Mariners' Alerting and Reporting Scheme

MARS Report No 363 January 2023

With the New Year, we would like to take this opportunity to remind our readers of what MARS is, but also what it is not. The reports that appear in MARS are selected from published accident reports, which appear as summaries - with a reference to the full version - as well as privately submitted reports from mariners and the marine industry.

The descriptions of the accidents and the lessons learned are intended, among other things, to deepen the reader's understanding and appreciation of risk. Many of the incidents appearing in MARS have complex underlying and interconnected issues that are not necessarily discussed. It is not within the scope of MARS to sound the depths of all the contributing factors of each incident, but to highlight some of the most salient points and encourage discussion. In short, MARS Lessons Learned is a curated information sharing service for the betterment of the maritime industry. Please read and use MARS reports with discretion. And remember to share your incidents with the MARS team at mars@nautinst.org.

MARS 202301

Enclosed space close call

➔ A bulk carrier was underway. During his inspections the Chief Mate noticed traces of bunker fuel oil in the forepeak ballast tank. Because that tank was adjacent to a bunker fuel tank, he suspected a leak from the bunker tank. He tasked two crew to enter and inspect the ballast tank with a view to confirming the situation. A third person was detailed as safety watchman at the tank manhole entrance.

After a time, another officer came by and asked the safety watchman how the inspection was going. He said everything was OK but when the officer yelled down to validate the state of the two crew in the tank, he received no response. Without hesitating, the officer entered the tank and continued shouting to find the two men. He soon saw them both lying motionless at bottom of the tank.

The officer quickly climbed back up and out of the tank. He had no VHF radio, so attempted to raise the alarm by waving his hands and shouting towards the bridge to attract attention. Fortunately, the OOW saw him and sounded the alarm. Soon, all crew were mustered and a team entered the tank – without breathing apparatus. Both crew were rescued.

The victims were taken to the accommodation and given oxygen and CPR. Both victims were resuscitated and were deemed recovered.

Lessons learned

- Incredibly, this accident did not claim any lives! Statistics show that persons that attempt to rescue victims in an enclosed space often become victims themselves.
- The safety watchman must be vigilant and attentive to the persons within an enclosed space. Ideally, there should be near constant communication.
- Enclosed space procedures need to be thoroughly followed, including ventilating and testing the atmosphere before entry, having emergency rescue gear at the ready, and equipping at least one of the crew who enter with a gas detector.

MARS 202302

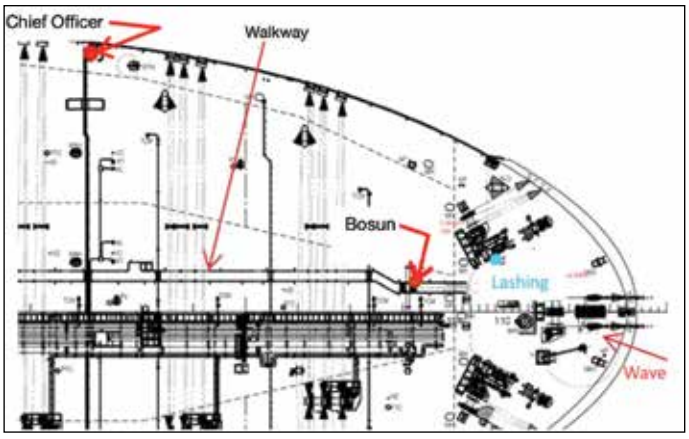
Blue water on deck kills two

As edited from official FEBIMA (Belgium) report 2021/004987

➔ A loaded VLCC was underway. The vessel's weather routing service was forecasting waves with a significant height of more than six metres. The vessel's speed was slowed to between five and six knots to reduce the chances of shipping seas on deck. Due to the heavy weather restrictions, access to the main deck was not permitted except when specifically permitted by the Master. This restriction was even posted on the central notice board.

One morning, a bilge alarm sounded for the bosun stores forward. The Master, on the bridge with the OOW, assessed the weather; they observed rough seas and a long and heavy swell. Sprays were being experienced on the starboard bow, but no seas came on deck. The deck on the port side bow remained dry. The ship's course was altered to give a better lee and the Master gave the Chief Officer and the Bosun permission to proceed forward via the safety walkway to check the bosun store bilges.

A few minutes later, the Chief Officer reported that they were inside the bosun store and they found the space dry. The bilge alarms were tested and both port and starboard alarms worked normally. The Master



asked the Chief Officer to have a quick look at the anchor lashings before returning aft. A few minutes later, the Chief Officer reported that the port anchor lashing seemed to be loose; he informed the Master that he was going to tighten it.

Soon after, the Master saw a wave near the bow that appeared to be somewhat larger than the others. He warned the Chief Officer by VHF radio but seconds later, huge amounts of water washed over the bulwark. Visual contact with the Bosun and the Chief Officer was lost.

