

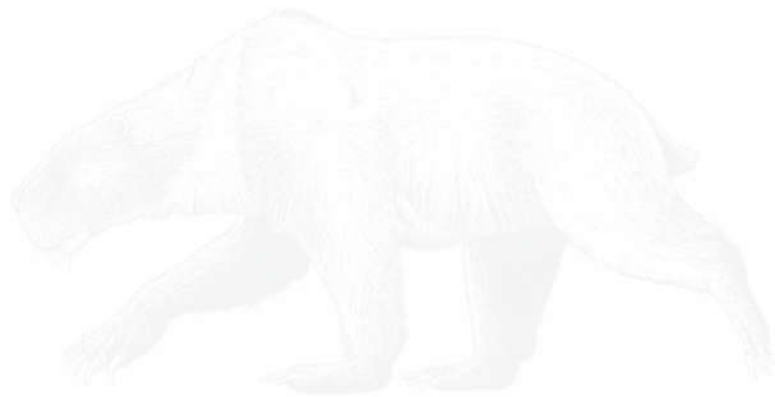


# Get Ready for A Weekend to ReMember

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"Kalponomas"  
with a big bite

A full-body reconstruction of *Kalponomas clallamensis*.  
Illustrated by Ken Kirkland for the book *Neptune's Ark*.

Scientists at the Museum used high-resolution x-ray imaging and computerized simulations to show that even though the two extinct predators likely contrasted greatly in food preference and environment, they shared similar engineering in jaw structure, suitable for anchoring against prey with the lower jaw and forcefully throwing the skull forward to pry loose its food. The study was published today in the journal *Proceedings of the Royal Society B*.

"When *Kalponomas* was first described in the 1960s, it was thought to be a raccoon relative," said Camille Grohé, a National Science Foundation and Frick Postdoctoral Fellow in the Museum's Division of Paleontology and a co-author on the new paper. "But later research on the skull base led some to think it might be a seal or a bear relative instead, and studies of its teeth show that they are very similar in both shape and wear to the teeth in sea otters."

the extinct predator crushed shells to eat the way otters do. But the scope of the research expanded after Grohé's collaborator Z. Jack Tseng noticed similarities between *Kolponomos* and another subject of his studies: the saber-toothed cat *Smilodon*.

Lower jaw stress models of *Kolponomos newportensis* (left) versus *Smilodon fatalis* during an "anchor bite."

@AMNH/J. Tseng, C. Grohé, J. Flynn

"We definitely didn't expect to bring *Smilodon* into this study of feeding in a clam-eating marine carnivore, but that's what we ended up doing," said Tseng, a National Science Foundation and Frick Postdoctoral Fellow in the Museum's Division of Paleontology and the lead author on the new paper.

They found that the jaw mechanics of *Kolponomos* and *Smilodon* were similar, pointing to a unique feeding strategy for the extinct animal. The researchers suggest that *Kolponomos* might have pried prey off of rocks with its lower jaw, swung its skull forward to dislodge it, and then crunched it with its chewing teeth.

New findings suggest a novel feeding strategy for *Kolponomos*.

@AMNH/J. Tseng, C. Grohé, J. Flynn

"Our biomechanical data show that the chewing bites of sea otters and *Kolponomos* are not very similar," Tseng said. "They probably still have an overlapping diet based on tooth wear, but their evolutionary solutions for getting to those hard-shelled animals are dramatically different."

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