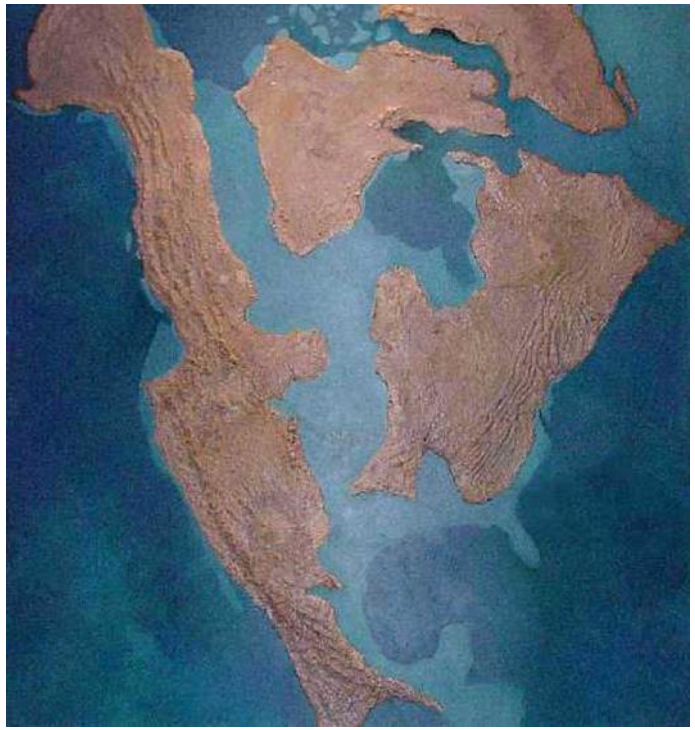
Join the fun from home!
Virtual ARTSmart Classes for Salt Air

Sea Floor

Visit the exhibition online at https://www.mkbma.org/exhibitions/salt-air/

Did you know that once upon a time (roughly 85 million years ago) Kansas was at the bottom of a sea known as the Western Interior Sea?
How do we know this – from the fossil remains!

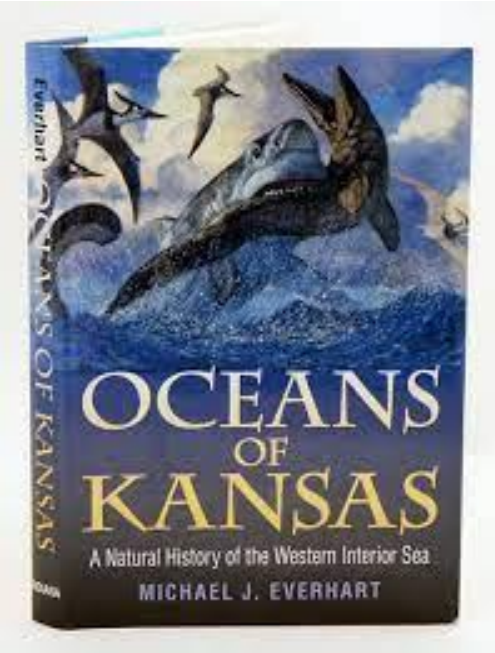


Western Kansas was beneath an ocean that was, at most, 600 feet deep, and warm, much like today's Gulf of Mexico. Single-celled animals flourished in that sea, died, and rained down to the bottom, depositing a mucky ooze at the rate of about an inch every 700 years. The ooze became chalk, providing the perfect medium for preserving animals that died and drifted to the sea floor.

There were sharks, some bigger than today's great white, who left behind teeth.
There were fish, including the giant Xiphactinus that grew to nearly 20 feet. There were turtles the size of a Volkswagen and penguin-like birds with teeth.
There were swimming reptiles. One, called an elasmosaur, was up to 45 feet long. Inside their gut were rounded stones, some as big as a softball, to help grind food.
There were huge, fierce ocean-going lizards called mosasaurs.

