

Fishing for ancient whales: exciting finds from the Eocene of the North Sea



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Extant cetaceans - great taxonomic diversity



Ecological diversity



southern North Sea

Baleen Whales (Mysticeti)
facing right →

WHALES of the WORLD

Whales, Dolphins, & Porpoises (Cetacea)

Toothed Whales (Odontoceti)
← facing left

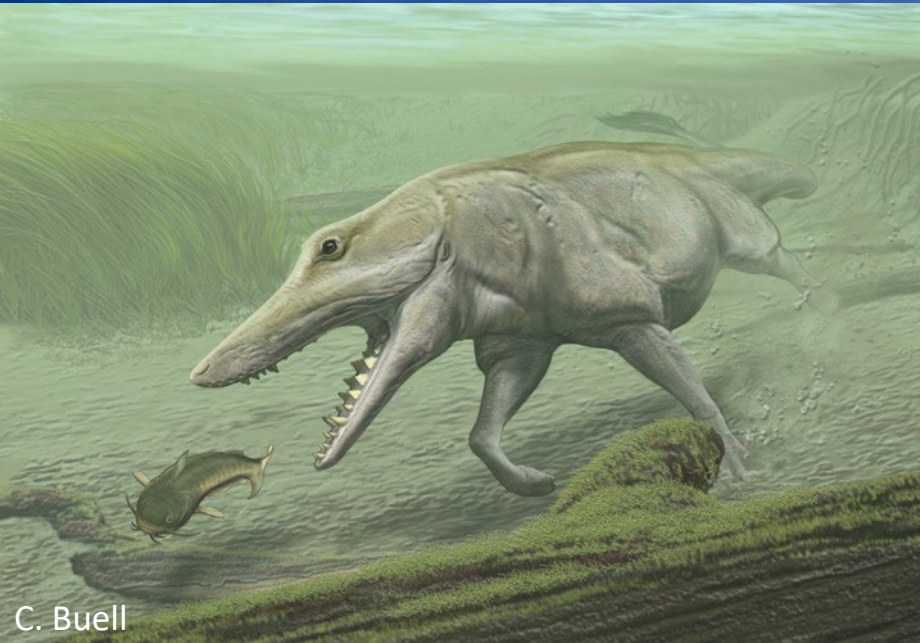


Design and Illustration by Udo Gorter ©2019

U. Gorter

0 10 meters

A long evolutionary history



C. Buell



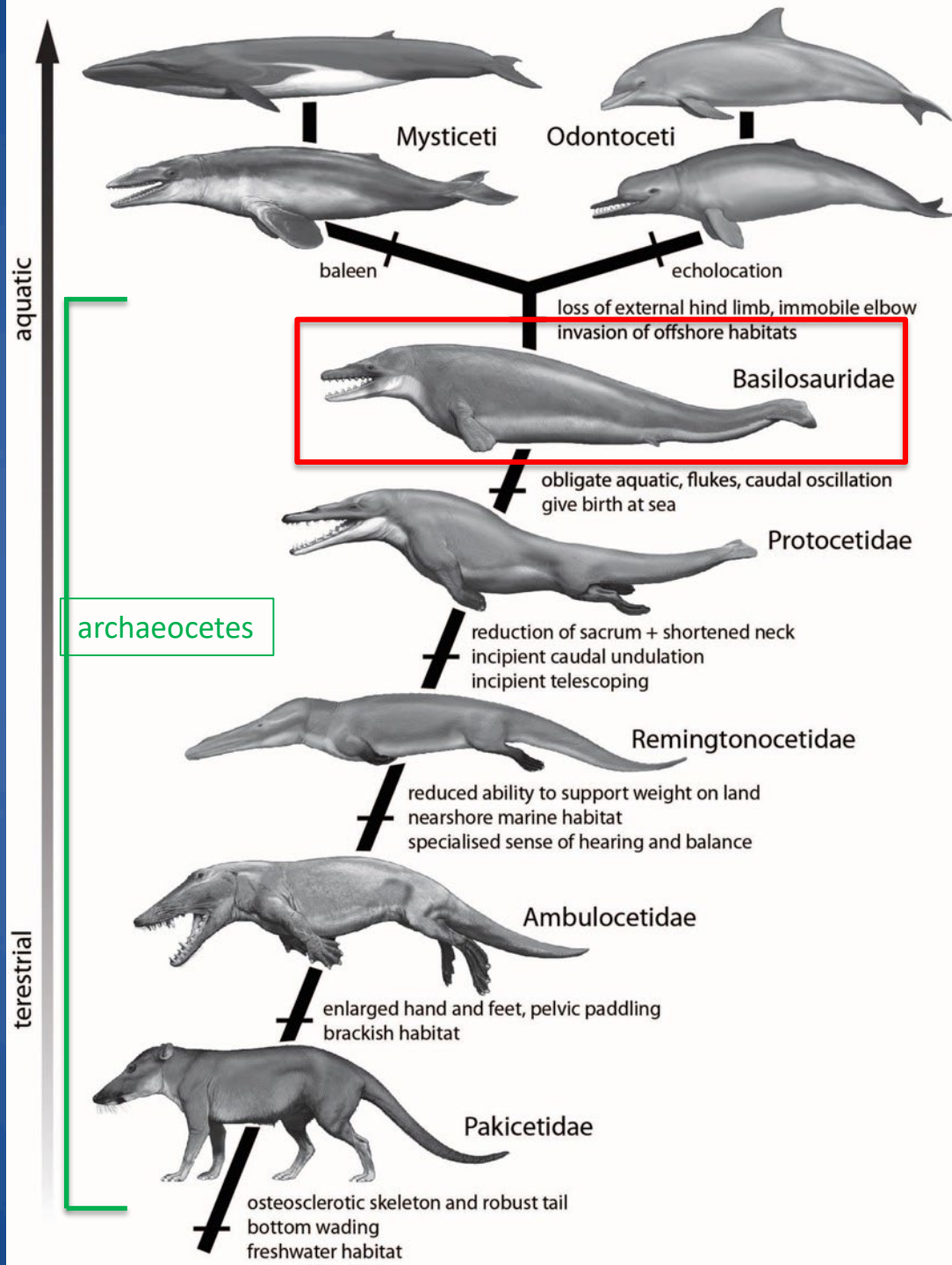
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Pakicetus, early Eocene (ca 50 Ma, south Asia)

