



# NOT IN KANSAS ANYMORE

This 20-foot-long, roughly 85-million-year-old fish (extinct *Xiphactinus audux*) was alive during the **Age of the Dinosaurs** when jawed vertebrate fish species became especially abundant and diverse. Note the large teeth that are ideal for grasping prey — *Xiphactinus* was a voracious predator. This fossil is a cast of bones that are stored at the California Academy of Sciences and were discovered in 1921 in Kansas by Charles Sternberg. He was part of a national stampede of fossil-hunters seeking fossilized sea monsters in the interior of the United States.

Although Kansas seems a quiet place today, its rocks contain the story of a far more dynamic time in Earth's history, when schools of *Xiphactinus* and swimming dinosaurs terrorized the oceans. This *Xiphactinus* was found within a rock that formed between 82 and 87 million years ago, at the bottom of a massive interior sea that covered the middle of North America (from Oklahoma up through Canada, along the eastern edge of the Rocky Mountains). When microscopic organisms living near the ocean's surface died, their shells rained down and collected on the seafloor as a thick, wet mud, or ooze. Other things also rained down and collected in this ooze — animal feces, molted exoskeletons, and bones of dead animals, like our *Xiphactinus*. When the ooze was eventually buried under other sediments and hardened, it became a rock called **chalk**. Millions of years later, rocks covering the chalk were eroded by rivers, glaciers, and wind, ultimately exposing the chalk in Kansas and other localities and uncovering the fossils preserved within.



Images are artist's depictions of *Xiphactinus* based on scientist's efforts to reconstruct how this ancient fish looked and behaved. National Geographic Society ©.

This specimen is a cast from the original skeleton housed at the California Academy of Sciences. It is on long-term loan to City College of San Francisco.