The Bosun was seen lying on the walkway near the port anchor winch, but the Chief Officer was still not visible. The general alarm was sounded and an announcement was made. The vessel was slowed yet further and manoeuvred to have the waves astern, at which point a rescue team went forward. The rescue team found the Chief Officer and Bosun as indicated on the diagram and the victims were brought to the ship's hospital.

The Chief Officer was unconscious with a deep laceration to the head. He had lost many of his teeth and his breath was accompanied by moaning. The Bosun was responsive, and he indicated that he had a serious pain in his back and his left leg and left wrist appeared broken.

Too far at sea to quickly regain a port and with bad weather preventing helicopter evacuation, a rendezvous with navy vessels was coordinated, but the meeting would take eight to ten hours. Unfortunately, during the course of the day, both victims became unresponsive and both died. Their bodies were disembarked the next day.

The investigation found that a wave, significantly higher than the observed waves, hit the vessel while the Chief Officer and the Bosun were at the bow. The investigation also found, among other things, that communication by portable satellite phone was not possible from the ship's hospital. Radio Medical Advice (RMA) was received by satellite phone on the bridge, but the hospital was five decks below. Immediate and critical medical treatment of the victims based on communications with RMA had to be relayed verbally from the bridge satellite phone to the caregiving personnel in the hospital either by internal phone, or in person. The report did not speculate on whether having communications directly to the ship's hospital would have made a difference in saving lives.

Lessons learned

- Even when a wave pattern is coming from what appears to be one direction, it can combine with other wave patterns and occasionally create a wave that is significantly higher than the observed average.
- When observed average wave height is approximate to the vessel's freeboard, extreme caution should be taken when going on deck. An errant wave could sweep the deck with terrible consequences.

■ **Editor's note:** To our knowledge, there is no specific requirement to have access to Radio Medical Advice via VHF or satellite communications directly at a vessel's hospital. Yet, as this accident has revealed, for critical injuries it could be an advantage for the seafarer who is in charge of medical care at the hospital to receive the time-sensitive information directly.

MARS 202303

Unstable lifeboat rolls over in calm water

As edited from SHK (Sweden) report RS 2022:07e

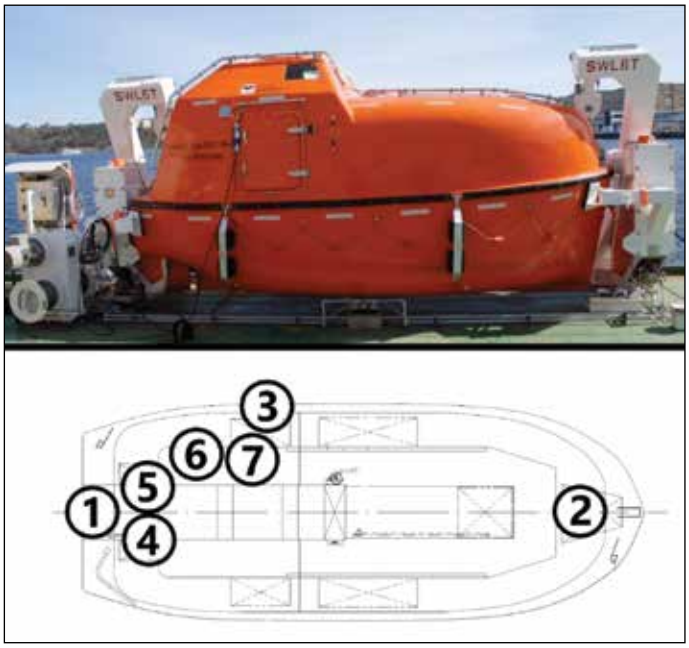
➔ A refresher course in the operation of survival craft and rescue boats was being conducted at a marine training centre. One of the practice sessions was an exercise in rescuing survivors from the water using a lifeboat. The lifeboat, which was also approved for use as a rescue boat, was a totally enclosed model with side hatches with a maximum capacity of 26 persons. The weather at the time of the occurrence was calm, with light winds and good visibility and a water temperature of close to 5°C.

The lifeboat is classified as 'self-righting'; that is, if the boat overturns, it does not remain upside down. The self-righting properties remain even if the lifeboat is filled with water and is fully loaded, provided all those on board are secured in their respective places with their seat belts attached. The manufacturer's operation and maintenance manual emphasises this point.

The lifeboat was launched and all seven participants on board were seated on benches and strapped in with four-point seat belts while it was being lowered. After the launch, the participants released their belts and the five hatches in the lifeboat's superstructure were opened. The lifeboat was then released from the hooks and the boat was driven a short distance into the harbour for the retrieval exercise.

Instead of pulling a real person out of the water, a lifebuoy was used as a simulation. All participants were to be given the opportunity to practise driving the lifeboat as helmsman during this part of the exercise. Having pulled up the lifebuoy for the first time, a change of helmsman took place. The boat was stopped and drifting, and the person who had been driving climbed down from the helmsman's chair and went to the port side. The person who was to take over stood on the starboard side but went to the port side to climb up to the helmsman's chair because of an obstruction on the starboard side. In order to allow this new helmsman enough room to get over to the port side, those who were sitting in the stern had to get up on the benches. Once the new helmsman was over on the port side but not yet in the steering position, the lifeboat heeled heavily to port and water began streaming in over the edge of the open side hatch.

