Mariners' Alerting and Reporting Scheme

MARS Report No. 315 January 2019

MARS 201901

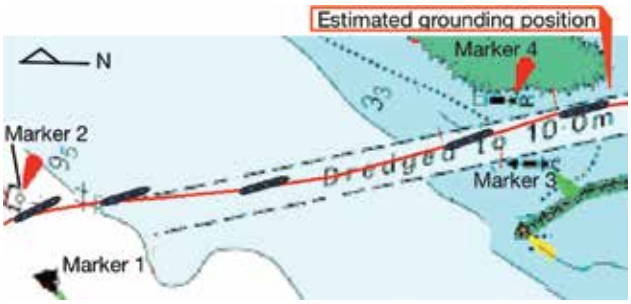
Grounding in narrow channel

As edited from official MAIB report 8/2018

➔ A bulk carrier weighed anchor and, with two pilots on the bridge, proceeded towards the port approach channel at a speed of about 3kt. Due to the westerly set across the channel entrance, the vessel's heading was adjusted to keep to east of centre of the dredged channel. This was well intentioned given that the vessel had experienced a minor bottom touching at the western side of the entrance on the first, unsuccessful, attempt to enter the port the day before.

While the Master oversaw the operation the OOW operated the engine telegraph and monitored the vessel's position using radar parallel indices. The helmsman remained at the steering stand.

As the vessel passed between No. 3 and No. 4 lateral markers on a heading of 163˚ at nearly 5kt there was an exchange between the two pilots about an alteration of heading to starboard. During the exchange, the pilots gave different starboard helm orders, which prompted the helmsman to seek clarification from the Master. The Master told the helmsman to follow only his orders. Seconds later shuddering and heavy vibration was felt on board and the vessel's speed reduced for a few seconds to less than 3kt.

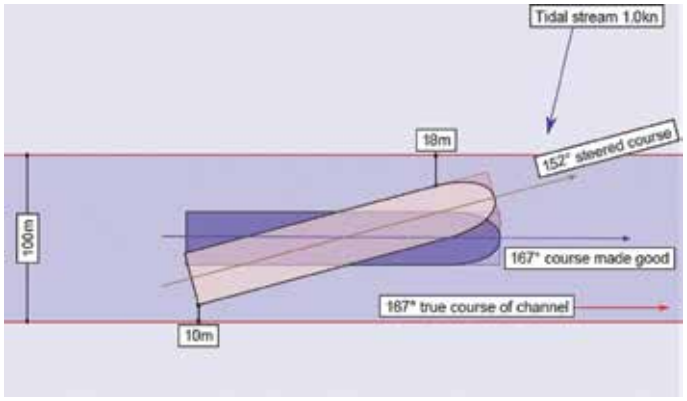


Although the bulk carrier was thereafter safely berthed, a dive inspection identified a series of splits, deep indentations and buckling of the shell plating on the port side that required drydock repairs.

Some of the report's findings include:

- In view of the tidal set experienced the previous day, it was logical to keep the vessel towards the eastern side of the dredged channel.
- The embarked pilots, although experienced elsewhere, were not fully familiar with this particular port and its approaches and had completed only two previous pilotage acts in the port.
- The narrowness of the dredged channel and the potential for squat limited the action that could be taken on board larger vessels to counter the effects of a tidal set and to remain within the dredged channel.
- The lateral markers indicating the dredged channel were potentially misleading as they were sited up to 50m outside the channel. This fact was not clear from the chart due to its scale.

■ **Editor's note:** As the diagram above right (to scale) illustrates, given this vessel's dimensions there was very little margin for error in the narrow dredged channel. Had a proper risk assessment been performed before the entry it may have become evident that one or more assisting tugs would have made the entry much safer, even assuming slack water.



