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Seaways

The International Journal of The Nautical Institute

Passing on experience

How pilots can help bridge the mentoring gap p14

The Nautical Institute

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Focus

Knowledge and application

“Sharing navigation techniques learnt and practised over the years with those who have had less opportunity for training and have been promoted rapidly is invaluable”

It is heart-warming to see those with expert knowledge taking the time and trouble to pass it onto their fellow professionals. That is essentially a primary purpose of this Institute and indeed any professional body, in our case through this journal, *The Navigator*, the website and eNewsletter, and books as well as seminars. We are fortunate to have many Branches with the organisational capacity to deliver a really worthwhile programme of professional activities and a particularly fine set of reports on these are presented this month (see pp 29-32). Captain Paul Walton shared his detailed knowledge on ships' cranes and wires with members and guests of the Hong Kong SAR Branch (see p 31) and, whether you could be there in person or not, it is well worth viewing on their website. This knowledge sharing is a form of mass-engagement mentoring and is crucial for the transfer of experiential learning to the younger generation of seafarers. Given the many examples of problems that Paul showed, it is surprising that more reports to MARS do not appear on this subject. Next time you find a fault with a crane or wire, consider what might have happened if it had remained undetected as well as how it became a problem, and then drop us a line about it.

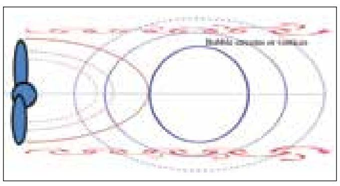
In a similar vein, Captain Tony Tibbott, a Trinity House Deep Sea Pilot, shows how he and his pilotage colleagues can mentor the bridge teams they sail with and so improve the safety of navigation in European waters (see pp 14-16). Sharing techniques learnt and practised over the years with those who have had less opportunity for training and have been promoted rapidly is invaluable. These aspects of current navigational practices are frequently discussed in our LinkedIn Group, which comprises some 17,500 professionals including about half of our members. ECDIS was a recent subject (see p 34). The comments will not have been comfortable reading for the many manufacturers but, as one member said, ECDIS is here to stay so the sooner it is integrated fully into bridge procedures and training (ashore and afloat), the better and safer navigation will be. That, indeed, was one of the conclusions of the Future of Navigation Conference reported on p 27, which again emphasised the need to maintain traditional navigation skills alongside fast developing technology. Perhaps a better terminology, and more embracing, is 'core navigation skills' as that would integrate the traditional with the technological. That would hopefully ensure that both skill sets are sufficiently robust, covered properly in STCW training, and nimble enough to cope with the changing working environment such as enclosed bridges, cyber security (see Branch activities), and further autonomous systems.

All this could be wrapped up in the Safety Management System (SMS) with the shipowner/operator taking responsibility for ensuring that their sea staff really are well trained and experienced enough to be safe and effective. However, are most SMS fit for purpose? Dr Nippin Anand thinks not, and offers ideas as to their improvement, using the *Hoegh Osaka* as a case study to illustrate his points (see pp 7-9), to get at the underlying weaknesses rather than the immediate cause of a failure. The same could be said of the ongoing failure to address the woeful record of people dying in enclosed spaces (pp 10-11). Only recently, and in part due to the Institute's input at the IMO, has it become a requirement for all ships to carry (and use) multi-purpose testing meters. Getting the equipment on board is one part of the need, the other is to ensure there is training in its correct use and then sufficient practise in both safe entry and rescue operations. Safety first must become the norm ie second nature.

Technical knowledge

Increasing your technical knowledge should be a continuing professional development (CPD) process in addition to the soft skills aspects of your work. Three articles this month will help in that regard. Captain Peter McArthur shares his research on complex pressure zones astern (see pp21-23) which explains many of the things most of us have experienced in handling small craft near larger ships. Pressure waves from ships are also highly relevant in instances of mine warfare and, in these uncertain times of conflict in many parts of the world, a subject all seafarers should know something about (see pp 24-26). Finally, we are delighted to have an article on developments for safer navigation in the Dynamic Positioning (DP) offshore sector (see pp 12-13). The skill set required to put an offshore vessel alongside a rig should never be underestimated or undervalued, even in these hard times for the sector.