In addition to the vertebrates, there were oysters, squid, and a free-floating form of a starfish relative called a crinoid. The most common, easily collected fossil from these rocks is a clam called an inoceramid that grew to nearly 5 feet in diameter, some holding fossilized pearls.

Some Kansas sea fossils



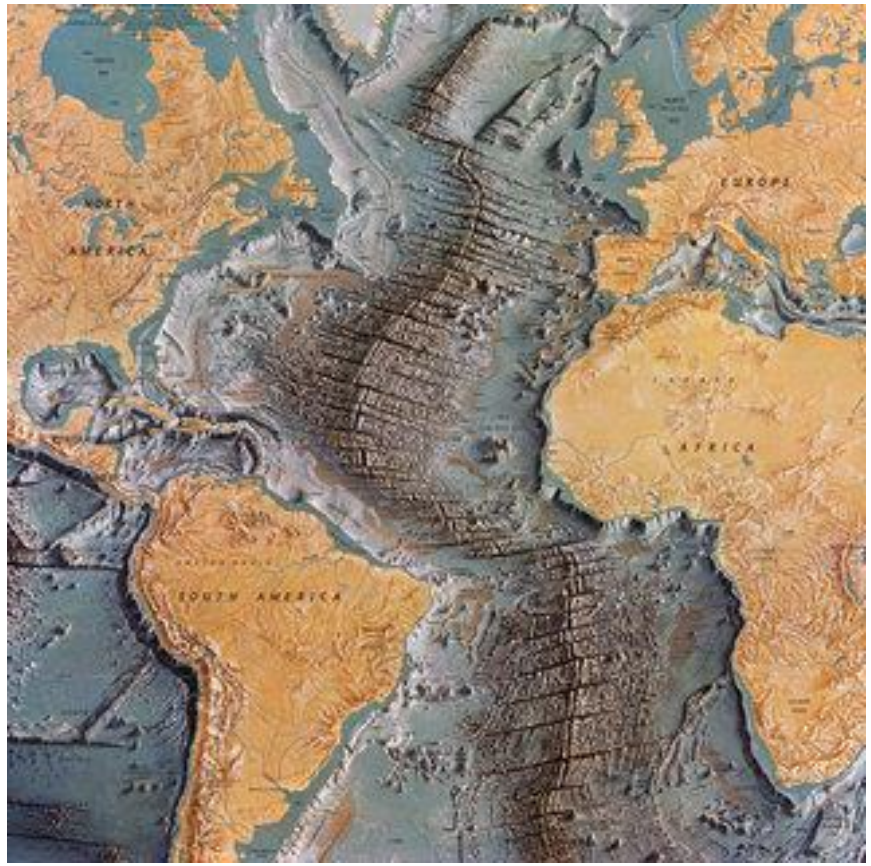
Mosasaurs, giant swimming reptiles, were up to 20 feet long. This mosasaur fossil, which includes the head and part of the spine and ribs, was found in western Kansas.

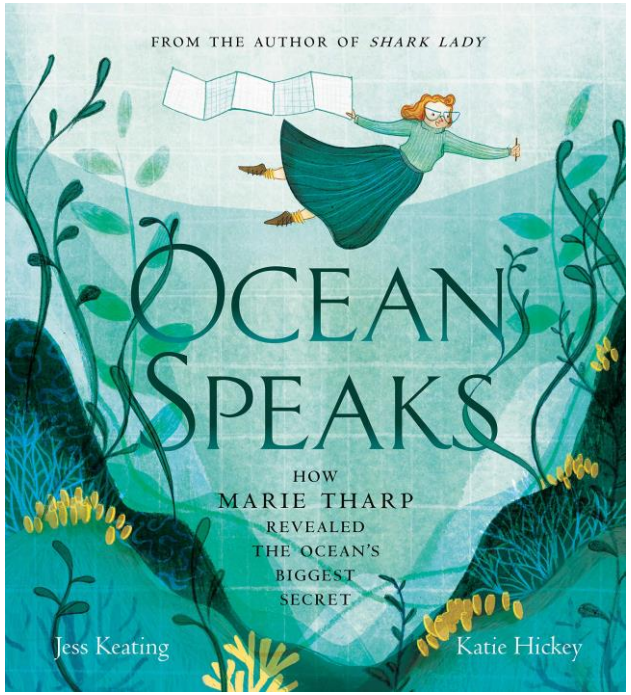
A clam-shell fossil from the Pennsylvanian Period.

