

FOKUS ESTONIA

Status: Paper on findings 20220128

ESTONIA'S BOW RAMP DID NOT COME OFF BY ITSELF

During the Swedish accident investigation authority's (SHK) investigations in July 2021, the sensational finding emerged that Estonia's bow ramp was no longer stuck in the closed position but stood next to the ship on the seabed. The SHK suggested that the hinges were damaged by corrosion, and the ramp had therefore fallen off. But the July pictures taken by the SHK showed that the starboard lower hinge is intact and apparently unaffected by corrosion and that the corner of the ramp is still attached to its hinge.

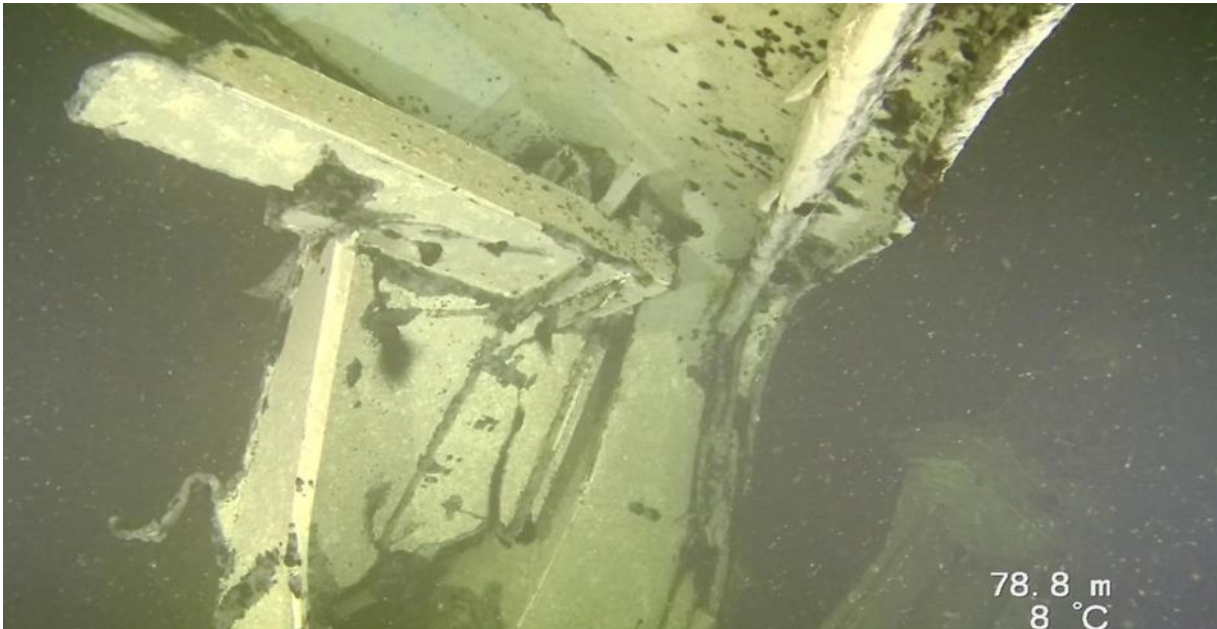


The ramp is seen from below of Estonia. Even the forepeak deck prevents the ramp from spontaneously ending up in the position it is in now. Note that mud/sand covers the outside of the starboard side of the ramp. (Photo from photogrammetry).

The recent photogrammetric 3 D scan from the private investigation led by former Estonian State Prosecutor Margus Kurm has shown that the ramp stands in a place where it cannot possibly have ended up without external influence. The ramp, after the sinking, was wedged inside the half-meter deep ramp frame.

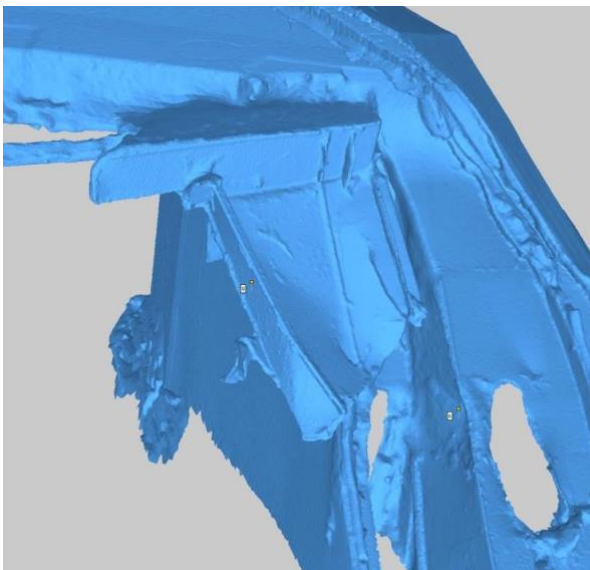
- The part of the ramp that is still attached to the hinge shows that the ramp has neither rotated 90° nor been pulled sideways. Such a move would also require that the 12-ton ramp be lifted towards the sea surface.

