critical situations are essential. To be prepared for departure and arrival, the Master and pilot need to fully discuss the plan and what to think about e.g. is there other concerned traffic, how is the weather, tides and currents etc. and any other issues that could affect the vessel. In this accident this was not discussed and the bridge team did not have full situational awareness. Know the risks. There was poor MRM as the Master felt uncomfortable but did not stop the pilot. It is common that Masters do not question pilots more, not assessing the risks correctly, or working together more with the pilot, or taking unnecessary risks.

Synopsis four:

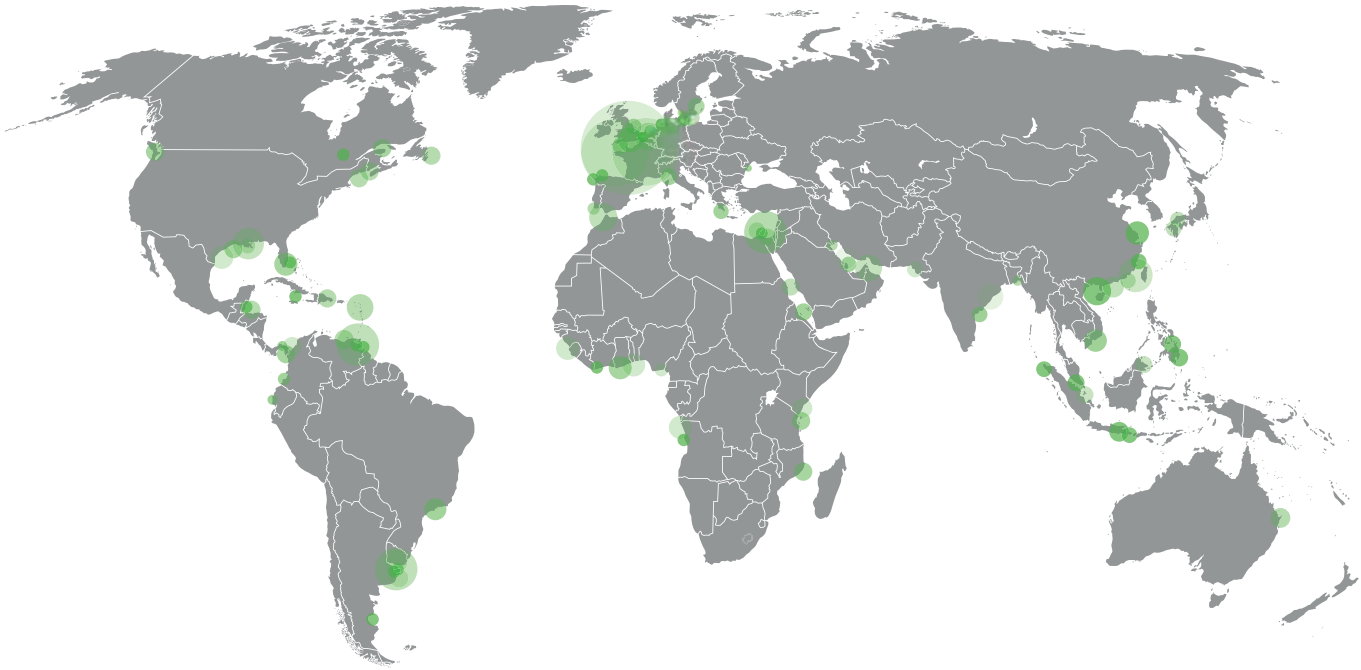
It was evening, with no exceptional wind and the vessel was berthing. The vessel was lining up for berthing starboard side with two tugs assisting in the manoeuvre. One tug went fast forward and the other was on the aft port side. A crane had been positioned just in front of the vessel. The vessel was brought approximately 40m off the berth and the tugs were requested to push the vessel towards the berth. While pushing the vessel the bow closed faster than the stern. The vessel approached the berth at an angle of no more than 1.5 degrees. During the manoeuvre the bow extended slightly over the berth and made contact with the crane platform, which was just 0.5 m from the edge of the quay. Shortly before impact the Master was informed by the officer on the bow that the bow was closing fast towards the crane. The Master tried to stop bow movement by putting the thruster hard to port, but contact with the crane could not be avoided. During the manoeuvre the pilot was in continuous communication with the tugs but only communicated in a foreign language. The Master did not know if the pilot had ordered the forward tug to reduce pushing or not.

Causes:

The Master and pilot had not discussed the berthing and whether or not the crane would be an issue. The Master had been in this port previously but he did not recognise the crane as a risk. He did not discuss the crane's position with the pilot and did not request the crane to be moved while the vessel was berthing. The risk of incorrectly positioned cranes had not been identified by the company. It is now included in the risk assessment and it should be discussed before berthing with the pilot. The MRM on the bridge could be improved, as the officer in the cockpit didn't update the Master about the vessel's position. It is important that all essential information is shared amongst the bridge team. The Master should also request that the pilot explains his orders in English if he uses a foreign language.

Groundings

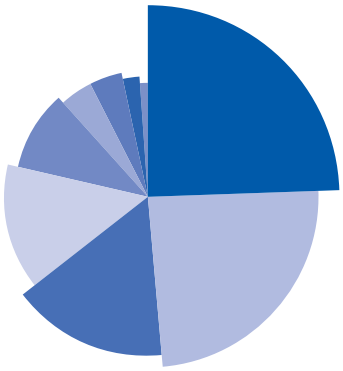
World map of contacts



There have been 296 groundings which have incurred a cost more than USD 10,000 with an average cost of more than USD 1,100,000 for all vessel types.

H&M grounding: Number of claims and category

2004 – 2013
>= USD 10,000

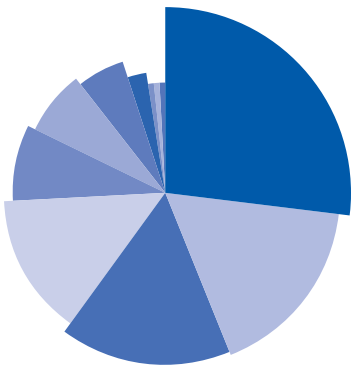


Vessel Type

133	Bulker	76	Dry Cargo	22	Miscellaneous
130	Container	52	Roro	12	Offshore
86	Tanker	23	Passenger/Ferry	6	Reefer

H&M grounding: Number of claims and category, immediate cause

2004 – 2013
>= USD 10,000



Value

34	Navigational error from Master/Office	7	Manoeuvering to avoid collision with other ship
21	Navigational error from Pilot	3	Tidal level miscalculated or ignored
20	The ship losing her manoeuvrability	1	Vessel dimensions excessive
18	Understanding natural forces (wind, tidal)	1	Speec to low i.e. drifting sideways in channel
10	Losing control of the vessel	1	Charts or nautical publications unavailable
9	Inaccurate charts or nautical publications		

H&M grounding: Pilot onboard

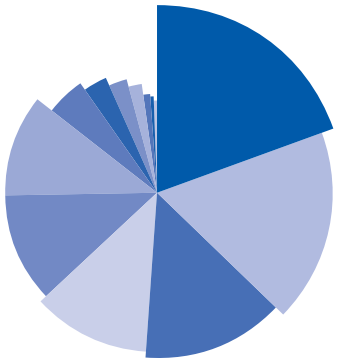
2004 – 2013
>= USD 10,000

Value	
89	Yes
57	No
24	Unknown
1	Not applicable

During 52% of the groundings a pilot was onboard.