p14



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Mariners' Alerting and Reporting Scheme

MARS Report No. 284 June 2016

MARS 201627

Man overboard while removing container lashings

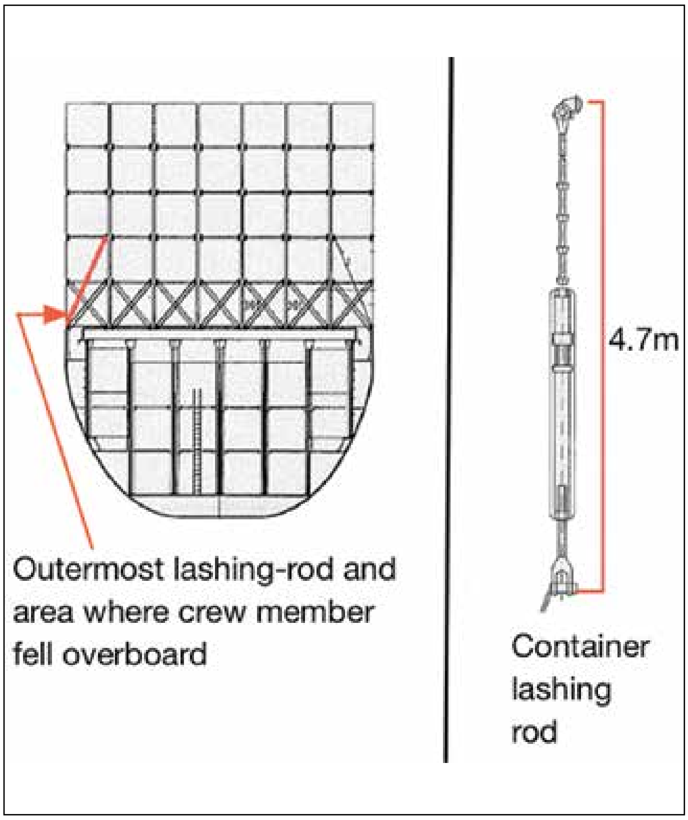
Edited from official Dutch Safety Board report, Nov 2015

➔ A container ship was underway under pilotage in a confined waterway en route to a berth. Some crew were removing the lashing rods in preparation for discharge once berthed. One of the seamen removed the outermost long lashing rod (4.7m long) and was seen balancing with it upright in his hands. He was briefly in balance, but then both the lashing rod and the seaman went over the side.

A crewman who had witnessed the event quickly threw a lifebuoy with light into the water, then called the bridge to announce a man overboard (MOB). Shortly, more lifebuoys were thrown in the water and emergency MOB procedures initiated. Less than 20 minutes later the vessel had made a turn and was close to some of the buoys that were floating in the water, but the victim could not be seen. The rescue boat was launched and other small craft in the area also assisted in the search.

The crew member who fell overboard was never found and is presumed drowned.

Apparently, it was a regular practice on board, although not written down in procedures, to remove the interior lashings before berthing but not the outermost ones. It is unknown why the crew member did not adhere to this practice.



Lessons learned

- When working close to the side or at height, always wear a safety harness.
- If there is a risk of falling overboard, wear a lifejacket.
- Unwritten work practices should be formalised into written procedures and the relevant risk assessments carried out to ensure risks are as low as reasonably practicable (ALARP).

■ **Editor's note:** In this casualty the victim did not adhere to the practice of removing the outermost lashing only once the vessel was at berth. That practice, albeit unwritten, was a barrier (or defence) to reduce risk. Yet, even if he had adhered to this practice and all other factors remained the same, he would have fallen overboard nonetheless.

The lashing, at more than 4m in length and quite ungainly and heavy, was situated in a dangerous position near the ship's side. It may be worth considering whether this particular task should be done by two people instead of one.

MARS 201628

Collision and explosion kills nine

Edited from Isle of Man official report CA107

➔ Several vessels, including Ship A and Ship C, were in a traffic lane heading about 130 degrees true. Ship B was in the process of crossing this traffic lane in order to integrate the opposite-bound lane. Visibility was good and seas were light.

