

SUMMARY IN ENGLISH

A construction company was commissioned by the Maritime Administration to reinforce the erosion protection in the Göta älv. The mission included transportation of stones of different fractions from a temporary loading port in Lilla Edet further north in the Göta älv to a specific unloading area. The transport was performed with a smaller tug, ÖRING, which was attached to push a barge. The crew consisted of the master and a deckman. Visibility from the tug was limited due to the low position of the wheelhouse. The loading of the barge was carried out so that the barge got a stern trim in order to obtain satisfactory visibility from the wheelhouse. The barge had some heel to the port at the departure. The barge was not certified and not provided with any draft mark that showed the barge maximum load capacity.

The head current in the river was just over one knot during the day, but could vary in different locations in the river. The barge's heel to port and low freeboard, contributed to the fact that, during the voyage, occasionally seawater came up on the barge deck. After 1 ½ to 2 hours voyage, the current became stronger, and the barge's heel increased, and more seawater washed up on the barge deck. Despite speed reduction, the barge's heel did not decrease. The master took the decision to disconnect the barge from ÖRING. The tugboat was not equipped with quick release hooks regarding the wire connections. When slack occurred in the port wire connection, the heel of the barge increased further and some cargo shift occurred. When the barge deck cut down under the water, the last positive residual stability disappeared, and the barge capsized and became lying floating upside down. The barge wire connections to the tug turned ÖRING around and down under the water and it sank quickly. The crew was equipped with inflatable life jackets and managed by them self to swim ashore.

The cause of the accident was that the barge was loaded so that the residual stability (dynamic stability) was almost nonexistent and thus the barge was sensitive to external disturbances in the form of additional heeling moment. Cooperation between the water on the barge deck, some cargo shifting and the slack of the wire connection contributed to the positive residual stability not being sufficient to maintain positive stability of the barge.

A contributory factor was that the barge was not provided with a draft mark for maximum loading condition. Contributing was also that the tugboat ÖRING was not equipped with quick release hooks regarding the wire connections to the barge, and that visibility from the wheelhouse was limited when pushing the barge.

An underlying cause of the accident is the lack of requirements for smaller barges without their own steering gear which are not classified as vessels and are not subject to supervision or certification requirements.

Safety recommendations

Ivarssons Entreprenad AB is recommended to:

- Based on stability calculations, provide the company's barges with visible draft marks regarding maximum loading condition. *(RS 2016:08 R1)*
- Educate the masters and others involved in cargo handling of barges, on the criteria for the safe loading of barges. *(RS 2016:08 R2)*

The fire brigade at NÄRF is recommended to:

- Consider training for all rescue leaders regarding ship accidents in the area. *(RS 2016:08 R3)*

The Ministry of Enterprise and Innovation is recommended to:

- To expedite the work specified in the memorandum Rule Simplification for Shipping (N2013/5746/MRI) in order to achieve that barges without own steering system will be subject to regulatory requirements and other regulations relevant to the maritime safety. *(RS 2016:08 R4)*

The Swedish Transport Agency is recommended to:

- Inform, in an appropriate way, the commercial shipping industry about advantages, disadvantages, risks and limitations with inflatable lifejackets, especially in the winter season. *(RS 2016:08 R5)*
- Continue the work started regarding information to the leisure boat industry about the advantages and disadvantages of different types of life jackets, especially concerning maintenance and daily inspection of inflatable lifejackets. *(RS 2016:08 R6)*