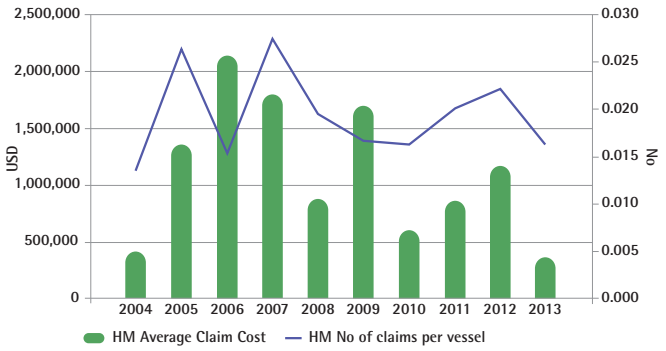
H&M grounding: Vessel location

2004 – 2013
>= USD 10,000



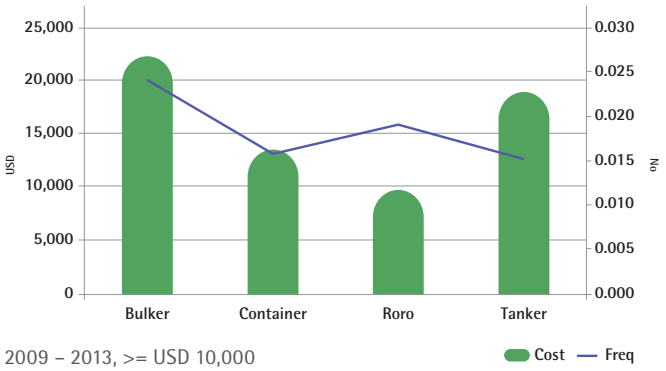
Value		Value	
55	Port approach	9	Open sea, inside EEZ 12-200M
49	Port	7	Inland water
39	River	5	Archipelago
33	Canal	3	Open sea, outside EEZ >200M
33	Costal water, within 12 NM	2	Shipyard
30	Unknown	1	Traffic Separation Scheme
13	Anchorage area		

H&M grounding: Average claim cost & frequency



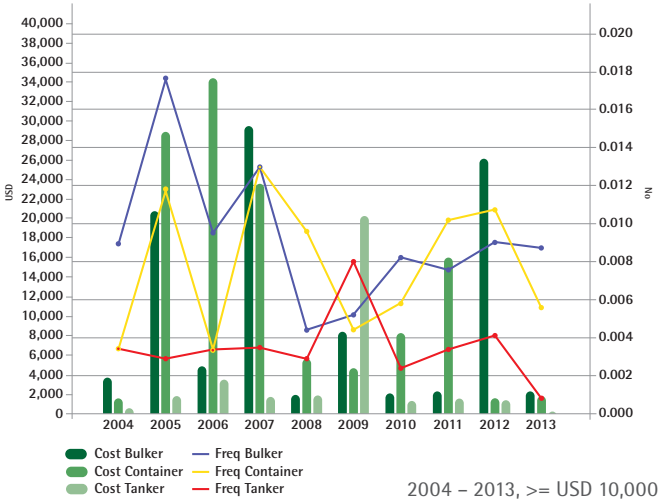
2004 – 2013, >= USD 10,000

H&M grounding: Claim cost & frequency as per insured vessel



2009 – 2013, >= USD 10,000

H&M grounding: Claim cost & frequency as per insured vessel



2004 – 2013, >= USD 10,000

Grounding cases

The cases of groundings examined in this publication have again often been caused by poor communication and a lack of assertiveness. In addition a lack of proper briefs before arrival or departure is a recurring feature, and cultural differences have also been experienced. Also a lack of pilot brief or a lack of involvement between the pilot and the bridge team has been noted.

Synopsis one:

It was evening and two pilots boarded vessel A for its departure. A pilot briefing was not held. The maximum draft for vessels in the port was 9m. At the time of departure it was just after low tide with a height of 0.4m, maximum draft was aft at 8.2m. When the vessel departed it swung with the bow towards the quay. The vessel was swinging 80m clear of the buoy that marked the channel. The vessel had a speed of 1.2 knots astern in a channel which was about 250m wide and 1.5 times the vessel's length overall. A couple of minutes later vessel A touched bottom. Vessel A was now swinging quickly to port and the pilot tried to stop the swing by using both rudder and bow thruster. The turn continued and the vessel struck the bottom once again. The vessel's electronic chart showed that the stern was outside the buoyed channel and in shallow water. It was later found out that the buoy had been moved further out from its original position. In this case the electronic chart displayed the vessel aground but the officer on the stern reported that the vessel was swinging clear.

Causes:

This discrepancy of the visual and electronic chart should have alerted the officer in the cockpit further as the vessel displayed being aground. This shows the importance on voicing all information and concern to the entire bridge team. It is not sure that it would have prevented the grounding but it might have. The buoys in the harbour had actually been moved, but the pilot did not tell the Master. This is essential information that should have been discussed during the pilot briefing. Once again it shows the importance of planning accordingly. Any discrepancy needs to be voiced and discussed.

Synopsis two:

It was night and vessel A was outbound from port, the weather was fine with only a light westerly breeze and visibility was about 5-6 miles. The vessel had missed its allocated berthing slot at the next port so there was some urgency to clear the buoyed channel. There were about 3 knots of ebb tide. Manual steering was carried out by the helmsman, the Second Officer was monitoring the electronic chart on which he had ARPA radar overlay projected. He was also plotting the ship's position on the paper chart. The Master decided to leave the channel because he was concerned about a shallow area when the vessel was inbound. He altered the vessel to starboard to stay clear of a buoy that was close to another shallow area. The vessel was changing course slowly and ended up being close to the buoy. Satisfying himself that the electronic chart showed clear water he decided to keep the buoy to port and then rejoin the buoyed route once clear. The Master then realised that it was too late to change course back into the channel. At the same time the Second Officer had also been busy responding to the VTS, who were making repeated calls on the VHF warning the vessel that they were heading for shallow waters. Shortly after this the vessel ran aground.