Physeter, modern sperm whale

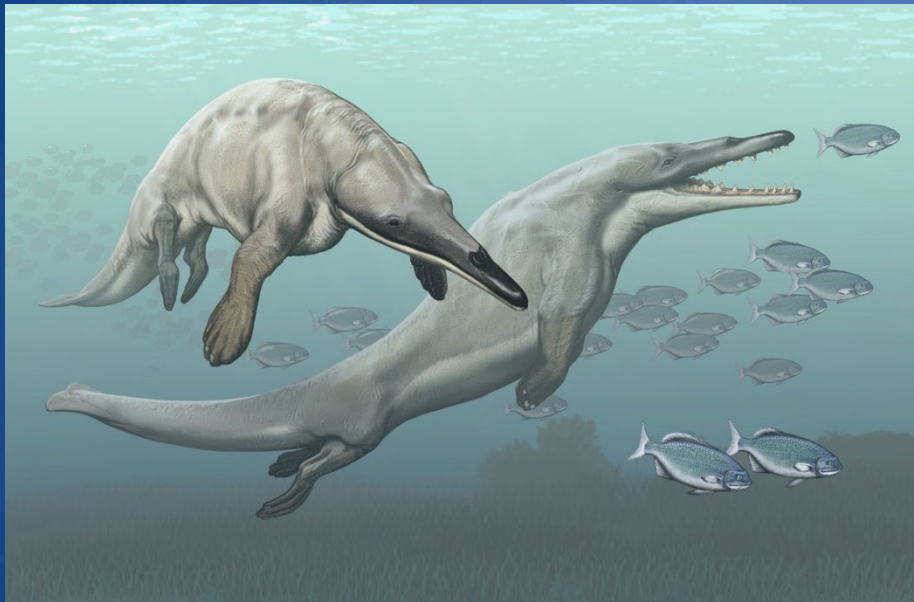


Van Beneden & Gervais, 1880



Basilosauridae

Protocetidae

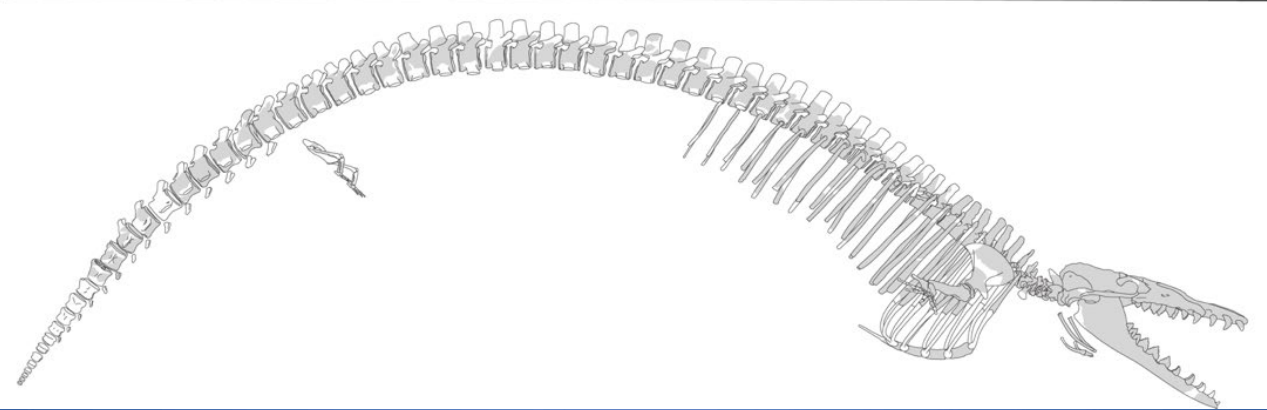
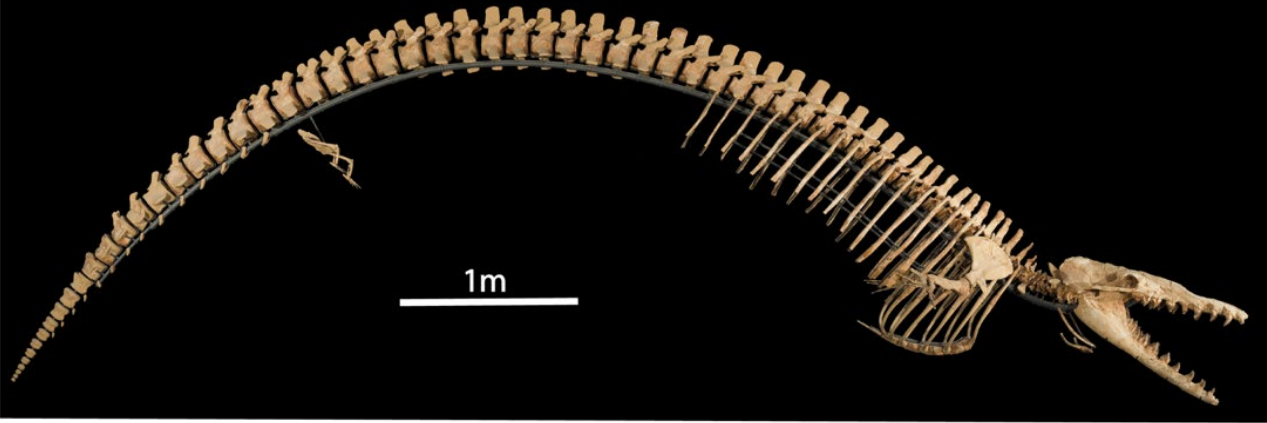


Georgiacetus, middle Eocene, USA

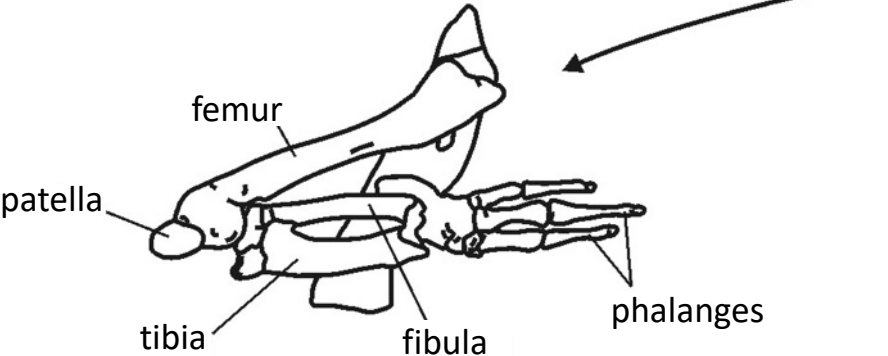
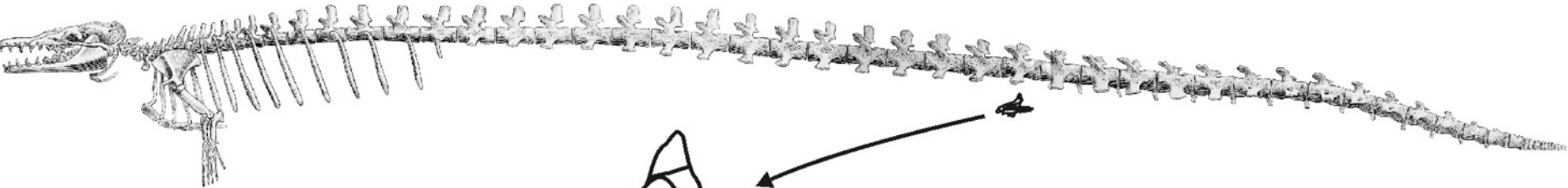


