Figures for SASMAP Final Report. Project 308340.

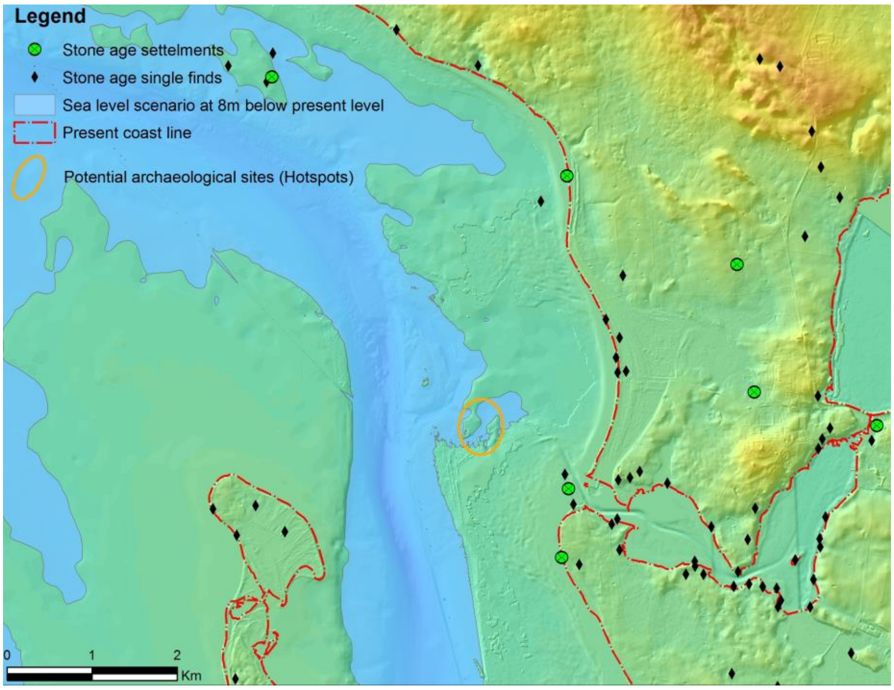

Figure 1. Example of Geo-archaeological palaeogeographical scenario 8m below present sea level (~8000calendar years BP) around the site of Tudse Hage (Denmark). Stone Age settlements and single finds from The Danish Heritage Agency's database for archaeological finds and sites are displayed and an orange circle indicates the position of a potential hotspot area for archaeological sites (Kongemose culture).

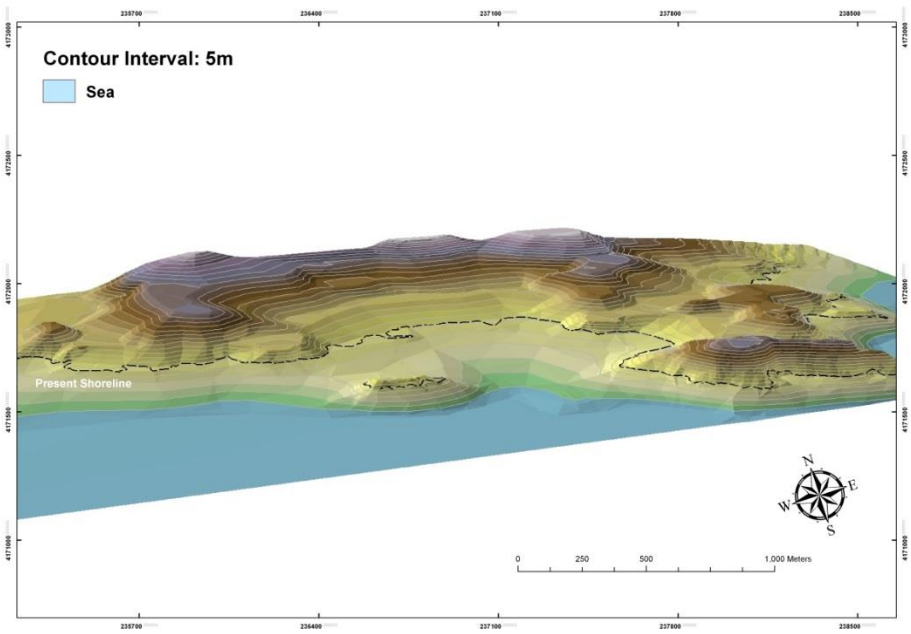

Figure 2. Schematic presentation of the Cape Sounion (Greece) study area during the Late Glacial period. The present shoreline is shown by the black line.

Figure 3 Satellite image of Tudse Hage/Denmark study area showing a sandy morphological feature.

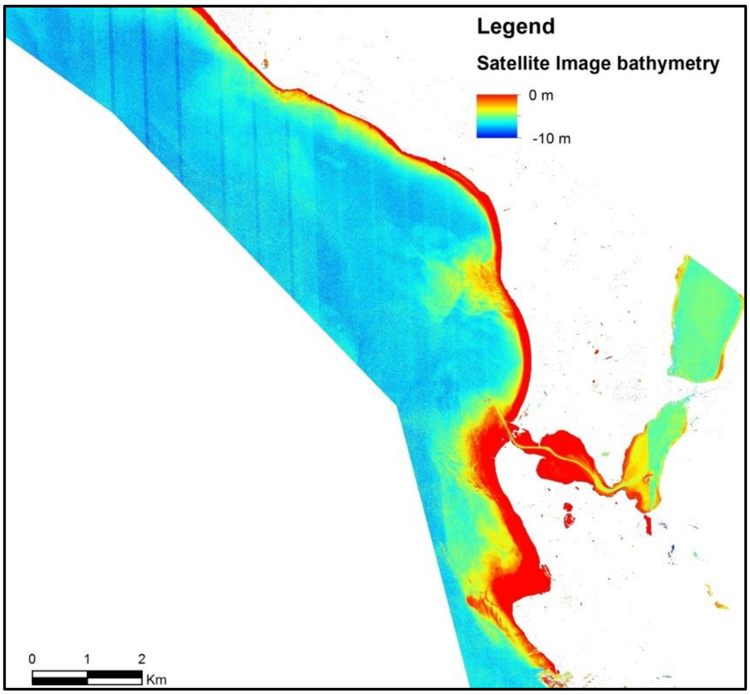

Figure 4 Satellite image bathymetry for Tudse Hage study area.

