

Paper No. 5

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A MARINE VERTEBRATE ASSEMBLAGE FROM THE CAMPANIAN-MAASTRICHTIAN BOUNDARY AT BENTIABA, ANGOLA

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A single, geographically and temporally restricted horizon, Bench 19, at the Campanian-Maastrichtian boundary at Bentiaba, Angola, preserves a dense concentration of skeletons and isolated elements representing sharks, rays, bony fish, three species of turtles, two species of plesiosaurs, and at least seven species of mosasaurs. Nearly all of the amniote specimens show evidence of scavenging by sharks. Current-induced carcass accumulation attracted scavengers within a low-energy depositional environment; remains were then rapidly buried. Stable carbon isotope analysis from tooth enamel provides an estimate of foraging area and this is contrasted with body size, feeding apparatus, and gut content to develop a preliminary model of resource partitioning for this assemblage. Taxonomic diversity, size distribution, and morphological disparity of plesiosaurs and mosasaurs are greater than in modern odontocete communities. Raptorial mosasaur taxa possess teeth ranging from relatively simple, thin conical piscivorous forms to more sectorial forms and large robust conical forms. A single durophagous form, *Globidens*, possesses large, robust crushing teeth. Plesiosaurs possess thin, laterally compressed, sub-conical interlocking teeth, larger than those in the clearly piscivorous mosasaurs. No living odontocete exhibits durophagous dental adaptations and conversely, cetacean morphotypes lacking in mosasaurs are those of baleen whales (Mysticeti), sperm whales (Physeteroidea), beaked whales (Odontoceti, Ziphiidae), narwhals (Monodontidae), and the extinct Pliocene walrus-mimic *Odobenocetops* (Delphinoidea), all of which employ specialized feeding and behavioral structures never recorded in lepidosaurs. The richness and diversity of the Bench 19 marine vertebrate assemblage is indicative of a productive environment such as is now supported by the Benguela Current along the southern Angola coast. The associations among taxa contribute to inferring a food web, which can then be tested by ongoing investigation of the distribution $\delta^{13}\text{C}$ values among the Bench 19 fauna.

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