Cynthiacetus, late Eocene, Peru

Skeletal anatomy

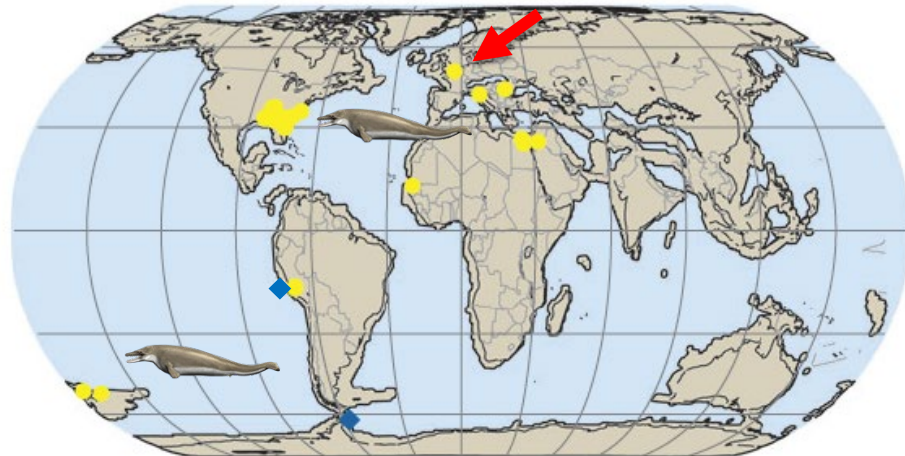


Cynthiacetus
(late Eocene,
Peru)



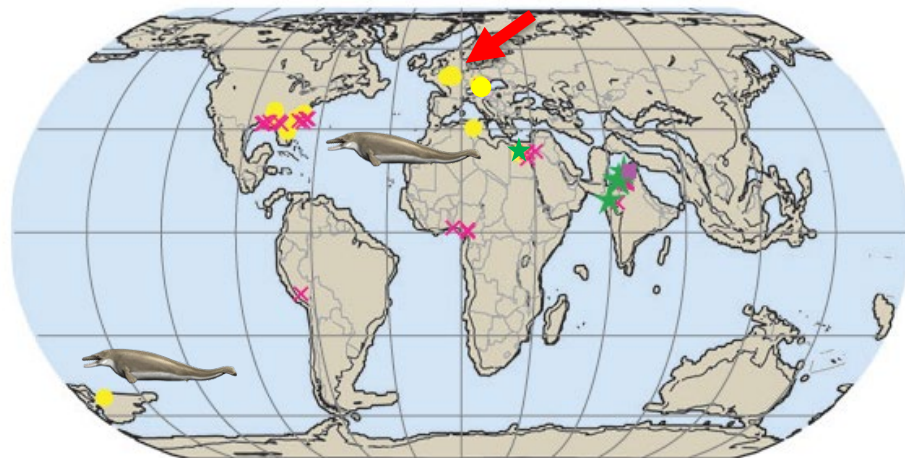
Basilosaurus (late Eocene,
Egypt and USA)

Geographic distribution



Late
Eocene
36 Mya

- ◆ Odontoceti
- ◆ Mysticeti
- Basilosauridae
- × Protocetidae
- ★ Remingtonocetidae
- Ambulocetidae
- ▲ Pakicetidae



Middle
Eocene
42 Mya



Early
Eocene
52 Mya

North Sea basilosaurids – a scarce but promising fossil record

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H. GOVIER SEELEY ON THE OCCURRENCE OF

44. NOTICE of the OCCURRENCE of REMAINS of a BRITISH FOSSIL ZEUGLUDON (*Z. Wanklyni*, Seeley) in the BARTON CLAY of the HAMPSHIRE COAST. By HARRY GOVIER SEELEY, Esq., F.L.S., F.G.S., &c., Professor of Geography in King's College, London. (Read June 21, 1876.)

Seeley, 1876

FOSSIL WHALES FROM THE UPPER EOCENE 187

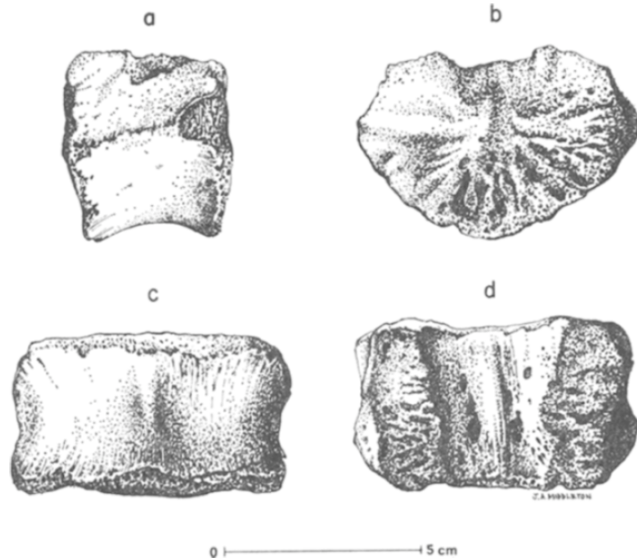


Fig. 1. *Zygorhiza Wanklyni* (Seeley). Dorsal vertebral centrum. M. 12346 (Brit. Mus. Nat. Hist.). a, lateral, b, anterior, c, ventral and d, dorsal views. $\times \frac{1}{2}$.

southern England

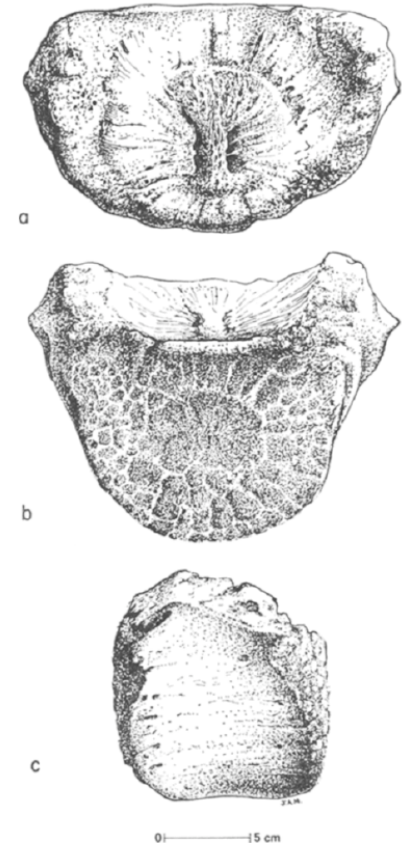


Fig. 2. *Basilosaurus* sp. Dorsal vertebral centrum. M. 26552 (Brit. Mus. Nat. Hist.). a, dorsal, b, anterior and c, lateral views, $\times \frac{1}{2}$.