Causes:

It seems that the Master was over-reliant on information provided by the electronic chart, which had not been updated with the latest issue and did not display known significant reduced depths consistent with the paper chart corrections. On the British Admiralty paper chart it was evident that there was not enough water where the vessel ran aground. The Master was navigating solely on the electronic chart and had not double-checked with the paper chart. The vessel did not have a real ECDIS unit but the Master believed that the electronic chart was ECDIS. It is essential that the officers onboard are fully aware of the kind of bridge equipment they have. There was also poor communication between the Master and Second Officer as the Second Officer had been plotting the position on the paper chart but did not tell the Master about the shallow area the vessel was heading for. Why the Second Officer was not assertive and did not tell the Master is unknown. There may have been cultural differences, which is something the Master should have been aware of and should have ensured that he established a climate onboard the vessel that encouraged open communication and assertiveness.
It is also important to be aware of how to approach this with different cultures. This is something that MRM deals with extensively.

Synopsis three:

Vessel A was about to depart and the OOW was on the bridge in the cockpit. The Master gave a short briefing to the pilot but did not include the entire bridge team. The vessel departed and the pilot ordered the vessel to alter to starboard. The current was too strong so the vessel could not alter. The pilot became nervous and gave a lot of orders. The OOW told the Master that the water depth was decreasing and that it was getting shallow. The Master stepped in and took over. He ordered hard to starboard and full ahead. This was too late and the vessel shortly grounded.

Causes:

There was poor communication on the bridge. The Master and pilot did not fully discuss the risk of the strong current. As mentioned before it is essential to discuss risks during the departure. The weather and environmental effects should always be discussed such as the tide, current, fog and wind. Also the entire bridge team should be included in the departure briefing with the pilot.

Synopsis four:

The OOW had completed the pre-departure checklist. It was calm weather and moderate visibility with some mist and vessel A was maintaining a speed of 10 knots. The Master and pilot had a short pilot briefing. The vessel's draft was about 12.3m. There were two tugs attached to the vessel for departure. Suddenly the Master felt the vessel touch the ground. One of the empty fuel tanks had been punctured and it was flooded with water. This caused the vessel to list to starboard. The vessel's draft was too deep for the port. Before entering the port the Master had been concerned about the draft. He never received clarification as to whether the draft was adequate for the harbour.

Causes:

This grounding shows once again the importance of the Master and pilot discussing the manoeuvre and risks in detail. In this grounding, the Master was actually concerned about the draft but didn't ask the pilot if it really was all right for the vessel to enter. Of course the pilot should always clarify what the draft is and inform the Master if the vessel is too large. It is also essential that the manager ensures it is safe for the vessel to enter the port and load. The cargo was known and it was also known how much was to be loaded. This would have made it obvious what the draft would be after loading and departure. Doing a quick Google search of the port it states that the draft in the channel is 10m.

Synopsis five:

Vessel A picked up the pilot outside the port. Before the pilot boarded the vessel and was actually still in the pilot boat he asked the Master to order hard to port. The Master complied with the pilot's request and ordered hard to port. The vessel was now outside the channel. When the pilot arrived on the bridge he changed his mind and ordered hard to starboard for the vessel to get back into the channel. Before the vessel was back in the channel it ran aground. A tug arrived to assist and eventually the vessel was refloated.

Causes:

The pilot was not picked up at the normal position. In this grounding the Master follows the pilot's suggestion even when the pilot is not onboard the vessel. This order positions the vessel outside the channel. The Master did not question the pilot's order which put the vessel in a dangerous position. Critical manoeuvres like this should only be done when both the Master and pilot have had their pilot briefing. Carrying out a critical manoeuvre like this, when the pilot is not even on the bridge, is very dangerous.

Synopsis six:

Vessel A had been directed by the pilot where to anchor and wait for the berth to be ready. Before anchoring the vessel the Master had contacted the charterer and asked them if it was really okay for the vessel to enter this port. The Master was concerned because the charts showed the port was too shallow for the vessel. The charterer said there had been plenty of vessels in this port and that it should not be a problem. According to the charts, which the Master had looked at, there was not enough water. The pilot assured him that it would be okay. There was also a heavy tide in the port which caused the vessel to rotate around the anchor chain. The vessel stopped suddenly and the Master realised that the vessel was aground. A new pilot came aboard the vessel and told the Master to move to a better location. Shortly after the vessel had anchored again, it was aground for a second time. When the vessel was finally about to berth it ran aground just in front of the berth. The vessel's rudder was seriously damaged and the vessel needed tug assistance for a few weeks to be able to be repaired at a drydock.

Causes:

The vessel was too large for the port but was sent there anyway by the charterers. This was also the first time for the Master in this port. Another problem was that the pilots had not handled a large vessel like this before. They directed the vessel to a poor anchorage where the vessel grounded several times and even while berthing. The Master was concerned that the port was too shallow but the charterers said it would be okay. Even if the Master had all the information that told him that this was unsafe he still let the vessel be berthed by the pilots who had already managed to direct the Master to anchoring areas where the vessel had grounded twice.

Passage planning

Looking at many of these navigational claims it is obvious that the passage plan had deficiencies and that the planning had been insufficient. In addition, for some reason the bridge officers had disregarded the passage plan. There are many reasons why and the consequences can be severe as this publication highlights.

We would like to point out some suggestions that are important for a successful voyage. These suggestions are not news for most companies but it is important to highlight them because if they are followed it is likely that the passage plan will be completed safely and that it will prevent a casualty.

ECDIS

All bridge officers and shore side management should know if the vessel has an approved ECDIS unit or not. If the vessel doesn't have an approved ECDIS, a paper chart portfolio must be maintained. This also applies if the vessel is sailing in an area without approved ENCs or Raster Navigational Charts.

The passage plan should always be displayed in the ECDIS even if the vessel is sailing in an area where paper charts need to be used. Bridge officers have to be aware of the difference between having a correct ENC in place or if the ECDIS is actually just an Electronic Chart Display. If paper charts are used they need to be fully updated and the passage has to be continually updated and plotted.

Preparation

The navigation officer has to prepare the passage in good time before sailing. It is also essential that a pre-arrival and pre-departure briefing is held with all the bridge officers and Master present. During this briefing what to expect, how the operation should be executed and which tasks will be delegated should be discussed. The passage plan should be signed before sailing, be berth-to-berth and should include an assessment of the risks. The OOW has to use all available information during the passage and ensure that all navigation equipment is being utilised for a full assessment.

