The Demise of the Atlantic Grey Whale (Eschrichtius robustus)

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Introduction

The grey whale (Eschrichtius robustus) is a baleen whale of the Eschrichtiidae family. Currently there are two recognized populations. The first is a small population in the eastern North Atlantic Ocean. Findings of the grey whale have also been done in Spain, Morocco, France, Scotland, Norway, Sweden, and Iceland.

Grey whale specimens were present in the Netherlands until at least AD 1100. They are a small population in the eastern North Atlantic Ocean. Findings of the grey whale have also been done in Spain, Morocco, France, Norway, Sweden, and Iceland.

Whaling activities might have potentially led to the demise of the Atlantic population of the grey whale.

ZooMS

Grey whale specimens are occasionally recovered from archaeological contexts in the Netherlands. However, the often fragmented state of the material and the lack of osteological cetacean reference collections makes identification to the species level often impossible. This frequently leads to specimens merely being identified as "unknown cetacean", "unknown whale", or even "unknown marine mammal". The recently developed Zooarchaeology by Mass-Spectrometry (ZooMS) method has revolutionized the way of identifying cetacean remains. This method is based on the slow rate evolution of collagen that varies between families, genera and sometimes species. The method practices peptide mass fingerprinting followed by high throughput Time of Flight Mass Spectrometry. Bones are identified by differences in the mass of the different peptides which arise as a result of sequence differences between species. In comparison the aDNA analysis, ZooMS is faster, cheaper and less destructive. However, the methods is a little less precise and not always able to identify specimens to the species level. For the large whale species, ZooMS is however often able to identify specimens to the species level. Making it the ideal method for the identification of cetacean remains. Therefore, the method allows for the reconstruction of early human-cetacean interaction and reveals species that were targeted by early whalers.

Archaeology

As part of this study 40 whale bone specimens from Medieval (AD 400-1600) contexts from the Netherlands were analysed. ZooMS was practiced on these specimens at the University of York, UK and the bones were additionally analysed based on their morphology and osteometry. This was undertaken in order to get an overview of whaling activities in the Medieval period. Several species were identified, including large numbers of the North Atlantic right whales (Eubalaena glacialis). Five specimens were identified as being grey whale (depicted at the left). A sixth specimen was recently identified by the author, and derives from an Iron Age context on the Shetland Islands, Scotland. Furthermore, four other palaeontological specimens from Horrighuwaard and the Floopselder (The Netherlands) were also identified as being grey whale. By far the highest number of grey whale specimens derive from Dutch contexts, suggesting the species was once abundant there.

Identification of studied whale remains (n=40)

Amphipods are crustaceans and typical benthic invertebrates. The grey whale uses the baleen plates in its jaw to filter the soils. This is primarily done in nutrient rich waters in the North during the Summer months.

Conclusion

- First identification of grey whale specimens deriving from archaeological contexts in the Netherlands.
- Grey whales were present in the Netherlands until at least AD 1100. However, they are a small population in the eastern North Atlantic Ocean. Findings of the grey whale have also been done in Spain, Morocco, France, Scotland, Norway, Sweden, and Iceland.
- Southern North Sea is and the long and shallow inlets was potentially an ideal foraging ground for the grey whale.
- Romans, Basques, Normans, and Frisians might have performed whaling on the grey whale.

Return to the Atlantic Ocean?

In 2010 a grey whale individual was sighted off the coast of Israel. However, the same individual was sighted off the coast of Namibia in 2013. Due to climate change in the Northwest Passage, it is ice free for longer periods of time, allowing individuals to circumnavigate the North American continent and enter the North Atlantic Ocean. Whether this signal the return of the species the future will tell.

References