

New underwater archaeological explorations of an endangered submerged prehistoric site in Lake Wörthersee (Carinthia, Austria)

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Austria's province of Carinthia encompasses numerous bodies of water. The landscape has similar natural and cultural features like neighbouring regions where several well-preserved and culturally rich archaeological pile-dwelling sites from prehistoric times (Neolithic and Bronze Age) have been investigated. These sensitive archives of early human history are known for their exceptional preservation conditions in waterlogged settings, due to which the prehistoric pile dwellings around the alps are listed as UNESCO World Heritage Sites. But in particular for Carinthia, our knowledge of pile-dwellings is severely limited. Basic investigations in accordance with modern archaeological heritage standards are missing.



Kapuzinerinsel is located in the centre of Lake Wörthersee

New investigations

During winter 2021, underwater archaeological surveys were carried out at Lake Wörthersee by the University of Innsbruck and a team of citizen scientists. Five days of diving revealed an unexplored prehistoric site. At the island of Kapuznerinsel, accumulations of archaeological cultural layers, material culture (pottery, bone-, and stone tools) as well as numerous remains of prehistoric architecture (wooden piles) have been identified. The aim was to gather data relating to the chronology and size of the site. Applied methods included minimalinvasive prospection methods and sampling small amounts of sediments for subsequent microarchaeological analysis.



The prospection method of hand-operated sediment coring was applied by scientific divers

Results

The fieldwork resulted in a significant archaeological discovery. The site of Kapuzinerinsel is as yet unique and the oldest known and precisely dated Neolithic site at Lake Wörthersee. Radiocarbon dates are plotted into the 4th millennium CalBC (3781±129, Beta 623764, 2 sigma ranges CalBC). However, it has to be assumed that we are dealing with a highly complex multi-phased archaeological site. Archaeological remains at Kapuzinerinsel offer a first insight into Neolithic economy, early farming practices and land use at Lake Wörthersee. It can be considered as an important key site with pan-European importance since the region can be observed as an uninvestigated "missing link" for understanding relations between the alpine lake dwellings and southeastern Europe (the Balkans). At the same time, stratigraphical observations at the site speak for alarming scales of erosion.



Cereal chaff (Cerealia sp.)



Poppy seed (Papaver somniferum)



Flax seed (Linum usitatissimum)

Microscopic pictures of uncharred archaeobotanical macro-remains (cultivated plants) from arch. layers

Large potential for Austrian heritage management & necessity for protective measures

To preserve and protect this outstanding lake settlement site, urgent conservation measures beyond non-invasive monitoring-campaigns will be crucial to ensure its integrity. A rescue excavation must be conducted to prevent undocumented loss of the site. Excavation work performed by experts in this sensible field and detailed study of the *in-situ* contexts would be the most efficient way to protect the documentary value of the heavily erosion-exposed site. Particularly crucial in this context is the urgently necessary recovery of sensitive organic archaeological features, artefacts and prehistoric architectural remains prior to their complete undocumented loss in the near future. There is large potential that the case of Kapuzinerinsel can become a national best-practice example for a successful application-based emergency collaboration in interdisciplinary Austrian archaeological heritage management.