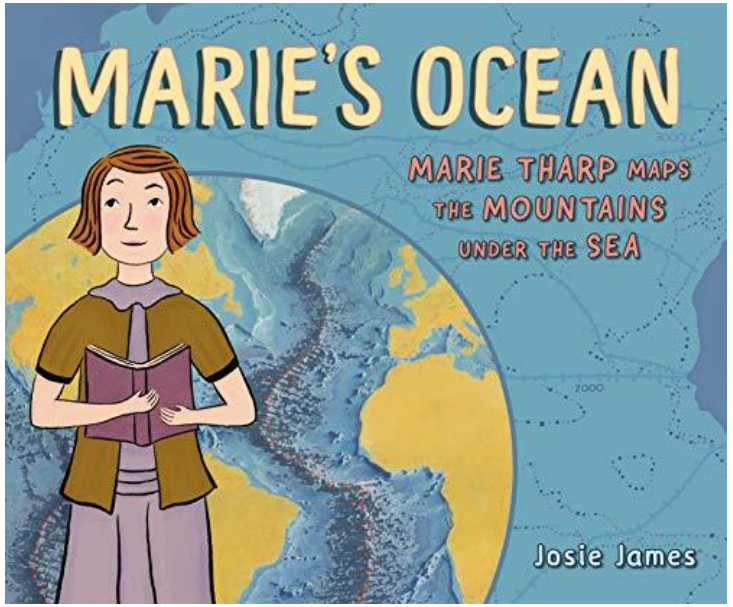
These ceramic “tiles” by artist Orval Hempler look like they could be fossils on the sea floor and found under the Interior Sea.

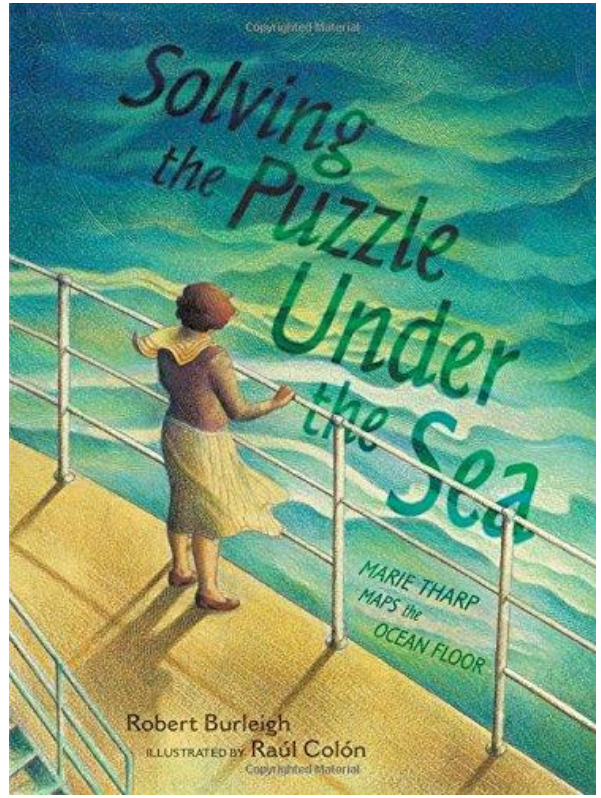
Crustacean, 1994.22 and *Untitled,* 1994.21 KSU, Marianna Kistler Beach Museum of Art, bequest of Orval F. Hempler Estate; *Fossils*, 1963, KSU, Marianna Kistler Beach Museum of Art, Eleventh Biennial Exhibition of Regional Art (1970) Purchase Award, acquired with funds provided by the Friends of Art, 1970.9

These picture books tell the story of Marie Tharp, who mapped the ocean floor and proved the theory of continental drift.