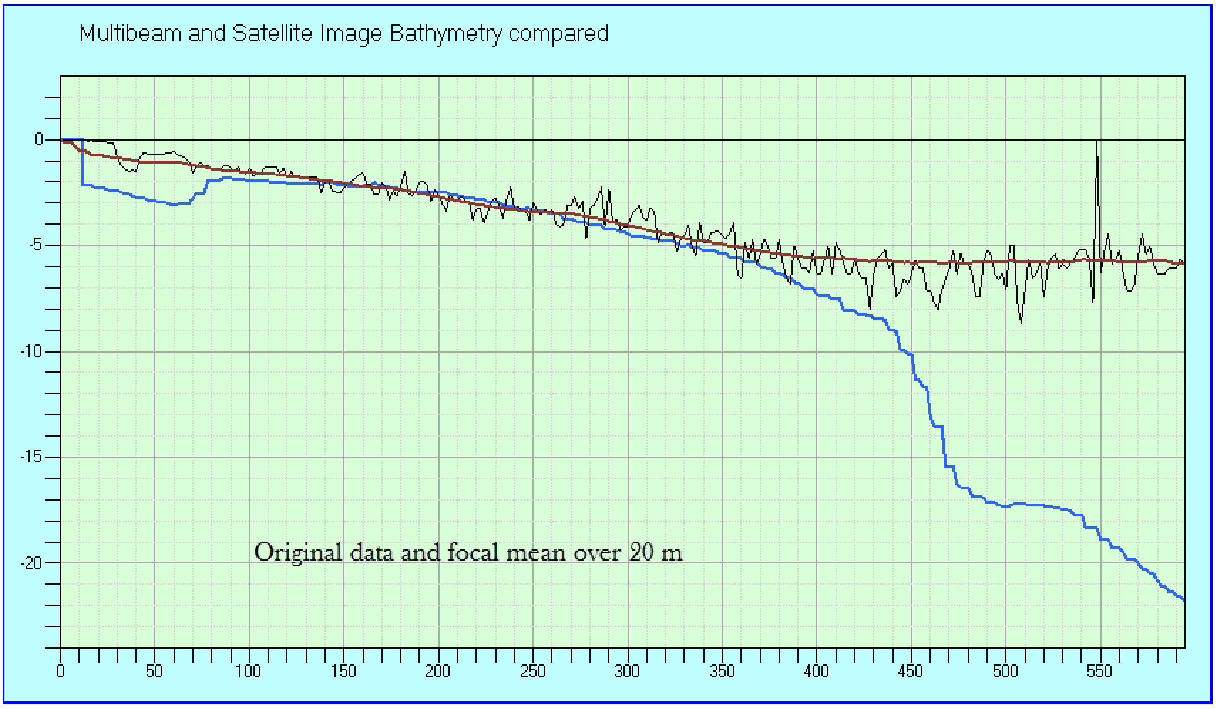

Figure 5. Overlay of seabed bathymmetry from satellite imagery (brown line) Danish hydrographic office bathymetry (blue line).

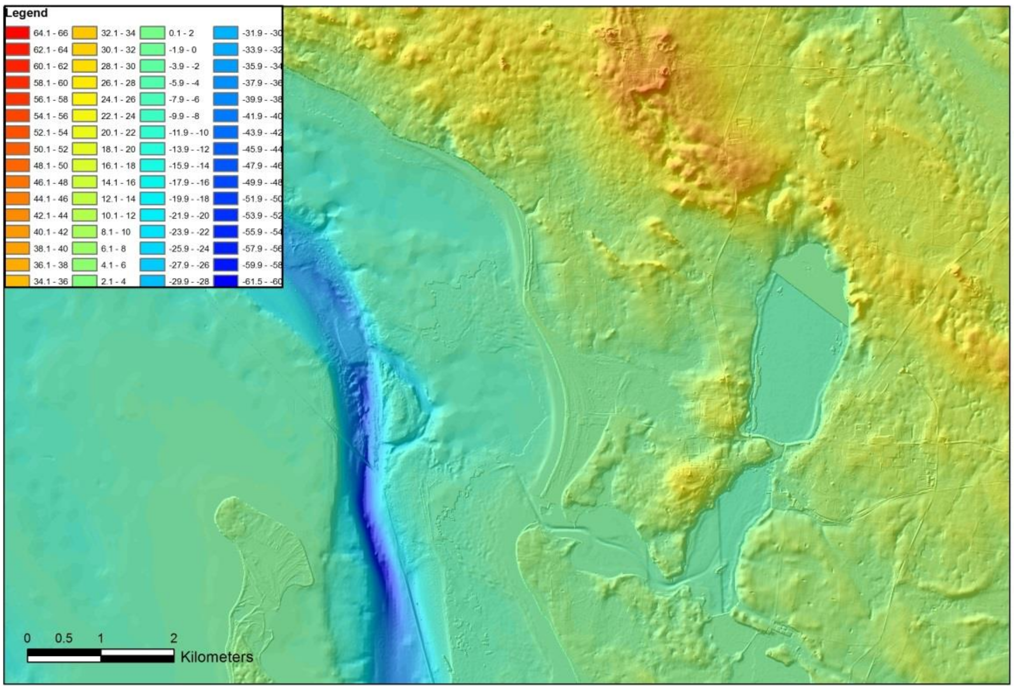

Figure 6 Seamless morphology map /Digital Terrain Model of Tudse Hage based on airborne and waterborn remote sensing techniques.

Figure 7: Setup of acquisition hardware with 3D sub bottom profiler transducer array, motion sensor and dual-antenna RTK DGPS mounted on the survey boat