Three people ended up in the water, while the four others were able to cling to the lifeboat, which was now lying with a heavy list to port and half filled with water. Everyone was quickly rescued by nearby small boats and no one on board suffered injuries. The diagram below and the accompanying description show positions at the time of the accident:



1	Instructor (fell into water immediately).
2	Person standing, legs wide apart, with the upper body coming out through the forward hatch.
3	Person sitting down with the upper body out of the port side hatch. (Dived into water immediately).
4&5	Persons standing up in order to let Person 7 pass.
6	Just climbed down from the helm: standing on the floor to let Person 7 pass.
7	New helmsman standing ready to climb to steering position seat.

The lifeboat complied with applicable IMO stability requirements. Nevertheless, the investigation shows that, under certain conditions, this type of lifeboat has limited reserve stability. Consequently, relatively small forces are able to generate large angles of heel. Under certain conditions, for example when lightly loaded to about one quarter capacity as in this case, lifeboats of this type can take on water and heel over if the side hatches are open. It is reasonable to assume that other lifeboats of similar types and sizes may have similar stability properties.

The official investigation found, among other things, that;

- Notwithstanding the limited stability under certain conditions, the lifeboat complies with the stability requirements of international standards.
- Small enclosed lifeboats with side openings near the gunwale can comply with the established standards while simultaneously having loading conditions that have a small reserve stability. This is especially the case when the lifeboat is lightly loaded with few persons on board.

Lessons learned

- This event illustrates the importance of rigorously complying with the manufacturer's instructions for use. In this case, the occupants of the lifeboat were not sitting in their respective places nor secured with their seatbelts, contravening manufacturer's instructions of use.
- International performance standards for emergency gear on vessels are a bulwark for safety but even these can and do require improvement when deficiencies are revealed.

■ **Editor's note:** This report is reminiscent of another accident that this editor investigated in 2003 while in the service of the Transportation Safety Board of Canada (TSB). The incident involved a much smaller enclosed life boat but the stability problems were chillingly similar to this present case. One of the report's findings as to risk:

> The shortcomings of the Canadian and international liferaft testing standards jeopardise the survivability of seafarers following abandonment of their vessels.
>
> Of specific concern are:
>
> i) the stability and boarding requirements.
> ii) the average body mass of 75 kg for occupants.
> iii) the righting test.

The average body mass for the international testing standard is still 75 kg for lifeboats on passenger vessels but since approximately 2010 has been increased to 82.5 kg for lifeboats on cargo vessels. For further reading, the TSB report is available here: https://www.tsb.gc.ca/eng/rapports-reports/marine/2003/m03m0077/m03m0077.html

MARS 202304

Smoke but no fire yet indications of weak safety culture

➔ An LNG vessel had completed loading and preparations for departure were underway. With the pilot now on board, the forward winch was started prior to singling up. Soon after, the fire detection system indicated smoke in the bosun store.

The unmooring operation was suspended and the officer forward reported seeing smoke coming from the bosun store. The mooring winches were stopped using the remote external shut off button and the smoke decreased. Once it was deemed safe to enter, crew saw that a loose screw had caused lubricating oil to leak, generating smoke when it struck the hot motor.

The ship left the dock without the deficiency corrected because the necessary spare part was not quickly available – possibly not even on board. In order to prevent the smoke, it was decided not to use the mooring winches forward, so lines were handled manually. This was accomplished fairly well, but it was a big challenge for the crew to manually heave in the tug escort line forward. The vessel's windlass was also affected by the decision to not use the forward mooring hydraulics, so the anchors could only be cast by gravity.

In this case, the reporting person mentioned that he disagreed with the Master about leaving the berth without having the deficiency corrected, but had to acquiesce as compromise was not possible. He was also critical of the company's response and confided that many senior officers were often searching for someone to blame instead of discovering the contributing factors of an incident. Another complicating factor was that the ship was quite new and still under builder's guarantee, so deficiencies were supposed to be taken care of by the builder.

Lessons learned

- If your windlass has been sidelined due to hydraulic problems it may be a good idea to stay at berth until it can be properly repaired.
- When in doubt about how to proceed when equipment fails, consult your Classification Society.
- Searching for someone to blame is a red flag for a weak safety culture. Accidents and incidents are caused by unsafe conditions. Period. Even complacency, which has been cited as a contributing factor to some accidents, is not in and of itself a true underlying cause. Complacency does not suddenly appear, it grows and multiplies under tacit approval of leadership. Why was this complacency not detected and corrected? The unsafe condition could more correctly be stated as weak safety leadership, less than adequate auditing, or procedural slip to name but three.

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