# 5th Triennial Mosasaur Meeting

## A global perspective on Mesozoic marine amniotes

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**Museum of Evolution, Uppsala University**
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# Program and Abstracts

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derived halisaurines.

**References**

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## AN EXTREMELY DERIVED PLIOPLATECARPINE MOSASAUR FROM THE MAASTRICHTIAN OF AFRICA AND THE MIDDLE EAST

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Fieldwork in the Maastrichtian of Angola, Morocco, and Jordan has yielded new specimens of the enigmatic mosasaur *"Platecarpus" ptychodon,* a form named on the basis of isolated teeth from Morocco. The new material includes articulated, associated, and isolated specimens from multiple individuals and reveals remarkable adaptations of the skull and postcranial skeleton that are convergent with certain stages of odontocete cetacean evolution. This unique mosasaur possesses a narrow elongate snout with closely spaced interlocking moderately heterodont teeth, accommodated by pits on the opposing jaw, extremely retracted bony nares, maxillae telescope posteriorly and broadly overlap the prefrontals, reduction of the frontal, elongate parietal and robust temporal arcade. Increased accommodation space for temporal musculature and proportions of the skull suggest optimization for high velocity jaw closure. Extreme adaptations yield an essentially akinetic skull. These include a long, dorsoventrally deep, premaxillary-maxillary suture, immobile contact of the prefrontal with the maxillae and skull roof, frontal-parietal sutural complexity, the postorbitofrontal-jugal-ectopterygoid-pterygoid contact is robust and immobile, and the contacts of the braincase-supratemporal-parietal-squamosal complex eliminates rotation around the metakinetic axis. Postcranial adaptions include a prominently downturned tail, suggesting presence of a well developed fluke and the forelimb morphology indicative of a high-aspect-ratio control surface as would be predicted for a high-performance swimmer. The new material does not support referral to the genus *Platecarpus* but instead supports a close relationship with *Goronyosaurus*, those two taxa recovered as the sister taxon of *Selmasaurus*, a clade that appears to have diverged relatively early in the evolutionary history of plioplatecarpine mosasaurs.