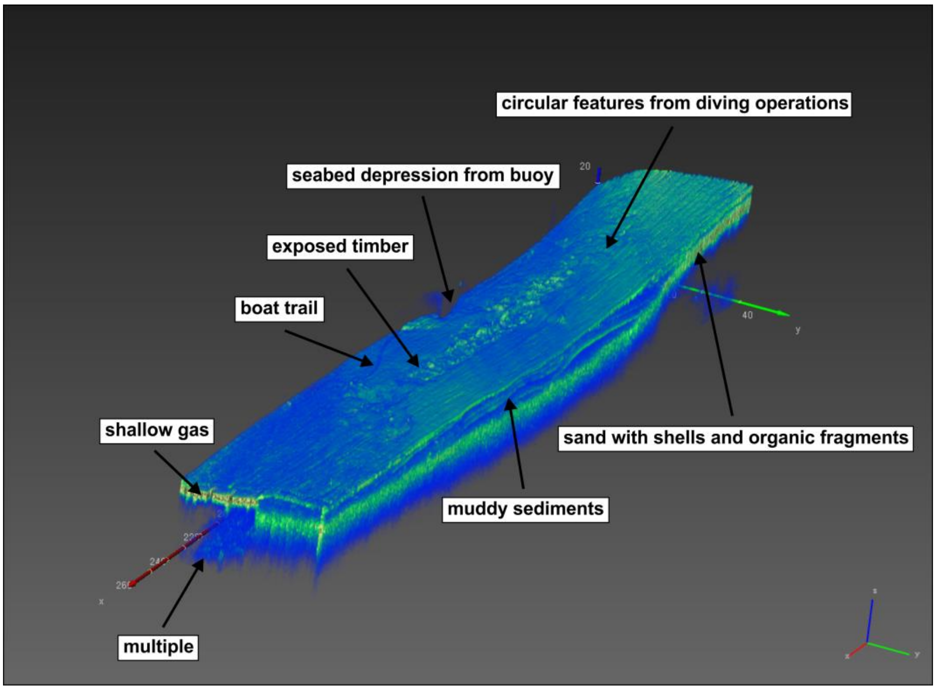

Figure 8: 3D visualization of gridded data set showing the coloured and shaded sediment floor, some lateral seismic reflectors, exposed rectangular and irregular reflectors above the sediment floor, linear features probably caused by boats (keel marks) and circular features caused by divers during recent archaeological investigation (ground search pattern).

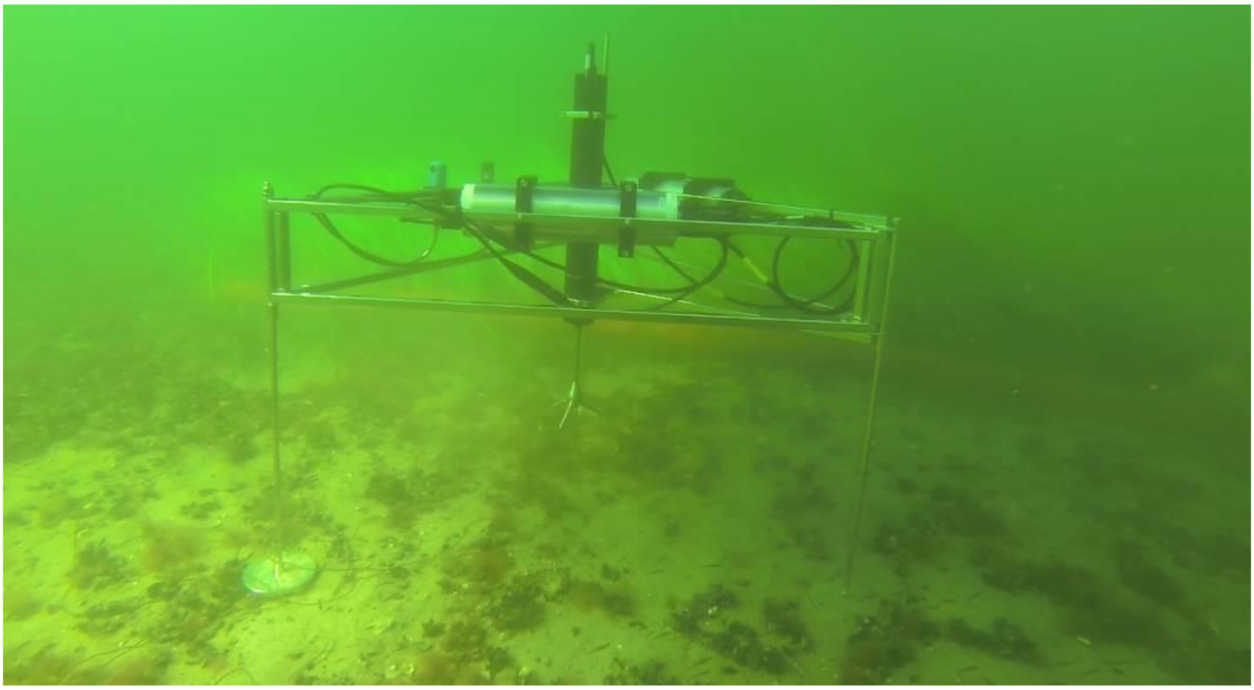

Figure 9: The open water datalogger in situ on the seabed

Figure 10: Data logger for characterising environmental parameters in sediments. The logger has four channels and are being developed to measure sulphide, pH, redox potential and dissolved oxygen.

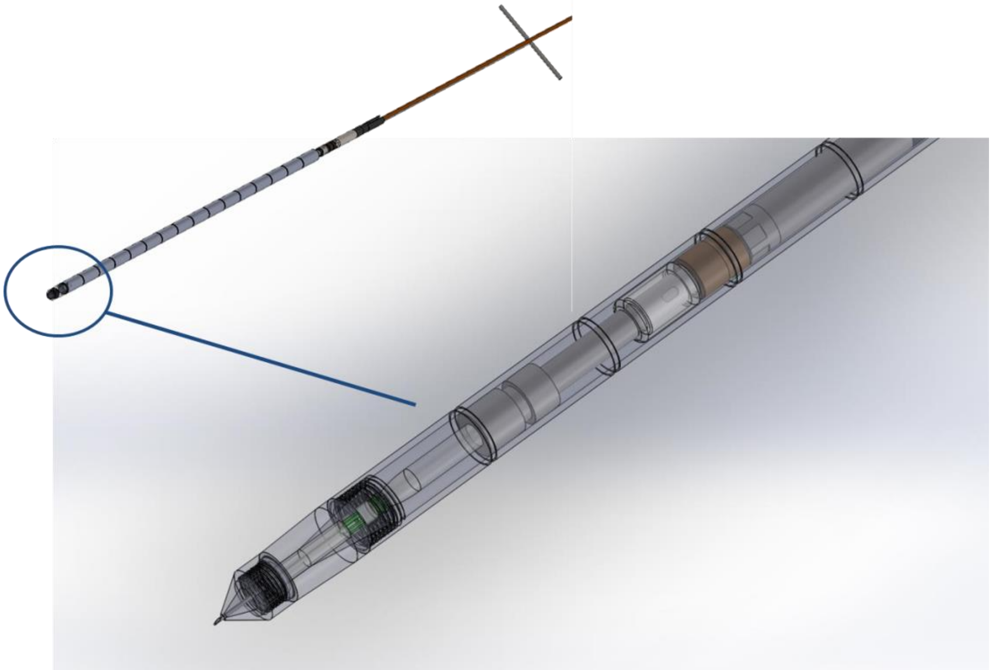

Figure 11: Schematic of the Proof of Concept of Spear System to measure profiles in sediments.