Halstead & Middleton, 1972

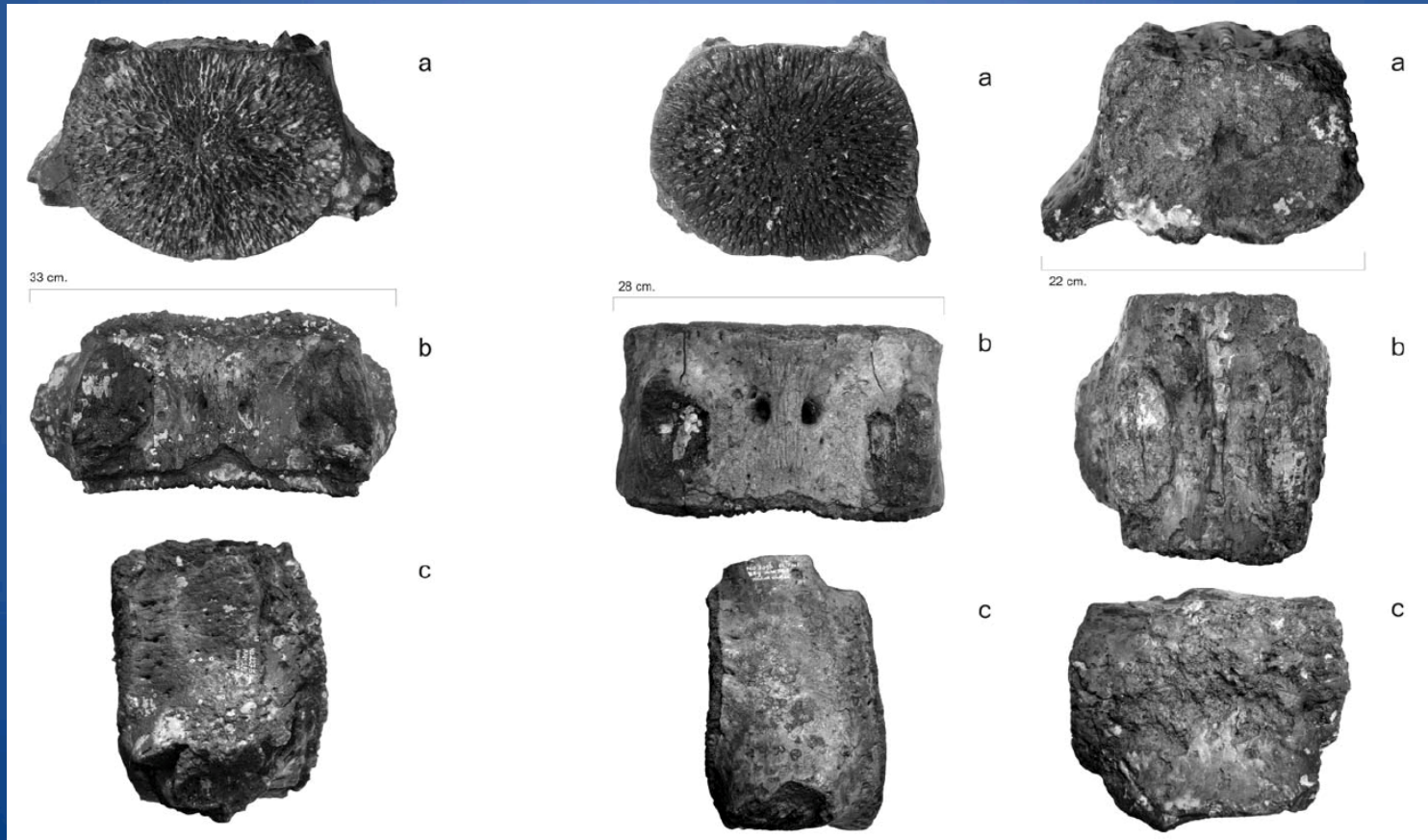
New finds from the seafloor!

Raadsels uit de Noordzee

Klaas Post

Summary

Three vertebrae which were trawled from the North Sea bottom are assigned to *Archaeoceti* indet. These vertebrae probably belong to undescribed species and confirm that pre-Miocene cetacean fossils may be harvested from the North Sea bottom.



OERWALVISSEN OP DE BODEM VAN DE NOORDZEE

KLAAS POST, NATUURHISTORISCH MUSEUM ROTTERDAM, WESTZEEDIJK 345 (MUSEUMPARK), 3015 AA ROTTERDAM
ALBERT HOEKMAN
BJORN DE WILDE

Samenvatting

De vindplaats in de Noordzee van de zeldzame en raadselachtige fossielen van oerwalvissen is vastgesteld op basis van de resultaten van een gerichte vistocht die plaats vond op 9 september 2016. De fossielen komen waarschijnlijk uit de midden eocene Formatie van Maldegem die dagzoomt nabij boei Scheur 10 in het verlengde van De Wielingen, vlakbij de Belgische kust. Die Formatie herbergt op die plek waarschijnlijk meerdere soorten oerwalvissen.



Localities

Post et al. 2017

NMR 9991-13472

VOOR



BOVEN



ONDER



10 cm

JAAP VAN LEEUWEN

DEINSEA

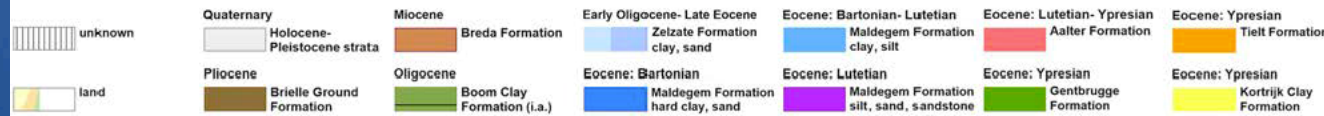
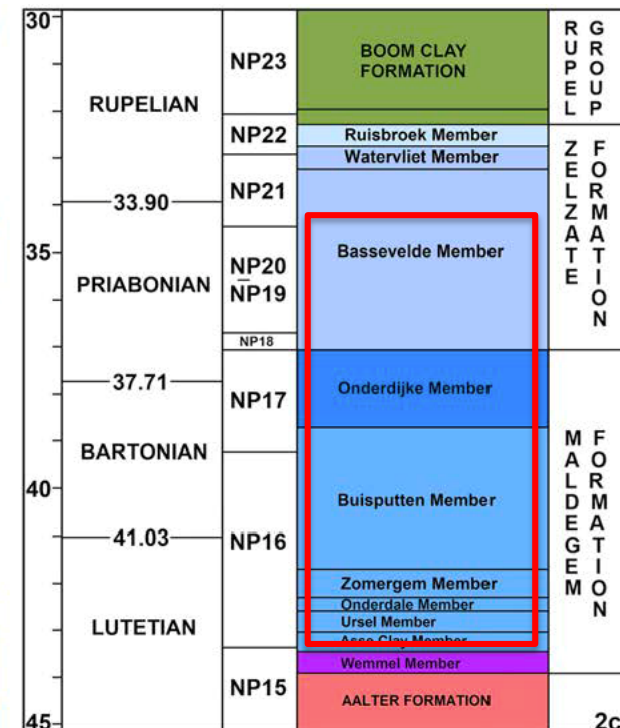
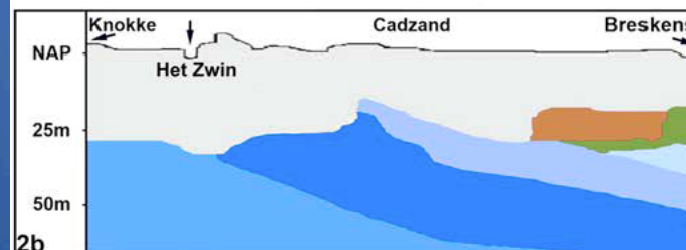