On the crossing vessel, Ship B, the 3rd officer was OOW. The Chief Officer (CO) and the 2nd officer were present on the bridge too, as was a helmsman. The CO was plotting targets on the ARPA radar to assist the OOW. The Master was also on the bridge from time to time monitoring the traffic. Initially, the 2nd officer was setting up the GPS units, but afterwards he was chatting and joking with the OOW and CO in addition to catching up with some work on the chart table. The 2nd officer's presence appears to have been a source of distraction to the OOW and the CO.

The OOW on Ship B stated they would allow Ship A to pass ahead. The OOW on Ship A expressed surprise at this, as he had initially expected Ship B to alter course to port to join the traffic lane. When Ship B's OOW then declared their intention to alter course to starboard, Ship A's OOW considered this as an acceptable course of action for a crossing situation.

Later, the OOW of Ship A had identified that a close quarters situation was continuing to develop with Ship B. He expressed concern on the VHF radio several times; a bigger alteration of course to starboard by Ship B was urgently required.

At 20.45, the CO on ship B informed the OOW that one of the targets was a false echo. This was an incorrect assumption and could easily have been clarified by visual observation. In fact, the bridge team had mistaken Ship C, also in the traffic lane, for Ship A, and assumed the actual echo of Ship A was a false echo. In the final minutes before the collision, the team on Ship B also mistakenly identified a fourth ship as Ship A. At 20.52 a collision occurred between Ship A and Ship B; Ship B was at about 11kt (full ahead manoeuvring) and Ship A was at 13.5kt (full ahead sea speed).

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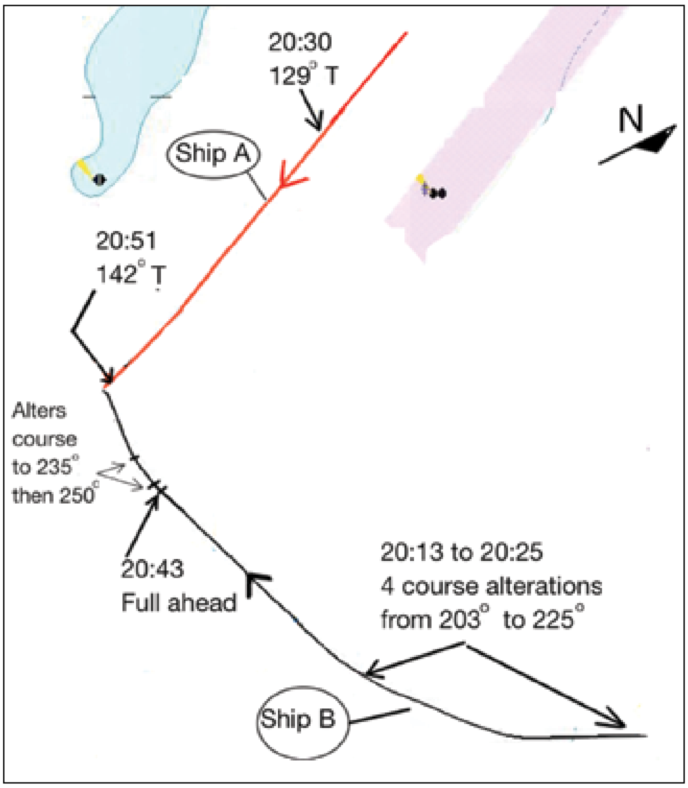

A massive explosion occurred on Ship A as a cargo tank ruptured and naphtha was spilt and ignited. The ignited spill engulfed the sea surrounding the two vessels.

On Ship A, nine crew members were killed and other crew members injured. Three crew members were injured on board Ship B. Both vessels incurred substantial fire and structural damage as a result of the collision.

Shockingly, of the many vessels in the vicinity at the time of the accident only one stopped to assist.