The OOW should verify if there are any critical areas where extra resources are needed. This should include areas that are known to have a lot of traffic, when the vessel is navigating close to the grounding line or other critical areas during the voyage.

The following should be included in the planning:

- If paper charts are being used they need to updated
- If the vessel has an ECDIS the ENCs need to be updated
- Updated loading conditions and stability plan
- Environmental areas and aspects to think of during the passage, emission control areas
- Any specific regulations in any area during the passage,
- Security aspects like pirates or politically unstable areas
- Include No-go areas both on paper charts and electronic charts
- Advisable to make radar maps
- Depth contours and limits to be highlighted with grounding line
- Indicate clearly on the passage plan when the officer should call for extra resources as another lookout, officer or Master
- Have a defined point of no return
- CPA requirements for open sea and congested waters
- Planned speed on different legs
- Defined ROT or turning radius for all planned alterations
- Plan for squat and bank effect in shallow waters
- Reporting points and requirements
- The plan should include limits and safety margins
- When a two person check and/or double check is required
- How many bridge team members required
- Defined bridge team roles: Command, Conn, Monitor, Nav, Lookout
- Other concerns and previous experience
- Information from:
  - Routing/Pilot charts
  - Pilot books
  - Sailing directions
  - List of lights
  - Tidal and current information
  - List of Radio Signals
  - Ship's Routing
  - Updated weather
  - Port information
  - Berthing arrangements if known
  - Information from the agent in next port

The bridge team

To have a safe, efficient bridge team, it is very important that all tasks are defined and familiar. In a well-functioning system, all team members should know what to expect from each other and who is responsible for what; the goal is to eliminate assumptions.

The advantages of the system will be obvious in situations requiring a high degree of attention and close monitoring of the navigation, such as navigating in waters with dense traffic, fog and during arrival and departure.

In the ideal system, there will be several Officers and Lookouts but this is not always possible with smaller crews. This system should still be capable of being implemented with team members having several roles.

This system requires that the bridge is manned with a minimum of two officers. The officer with the Conn will be in operational command of the vessel and ideally will be in the cockpit all the time, whilst the Monitor will monitor the vessel's progress and the effect of the Conning officer's actions as well as ensuring that orders are given and executed correctly. The Monitor should be assertive and question orders. The level of attention and follow-up by the Monitor shall be such that he/she can assume control of the navigation of the vessel at any given moment. The officer with the NAV task should plot the vessel's position, fill out the checklist and the logbook and deal with issues that the Conning officer cannot handle from the cockpit.

The Lookout should report all visible traffic and objects, and be on standby for manual steering at any time.

In an ideal world each separate duty should be handled by one person. This is not always possible, and a person can have several duties.

It is prudent to rotate the different tasks between the team members, so that all are familiar with every task.

The bridge team must monitor the vessel's progress and verify that all equipment is functioning with all available means.

The definitions of the duties are:

Command

- The Master always has overall command of the vessel but not necessarily the Conn

Conn

- Will be in operational control
- Informs all team members about planned manoeuvres and actions
- Delegates defined tasks to team members
- Shall request challenges from team members when limits are exceeded

Monitor

- Shall monitor the progress of the vessel and ensure that actions of the Conning officer have the desired effect
- Shall challenge the actions of the Conning officer when limits in the passage plan are exceeded or when in doubt about the Conning officer's actions
- Shall be updated on the progress of the vessel to the extent that he/she can assume control of the vessel at any time
- Under most circumstances, it is an advantage if the more senior officer acts as the Monitor

Nav

- Plotting position
- Completing the logbook
- Completing checklists

Lookout

- Reporting visible traffic or objects
- Manual steering

Navigating

This is berth-to-berth and should be defined in the SMS on how the officers are expected to execute it.

During a normal sea watch it is common to have one officer on the bridge and one lookout. The officer will monitor the vessel's progress.

All team members need to know the Navigation policy. If any deviation is made from the passage plan the settings and limitations in the passage plan approved by the Master must be followed. Any other relevant information must be included in the passage plan for the officers to review during sailing.

The Master is key for a functional vessel. What he does others will follow. The manager has an obligation to provide the Master with prudent, knowledgeable officers. It is however the Master's responsibility to evaluate and train the officers when they have joined the vessel. This doesn't mean that the Master himself needs to train but he must ensure that training is done when a new officer joins the vessel. It is always advisable for every officer to familiarise themselves after coming back from vacation as well.

If the Master relieves the OOW it should be clearly communicated. Just because the Master is on the bridge doesn't mean that he is in command of the navigation watch. The OOW is in charge until the Master verbally relieves him. This is very important to ensure and that it is clear who makes the decisions for all involved in the bridge watch. It's the same before the Master leaves the bridge. He must inform the OOW that he is in charge of the watch. The key is to have clear communication. For an outside person it might seem a bit over the top when people repeat everything that is being said about the safe navigation of the vessel. This is called closed-loop communication. When it is carried out professionally it is a great assistance for all involved, as it is clear who does what and all information is shared between the bridge team members. It will take some time to get a bridge team used to carrying out closed-loop communication but when it has been established it is a powerful tool to avoid misunderstandings. As we have learned through the years, assumptions lead to many casualties. If the person with the information had spoken up it would have given the bridge team a better picture and a different decision would probably have been made, avoiding an accident.

The OOW must have a fundamental understanding of all bridge equipment and its limitations, has to be knowledgeable about the operation of the engine controls including, but not restricted to, limiting and override functions.

In addition, the OOW needs to know the characteristics of the steering system including the manoeuvring characteristics such as squat and the bank effect.

The Master will ensure that the OOW knows:

- The SMS and any recent changes
- About new regulations and requirements
- All bridge equipment, what parameters to be used,
- That the bridge team is aware of the reliability and condition of the vessel's navigational equipment
- Manoeuvring limitations
- Safety equipment works
- The different steering modes such as manual steering, autopilot, track mode and any other mode that should be used
- Is only the sole watchkeeper after the situation has been assessed
- When to call for the Master
- That assertiveness and challenges are encouraged and practiced
- That all officers are aware of the Master's standing and special orders
- Never to use the AIS for navigation or collision avoidance
- Visitors should not be present on the bridge during critical operations unless with the Master's approval

The Officer of the Watch must:

- Know the Navigation policy
- Follow COLREGS at all time
- Practice closed loop communication with bridge team members and pilots
- Check Autopilot, ECDIS and Radar parameters
- Ensure AIS is updated
- Use correct steering as per the traffic and proximity to land
- Ensure correct charts are used
- Use radar overlay if available to check the reliability
- Do positioning fixes as per the navigation policy
- See that weather is updated and relevant
- Know reporting points
- Check that inputs from electronic equipment are working
- Check that the Gyro and magnetic compasses are working
- Know if considering calling the Master, they should call the Master
- Ensure a good lookout is maintained with all means necessary and at all times, including but not limited to visual, audible and electronic means
- Ensure the dedicated lookout is trained and understands his/her duties
- Use bearing lines, ranges to check the vessel is progressing safely. This can be done both visually and electronically
- Know the emergency steering system
- Know all automatic steering settings and override functions
- Know all other different steering modes and their capabilities and limits
- Ensure that correct parameters on the ECDIS, DP, RADAR and autopilot are chosen
- Ensure that proper radar scale is chosen and be aware of the limits and errors in the radar. Use different scales on the radars and change the range frequently to detect targets both far and close
- Ensure that the GPS is working properly and check the signal strength. Be aware of the position error of the GPS even if DGPS is available.
- Never be reliant on one system; always double check, if possible do a two-person check for critical operations

Root cause

As discussed previously, the immediate cause is usually not the root cause to why accidents happen. There's usually a chain of errors. If any of these errors had been identified and rectified, it is likely that this would have prevented the accident. To remedy the real reason for the accident the root cause has to be identified, because if the root cause is not identified there is a major risk of the accident recurring.

A good quality safety system should identify and prevent the chain of errors at an early stage. The best way of achieving this is to have experienced, well-trained, dedicated employees who understand the importance of safety and the importance of following procedures. The company culture must provide a positive climate to promote safety suggestions and especially listen to concerns about safety and how to improve operations. This means that the company really has to make the crew understand that they are expected to question tasks they are doing and raise concerns through near misses and non-conformities. Safety is all about continual improvement within the company and is a never-ending project. This can be implemented if companies adopt the MRM concept.

The root cause may be many different issues and it is essential that the company makes it a priority to investigate and find out what really caused the accident. To be able to remedy the root cause it has to be identified and rectified.

IRCA

Using Interactive Root Cause Analysis we look at a claim and together with the member try to find the root cause to why the accident happened. This is a useful tool to identify areas within an organisation that could be focused on.

Interactive root cause analyses (IRCA) has been established for identifying root causes. Our hands-on loss prevention is effective at identifying problems and recurring issues that we believe could and should be addressed in a more proactive manner.

Our goal is to assist the shipowner/manager in reducing the numbers of casualties, minimising the risk of a serious casualty and reducing the claim frequency.

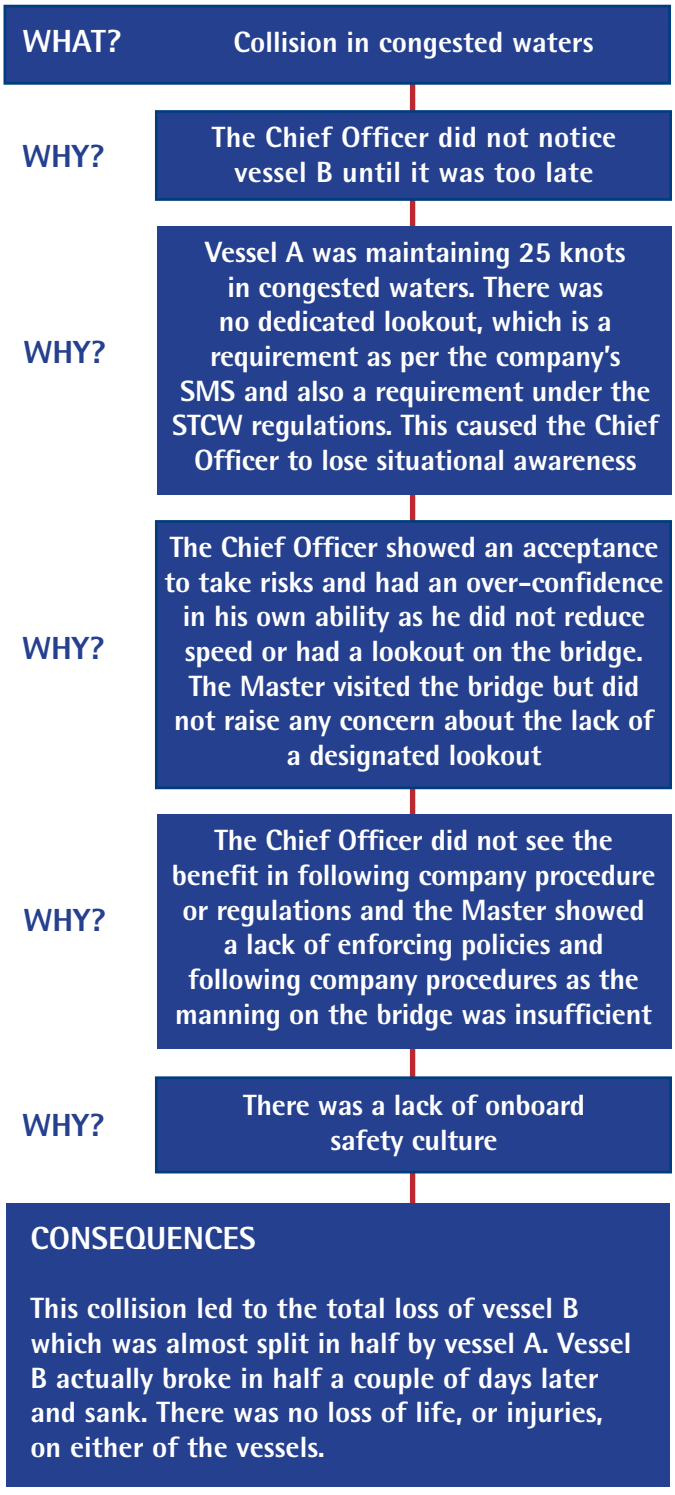
Collision - in congested waters

Vessel A was on a southbound course and vessel B was northbound. It was shortly after dusk, there was a light breeze, calm seas and visibility of around eight nautical miles. The vessels were transiting an area of high traffic density with many merchant and fishing vessels. There were a number of small fishing vessels in the area, some moving, others stationary. Vessel A had a group of small fishing vessels on its starboard bow. To stay clear of the fishing vessels, the officer, on watch by himself at the time, decided to keep the vessels to starboard and altered course to port three times over a 20 minute period, while maintaining a speed of 25 knots.

The fishing vessels had bright lights, making it difficult to see any traffic behind them. The Master on vessel A was doing administrative jobs and visited the bridge a couple of times during the watch. The officer on vessel A tried to plot the multiple fishing vessels, but lost the targets or they moved on the radar.