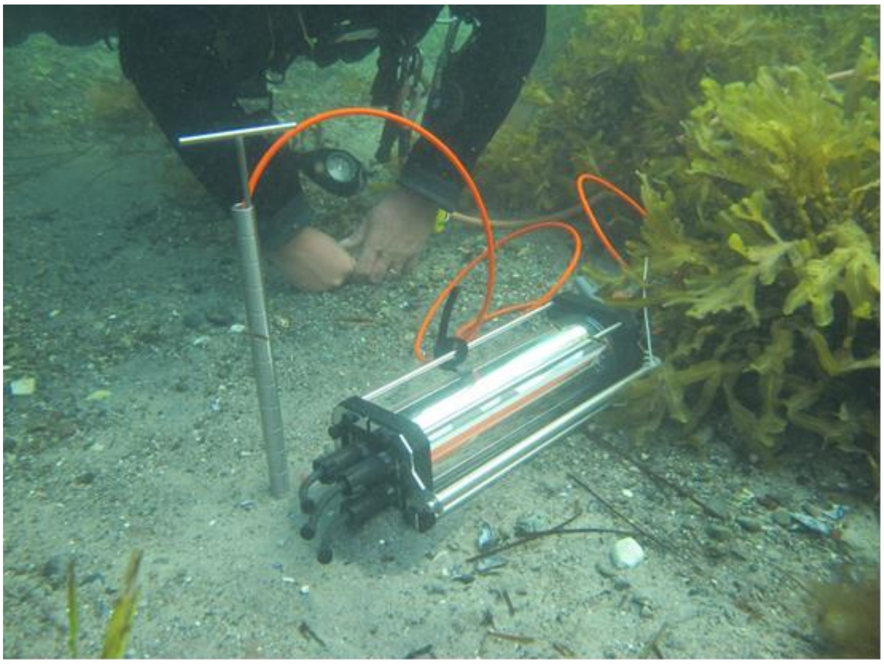

Figure 12: The sediment spear and microsensor in situ.

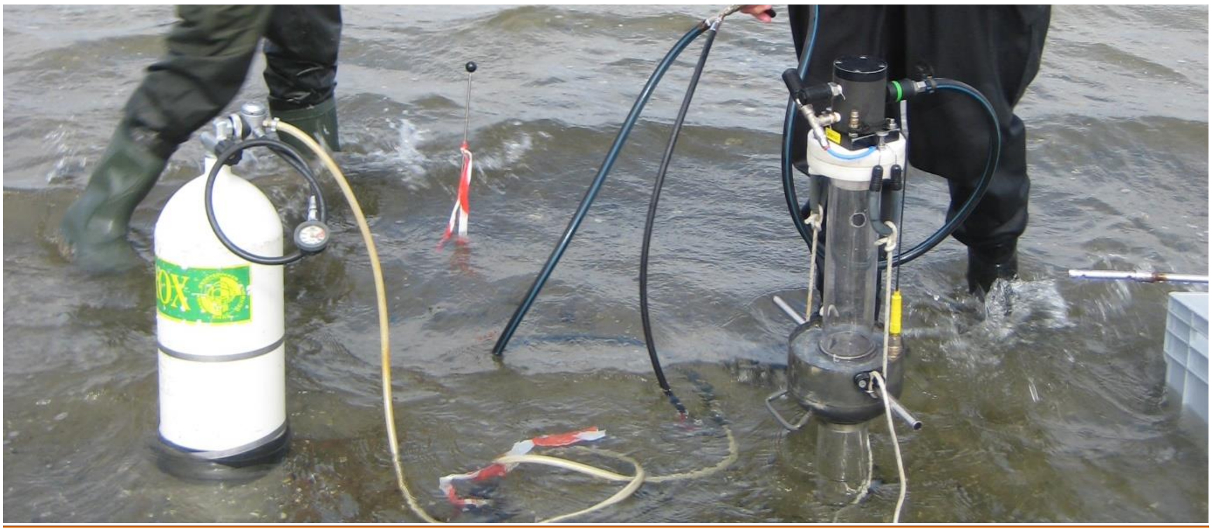

Figure 13: Vibracorer being tested in shallow water. The corer and vibrating head (ran off of a SCUBA cylinder shown to the left)

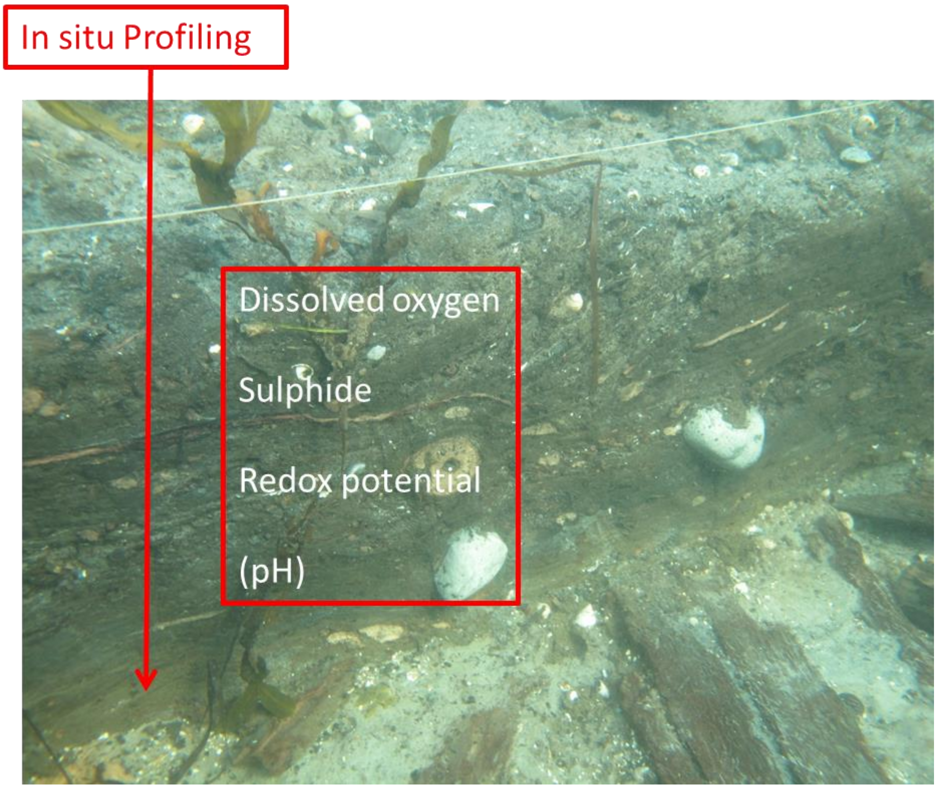

Figure 14. In situ profiling to characterize whether a site is oxic or anoxic.

