

Out of the Pacific: A second fossil porpoise from the Pliocene of the North Sea Basin

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Acta Palaeontologica Polonica 60 (1), 2015: 1-10 doi:<http://dx.doi.org/10.4202/app.00115.2014>

Although modern porpoises (Phocoenidae, Odontoceti, Cetacea) occupy most oceanic regions of the world, their fossil record outside the Pacific Ocean remains extremely scarce. Based on a partial skull from lower Pliocene layers (Kattendijk Formation, Zandclean, 5–4.4 Ma) of the Antwerp harbour, a new genus and species of fossil phocoenid, *Brabocetus gigaseorum* gen. et sp. nov., is described. The new taxon is diagnosed by a unique combination of characters including an anterolaterally widely-open antorbital notch, the anteromedial sulcus being shorter than the posteromedial sulcus, the frontal boss being longer than wide, pronounced asymmetry of the vertex, and the possible presence of an additional longitudinal sulcus across the premaxillary eminence. The phylogenetic analysis indicates that *B. gigaseorum* is not closely related to extant phocoenids; it is included in a clade comprising most north-west Pacific fossil species, two north-east Pacific fossil species, and the only previously described North Sea fossil species *Septemtrioctetus bosselaersi*. Considering the paleobiogeographic distribution of phocoenids, an early Pliocene arrival from the North Pacific to the North Sea may be correlated to the early opening of the Bering Strait and migration via the Arctic. The presence of *S. bosselaersi* in younger deposits (Piacenzian) of the southern margin of the North Sea Basin could be the result of either a second dispersal event, or of local speciation in the North Sea, whereas an additional trans-Arctic migration from the North Pacific lead to the present occupation of the North Atlantic and North Sea by the phylogenetically distantly related harbor porpoise *Phocoena phocoena*.

Key words: Mammalia, Cetacea, Odontoceti, Phocoenidae, Pliocene, North Sea Basin, Belgium.

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