The officer on vessel B was on watch with a designated lookout. The vessel maintained a speed of 12 knots. Vessel B saw vessel A at five miles, or eight minutes before the collision and could see vessel A's red light on her port bow. The echo trails for both vessels were parallel. He did not recognise that there was a danger of collision. Five minutes before the collision, vessel B observed that vessel A was showing a green light. The officer on vessel B gave the order to stop the engine and go hard to starboard. The officer did not plot vessel A. Just before the collision vessel A made another alteration to port. Neither of the vessels sounded any warning signals.

The officer on vessel A did not see vessel B until a couple of seconds before the collision and maintained full speed the entire time. The officer on vessel A did not consider slowing down, even when traffic started to become dense. The officer did not have proper situational awareness, as the northbound vessel was not identified behind the cluster of smaller vessels.



Preventing recurrence

- The company now provides bridge simulator training for officers and different seminars
- This accident has been integrated into a simulator and is trained on regularly
- The company organizes regular fleet meetings, where all important information and incidents are discussed with the officers on board
- An extra internal audit was carried out after the collision
- The company has sent a circular to all vessels in its fleet about this accident. They once again request proper watchkeeping and the use of all navigational equipment onboard the vessel
- The company should consider implementing specific navigational audits on all vessels verifying that SMS procedures are adhered to
- The company should review its navigational procedures and especially procedures regarding safe speed
- The company should continue to improve MRM

Contact - bridge team was unprepared

The vessel departed from the terminal in the morning. The Master, pilot, chief officer and helmsman were on the bridge. There was not a proper pilot briefing as there was no specific plan and no discussion about risks regarding departure.

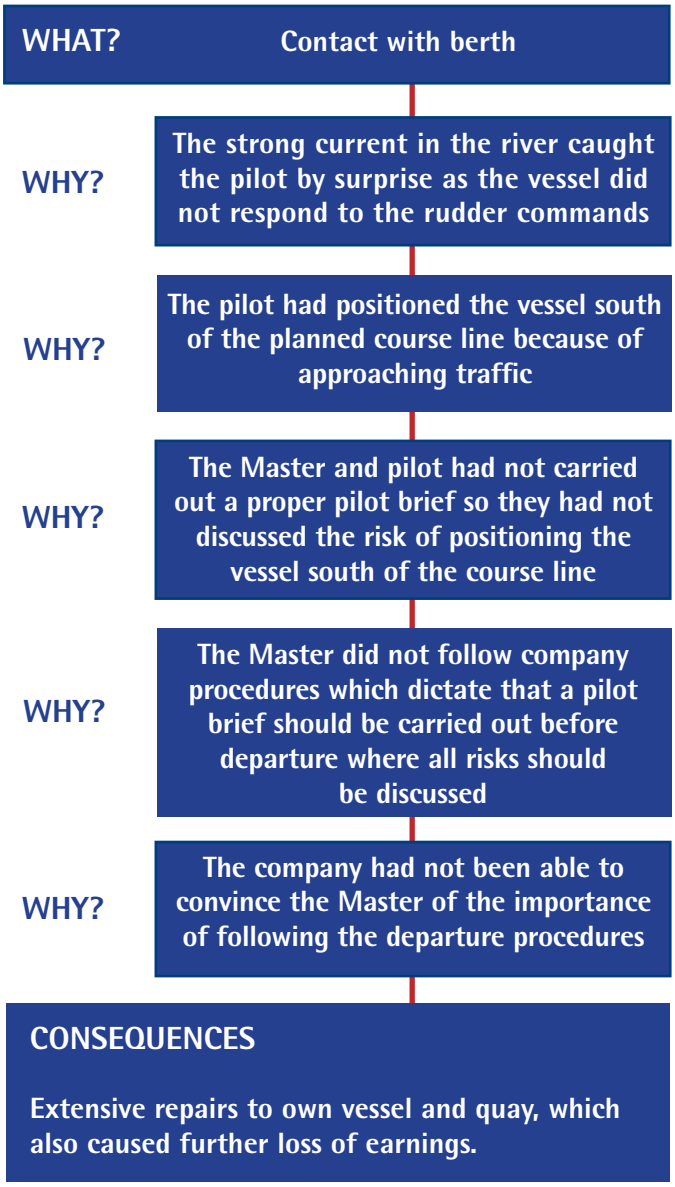
The vessel was facing downstream and departed under pilotage. One tug was available astern but was let go just after departure. However, another vessel was known to be proceeding upriver and approaching the area. It appears that the pilot decided to head further to the south side of the river in order to pass the other vessel. By the time the pilot ordered port helm in order to head downriver, the vessel was caught in the flood tide and the bow started to swing to starboard. The standby tug could not assist, as it had been let go just after departure.

The vessel increased power ahead but continued swinging to starboard, proceeding directly across the river at a speed of around seven knots and heading for a vessel berthed at the terminal on the south bank. This high speed made the thrusters useless.

At this point the Master feared that the risk of collision was imminent, relieved the pilot and ordered full astern to reduce speed and also take advantage of the transverse thrust effect of the right hand propeller to swing the bow further to starboard. At the same time the anchor was dropped but it was too late. As a result of these actions the vessel's bow cleared the berthed vessel by about 30m but the vessel made heavy contact with the berth at a speed of about four knots.

Findings from the accident investigation by the flag state inspectors were:

- The port's state investigation found that the pilot had applied port helm too late to prevent the vessel's bow from swinging to starboard once it entered the tidal stream.
- This accident might have been prevented had the pilot retained the option of using the tug for longer.
- The Master and pilot did not conduct a detailed exchange of information. Had they discussed areas of the river transit that may have posed a risk, they might have decided to retain the use of the tug until the vessel was clear of the complex tidal flows.
- The investigation recommended the port authority to include in its procedures a requirement for vessels departing the terminal to retain the use of a tug until they have fully entered the stream when a strong tidal counter-flow is present off the berth.



Preventing recurrence

- Feedback about this accident sent to all the company's vessels which are trading in this area
- The company has started a project called port card, focusing on high-risk ports. The card will have information about specific risks for the port and other suggestions for the Master to think about and will be distributed to all vessels concerned
- As per company procedures both anchors should be dropped when there is an imminent risk of collision or grounding
- Officers will be trained on the simulator about how to interact with pilots
- Procedures on how to interact with the pilot and bridge team need to be changed to address the issues in this case
- Procedures regarding the pilot briefing need to be reviewed and changed to address the deficiencies in this case
- Training about assertiveness should be implemented
- MRM needs to be improved on the vessel, as the officer in the cockpit did not inform the Master about the current or other relevant information

Grounding – assumptions leading to the grounding

The Second Officer prepared the passage plan to the next port while alongside. During the approach to the port, the Master had deviated from the planned course line because he was uncomfortable about a shallow area. Because of this the Second Officer changed the outbound track to correlate with the Master's inbound deviation. The Second Officer then programmed all waypoints into the electronic chart and GPS.

