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Mosasaurus maximus

Mosasaur (MOSE-uh-sawrs), from Latin *Mosa* meaning the 'Meuse river,' and Greek sauros meaning 'lizard,' were alive during the Late Cretaceous, 65-80 million years ago.

The first fossil remains of these huge seagoing lizards were discovered in a limestone quarry at Maastricht on the Meuse in 1764. Since then, Mosasaur fossils have been found across the United States, in the Netherlands, Denmark, Portugal, Sweden, the United Kingdom, Angola, Morocco, Australia, New Zealand, Canada, Mexico, and on Vega Island off the coast of Antarctica. Today the closest living relatives of the extinct mosasaur are the members of a lizard lineage that includes the Komodo dragon and the Gila monster. The largest known mosasaur is Hainosaurus, which could reach 17 meters in length and weighed a maximum of 20 tons, but the smaller mosasaurs could be under 6 feet long.

For reasons that are not fully understood, the ancestors of the mosasaur lineage left the dry land and adapted to life in the seas. They swam in the shallow seas that covered 40% of present day North America, as in the epicontinental seas around the world. Unlike modern sea turtles, which come out on dry land to lay eggs, mosasaurs gave birth in the water to live young.

With long slender bodies, whale-like flippers instead of feet, and a large, flattened tail, these giant creatures probably swam with a snake-like motion, using the tail as a propeller and rudder and the flippers as stabilizers.

Aggressive predators of the seabed, mosasaurs were at the top of the food chain. As the mosasaurs were not fast swimmers they would have stalked their prey using natural cover provided by seaweed and rocks. Only when the prey was within striking range would the mosasaur propel itself forward.

Mosasaurs had long sharp teeth perfect for preying upon other marine creatures. Several known specimens preserve possible stomach contents, which indicate that mosasaurs ate other vertebrates (birds, sharks, bony fish, turtles, other marine reptiles, etc.). The shells of extinct molluscs known as ammonites have also been found with holes interpreted as bite marks made by mosasaurs. Mosasaurs were equipped with several sharp conical teeth that were used to capture and hold prey, but not to chew it into pieces. To assist in the eating of large slippery prey, mosasaurs had a set of teeth on the pterygoid bones in the roof of the mouth.

The lower jaw is loosely hinged to the skull with a moveable joint on each side just behind the teeth. This loose joint likely permitted the animal to swallow large prey, much as some living snakes do. Put your hands together, fingers extended and together (as if you were praying) and then with the heels of your hands touching, move your palms apart, so that your hands form a "V". That's what a crocodile can do with its jaws. Now, perform the same motion, except also bend one of your hands at the first knuckle (where your palms meet your fingers) while performing the same motion and you can see how much wider a snake or a Mosasaur could open its mouth.

Although giant mosasaurs were the top predators in the sea, they were still vulnerable to attack. One mosasaur fossil bears the marks of a shark bite in its spine.

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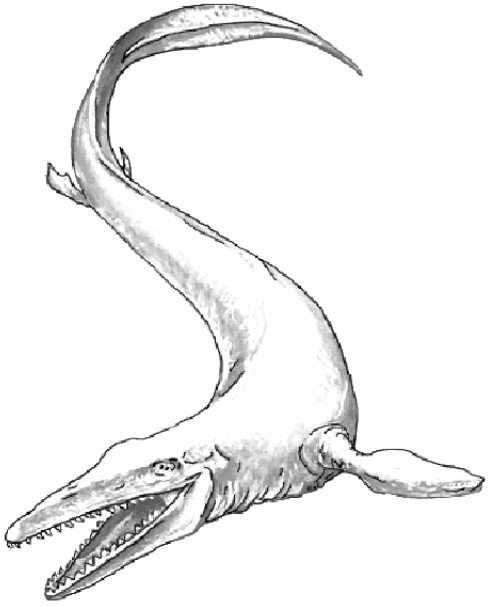
The Onion Creek Mosasaur

Mosasaur fossilized bones are fairly common across the state of Texas, and they are especially abundant in Central Texas. But complete skeletons are very rare.

The Onion Creek Mosasaur, *Mosasaurus maximus*, belonged to one of the larger species of mosasaurs, and one that lived only a short time before the last mosasaurs went extinct. Discovered in 1934 by The University of Texas at Austin geology students W. Clyde Ikins (shown in the photo on the left) and John Peter Smith, the Onion Creek Mosasaur is 30 feet long, about 12 feet of which are tail. The head is 4 feet 8 inches long, and the jaws, when fully opened, have a gape of about 3 feet.

The complete skeleton was first put on public display at the Texas Centennial in 1936. The mounted and reconstructed skeleton is currently on display at the Texas Memorial Museum, the exhibit hall of the Texas Natural Science Center.



Sources:

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- http://www.mosasaur.com/mosasaurs/index.html (LOTS OF IMAGES)
- http://www.mosasaur.com/oops/chomp.gif (ANIMATION!)

Compiled by Laura Sanders, Environmental Science Institute, March 2011