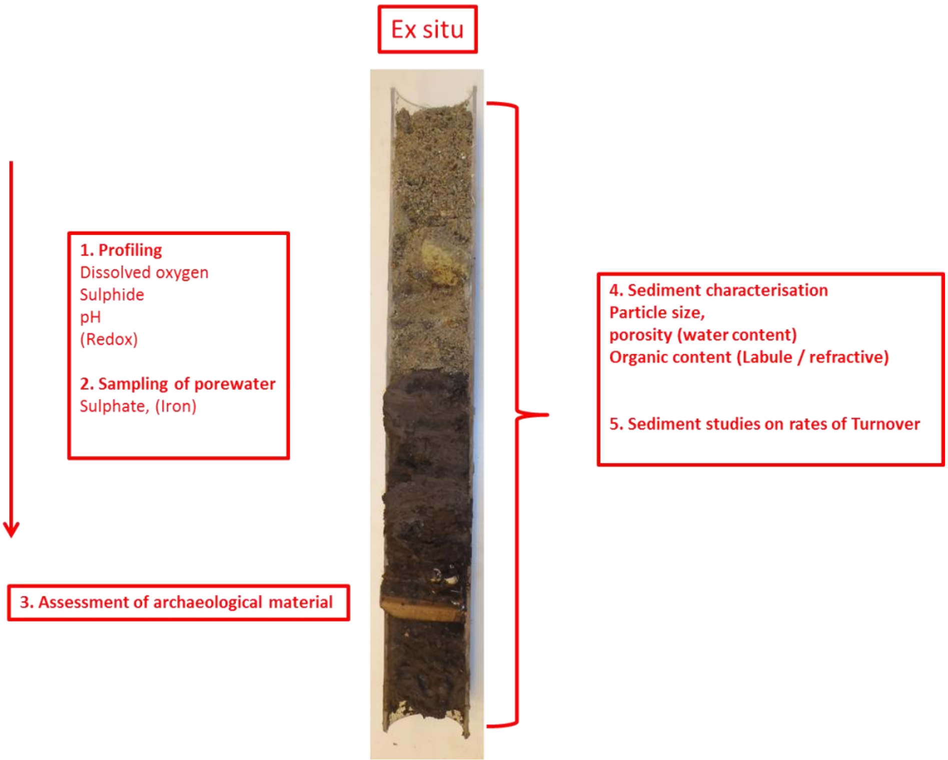

Figure 15. Ex situ assessment of sediment cores to assess the preservation potential of archaeological sites.

Figure 16: The diverheld underwater wood tester (WP4UW)