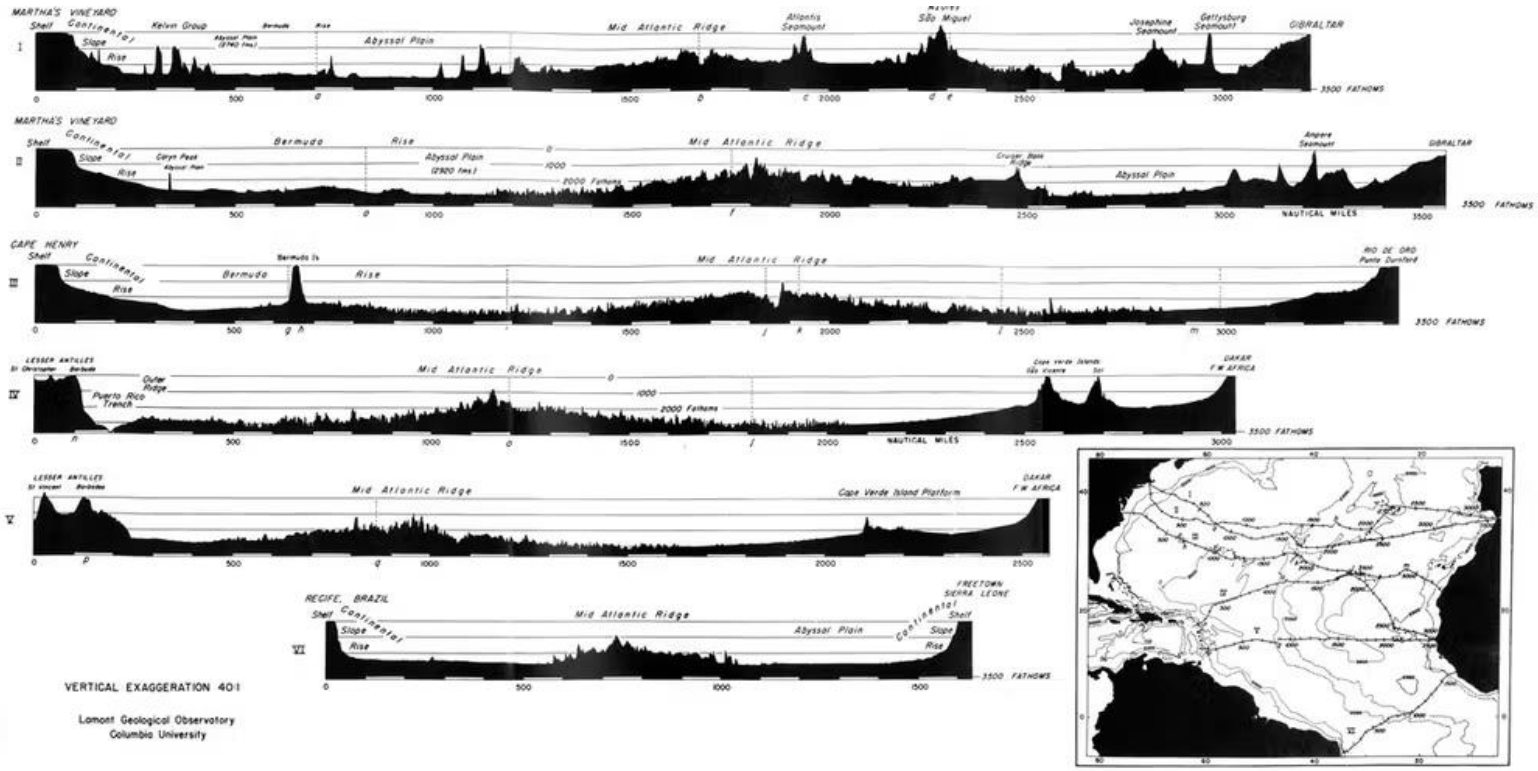








Well into the 1950s, many scientists assumed the seabed was featureless. Marie Tharp showed that it contained rugged terrain, and that much of it was laid out in a systematic way.
Her images were critical to the development of plate tectonic theory – the idea that plates, or large sections of Earth's crust, interact to generate the planet's seismic and volcanic activity. Earlier researchers noticed how well the coastlines of Africa and South America fit together and proposed the continents had once been connected; Tharp identified mountains