Some of the findings of the official report were as follows:

- This collision highlights the importance of effective, well-managed lookout techniques with correct implementation of the COLREGs in as bold and timely a manner as possible.
- This case also highlights the importance for vessels to avoid becoming severely restricted by other vessels so as to limit their ability to comply with the COLREGs. Adequate contingency room should always be left to provide an escape route should other vessels appear not to be complying.
- The bridge team on vessel B were continually distracted from their lookout duties by laughing and joking on the bridge among themselves and also with other crew members on the bridge.
- Ship A was considered to be a false echo by the Ship B team, who also mistook Ship C for Ship A. Greater emphasis on comparing ships observed visually against the information presented by the electronic navigation aids was required.
- Small and arbitrary alterations of course were made by Ship B without knowing what effect the actions would have.
- There was no use of the 'Trial Manoeuvre' function on the radar of Ship B. The team proceeded with indications of low CPAs and without realising the steady compass bearings with Ship A.

Lessons learned

- Both vessels were proceeding at full speed at the time of collision, yet one of the safest of time-proven tactics is to slow down when unsure of the developing situation or of the intentions of the opposite party.
- Keep the bridge clear of chit chat and business unrelated to navigating the ship when in high risk areas, high traffic areas or at all other times when maximum concentration is needed.
- Course alterations should be as bold as possible so as to make your intentions known to the other vessels.
- When two ships in your vicinity collide and explode, do your best to stay safe but also render what assistance you can to the fellow mariners involved. Do not sail away as if nothing had happened.

MARS 201629

Scupper plugs not enough

➔ The vessel was doing multiple berth discharge operations in port. The vessel's crew had disconnected the flexible cargo hose from the port manifold in order to connect the shore hose for discharging cargo.

Before disconnecting the flexible hose (length about 10m), it was blown through with nitrogen into the starboard slop tank.

On completion of blowing through, one end of the flexible hose was disconnected from the port manifold, blanked and lowered to main deck with the cargo crane while crew continued to disconnect the other end of the hose from the slop tank manifold.

During this period, approximately 5 to 10 litres of cargo (the chemical 2EH) seeped on to the main deck from the blanked end of the flexible hose. Once the leak was spotted, crew tightened the blanked end of the hose and seepage was arrested. They wiped the deck clean using absorbent pads and removed the chemical cargo odour. Reportedly they used two buckets of fresh water to rinse and mop the deck.

Due to a light snowfall, the main deck was wet and some water/cargo mixture reached the plugged scupper on the port side and made its way overboard. This created a sheen on the surface of water that was trapped between the ship's side and berth, which was reported to authorities immediately.

Lessons learned

- Always inspect the blanked flexible cargo hose ends for tightness and adequacy before pumping.
- Always place the disconnected end of the flexible cargo hose atop manifold drip tray, not on deck.
- Always fit scupper plugs tightly into scuppers and double check their tight fit before operations.

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- Always activate your ship's anti-pollution contingency plan immediately, even for a minor spill. Better safe than sorry.
- Pollution prevention is most robust when using a combination of best practices such as above, not just relying on your scupper plugs as the ultimate barrier.

