

## SUMMARY IN ENGLISH

On Monday the 1 March 2021, three persons worked with diving inspections of the quay facility in Torshammen in Gothenburg. They worked from the ship VESTA, an eleven-metre-long workboat. At half past nine in the morning, the crew stopped the work to take a lunch break. They intended to moor at the bridge that runs between Torshammen and Risholmen, a low bridge that has a vertical clearance of about three meters. The boat was slowly manoeuvring towards the bridge and one of the crew members went forward to be ready to moor. The driver engaged reverse gear, but there was no effect, after which he pulled the control further back. VESTA then continued forward in a rapid starboard turn and hit the bridge. The person in the bow did not manage to dodge or get himself to a safe position and got caught between the wheelhouse and the bridge suffering severe fatal injuries. The rescue effort was hampered by the difference in height between the bridge and the boat, but another of the company's boats arrived quickly to the scene of the accident and towed VESTA to the southern end of the bridge where an ambulance could take care of the injured for further transport.

The accident was caused by a fatigue induced crack leading to a failure in the stainless-steel wire in the control cable, used for switching between ahead and astern. Ahead remained in place, despite the control lever being pulled towards astern. The control lever then worked in an opposite way in the reverse position and full astern then became full ahead. The short distance to the bridge meant that the driver of the boat did not have time to take any corrective measures before the collision.

A prerequisite for the fracture of the metal wire was that the control cable was bent where the flexible casing meets the rigid metal end sleeve, which eventually led to a fatigue fracture due to repeated bending and straightening movements at each shifting.

The underlying causes are a lack of ability to inspect the internal condition of the control cable and a lack of specified replacement intervals. It had thus not been possible to determine the condition of the metal wire with less than with destructive testing.

### Safety recommendations

#### The Swedish Transport Agency is recommended to:

- Ensure that the problem of control cables that are laid unprotected or routed in too tight bends and also the consequences of a break in these cables, is noticed in the affected segments of shipping. *(RS 2022:01 R1)*
- In collaboration with relevant parts of the maritime sector, conduct a discussion on a possible recommended interval for replacement of particularly exposed technical components. *(RS 2022:01 R2)*