More material:

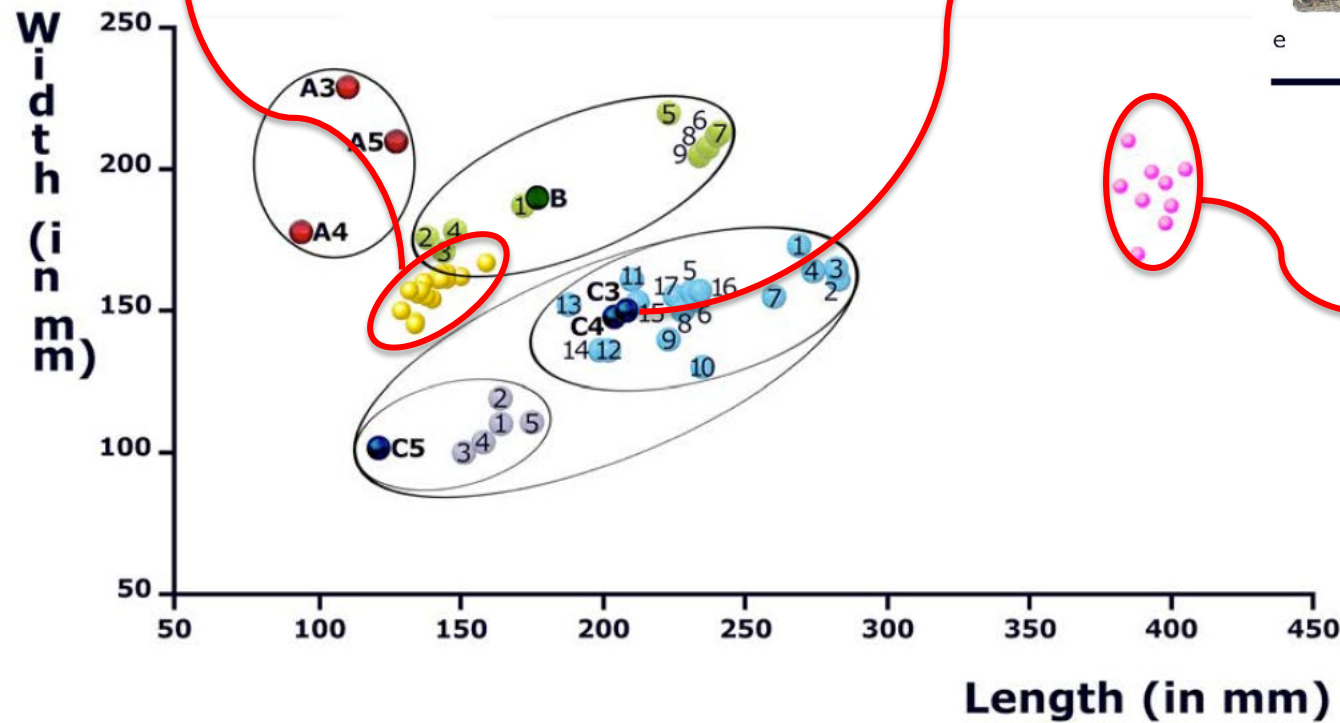
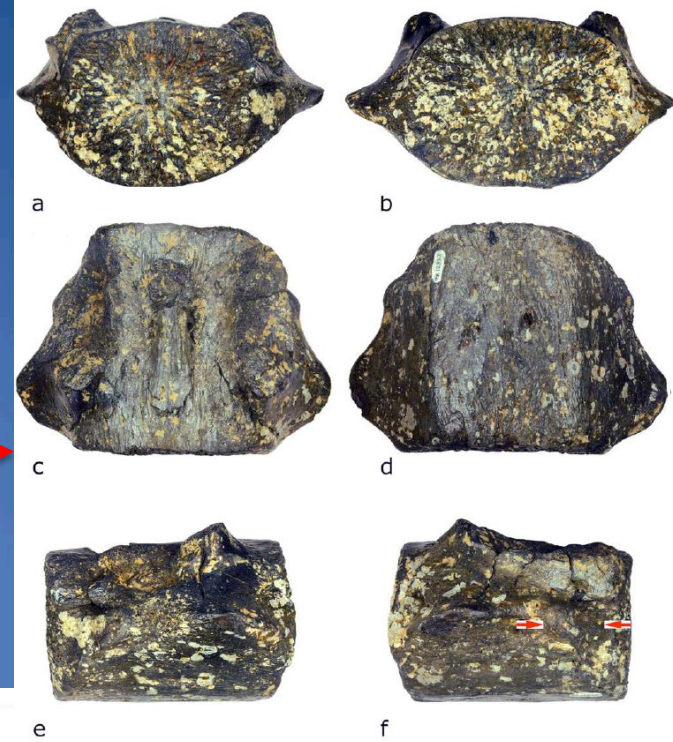
- At least 3 morphotypes
- Geological context

Eocene cetaceans from the Belgian-Dutch coastal waters

Henk Jan van Vliet ¹, Mark Bosselaers ^{2,3}, Sander Schouten ⁴ & Klaas Post ⁴



Diversified assemblages? Or different fossil-bearing horizons?