and a rift valley in the center of the Atlantic Ocean where the two continents could have been ripped apart.



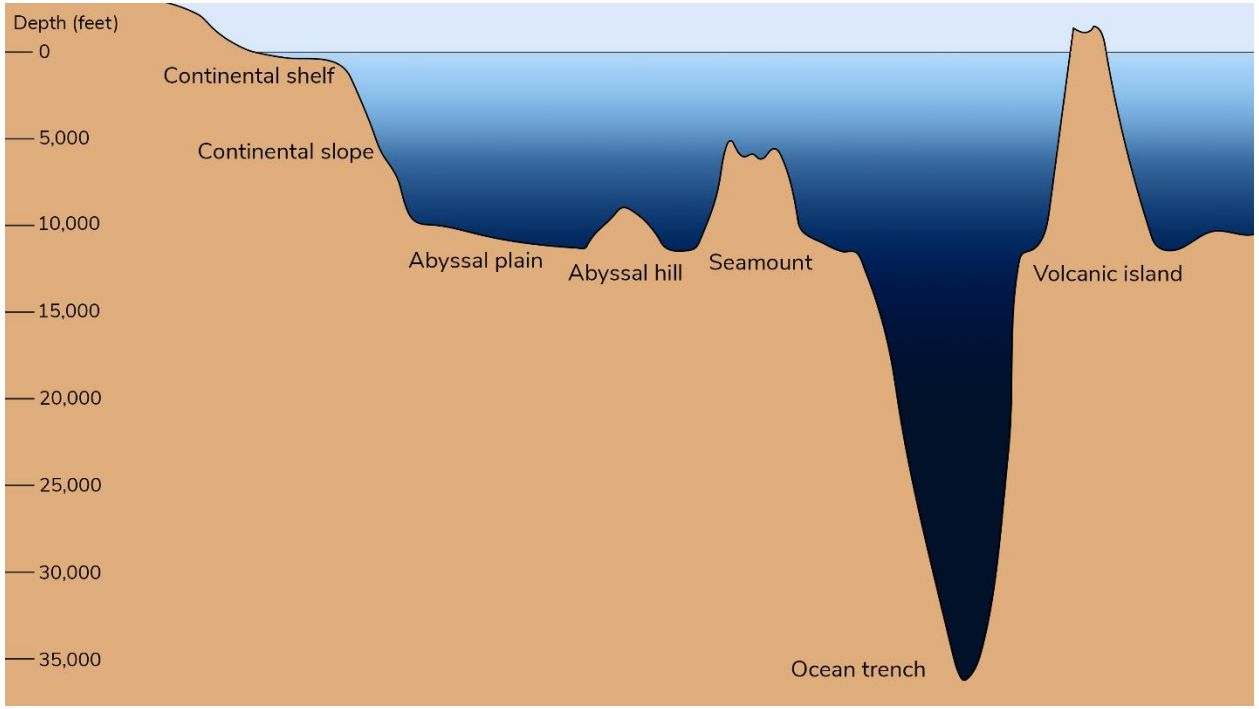
Tharp's East-West profiles across the North Atlantic. The Floors of the Ocean, 1959

Some scientists thought Tharp's work was brilliant, but most didn't believe it. French undersea explorer Jacques Cousteau was determined to prove Tharp wrong. Sailing aboard his research vessel, the Calypso, he purposely crossed the mid-Atlantic Ridge and lowered an underwater movie camera. To Cousteau's surprise, the film showed that a rift valley existed.