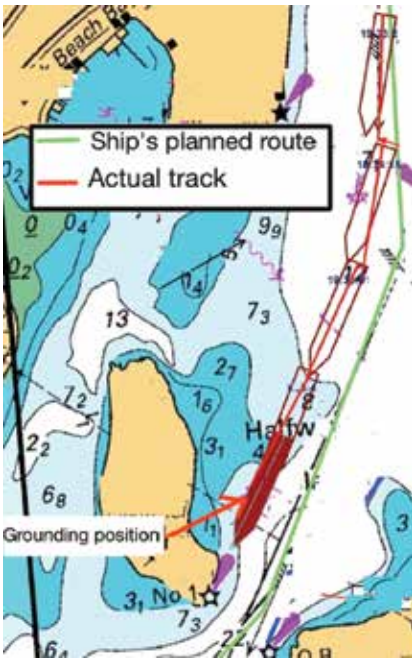
MARS 201902

Grounding while inbound

Edited from official report MO-2016-204 of the TAIC (New Zealand)

➔ A large loaded bulk carrier was inbound. The Master and pilot were conducting an exchange of information including the harbour passage plan produced by the harbour authority. During the entry the vessel's speed was reduced and a line was secured to a tug aft. The tug then followed behind the bulk carrier with no weight on the line.

The leading marks showed that the vessel was to starboard of the intended track, which the pilot was aware of. The pilot made a succession of helm orders for 5°, 10° and then 15° of port helm and then ordered the helm to amidships in anticipation of the change in direction of the tidal set. Noticing that the vessel was still to starboard of the line of the leading beacons, he ordered 5° then 10° of port helm and then ordered the helm to amidships.



The members of the bridge team, including the pilot, then felt a bump. Initially, they thought it was the aft tug bumping the stern of the vessel. The pilot saw that the speed was reducing and he noted that the vessel's head was swinging to starboard despite the 10° of port helm being applied. Both the Master and the pilot realised the vessel had grounded, and ordered stop engines, half astern and full astern in quick succession.

With the help of the stern tug the vessel was quickly refloated and the vessel was berthed without further incident.

Some of the findings of the official report were:

- The grounding occurred because the bridge team, including the pilot, lost situational awareness. Although the pilot was aware that the vessel had deviated starboard of the intended track, the extent of that deviation was not known because the vessel's progress was not being monitored effectively and by all available means.
- The vessel's ECDIS was not correctly configured for navigation in a narrow channel. As a result, crew members were not adequately monitoring the progress of the vessel in support of the pilot, who was navigating mainly by visual references.

Lessons learned

- In restricted waters, even 30 seconds delay or hastiness in helm orders could mean the difference between afloat and aground. Support the pilot by giving your input and voicing any concerns promptly.
- Maintain your situational awareness by keeping an eye on your (properly adjusted) ECDIS.
- The published port passage plan was not entered into the vessel's ECDIS, so this valuable information was of no practical benefit.