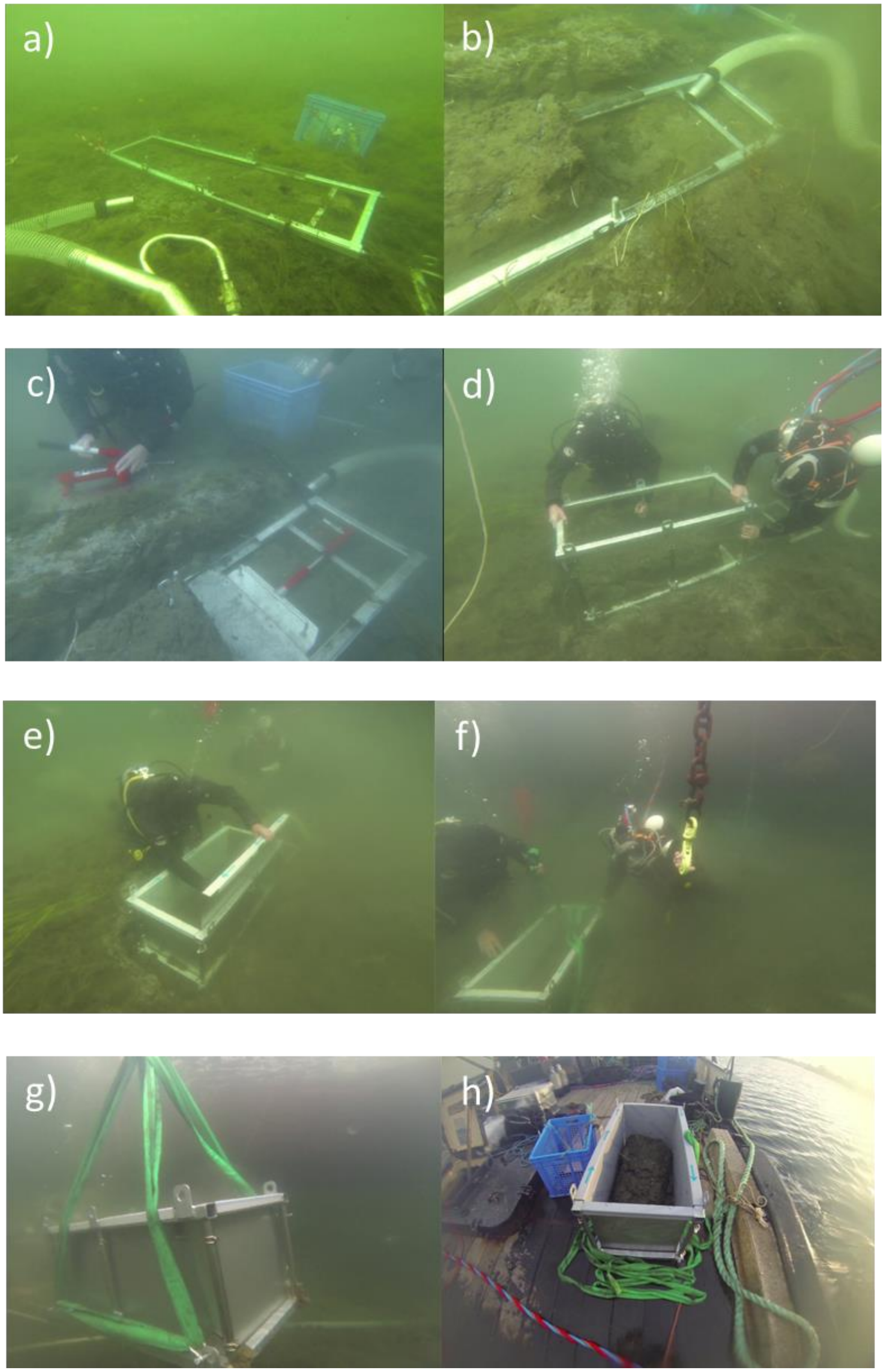

Figure 17. The process of using the lifting frame underwater

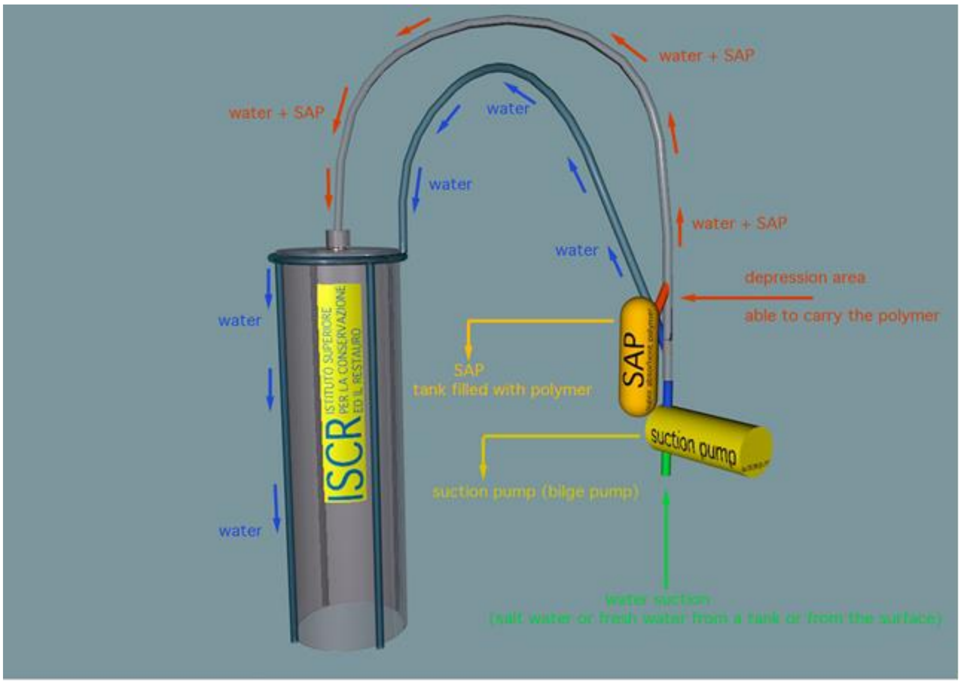

Figure 18: Schematic of the S.A.P impregnation system

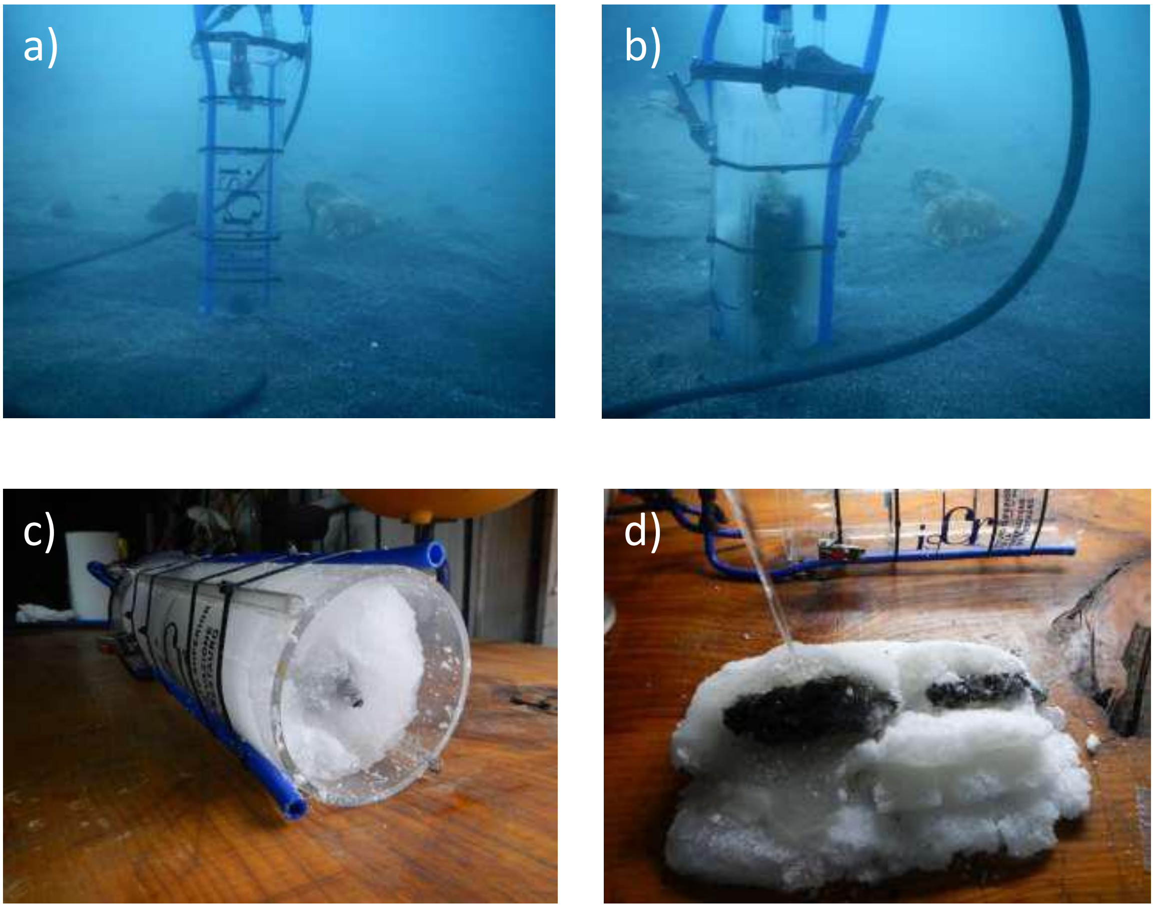

Figure 19. Use of the SAP system for consolidating sandy sediments in order to raise fragile artefacts


Figure 20. Freezing system for sandy sediments showing excess carbon dioxide being vented

