Mariners' Alerting and Reporting Scheme

MARS Report No 336 October 2020

MARS 202053

Double-end mix-up

As edited from official MAIB (UK) report 6/2020

➔ A double-ended ferry that ran between two ports, Red and Blue, was underway towards Blue port in fog. The ferry had a central bridge and control consoles at either end which allowed it to run between the two ports without having to turn 180°. For navigation purposes, the designated bow of the vessel changed with the direction of travel; the 'Blue end' being the bow on passage to Blue port and the 'Red end' being the bow on passage to Red port. A manual switch on the consoles allowed the electronic chart system (ECS) to display the correct heading.

The Master had the con during the passage and stood next to the helmsman in front of the radar and the ECS at the Blue console. Another officer and a dedicated lookout were also on the bridge. The officer was standing at the Red control console at the other end of the bridge and used the radar and ECS to provide the Master with navigation and collision avoidance information. The lookout was stationed on the port bridge wing.

As the ferry approached Blue port, the helmsman was having difficulty maintaining the required course, and the ferry started to swing to port in the channel. He immediately raised his concerns and the Master decided to take control of the vessel's steering and propulsion (diagram 1). As he did this, the visibility reduced to less than 200 metres. The assisting officer remained at the other end of the bridge and continued to relay positional information and messages from the deck lookout, whose radio calls were becoming more frequent and urgent.

The Master managed to arrest the vessel's swing briefly but the ferry started to swing to port once again and the ferry left the inner fairway to the east. At this point the visibility reduced still further and the bridge team were no longer able to visually identify the shoreline or navigation marks. By now the vessel had turned through about 220° from its original heading and was stopped very briefly in the water, as in diagram 2.

The Master decided to abort the berthing and manoeuvre the ferry back into the channel and out of Blue port. Believing he was still in the same orientation as before, he put the propulsion system astern and ran to the Red end of the bridge and immediately increased the propulsion power. He asked the officer to give him a course to steer into the inner fairway but this added to the confusion because now the vessel was increasing speed toward the yacht moorings on the east side of the harbour.

Shortly thereafter, the ferry collided with a moored sailing yacht at about 6 knots, sinking it. The Master stopped the engine thrust but the ferry continued toward the shoreline and grounded on soft mud about 130 metres from shore.

Some of the report's findings include:

- The collision and grounding occurred because the Master became disorientated in the fog and inadvertently drove the ferry in the wrong direction.
- When the Master took over operating the controls, the oversight of operations was lost. The members of the bridge team started to act in isolation and did not adequately support the Master.
- The ergonomic layout of the navigation equipment did not support single-person operation of the ship's controls from the side of the console.