MARS 201903

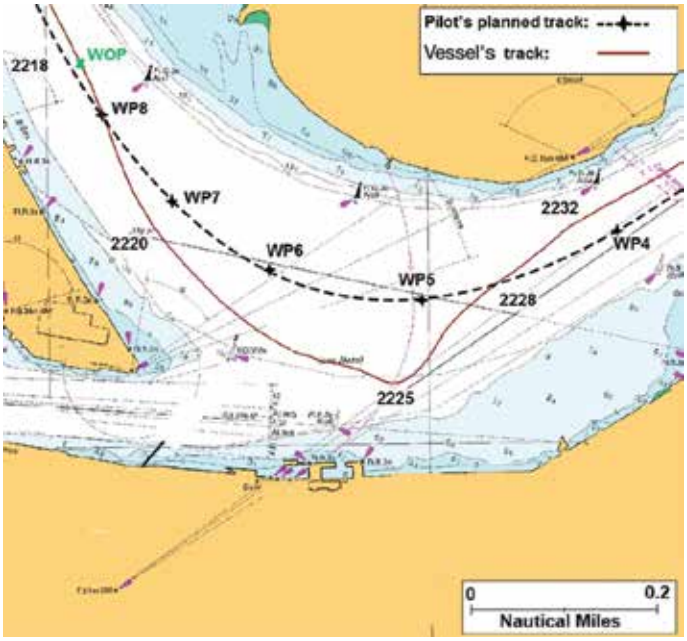
Near grounding while exiting port

Edited from official ATSB (Australia) report 330-MO-2017-002

➔ Before a loaded bulk carrier departed, the Master and pilot discussed the pilotage plan, which included the use of four tugs. The pilot's plan was to remain mid-channel, passing through the pre-established port passage plan waypoints. He was to remain at least 1,000 metres behind another outbound ship to minimise any hydrodynamic interaction between the two vessels.

Once underway, the pilot conned the vessel initially at about 3kt. Speed was slowly increased and was near 5kt as the vessel approached the alteration to port through the final turn of more than 90°. The pilot ordered 10° of port rudder followed by 20°. He wanted a rate of turn of about 13°/minute and he closely monitored the ship's rate of turn indicator, which was mounted overhead in the bridge front.

The ship's bow turned to port while the ship continued to track almost straight ahead. Hard port rudder was ordered before the ship slowly began to turn to port. The pilot continued to focus on the rate of turn indicator to see if the ship was turning as quickly as desired. A short time later, when he checked the ship's position visually, he realised the ship was off the desired route; it was well south of his intended track and closing on an east cardinal buoy. The pilot contacted the tugs to assist the turn. Meanwhile, the Master followed the progress of the ship but did not challenge or intervene because he assessed the actions taken to be appropriate.



The vessel's speed continued to reduce to about 2.6kt and the bow was swinging to port. Once on a heading of 068° and a speed of about 2kt the pilot ordered slow ahead, followed by half ahead on the main engine. From this point, the ship was successfully manoeuvred back into the channel and out of the port.

Some of the report's findings include:

Insufficient rudder was applied as the vessel started the 90° course alteration to port, and it was applied too late to achieve the necessary rate of turn. As a consequence, the ship went off course and very nearly grounded.

- During the early stages of the turn, the pilot seems to have been focused on the rate of turn indicator, so he was distracted from the primary task of monitoring and controlling the turn. This short period of time was sufficient to compromise control of the turn.
- A shared mental model for the pilotage was not established between the pilot, vessel's Master and the bridge crew members. In particular, they did not apply techniques such as:
  - Ensuring that, prior to the pilot boarding, the pilot and the ship's crew shared the same plan for the pilotage
  - Utilising equipment such as the portable pilotage unit (PPU) to assist explanation of the pilotage stages and parameters
  - Ensuring active monitoring, challenge and response/intervention and error management techniques were used by all personnel involved in the pilotage.

Lesson learned

- Similar lessons to MARS 201901.
- As a consequence of this near grounding the port authority decided to amend their procedures to require compulsory carriage of a PPU on all pilotage assignments. For further insights on the PPU, readers might care to refer to the article in this month's *Seaways*, The Portable Pilotage Unit: Panacea or Pandora's Box.

MARS 201904

Enclosed space entry aborted

➔ A tanker was in port to undergo a class survey. Cargo and ballast tanks had been opened and cleared for entry and inspection. A class surveyor, a crew member and an ultrasonic measurement technician entered Ballast Tank No 4 Port. Inspection work was in progress when water started to enter the tank from the opened deck manhole.

The persons inside the tank tried to call the attendant officer, but without success. Accordingly, inspection of the water ballast tank was aborted and the three persons exited the tank without any injury.

The company investigation found that the enclosed space attending officer had been called to the cargo control room. While he was away from his assigned post, ballast water overflowing from the air vent of another tank had spilled along the deck and then drained down the open manhole of Ballast Tank No 4 Port.