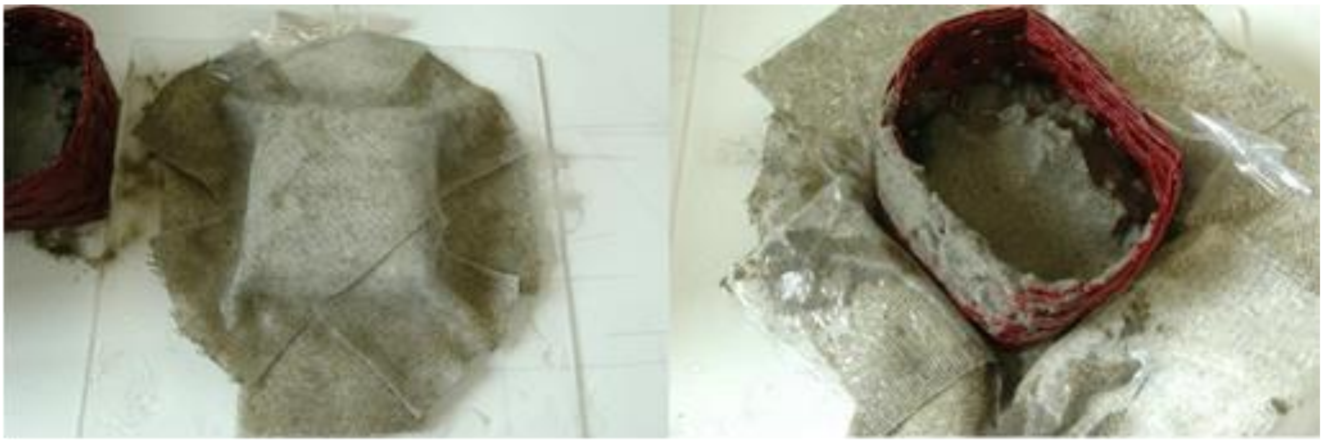
Figure 21. The 3M™ Scotchcast ™ Plus Casting Tape tested in laboratory

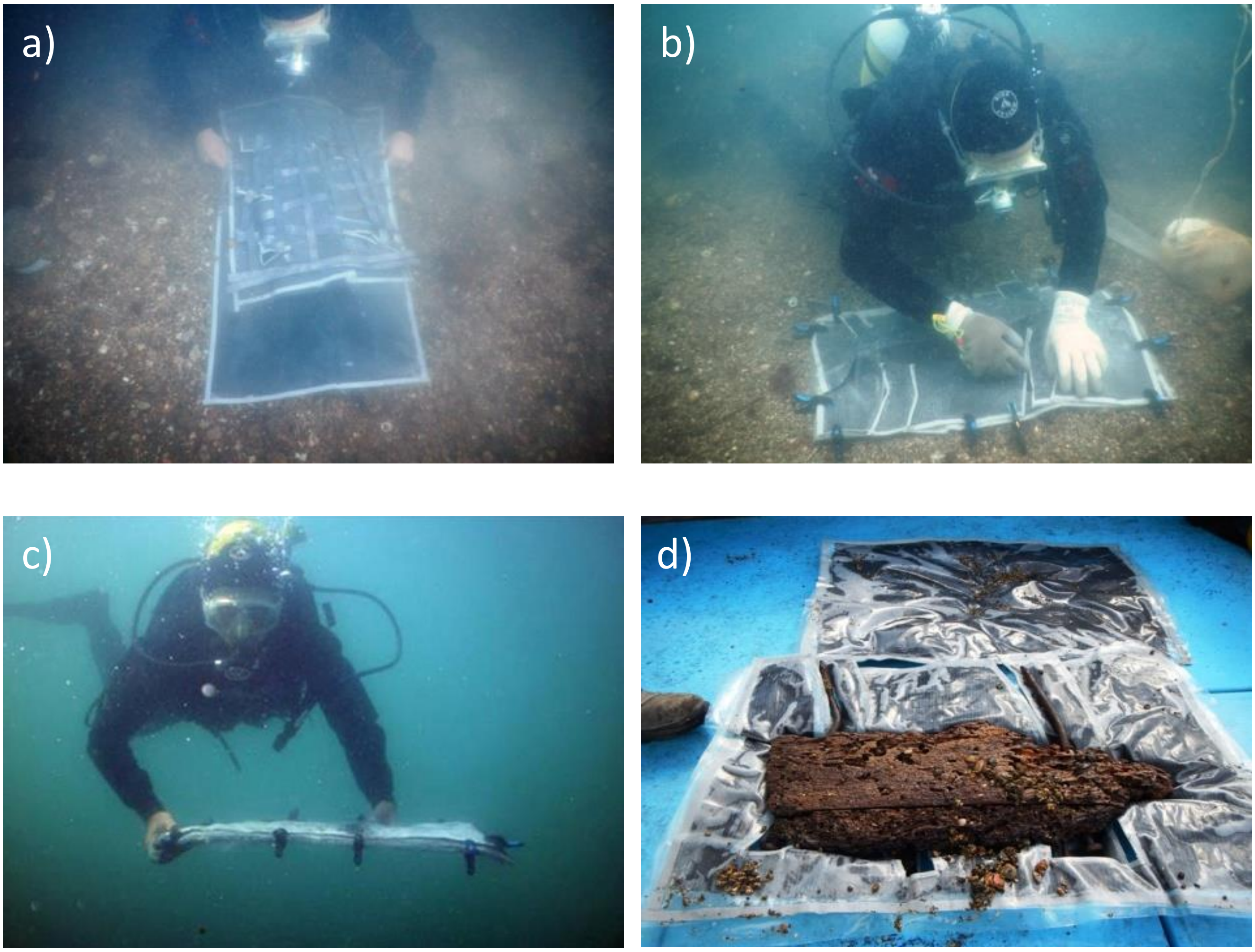

Figure 22. Use of carbon fibre impregnated with treated with cured epoxy-time enclosed in a plastic vacuum bag.

Figure 23. The edgeweighted artificial seagrass mat and lifting frame during deployment.

