Harbour pilots and crew need shared understanding of passage plan for safe voyage

The Australian Transport Safety Bureau (ATSB) is highlighting the need for a shared understanding or 'shared mental model' of a ship's passage plan by bridge crew and harbour pilots to ensure a safe voyage.

The ATSB's investigation into the near grounding of the bulk carrier *Aquadiva* in Newcastle Harbour (New South Wales) on 12 February 2017 also underlines the importance of a ship's bridge crew and harbour pilot engaging in effective communication and information exchange to develop this shared understanding or mental model of a ship's passage plan.

The circumstances

On 12 February 2017, the fully-laden bulk carrier, *Aquadiva*, was departing Newcastle Harbour under the conduct of a harbour pilot. At about 2218 Australian Eastern Daylight Time (AEDT), during *Aquadiva*'s passage through a section of the harbour channel known as The Horse Shoe, insufficient rudder was applied in time to effectively turn the ship. The ship slewed, or moved laterally, toward the southern edge of the channel, and at 2224 it was over the limits of the marked navigation channel. Additional tugs were required to arrest the ship's movement and return it to the channel to complete its departure.

During the investigation, the ATSB found that *Aquadiva*'s bridge crew had not received the harbour pilot's passage plan before he boarded. This meant the harbour pilot and the bridge crew were operating with a different set of assumptions for what constituted a safe passage.

This misunderstanding restricted the ability of the crew to monitor the ship's progress properly and identify or correct any errors in the ship's progress.

A shared understanding or mental model of a ship's passage enables the harbour pilot and bridge to crew work together to identify errors and take steps to correct them quickly.

As a result, when insufficient rudder was applied during the ship's passage through a section of the harbour known as The Horse Shoe, the bridge crew did not identify the issue or alert the harbour pilot. The ship then slewed, or moved sideways, toward the southern edge of the channel, and went over the limits of the marked navigation channel.

Once the issue was identified, additional tugs were required to arrest the ship's movement and return it to the channel to complete its safe passage out to sea.

ATSB Executive Director, Transport Safety, Nat Nagy, said a shared understanding or mental model of a ship's passage lets the harbour pilot and bridge crew work together to identify errors and take steps to correct them quickly.

In Nagy's words: '*This shared understanding can be enhanced through tools such as a portable pilotage unit. In this case it could have helped with the communication between the pilot and bridge crew to point out and clarify the differences between each passage plan.*'

Readers are invited to read the investigation report, MO-2017-002: *Near grounding of Aquadiva, Newcastle Harbour, NSW, on 12 February 2017*, here: https://www.atsb.gov.au/publications/investigation_reports/2017/mair/330-mo-2017-002/

Picture caption

Bulk carrier, Aquadiva

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