

# Monsters of the deep revealed for what they are

October 19 2021, by Joann Adkins

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Grotesque little creatures with armor-like horns, misshapen torsos and some with spikes protruding from their sides are lurking in the waters of the Gulf of Mexico. They appear in an array of oranges and blues, though several are see-through. Some appear part alien and part Hunchback of Notre Dame. They are the visions of which nightmares are made. But to marine scientist Heather Bracken-Grissom, they are mostly shrimp. Some are lobsters. She says they're all larvae.

There have been some observations of these bizarre, miniature-sized monsters in the past few centuries, but no one knew what they actually were. Ph.D. candidate Carlos Varela and Bracken-Grissom have now identified 14 species of these larvae, using deep sea forensics to match the unknown larvae to their known adult counterparts.

The research team sent large nets down to [deep waters](#) in the gulf to retrieve the specimens. Back in the lab, they conducted genetic tests to identify what species they belong to connecting the dots in an evolutionary family tree. Shrimp are known to go through multiple larval stages, and Bracken-Grissom said some of the species they identified experience many different larval stages throughout their [life cycles](#). Some of the species they collected have only been seen in their larval forms by scientists a handful of times, some never at all.

"I like that we're getting to reveal this mysterious and bizarre world that we don't typically get to see," Bracken-Grissom said.

This is not the first time Bracken-Grissom has given an identity to the monsters of the deep. Among the specimens collected in this latest research endeavor was an intact larva she has only seen once before—it's a [species](#) she identified in 2012. Originally known as *Cerataspis monstrosa*, Bracken-Grissom used the same genetic methods then to reveal this tiny monster is actually a young form of a shrimp known to scientists as *Plesiopenaeus armatus*.



The researchers found a variety of species in different larval stages that they were able to connect to their adult counterparts using genetic testing. Credit: Florida International University

"A lot of these larvae are found in the mesopelagic zone, [open water](#) between 200–1,000 meters, and then settle to the deep sea floor as adults," Bracken-Grissom said. "Most are prey items for fish, deep diving marine mammals and cephalopods, which means they are important to the food chain."

While Varela and Bracken-Grissom have provided insight into these 14 creatures, there are countless others in a variety of life cycle stages that scientists still don't know who the mommies and daddies are. Solving these mysteries in the name of biodiversity is largely what drives

Bracken-Grissom to keep searching.

The team collected the latest larval specimens as part of the Gulf of Mexico Research Initiative. The findings are published in *Diversity*.

**More information:** Carlos Varela et al, A Mysterious World Revealed: Larval-Adult Matching of Deep-Sea Shrimps from the Gulf of Mexico, *Diversity* (2021). [DOI: 10.3390/d13100457](https://doi.org/10.3390/d13100457)

Provided by Florida International University

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