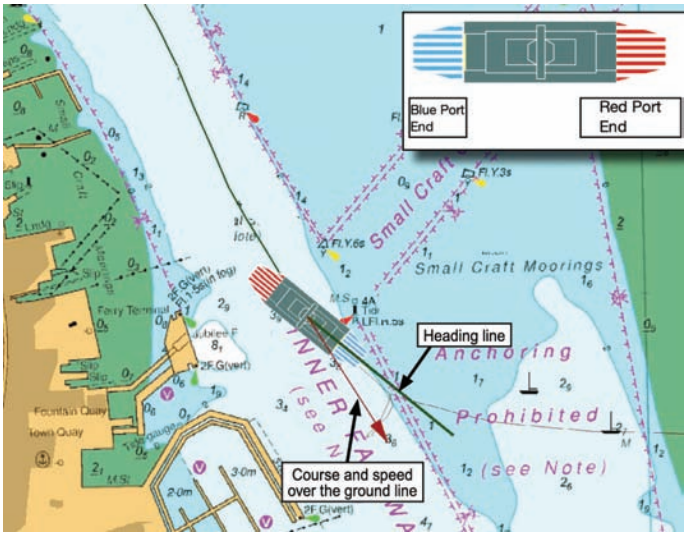


Diagram 1

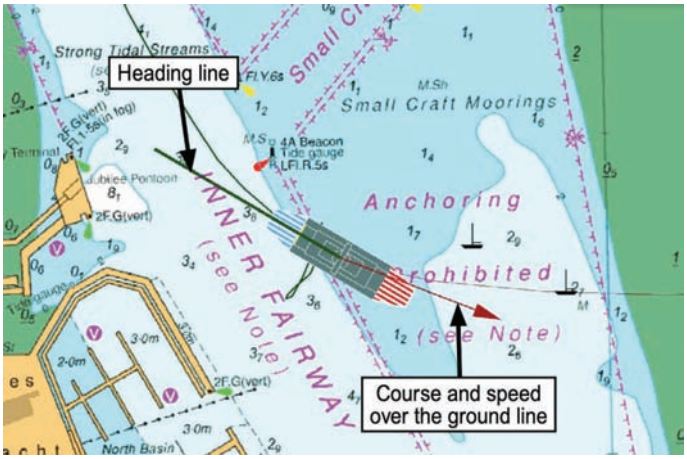


Diagram 2 Ferry now turned 180° but heading indicator has not changed

- The electronic chart system relied on a manual switch to provide correct heading information (to properly show which end is the bow). This switch was not operated by the Master as he rushed from the Blue end console to the Red end console.
- Overcome by tasks and disorientated, the Master focused on the ECS and used the information displayed as a basis for his decision-making. The erroneous heading information being displayed supported the Master's belief that the ferry was headed back into the channel.

Lessons learned

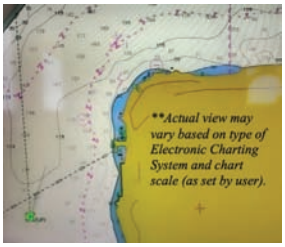
- Blind pilotage cannot be improvised and best results come only if these skills are constantly practised before they are needed.
- The essence of BRM is task delegation and teamwork. These were critically lacking in this instance.
- Another crucial element of BRM is to challenge, if need be, a decision taken by another member of the team, even the Master.

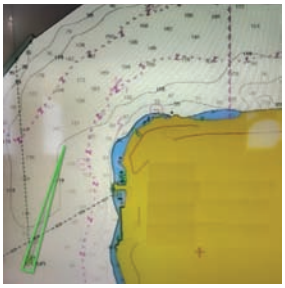
MARS 202054

AIS needs correct manual input

As edited from USCG Safety Alert 04-20

In the early morning, before sunrise, two towing vessels were approaching an almost 90° bend on a river in opposite directions. Neither vessel was broadcasting the correct total length of their vessel and tow to other AIS users. The first vessel's AIS broadcast showed 22 metres, yet the overall length of the vessel and its two-barge tow was 205 metres. The second vessel's AIS broadcast showed 61 metres, but the overall length of the vessel and its 40-barge tow was 488 metres. As the vessels rounded the bend and completed their turns, they collided, causing the down-bound towing vessel to capsize and sink with several fatalities.





488m tug and tow. Above, incorrect total length. Below, correct total length.

The accurate display of a vessel's full length becomes particularly important in situations that prevent vessels from seeing each other until they are in very close proximity.

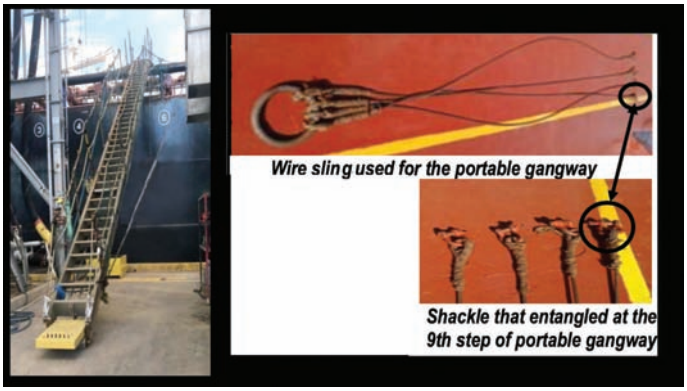
Lessons learned

- AIS is a valuable tool that shares critical vessel information with other vessel operators. However, the usefulness of AIS is dependent on accurate vessel data entry.
- While correct overall length is important for all vessels, tug and tow operations are particularly vulnerable to errors due to the changing value of their total length with each job.
- Incorrect AIS information will give a false mental picture to other vessel operators in the vicinity and can contribute to accidents.

MARS 202055

Lifting close call

➔ A tanker was port side to at a dock and crew were installing the portable gangway. Once the gangway was in place between the ship and the dock, a crew member walked to the middle of the gangway and removed the four wire slings, motioning to the crane operator to heave up the rigging, which was connected to a single lifting ring. During the lift, one of the loose slings became entangled between the steps of the gangway resulting in its sudden movement. The crew member immediately signalled to the crane operator to cease heaving, which he did. The wire sling was removed from the step and the slings were recovered without further issue.