It was night and the vessel was outbound from port, the weather was fine with only a light westerly breeze and visibility of about five-six miles. The vessel had missed its allocated berthing slot at the next port so there was some urgency to clear the buoyed channel.

There was an ebb tide of about three knots. Manual steering was done by the helmsman, the Second Officer was monitoring the electronic chart on which he had ARPA radar overlay projected. He was also plotting the ship's position on the paper chart.

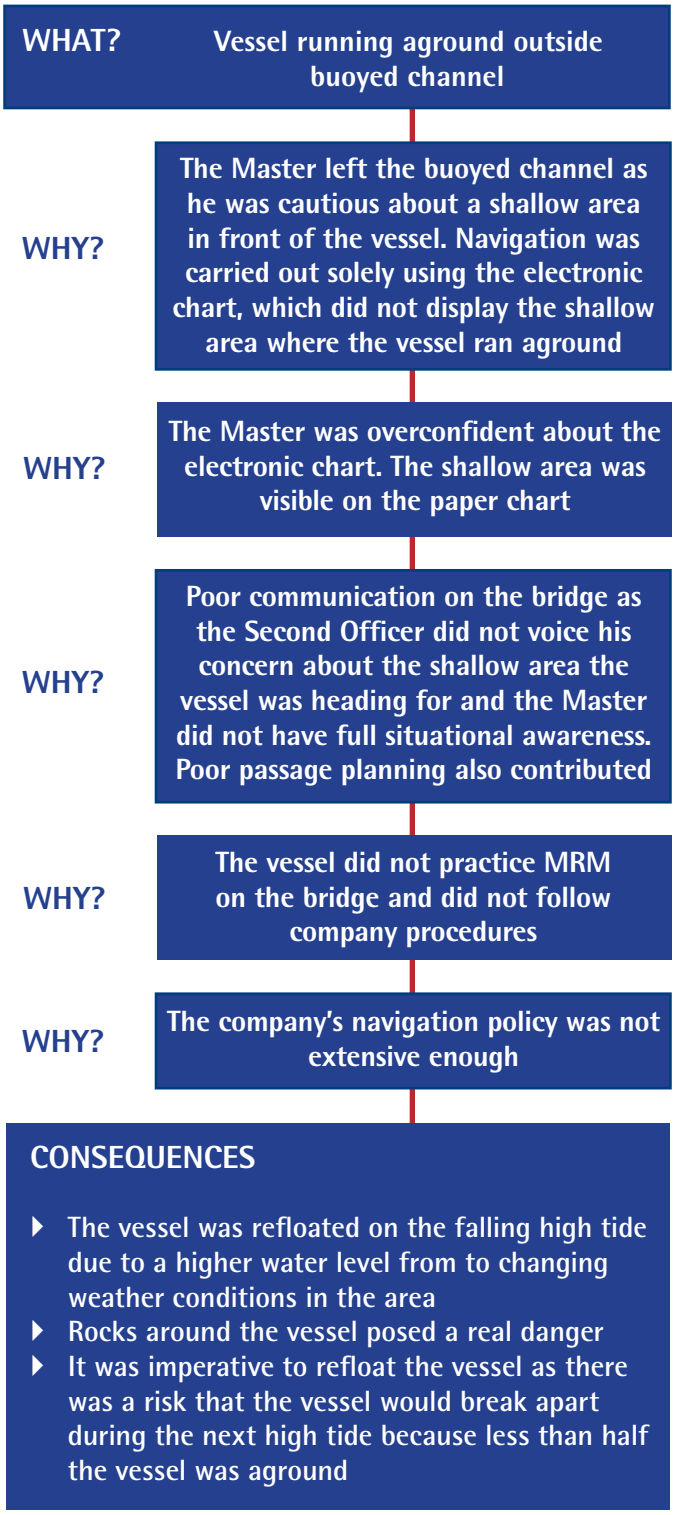
The Master decided to leave the channel because he was concerned about the same shallow area as when the vessel was inbound. He altered the vessel to starboard to stay clear of a buoy that was close to another shallow area. The vessel was changing course slowly and ended up being close to the buoy. Satisfying himself that the electronic chart showed clear water, he decided to keep the buoy to port and then rejoin the buoyed route once clear.

The Master then realised that it was too late to change course back into the channel. At the same time the Second Officer had also been busy responding to the VTS, who were making repeated calls on the VHF warning the vessel that they were heading for shallow waters. Shortly after this the vessel ran aground.

It seems that the Master was over-reliant on information provided by the electronic chart, which had not been updated with the latest issue and did not display known significant reduced depths consistent with the paper chart corrections. On the British Admiralty paper chart it was evident that there was not enough water where the vessel ran aground. The Master was navigating solely on the electronic chart and had not double-checked with the paper chart.

This would also indicate that the Master was navigating with an electronic chart that was not approved as per the IHO S57 standard. One of the many criteria for the electronic chart unit to become an ECDIS type approved as per IMO resolution A. 817 (19) is for the charts to use official ENC (vectorised electronic navigational charts) which are as per IHO S57 standard, which must be supplied by a national hydrographic office. If this is not complied with the ECDIS should not be considered as an approved ECDIS. The Master stated that he had expected the ECDIS to have included the shallow area. The vessel did not have an approved ECDIS even if the Master thought it did. The company had previously sent warnings about the difficult navigation conditions that existed in this area.

Whilst the course lines and waypoints were changed on the paper chart and programmed into the electronic chart, the written passage plan was not updated. Neither were the previous courses erased from the chart. In addition to the courses written on the chart being wrong, the chart itself contained very little of the information that would customarily be seen as no-go areas, wheel-over positions, frequency of position fixing, off-track margins or parallel index markings.



Preventing recurrence

- The company has acknowledged that there was a lack of MRM and improving this is the next action plan
- The company had previously sent warnings about the difficult navigation conditions that existed in this area
- Send a reminder to all vessels that the electronic chart is secondary to the paper chart
- Vessels should have local charts onboard for determined high-risk areas
- The company changed its recruitment policy after this accident. It now looks specifically at which individuals will fit specific vessels
- Information regarding ECDIS and what the difference is between an ECDIS and ECS (Electronic Chart System) would be very beneficial to distribute throughout the company, as it is very common that people both onboard and ashore are confused as to the definition of an approved ECDIS
- The company is to consider implementing specific navigational audits on all vessels
- The company is to consider implementing specific company-approved waypoints and tracks for all the different routes
- All passage plans, charts and electronic charts should at least include under-keel clearance, no-go areas etc
- If there is any discrepancy from the approved passage plan a new plan need to be produced and agreed upon
- The company should review its navigational procedures and especially passage planning

SCORE

SCORE is a project that will assist members in identifying risks and suggest preventive measures, because the overall cost of a casualty is often far in excess of what any insurance policies will cover. Insurance will protect against some financial losses but it cannot protect against all other negative effects such as loss of reputation, loss of business and negative publicity. Our goal is to assist in reducing the number of casualties. It is not to point fingers or apportion blame.