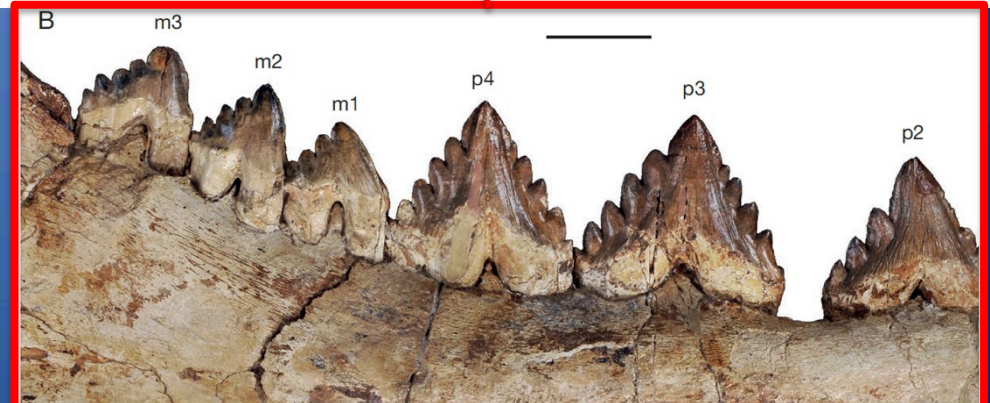
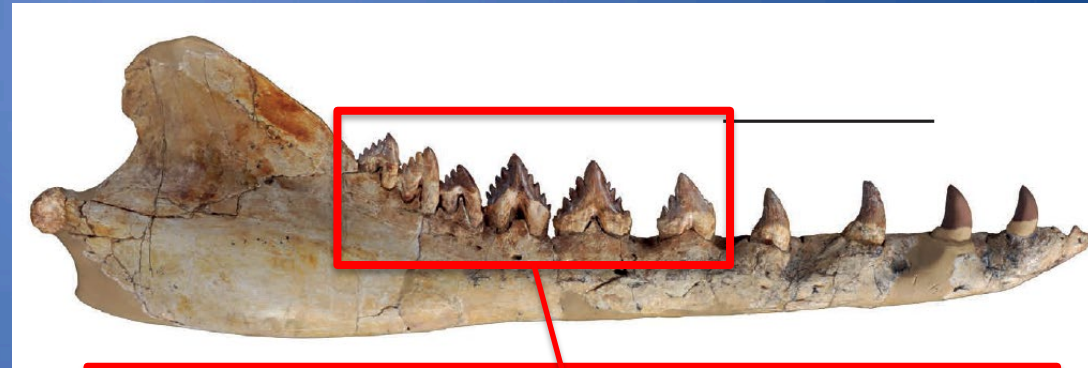
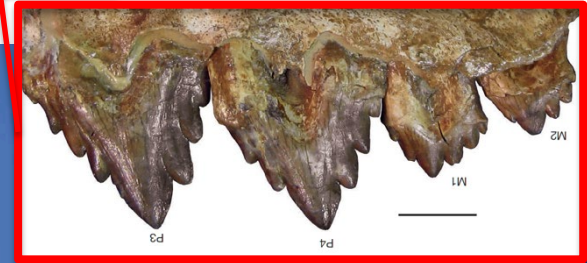


Pachycetus sp.



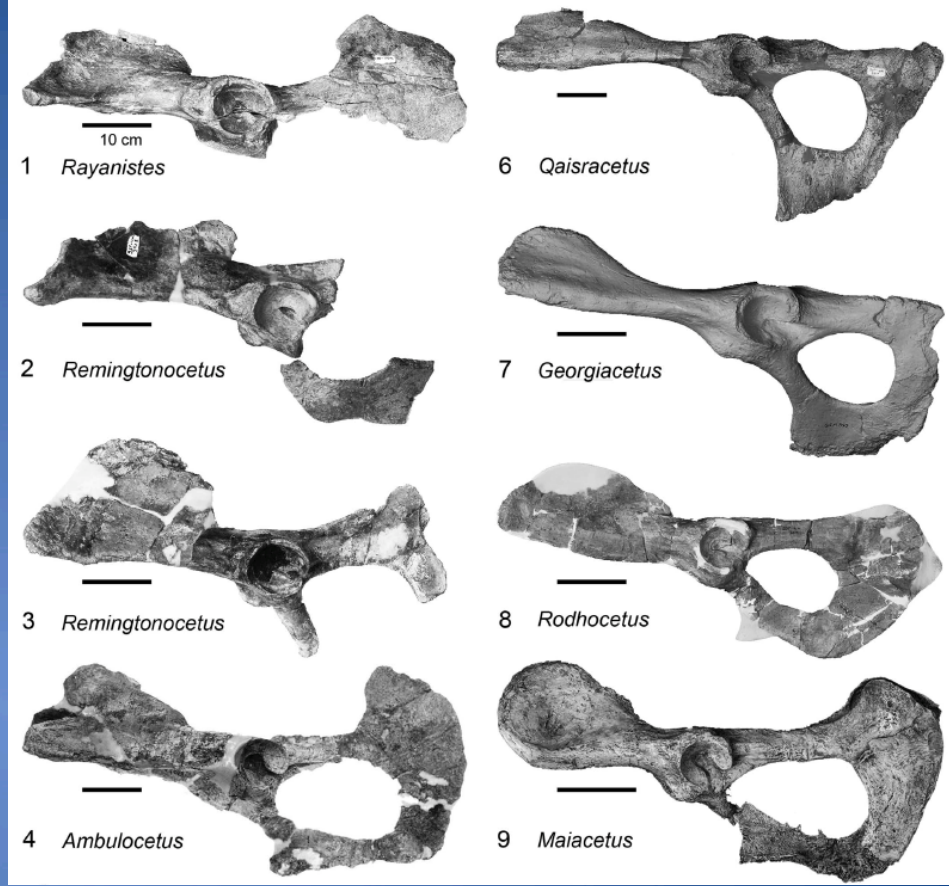
What's next?