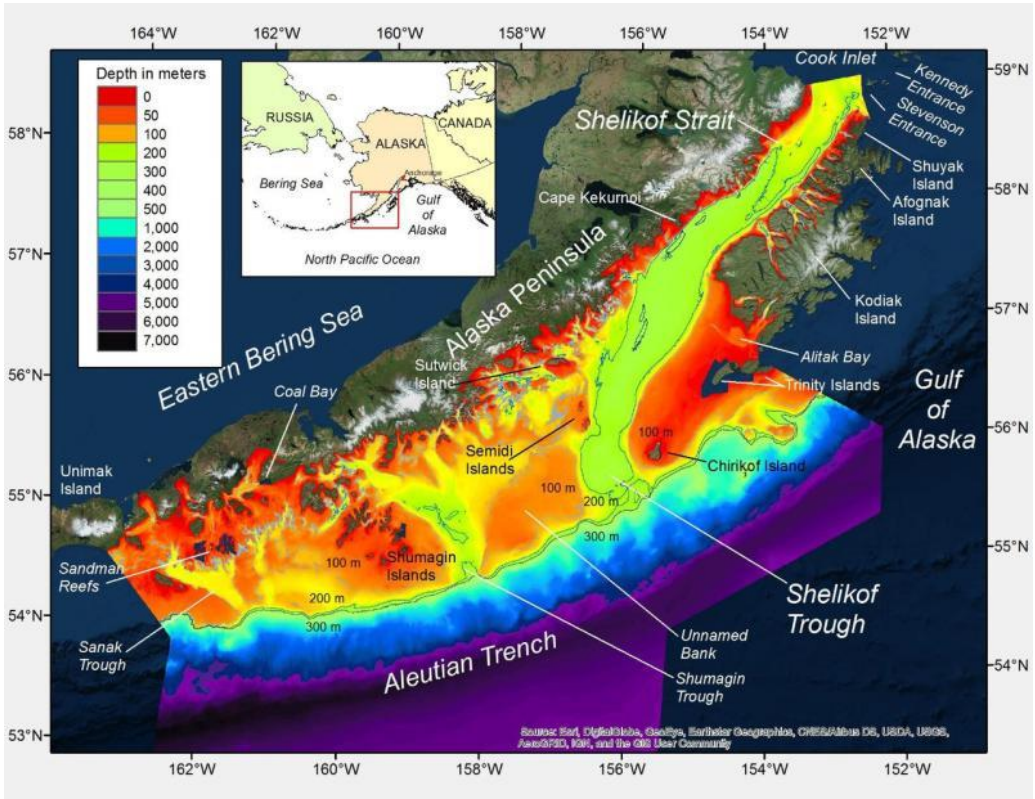
"There's truth to the old cliché that a picture is worth a thousand words and that seeing is believing," Tharp observed in a 1999 retrospective essay.

Video about Tharp
https://energytoday.energysociety.org/mapping-the-seas.html

Marie Tharp with one of her maps. Image: Lamont-Doherty Earth Observatory and the estate of Marie Tharp



Notice that different depths are shown by the colors.



Our ARTSmart friends made a variety of 3-D ocean floors, using Claycrete papier maché mix and pressing seashells in to Model Magic clay. You could use any type of clay.

You can make your own ocean floors or “fossils” using clay – the recipe of salt clay is featured here, but any air dry clay will work. You can make a topographical map that features underwater canyons and mountains. You can paint it when it dries choosing different colors for different depths– it will look similar to Marie Tharp’s.
You can use sea shells to create imprints that look like fossils. You could also find plants that look similar to seaweed.

Ingredients: Salt Dough Recipe No Bake

- 1 Cup of salt
- 2 Cups of flour
- 1 Cup of warm water
- 1/2 Tea spoon of gel food coloring or 3 large spoons of liquid food coloring (if desired)