- On the other hand, if the ramp loosened in the upper port side and fell out, it's inside would be seen in the photos instead of the front side, which is seen in the images.
- The comprehensive photo documentation also indicates that the ramp has not slipped downwards in the ramp frame as there are no scratch marks, and even the paint coating is still intact there.
- Nor have the bent steel plates in the opening sill in the forward starboard bulkhead been folded or reshaped by a falling ramp.



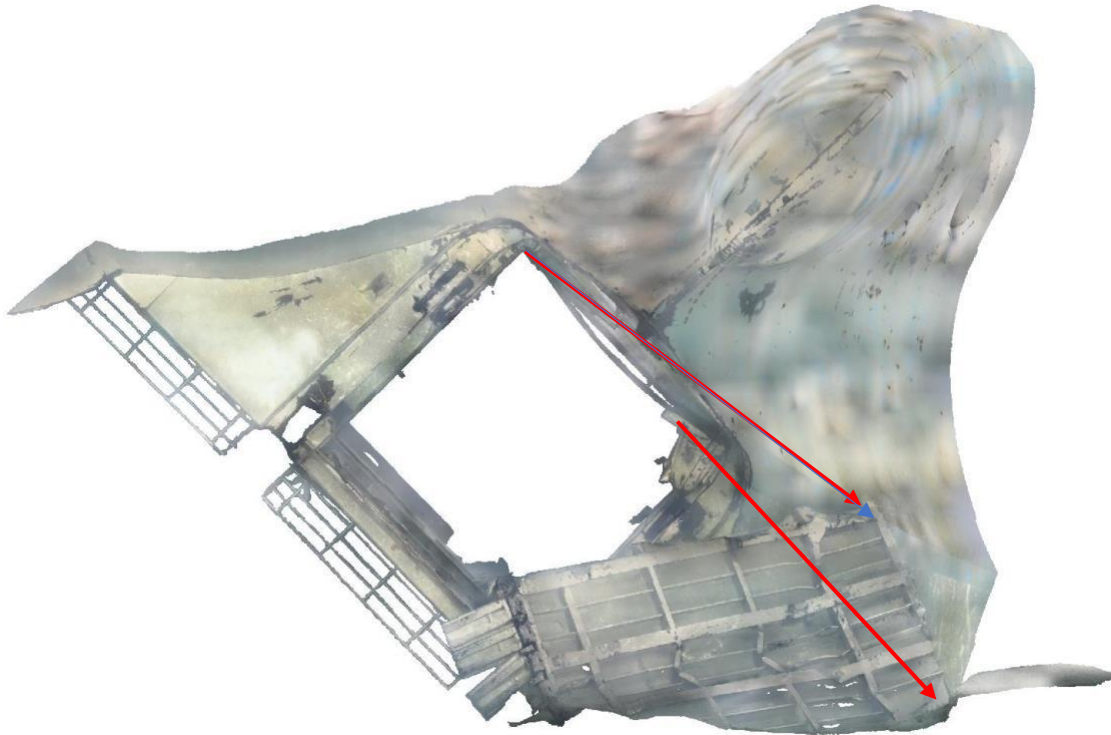
The lower starboard corner of the ramp is still attached with its intact hinge inside the ramp opening and is not corroded. Image from SHK's survey in July 2021.

Below you can see the lower starboard corner of the ramp still attached to the hinge inside the half-metre-deep ramp frame. The ramp has thus not rotated 90° to the right and detached thereafter.

