

Aggregate extraction versus archaeological heritage: how to reach a win-win?

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During the last ice age, some 20.000 years ago, the sea level was about 120m lower than today and large parts of the Southern North Sea were land. As the climate improved and the ice sheets started to retreat about 18.000 years ago, these extensive lowlands with river valleys and lakes, were inhabited by our predecessors for several thousands of years and have ever since been drowned by sea-level rise. Remains like human bone fossils, stone tools, worked animal bone and associated deposits from these ancient times can reveal details of human evolution and the social development of prehistoric communities. Sea level rise permitted seafaring, first in logboats and then in increasingly sophisticated watercraft. Maritime transport has played a tremendous role in the history of the countries bordering the North Sea. The study of shipwrecks and seafarers can provide insights into lifestyles, trade, communication, warfare, technology, industry, economics, and many other aspects of society from prehistory to modern times.

The discovery of archaeological sites in the North Sea, sometimes thousands of years old, clearly demonstrate that not only artefacts, drowned settlements, wrecks and structures, but even complete landscapes can stay preserved underwater. Furthermore the waterlogged anoxic conditions create the optimum circumstances for the preservation of organic materials that generally do not survive on archaeological sites on land. This unique archaeological and palaeontological record is largely unknown and unexplored. It does however contain an incredible wealth of information about the environment of prehistoric man and the historical development of marine regions. However this unique underwater archive is in danger due to increasing commercial activities at sea such as aggregate extraction, wind farming, dredging, cable/pipeline projects, intensive fishing, etc.

Through the extraction of sand and gravel, dredging activity inevitably disturbs the seabed and its associated underwater cultural heritage. In an optimal scenario the disturbed heritage will be partly recovered or noticed by the dredgers. As well as being potentially archaeologically important, recovered artefacts may also indicate the presence of a previously unidentified obstruction.

On the other hand, from the perspective of the aggregate industry, there is an obvious incentive to be able to locate wreck features in licensed areas so that they may be avoided proactively. Irrespective of whether a feature is a medieval trading vessel or a Second World War aircraft, they have the same potential to cause extensive and expensive damage to a dredgers underwater equipment. Additionally, ancient peat layers or the wood and coal often associated with older wrecks can contaminate otherwise clean marine sand and gravel deposits, potentially limiting their end use as a construction aggregate.

To deal with this and many more issues concerning underwater cultural heritage, the IWT SeArch project: "Archaeological Heritage in the North Sea", will offer solutions through the realization of three objectives:

- 1) To develop a reliable survey methodology based on geophysical and remote sensing techniques that allows accurate and cost-effective evaluation of the archaeological potential of marine areas

(offshore, near shore & intertidal). This will avoid costly damage and losing valuable time during the preparatory and operational phase of the works.

2) Work out comprehensive proposals for a transparent and sustainable management policy and for the further development and implementation of a legal framework based on the international commitments (UNESCO-convention).

3) Offer guidance to the stakeholders (marine industry, government agencies, fisheries, harbor authorities, and the public/social sector) and increase the general awareness with regards to underwater cultural heritage.

The 4-year project started in January 2013 and is funded by the Flanders Agency for Innovation by Science and Technology (IWT). It involves a multidisciplinary consortium between Ghent University, Flanders Heritage Agency, Deltares (The Netherlands) and Flanders Marine Institute (VLIZ).

One of the mitigation options chosen by the SeArch project are protocols to report and deal with archaeological finds made in the course of dredging or during the further processing of the aggregates in wharves on land. Furthermore it wants to provide guidance, advice and procedures for every stage of marine aggregate development and operation, from assessment of new license areas, to mitigation and monitoring of sensitive sites and reporting and evaluating finds.

In 2013 Belgium has ratified the UNESCO 2001 Convention on the Protection of the Underwater Cultural Heritage and this year the new law "Wet betreffende de bescherming van cultureel erfgoed onderwater" came into force, appointing the Governor of West Flanders as the "Receiver of Cultural Heritage Underwater". This new law states that finds, made within the Belgian part of the North Sea, have to be reported to the "Receiver of Cultural Heritage Underwater" and it allows to protect and preserve the Underwater Cultural Heritage which is an important element in the history of peoples, nations, and their relations with each other.

Hopefully an open and constructive partnership approach will lead to a better management and understanding of the Underwater Cultural Heritage within our waters.