
Human bone points, ZooMS identifications from the Dutch North Sea

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Abstract

Barbed osseous points originally deposited in Doggerland are regularly collected from the beaches of the Netherlands. Many of these barbed points ought to be of Mesolithic age based on their typology, and because of direct 14C dates of six of them. The bones transformed into barbed points are heavily modified during the manufacture process. The points themselves are also often modified again during use, re-sharpening and as a result of post-depositional processes. Hence, it is generally impossible to identify the species of the bone used to manufacture barbed points based on visual inspection. Here, we use mass spectrometry to taxonomically identify the barbed points. We present the ZooMS identifications, 14C ages and δ 13C and δ 15N measurements of nine barbed points from the Dutch shore. Our results demonstrate that *Cervus elaphus* and/or *Alces alces* as well as *Homo sapiens* bones were regularly used for the production of barbed points. The uncalibrated ages of the barbed points range between 9.5 and 7.3 ka 14C BP. The *Cervus* / *Alces* bone points δ 13C and δ 15N values fall within the range of values for herbivores recovered from the North Sea. The δ 13C and δ 15N values for the human bones signal a freshwater diet and/or a terrestrial fauna diet.

Our study shows that objects conserved over time in a marine environment have sufficient levels of unmodified collagen preserved for mass spectrometry-based taxonomic identifications. Selection of the species of the bone used to manufacture bone points during the Mesolithic was likely not opportunistic, and seems to have involved strategic selection. The wide-scale application of ZooMS is a critical next step toward revealing the selection of species for bone-tool manufacture that are otherwise uncommon in the faunal assemblages. By highlighting the potentially regular transformation of human bones into barbed points – possibly used as weapons – our study suggests a complex manipulation of human remains in Doggerland during the Mesolithic.

Keywords: ZooMS, barbed points, Doggerland, North Sea, bone, point, human bone, stable isotopes

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