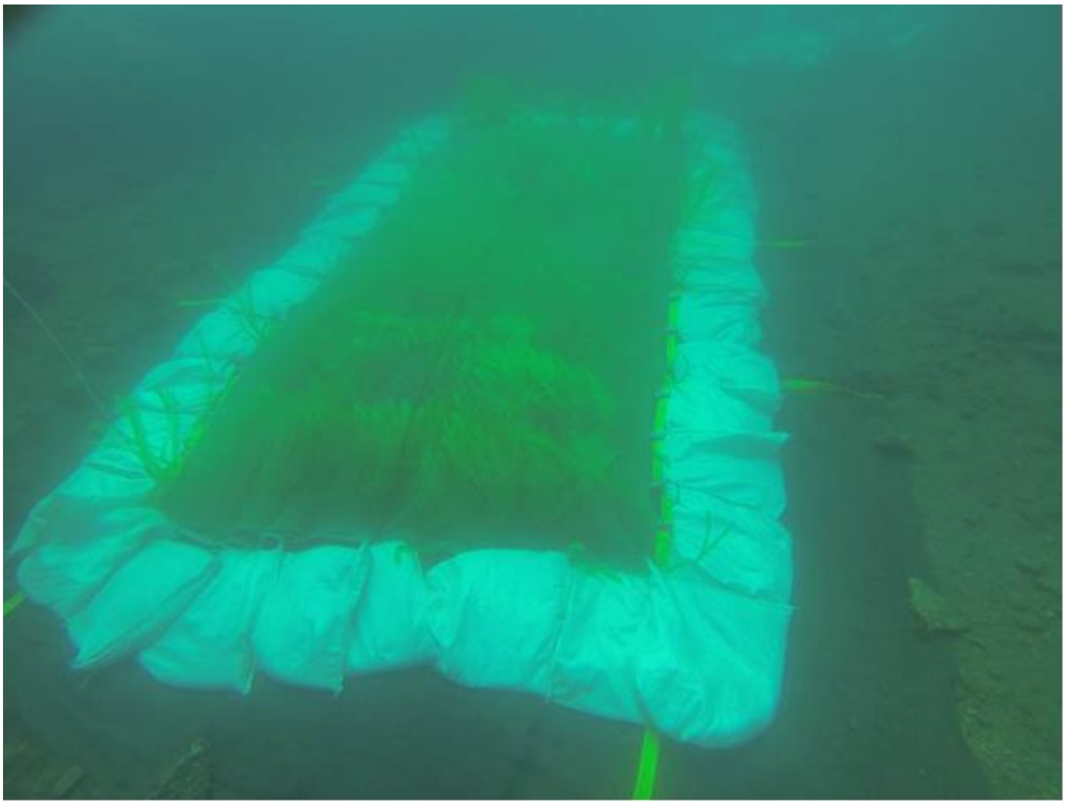

Figure 24. Sandbag weighted artificial seagrass mat.

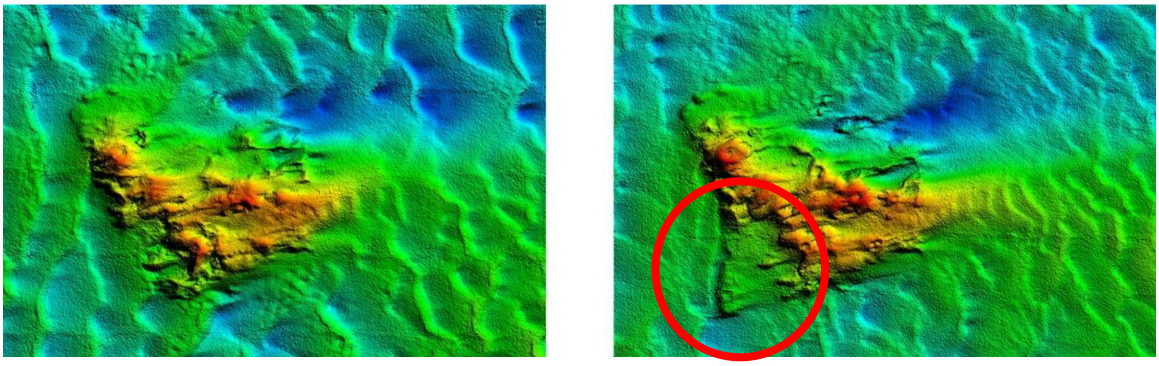

Figure 25. On the left the monitoring of edge weighted artificial seagrass mat on the wreck of the BZN10 from 2012, without the seagrass. On the right the monitoring from July 2013, in red encircled are the clearly visible effects of the mats with an increase in sedimentation

Figure 26. School of fish fry in and around one of the artificial seagrass mats in Denmark.

Figure 27. Delegates at the SASMAP final conference and workshop

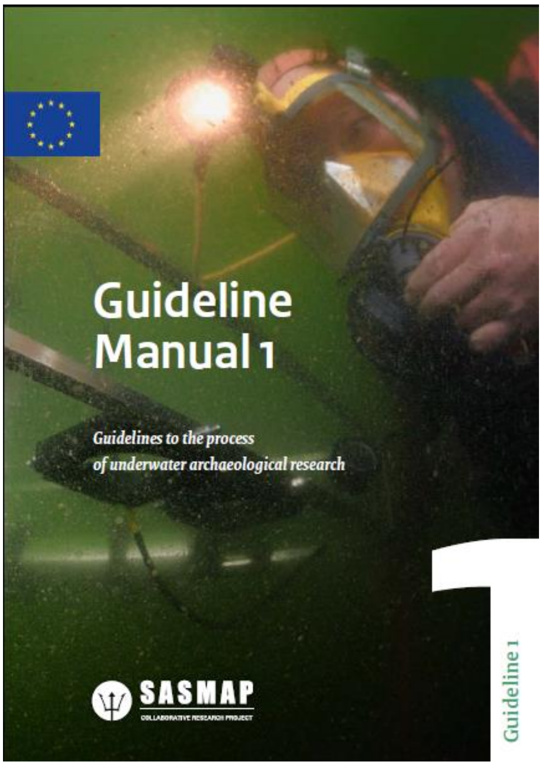

Figure 28. Cover of *Guideline Manual 1: Guidelines to the process of underwater archaeological research*

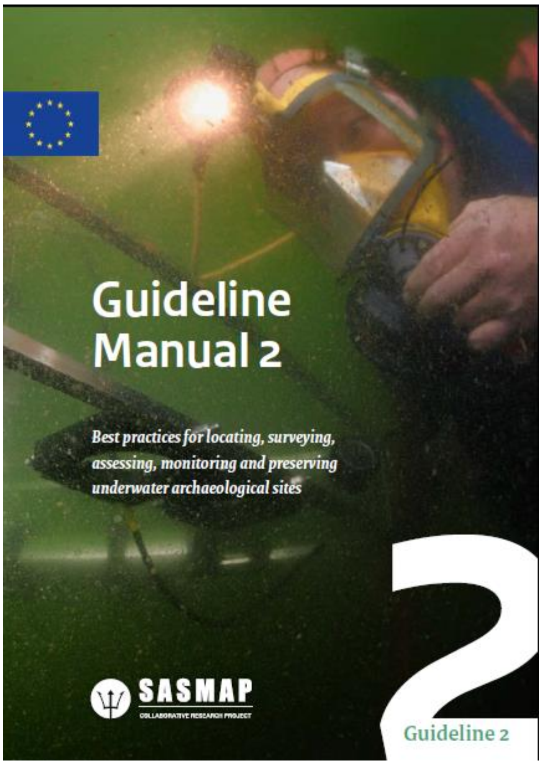

Figure 29. Cover of *Guideline Manual 2: Best practices for locating, surveying, assessing, monitoring and preserving underwater archaeological sites.*

Partners and contact details

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Project Logo

SASMAP

COLLABORATIVE RESEARCH PROJECT