Lessons learned

- Even the most common, banal tasks can harbour hidden hazards. Vigilance and attention to detail are your best defences against unwanted consequences.
- Good visual contact between a crane operator and the signaller is always a best practice.

MARS 202056

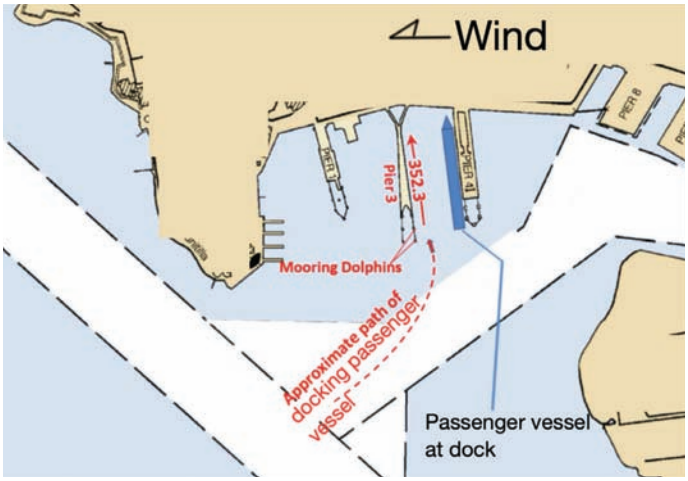
Huge docking fee incurred

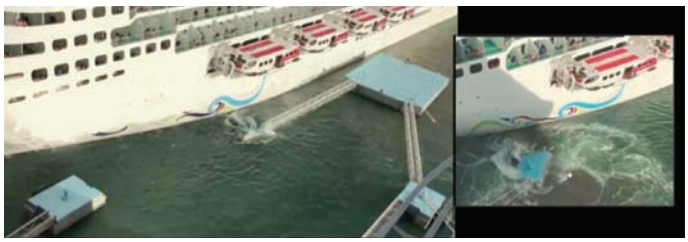
As edited from official NTSB (USA) report MAB/20/04

➔ A passenger vessel was under pilotage and the bridge team were preparing to dock the vessel at pier 3, port side to, on a heading of about 352°. Another passenger vessel was already berthed at a parallel dock on the starboard side. Wind was fresh at about 25 knots from the east and the pilot advised the Master that they would need to stay well to windward for the approach. The vessel's port shaft was inoperable at the time.

Two tugs were made fast on the starboard bow and quarter. As the passenger ship started the turn to port its speed was less than 3 knots and the Master, as planned, took the con for the docking. As the turn progressed, the pilot told the Master he would order the tugs to pull away from the dock to slow the approach. The Master was using bow and stern thrusters to manoeuvre into the space, as well as helm and the starboard engine, but sometimes these movements were in contradiction to the tug's efforts. Within about nine minutes of the Master taking the con the port side of the vessel touched the extended mooring dolphins at the south end of the pier and the catwalks that were in place there collapsed into the water.

Approximately 45 minutes later the vessel was safely docked without further incident. Although no injuries had been suffered, damages to ship and shore infrastructure were estimated at US$3.7 million.





The official report stated that the major contributing factor to this accident was a lack of communication and co-ordination between the Master and pilot.

Lessons learned

- Difficult, tight manoeuvres are hard to accomplish at the best of times but especially when combined with a turning component. When conditions permit, vessel movements should be kept as lateral as possible.
- Although both the pilot and the Master were under the impression they had a clear, mutually understood docking plan, in reality they did not.