SCORE will review the manager's processes and try to identify whether there is an efficient safety culture in place. This will be done in cooperation with the member, as it is essential that the suggested improvements are tailored to the specific underlying needs.

We strongly believe that a shipowner/manager with an organisation dedicated towards safety can prevent most casualties. This can be achieved by a proactive safety culture instead of a reactive one.

The first SCORE report will include the initial findings and relevant statistics, showing areas of interest to focus on. The idea is that this project should be over five years with a targeted goal of reducing the amount of claims. The project will be tailored to the member's needs and interest.

Prevention

It is difficult to prevent casualties and it takes a lot of effort for the entire organisation. Looking at companies that have improved their loss ratio it seems that the best prevention is to have a good safety culture. One of the first steps in establishing a safety culture is to take short-term actions, some which have been described in this publication. This is likely to enhance the commercial operations, improve safety for the crew and minimise environmental damage.

If there are defined procedures for dealing with risks, this will prevent many errors. So what is a safety culture? We would define this as defined procedures that are followed by both shore-side staff and crew about how to manage the vessel safely. A good safety culture defines required procedures and what training is needed. How to achieve this is a difficult task and the manager has to define what areas to focus on.

Each manager needs to analyse what is proper for them. Having MRM implemented correctly with a defined passage plan and crew who are trained regarding company procedures and ship-specific equipment, is likely to ensure that a good safety culture is in place.

To further improve the safety culture the company should establish a culture which defines the values of the company and train everybody so they know what is expected of them. When in doubt, the Master should be called, as this extra resource might mean the difference between disaster or success.

Many casualties happen because of confusion amongst the bridge team and also between the bridge team and pilot. To prevent this a pilot briefing should be completed before every arrival and departure. The bridge team and pilot must fully discuss the plan and what the risks are and if there are any traffic concerns, weather problems, tides, currents or any other issues that could affect the vessel.

The importance of the Master's role cannot be overstated. He is the person who should stop the operation if it is unsafe. In almost all casualties where the Master has been present he has felt that something was wrong or he did not know the full picture. The safe option in a situation with a lot of uncertainty is to stop and re-evaluate. This is a difficult and tough decision but it has to be taken. It cannot be taken by the superintendent, manager, charterer or pilot.

Poor communication can be rectified with MRM, which covers the interaction between the bridge team and pilot. There have to be sufficient resources on the bridge to cope with traffic, communication with VTS and other vessels and monitoring the safe passage.

From this publication we can see that most navigational claims are caused by recurring problems. It doesn't matter if it is a collision, contact or grounding. The bridge team has failed in their communication, risks have not been assessed and information that was vital has not been shared.

It is difficult and time-consuming to establish a safety culture. This we acknowledge, but an accident is always more costly.

Conclusion

In order to enhance your commercial operations, improve on safety for your crew, and to minimise environmental damage, we encourage you to adopt these suggestions which are applicable to your specific operations.

Procedures need to be easily understood, make sense and actually improve safety onboard. If not they will just be empty words. The importance of following procedures should be emphasized during training, in newsletters and evaluations. They should be verified during internal audits which are efficient at identifying areas to focus on.

The main cause to why causalities happen is a problem with the safety culture. This can be that the safety culture is not clearly or properly defined, it might be defined in the SMS but for some reason this is not followed onboard or shore-side.

In all these casualties communication has somehow failed. The purpose of a bridge team is to work together. If the team do not communicate efficiently with each other it will just be a couple of individuals on the bridge doing their job. The bridge team has to include the pilot and ensure everybody has a purpose in the team. The importance of defined roles and using closed loop communication is to stop misunderstandings and assumptions immediately. On a vessel, a small error can lead to disaster. An important tool for ensuring that the crew communicate with each other is MRM. To reap the benefits of MRM it is best if the entire organisation is trained regarding these principles. The manager should focus on having a culture onboard which encourages the crew to be assertive.

To protect your company against a casualty ensure your organisation is working as intended.

Loss Prevention

The Loss Prevention unit is placed within the Strategic Business Development & Client Relationship department and provides active loss prevention support, analysis and reports, as well as advice to members.

Lars A. Malm
Strategic Business Development & Client Relationship

Telephone: +46 31 638 427
E-mail: lars.malm@swedishclub.com

Anders Hultman
Loss Prevention Coordinator

Telephone: +46 31 638 426
E-mail: anders.hultman@swedishclub.com

Joakim Enström
Loss Prevention Officer

Telephone: +46 31 638 445
E-mail: joakim.enstrom@swedishclub.com

SVERIGES ÅNGFARTYGS ASSURANS FÖRENING
The Swedish Club
Est. 1872

Contact

Head Office Gothenburg
Visiting address: Gullbergs Strandgata 6,
411 04 Gothenburg
Postal address: P.O. Box 171,
SE-401 22 Gothenburg, Sweden
Tel: +46 31 638 400, Fax: +46 31 156 711
E-mail: swedish.club@swedishclub.com
Emergency: +46 31 151 328

Piraeus
5th Floor, 87 Akti Miaouli, 185 38 Piraeus, Greece
Tel: +30 211 120 8400, Fax: +30 210 452 5957
E-mail: mail.piraeus@swedishclub.com
Emergency: +30 6944 530 856

Hong Kong
Suite 6306, Central Plaza, 18 Harbour Road,
Wanchai, Hong Kong
Tel: +852 2598 6238, Fax: +852 2845 9203
E-mail: mail.hongkong@swedishclub.com
Emergency: +852 2598 6464

Tokyo
2-14, 3 Chome, Oshima, Kawasaki-Ku
Kawasaki, Kanagawa 210-0834, Japan
Tel: +81 44 222 0082, Fax: +81 44 222 0145
E-mail: mail.tokyo@swedishclub.com
Emergency: +81 44 222 0082

Oslo
Tjuvholmen Allé 17
N-0252 Oslo, Norway
Tel: +47 9828 1822, Mobile: +47 9058 6725
E-mail: mail.oslo@swedishclub.com
Emergency: +46 31 151 328

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