

# Baltic Sea 3D Wreck Ontology

Enabling the Baltic Sea context for Baltic Sea shipwrecks

## The Baltic Sea was a single traffic zone:

- Various harbours were close enough to make “empty legs” commercially viable.
- Local distribution and supply network – the last mile – existed via private vessels
- Large part of the shipwrecks are of foreign origin i.e. outside the Baltic Sea

Hence the shipwrecks therein should be surveyed within the Baltic Sea context.

## Consequently, co-operation is needed to:

- Create an ontology of the Baltic Sea wrecks
- Establish a shared survey data model
- Form a consortium eligible for cross border funding for Baltic Sea research.

## Wreck site distribution on the Baltic Sea:

- Sweden ~17 000 known wrecks<sup>1</sup>
  - Finland ~ 2 500 known wrecks<sup>1</sup>
  - Estonia ~700 known wrecks<sup>1</sup>
  - Poland ~450 known wrecks<sup>1</sup>
  - Lithuania ~20 (?) known wrecks<sup>1</sup>
  - Danish, German, Latvian and Russian information missing<sup>1</sup>
- <sup>1</sup>) According to Copilot

## The questions to ask yourself:

- Are our wrecksites listed?
- Can we relocate them accurately?
- Are there scientific datings of the wrecks?
- Can we describe the wrecksite accurately?

Any blanks left above underline the need for shipwreck ontology



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# Virtual Wreck Ontology Workshop

Join a virtual workshop about the way forward 17.10.2024 at [mas.fi/ontology](https://mas.fi/ontology)

## All maritime archaeological research on the Baltic Sea would benefit from the 3D Wreck Ontology

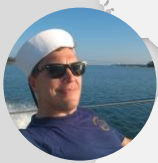
- Context for your research
- References for comparable wreck sites
- Analyses of the ontology data
- Acquire cross border funding
- Bringing together the “ontologists”

**No need to start from scratch**, as the Maritime Archaeological Society of Finland has developed the concept and resources thereto since 2019. MAS.fi can provide training, data sheets, modeling and online resources to get started.

**All you need to do is spread the word** and help in recruiting everybody: the professionals, the volunteers and even bureaucrats – there are tasks for everyone!

**The kick-off** will be virtual 17.10.2024 at 2 PM CET  
The link for the Teams-meeting at: [mas.fi/ontology](https://mas.fi/ontology)  
and some preliminary information about the agenda

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The Maritime Archaeological Society of Finland (MAS.fi) has already surveyed almost 200 wreck sites on the Finnish waters. 3D-models of the wreck sites can be found in [sketchfab.com/mas-fi/models](https://sketchfab.com/mas-fi/models). Our ontology work has only begun, but concept is laid out at [mas.fi/ontology](https://mas.fi/ontology).

**Järvenkäri (Haapasaari) MVID#1131**

The wreck was a far-jointed ship, mainly made of softwood, with unusually weak side arches. In addition, the shape of the ship refers to those typically used in minor waters, which transported light bulky cargo such as fish and Baltic ore. The reconstruction of the wooden vessel dating back to the middle of the 15th century raises the question of whether it is a cargo ship of the Russian Hanse?

**Location (WGS84) and date of last inspection:** Lat: 60°16'40" N, Lon: 27°11'53" E // August 25, 2023

**Depth & Length & Direction:** About 21m, about 28m and level line about 160°/240°

**Research team and reporter:** MAS research coordinator: M. Luoto, Markku Luoto

**Research material:** [https://www.mas.fi/julkaisut/arkkitehtuurit/haapaari1131\\_jarvenkari/](https://www.mas.fi/julkaisut/arkkitehtuurit/haapaari1131_jarvenkari/)

**Link to the Antiquities Register:** <https://www.kirjasto.sci.fi/haapaari1131.html>

**Link to this page:** [https://www.mas.fi/julkaisut/arkkitehtuurit/haapaari1131\\_jarvenkari/](https://www.mas.fi/julkaisut/arkkitehtuurit/haapaari1131_jarvenkari/)

**Location on the map in relation to other ancient remains**

**Performed research procedures**

The purpose of the study was to supplement the 3D ontology of Baltic Sea wrecks collected by the Finnish Maritime Archaeological Society. The wreck was initially located according to the coordinates in the log of the National Museum Agency but when confirming the location with a topographic map, it was noticed that the coordinates of the National Museum Agency were about 50m too far to the southeast, as you can see on the attached map of the museum network in the situation on February 14, 2024. Helsinki's coordinates, on the other hand, were about 50m too far to the southwest. A similar MAS calculation case with an ship length of 40m was found in the wreck. Topographer filmed the wreck with a distance of about one meter, so the resolution of the image is more accurate than the human eye at a similar distance. In addition, Markku Luoto filmed the wreck with 360° stereo videos and the color MAS explorers photographed the artifacts or structural parts in the wreck with high-resolution photos. The quality of the wood material was observed extensively from the vessel and for example from a sample of sap taken from the third arch on the starboard side as seen from the bow. Topographer made a 3D model of the wreck, which is about 100MB in size and has about 7 million polygons. The sailing sample was radiocarbon dated, overall with the 2023 wreck, the results are interesting in terms of when can be located in the upper part of the end of each row, the plastic debris was analyzed there was removed from the wreck.

**Item description**

The wreck lies in a depth of about 21 meters, almost in a south-north direction, with the bow facing south. The bow is identified by the bow spar and "wreck cutler" and other structural parts typical of the bow. The wreckage area is up to 35 meters long, of which there is at least 18m of wreckage. The wreck is about 17m wide. The wreck lies down into the mud at least 1.5m meters, and there does not seem to be any cargo or a significant amount of debris. The wreck is empty, which suggests a smooth construction style. The arches are significantly thin-banded (about 10-15cm thick). The arches are indeed very light, especially about 10cm thick. The stern is also confusingly straight and the shape of the vessel resembles more modern cargo ships than historical ships. (Sloping is present on the interior of the hull, but only a few knees have been observed in or around the wreck - albeit of both types: "hanging" and "capped" knees. There are hardly any signs of deck beams or planking, no artifacts were located from the wreck apart from a handaxe anchor rivets).

**Preliminary interpretation**

The preliminary interpretation of our companions is that it is most likely a cargo ship intended for inland or Baltic waters - possibly even a barge. The building material seems to have been mostly softwood and, as mentioned earlier, especially this wood for the arches. Even though the arching has been right, it has probably provided enough rigidity for the hull to withstand even a moderate rough sea or local for a long time. The same applies to heavy cargo, which would cause too much stress in relation to the strength of the material, both in the direction of the bottom and towards the sides. Therefore, our educated guess is that the pluckton has only been used to transport light cargo, such as for example delivering fished and bait to the fishstock on Haapasaari.

We interpret the radiocarbon dating as that the wood material (cellulose) of the sample is most likely from the end of the 15th century at the end of the 15th century, with the maximum probability falling on the 1550s. The similarity of the radiocarbon profile with that of the ships that took part in the second voyage in Businesstun raises the question, could it be a Russian cargo ship originally intended for the New World routes?



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