MARS 202057

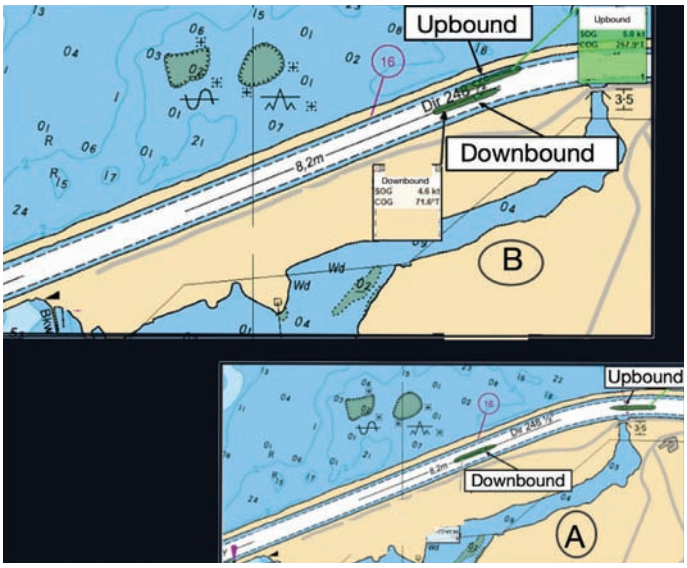
A tight squeeze goes wrong

As edited from official TSB (Canada) report M19C0387

➔ The bridge teams of two vessels, one down-bound and one up-bound in a narrow channel, had agreed to meet just upstream from a curve. Some time later, while rounding the curve, the up-bound vessel proceeded close to the north bank and then deviated towards the centre of the canal, as in diagram A. To correct the deviation, the bridge team altered course to starboard.

Meanwhile, the down-bound vessel was approaching the curve at a speed of 4.9 knots with the current astern at about 1 knot. The vessel was positioned close to the centre-line of the channel and the Master made a VHF call to the up-bound vessel requesting more room. The up-bound bridge team did not acknowledge the call.

As the two vessels came abeam each other, as in diagram B, the up-bound vessel was slowly changing course to port, towards the centre of the channel. The down-bound vessel was still positioned close to the channel centre-line and maintaining its course. While manoeuvring, the up-bound vessel's starboard quarter came within approximately 7m of the north bank of the channel and made bottom contact.



Lessons learned

- Meeting in very narrow channels takes special procedures whereby each vessel is on a steady course and almost pointed at the other. A successful meeting relies on bow pressure waves and hydrodynamics to keep the vessels apart.
- While it was mutually agreed to meet above the curve, the actual location of the meeting was arguably too close to the curve to give the up-bound vessel enough time to stabilise in a correct meeting posture.
- Once the stern of a vessel becomes close to a bank, hydrodynamic suction (bank suction) will bring the stern even closer and make bottom contact hard to avoid.

MARS 202058

Bow thruster compartment fatality

As edited from official MSIU (Malta) report 15/2018

➔ A tanker had discharged cargo and crew were ballasting at berth in preparation for departure and a voyage in ballast. During ballasting, the bilge high level alarm sounded for the bow thruster compartment and a crew member was sent forward to investigate. Proceeding down to the bosun's store level, he immediately noticed water escaping from the forepeak tank manhole. This water had reached the bow thruster compartment entrance and was flowing over the sill plate and cascading on the bow thruster motor below.

The situation was reported to senior officers and the ballasting operation was stopped. The ship's electrician was to inspect the bow thruster motor for any water damage. The bow thruster's electrical supply was isolated and two crew members made their way to the bow thruster compartment for the initial assessment of the condition. The motor was sprayed with electrical cleaner and then the workers exited the space for coffee break.

Some time later the electrician returned alone to continue the work on the bow thruster motor. The second crew member arrived about 15 minutes later. He saw the electrician lying face down in the bow thruster compartment. He called out to him, but there was no response. He initiated the emergency response and the Master and others soon arrived on scene. The Master climbed down to the victim, who remained unresponsive. He then had to exit due to the strong smell of chemicals.

In the meantime, the ship's rescue team had mustered. They donned breathing apparatus (BA) sets and climbed down into the bow thruster compartment. It then become evident that it would not be possible to recover the electrician from the bow thruster space so the local Civil Protection Department was called to assist. About one hour after first being discovered the electrician was recovered from the space. However, he was subsequently pronounced dead.

Representation of victim in BT compartment

Some of the findings of the official report were:

- At the time of the accident, the bow thruster compartment's characteristics were similar to those of an enclosed space without being declared as such.
- The isolation of the bow thruster compartment's electrical supply resulted in the ventilation of that space being switched off, compromising the supply of fresh air inside.
- Although the autopsy was not available to investigators, suffocation due to lack of oxygen was deemed the most probable cause of this accident.

Lessons learned

- Some spaces, although not officially an enclosed space, can assume those same dangerous characteristics if certain conditions are present – especially lack of air circulation.
- NEVER rush into a space that has a collapsed crew member inside. Muster the emergency team and enter with BAs.
- Practise confined space emergency procedures on a variety of compartments on your ship to determine which ones will be problematic.

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