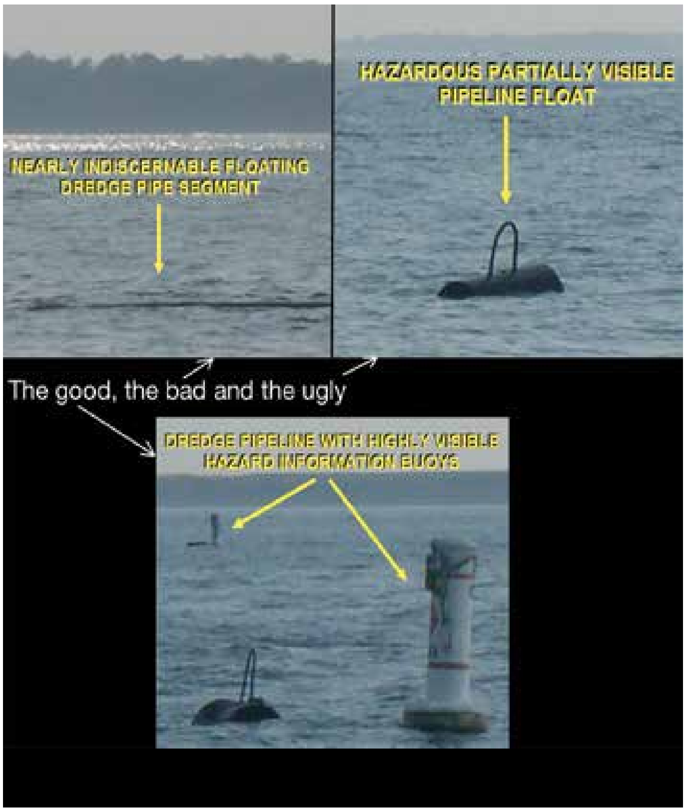
MARS 201630

Dredge ops: the good, the bad and the ugly

Edited from USCG Safety Alert 15-15

➔ Often, dredgers and dredging operations use floating pipes as a means of discharging collected silt and sand. Some dredge discharge pipes are made of high-density polyethylene. Although they are generally buoyant and float, they do so in a mostly submerged manner.

Accidents in the past have been caused by unmarked or improperly marked segments of dredge piping strings and equipment, or unretrieved piping near busy waterways and unmarked piping. Unwanted consequences, especially to small craft, have included extensive damage to hulls, shafting, rudders and keels but also injury and death to crew and passengers.



Lessons learned

- Commercial entities performing dredging in waterways should ensure all components of pipelines are properly marked and accounted for regardless of the recreational boating season and locations where dredging is taking place.
- Proper lights and shapes should be displayed on floating gear in accordance with the applicable regulations.
- Commercial ship traffic and pleasure craft should keep a sharp lookout when navigating in areas where dredging operations are taking place.

MARS 201631

Engine room flooded in 10 minutes

Edited from official Transportation Safety Board of Canada report M14A0051

➔ A bulk carrier was entering ice-infested waters. In preparation, the engineering staff completed an ice navigation checklist and, among other things, opened the steam valve to the lower sea chest as they thought this would prevent ice build-up.

During the night, the electrical officer of the watch (EOW) noticed a rise in temperature in the fresh water cooling system. He called the chief engineer, who attributed the rise in temperature to an ice blockage in the low sea chest suction. Arrangements were made to use water from the forepeak ballast tank to lower the cooling water temperature.

To clear the ice, engine staff unbolted the cover of the housing containing the low sea water strainer. As the crew were working they noticed water beginning to overflow from the sea water strainer housing. They attempted to tighten the valve by hand but were unable to do so; a pry bar was then used but the valve operating mechanism failed. Hydrostatic pressure forced the valve disc and valve operating mechanism upwards, allowing sea water to enter in an uncontrolled manner and overflow into the engine room.

Multiple attempts to secure the cover on the sea water strainer housing were made but were unsuccessful. Within approximately ten minutes, the water in the engine room was nearly 4m deep and had reached the level of the grating deck. After electrical sparks were seen, the Master ordered that the vessel be blacked out and the engine room evacuated.

Soon afterwards, the crew were mustered on the upper deck and briefed on the situation. The emergency generator was started and put on line and the crew readied for possible abandonment. The vessel drifted and, despite having anchors down and a rescue tug on scene, touched some shoals before it could be towed to safety.

The hull sustained tears, punctures and dents. The engine room machinery and electrical components located below the flooded waterline were all rendered inoperable.

Some of the findings and analysis of the official report were as follows:

- Warmed sea water from the heat exchanger was being both discharged overboard and returned to the pump, rather than being recirculated into the low sea chest. As a result, the sea water strainer became plugged with ice and slush, causing the vessel to lose sea water suction from the low sea chest.
- Without a working indicator, the crew had no visual means to confirm that the low sea chest valve was fully closed.
- The brass and steel collars around the valve stem, which were poorly fitted, separated when the low sea chest valve operating mechanism was overstressed while being tightened.
- If crew are not familiar with the measures necessary to prepare and operate a vessel's sea water cooling system when navigating in ice, there is a risk that the main engine will overheat, leading to a loss of propulsion.

There were indications that the crew were not adequately familiarised with the cooling system, nor had they properly prepared the cooling system for operating in ice-covered waters. For example:

- The crew inaccurately identified the type of sea water cooling system on board the vessel when initially required to provide this information to authorities;
- The warmed sea water leaving the various main engine heat exchangers was not being recirculated to the low sea chest to melt ice; and
- The steam valve to the low sea chest had been opened to prevent the build-up of ice and slush, despite indications in documentation from local authorities that this is ineffective.

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