Skull parts



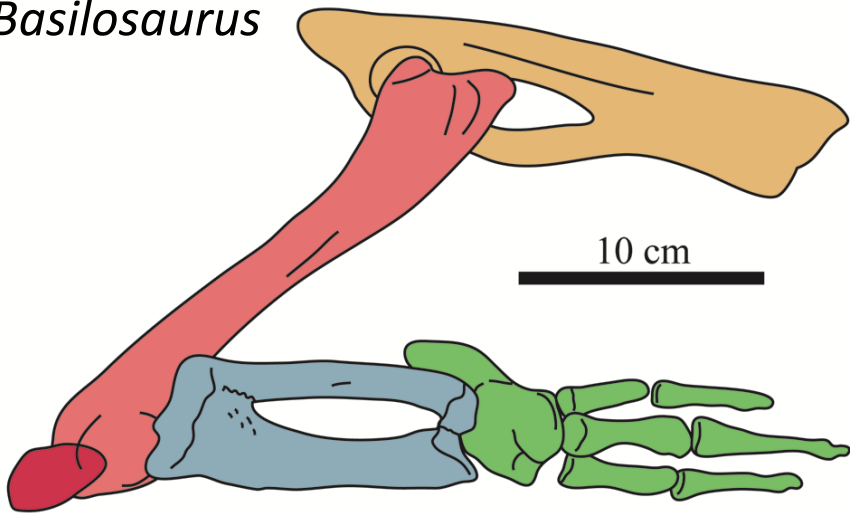
Martinez-Caceres et al. 2017

Innominate (hip bone) and hind limb



Bebej et al. 2016

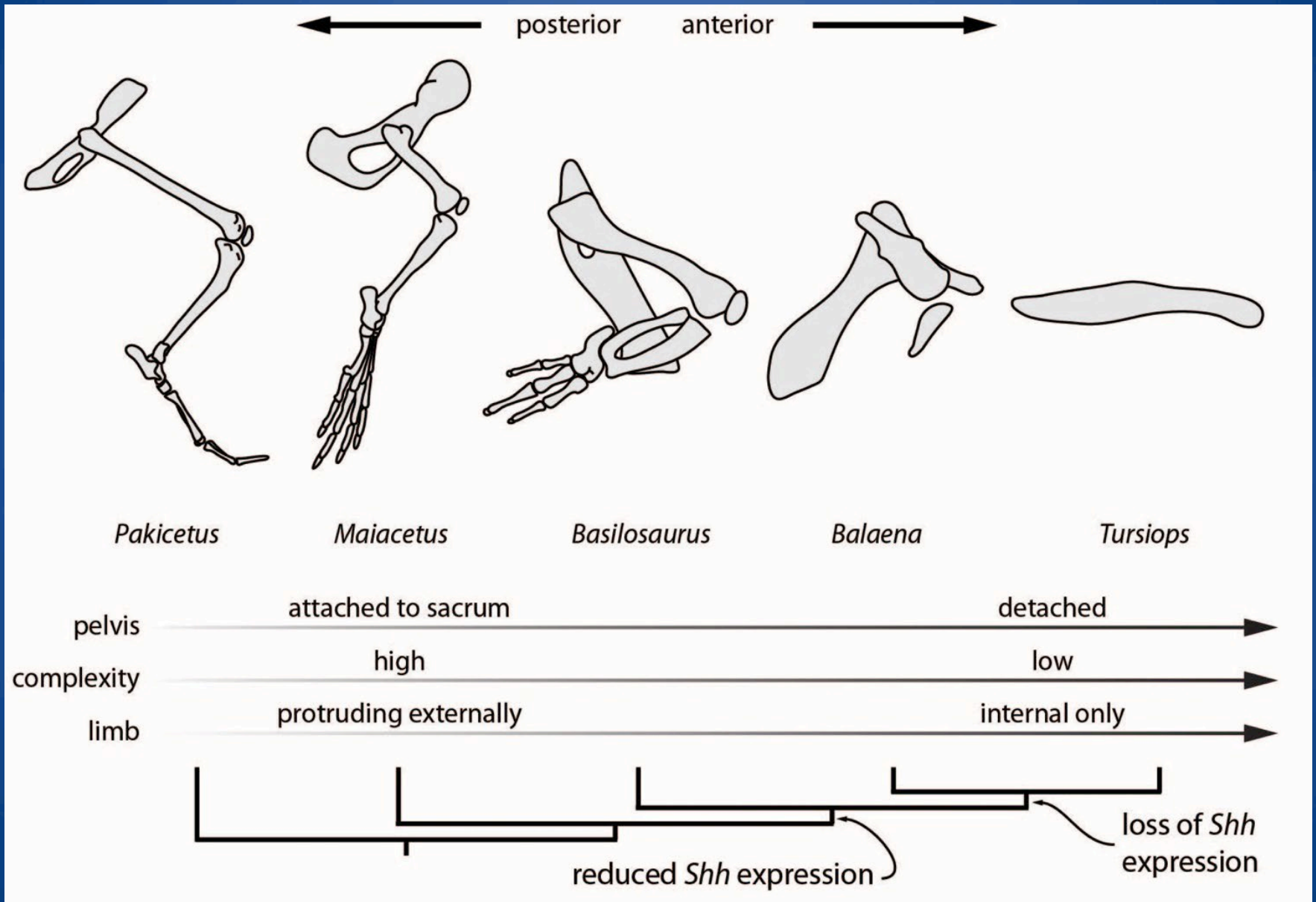
Basilosaurus



Martinez-Caceres et al. 2017

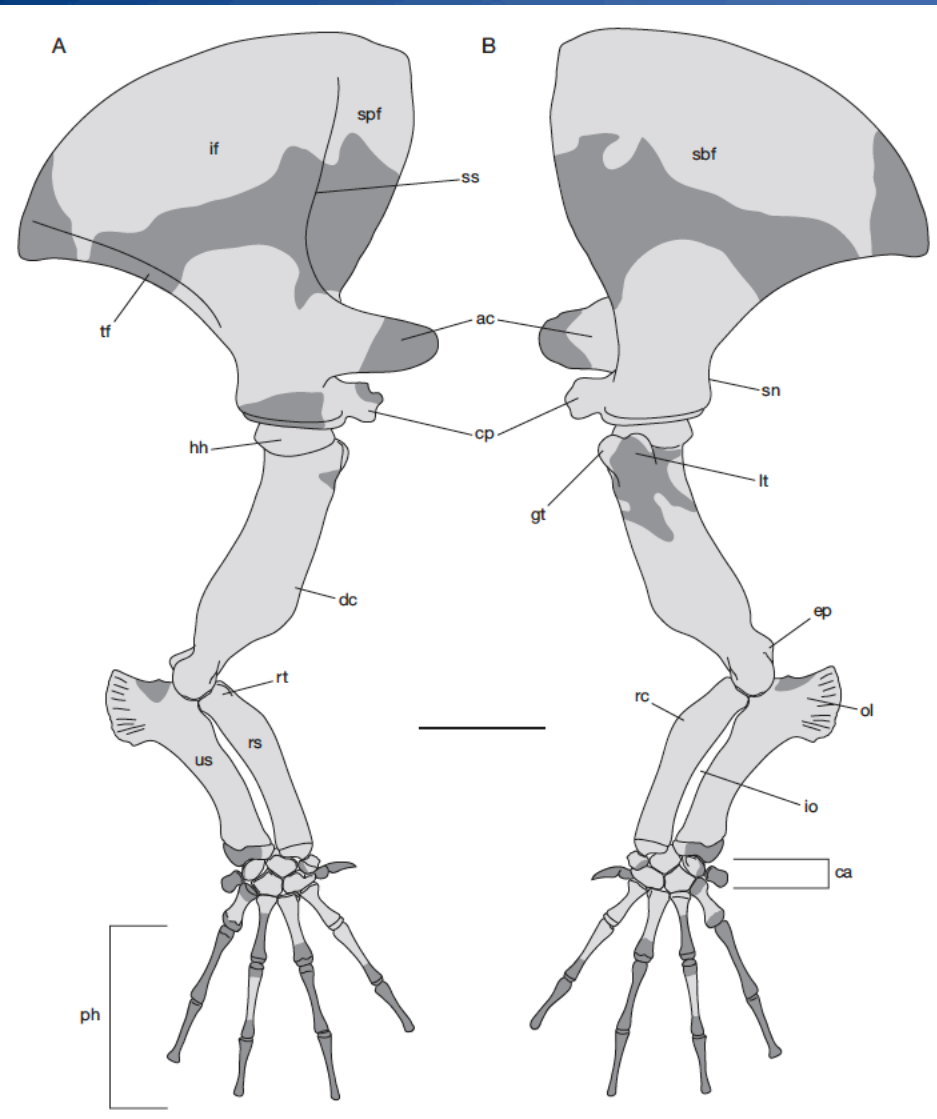


Mystacodon



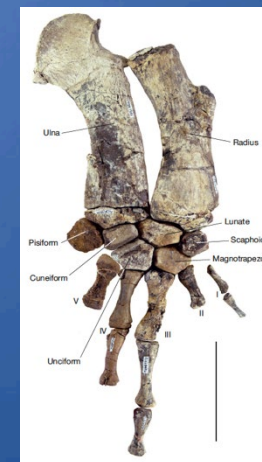
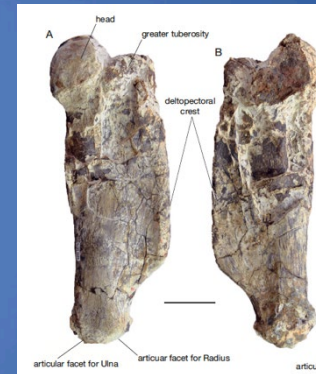
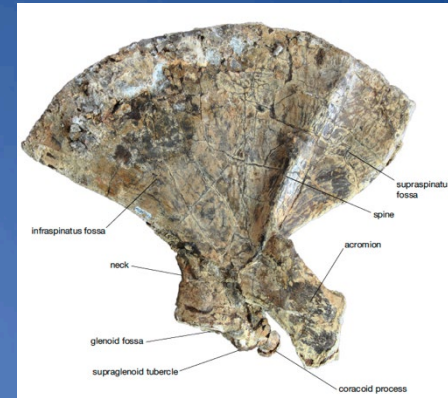
Forelimb

