Dive into the Prehistoric Ocean: Exploring Ancient Marine Life Through Art!

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Did you know? For 90 million years, the city we now call Los Angeles was underwater and home to incredible sea life, including ancient ancestors of species living today!

L.A. Underwater, currently on view at NHM, is an exhibition that features life-size projections of prehistoric animals, nearly 40 fossil specimens, an interactive map of fossil discoveries, and more! But how do we know what these long-extinct creatures looked like? It takes a mix of science and creativity.

Let's dive in and explore how fossils from *L.A. Underwater* have inspired incredible works of **paleoart**!



From top to bottom: Fossil skull of a newly described giant walrus, *Pontolis barroni*, which is on display in *L.A. Underwater*; facial anatomy sketches by Cullen Townsend; color study of *Pontolis barroni* by Cullen Townsend.





What is Paleoart?

Have you ever wondered how our vision of prehistoric life came to be? You may be surprised to learn how connected science and art are in terms of shaping our understanding of prehistoric life—so much so that there is an entire genre of art dedicated to creating a prehistoric world from fragments of fossil clues.

Paleoart is a special kind of art that helps us picture what prehistoric plants and animals looked like. Artists use fossils and research to "bring to life" extinct creatures from the past!

Paleoart is not just guesswork. Sometimes it involves complex 3-D modeling and ideas from many scientists. However, anyone can learn the basics and express their creativity through fossil-inspired art!







Introduction

L.A. Underwater features one-of-a-kind fossils such as a prehistoric seal skeleton that was discovered along a family's rocky garden wall and the skull of an extinct giant walrus that lacked tusks!

While there are many fossilized curiosities featured in *L.A. Underwater*, we'll be focusing on the *Eupachydiscus* **ammonoid** shell (right).



Ammonoids are extinct shelled **cephalopods** prehistoric relatives of squid, octopuses, and nautiluses.





Ammonite *Eupachydiscus*



What exactly are **ammonites**? Belonging to a larger group called ammonoids, these shelled cephalopods first appeared over 400 million years ago during the Devonian period and swam in Earth's oceans until they went extinct 66 million years ago—at the same time as the dinosaurs!

The spiral chambered shell resembles that of an **extant** (still living) chambered nautilus. This is the part of the animal that preserved through **fossilization**.

But how do we know what its soft body parts looked like if they were not preserved?

The answer lies in their modern relatives! By studying living cephalopods—like squids, octopuses, cuttlefish, and nautiluses—scientists can make educated guesses about what ammonites may have looked like when they were alive.







Top: The fossilized shell on exhibit, which is 20 inches high and 18 inches wide; Bottom: A paleoart rendition of *Eupachydiscus* sp. by Cullen Townsend.





Ammonoid vs. Chambered Nautilus

Extant cephalopods provide clues as to what an ammonoid's body may have looked like. Although squid are more closely related to ammonoids, the chambered nautilus—because of its shell and body shape—can give us helpful clues about how ammonoids were built and how they may have moved through the water.

Use the venn diagram to compare and contrast the *Eupachydiscus* ammonoid with the chambered nautilus.



Creating Paleoart: Ammonoid

- Study your fossil specimen, the *Eupachydiscus* ammonoid. 1.
- Make a sketch of the fossil. 2.
- 3. Add body parts that were not preserved through fossilization, gaining clues from studying extant relatives.
- 4. Add color and details!



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Drawings by Amanda Fawcett







Try It Yourself!

- 1. Study your fossil specimen, the *Eupachydiscus* ammonoid (right).
- 2. Make a sketch of the fossil in the space below. TIP: be sure to leave space for adding other features to your drawing.







- Add body parts that were not preserved through fossilization. TIP: study extant relatives (right) to gain clues about how the body looked!
- 4. Add color and details. Get creative!







Extant relatives, from top to bottom: chambered nautilus, common cuttlefish, bigfin reef squid.



Glossary





Ammonite: A shelled marine mollusc from the class Cephalopoda that went extinct 66 million years ago.

Ammonoids: The larger group of shelled cephalopods which ammonites are part of.

Cephalopod: Any marine mollusc belonging to the class Cephalopoda (including squid, octopuses, cuttlefish and nautiluses).

Extant: Referring to species that are still living today.

Extinct: Referring to species that have died out and no longer exist.

Fossilization: The preservation of once-living organisms.

Paleoart: The field of art concerning the reconstruction of prehistoric plants and animals. Artists often work alongside paleontologists to create the most accurate representations.