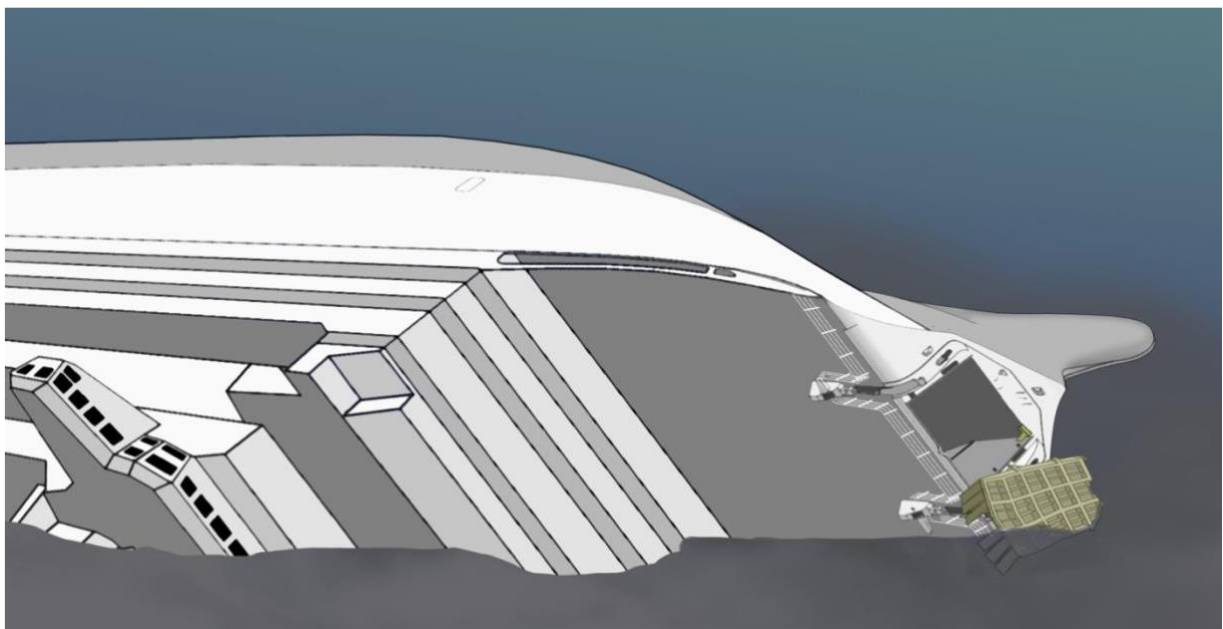


The image of the lower starboard corner of the ramp still attached to the ramp opening is from the photogrammetric 3 D scanning where the paint coating has been filtered out.

The photogrammetric 3D images below show that the ramp stands 3–5 meters further to the right than it would if it had been spontaneously moved sideways and then fallen straight down.



Photogrammetric orthomosaic of the bow area. The bulb is visible at the top right of the image. The arrows point to the lower corners of the ramp, where the lower arrow indicates the hidden position of the starboard corner. The ramp on the seabed is 3–5 meters further to the right than if it had fallen out by itself.



This illustration shows the wreck position schematically at the seabed in 2021, with the ramp resting deep in the sediment and mud. The upper part is obscured by more than two meters of deposit, and the lower part is almost as much. At least one of the flaps that make up the boarding plates is entirely missing; the others on the starboard side are also hidden if they are still in place.

The starboard's lower ramp corner is of particular interest to investigate. As the ramp stands now, it is impossible to examine this corner as sediments and mud cover the corner about two and a half meters up from the seabed. The picture below, taken during the Bemis/Rabe expedition in 2000, shows peculiar damage that was neither commented on nor analysed or explained by the Joint Accident Investigation Commission (JAIC).



Moreover, the ramp now stands to completely hide the large hole in the starboard forward bulkhead extensively documented by the Bemis/Rabe expedition in 2000. Some of the world's foremost experts on underwater blasts considered that detonations must have caused the hole with its petal-shaped sides. Even this damage was excluded from comments, analysis, or explanation by the JAIC.



In 2000, divers examined the major damage (hole) to the forward bulkhead that is now inaccessible as the ramp hides the damage.

Starboard lower corner of the ramp



Conclusions:

1. The ramp cannot spontaneously have ended up in its current position.
2. In the summer of 2021, the ramp has significantly more extensive and completely new damage than in the film documentations from 1994, 1996 and 2000.
3. Where the ramp now stands, the large hole filmed by Bemis/Rabe's expedition in 2000, and which some of the world's foremost experts on blast damage considered to have been caused by detonations, is hidden. The hole was neither commented on, analysed, nor explained by the JAIC. Therefore, the lower starboard corner of the ramp is no longer possible to examine without salvage of the ramp.

Further investigation tasks:

1. The ramp must be salvaged. Mr. Rene Arikas of the Estonian Accident Commission said this should be done.
2. The damage of the ramp, such as corners and hinges, and its front and back sides must be examined.
3. The bottom area of the ramp's backside must be examined.
4. The large hole petalled from the inside and out in the forward starboard bulkhead and filmed by Bemis/Rabe must be examined, and its cause explained. Photogrammetric 3 D scanning, as well as recovering samples for metallurgical analysis, must be performed.
5. The missing flap on top of the ramp must be located and salvaged.

Analysis of the damage to the ramp were filmed in 1994, 1996, 2000 and 2021 by the Independent Fact Group (IFG), and can be found at:

<https://factgroup.uk/onewebmedia/Ramp2021SE.pdf>