Lessons learned

- Never leave the entrance to an enclosed space unattended if there are people inside.
- Simultaneous operations such as ballasting and deballasting while also inspecting ballast tanks can introduce unnecessary risks to the operation.

MARS 201905

Oil spill while disconnecting cargo arms

➔ A tanker had finished discharging a cargo of crude oil. The duty officer and three other crew members were on deck, but the line clearing and disconnection of the cargo arms was done by shore personnel, one on the vessel and one on the berth. Typically, a terminal representative on the ship arranges the breath valves to be opened for draining. Then they signal to the person standing on the controls when the time is right to disconnect the cargo arms. The distance between the two people is around 10 metres.

Line clearing typically takes about five minutes but on this occasion the operation appears to have been rushed. The cargo arms were disconnected without checking with ship's personnel and about 70 litres of crude was spilled on deck and in the drip tray. The oil spilled on deck was immediately contained and cleaned by the ship's crew.

Lessons learned

- In terminals where the cargo arms are fully controlled by the shore side, the hazard of a pollution incident resulting from mis-communication is amplified. This should be considered during the planning stage.
- During the ship-shore meeting, the disconnection operation should be considered a critical stage of the operation and details on supervision and authorisations need to be clarified.

MARS 201906

Vessel crashes into closed bascule bridge

Edited from official BSU (Germany) report 470/15

➔ A general cargo vessel in ballast was transiting the restricted waterways of a canal in darkness. The canal is traversed by many bridges and interrupted by locks. As is the custom in this area of the canal, the pilot was at the wheel, manoeuvring and conning the vessel, while the officer of the watch (OOW) and Master were in a support role in the wheelhouse. The pilot was also responsible for VHF communications with vessel traffic services (VTS) and the bridge operators, which were conducted in the local language.

Approaching the bridge with searchlights

Collision with the bridge

With a speed over ground (SOG) of 8kt and the current astern, the pilot reported to the VTS that the vessel was approaching a railway lift bridge. As the vessel approached the bridge, the OOW worked the searchlight to illuminate forward. The pilot called the bridge operator and understood that the vessel could pass the bridge as the next scheduled train was delayed. At about six cables to the bridge the vessel's speed was reduced. In the darkness it was not possible to make out the bridge signal lights because of the glare from bright background floodlights nearby.

When the vessel was some 1.5 ship lengths away from the bridge the bridge operator called to say the bridge was not raised and that the vessel must stop. Full astern pitch was immediately applied but to no avail. The vessel collided with the bridge about one minute later.

The investigation found, among other things, that;

- Communication between the bridge operator and the pilot was informal. No clear information on the status of the bridge or of the vessel passage had been exchanged by either side.
- The duties of the pilot were too much for one person.
- The lighting and status of the bascule bridge (open or closed) was not to a reasonably safe standard.

Lessons learned

- When in restricted waterways support the pilot by all possible means such as supplying a helmsman and using the radar to inform the pilot of distances and position.
- If the pilot is communicating with VTS, vessels or shore authorities in a language that is unknown to you, ask them to explain what was said.

MARS 201907

Auto-pilot in collision mode

Edited from USCG Safety Alert 10-16

➔ Auto-pilot systems can reduce the monotony of steering by freeing the helmsman to step away from the helm to perform other minor tasks and gain different navigational viewpoints. They also have disadvantages by making it easier for operators to engage in negligent navigational practices. Over-reliance on these systems can allow an operator to become too engrossed in performing other work on the bridge and, in extreme cases, can lead to personnel leaving the bridge for extended periods of time.

In some past incidents, the operator's lack of system knowledge has hindered their ability to change over rapidly from auto-pilot to manual steering even when there was time to take corrective action.

Lessons learned

- Using auto-pilot does not relieve crew from always keeping a sharp lookout.
- Know how to switch quickly from auto-pilot to manual steering.
- If there is a change in conditions (visibility, traffic density, area of navigation) re-evaluate the use of auto-pilot.

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www.pla.co.uk

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