Cynthiacetus peruvianus



Martinez-Caceres et al. 2017

Mystacodon selenensis



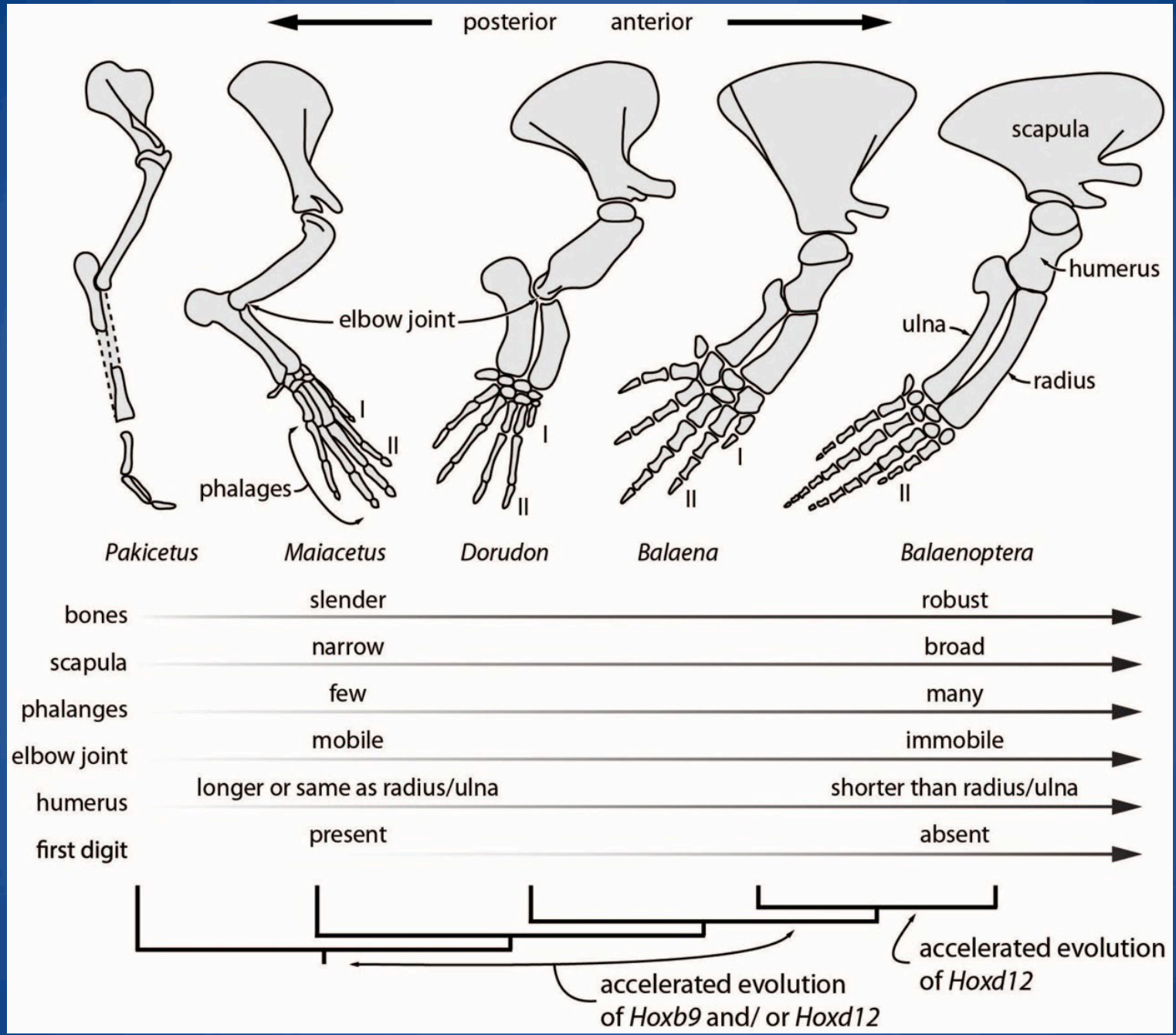
Muizon et al. 2019



Cynthiacetus peruvianus

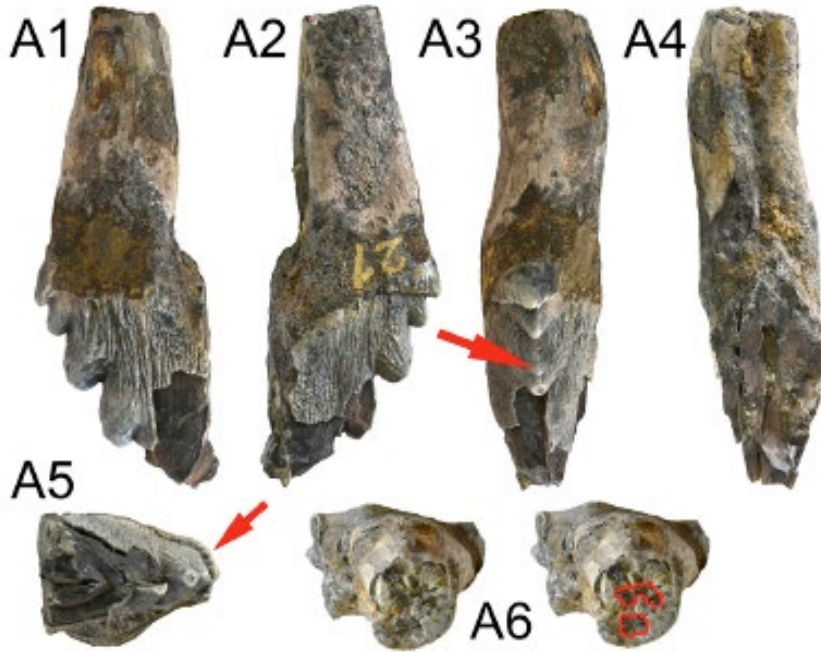


Mystacodon selenensis



Meer fossielen nodig!

Pachycetus sp.



Hartelijk bedankt!

