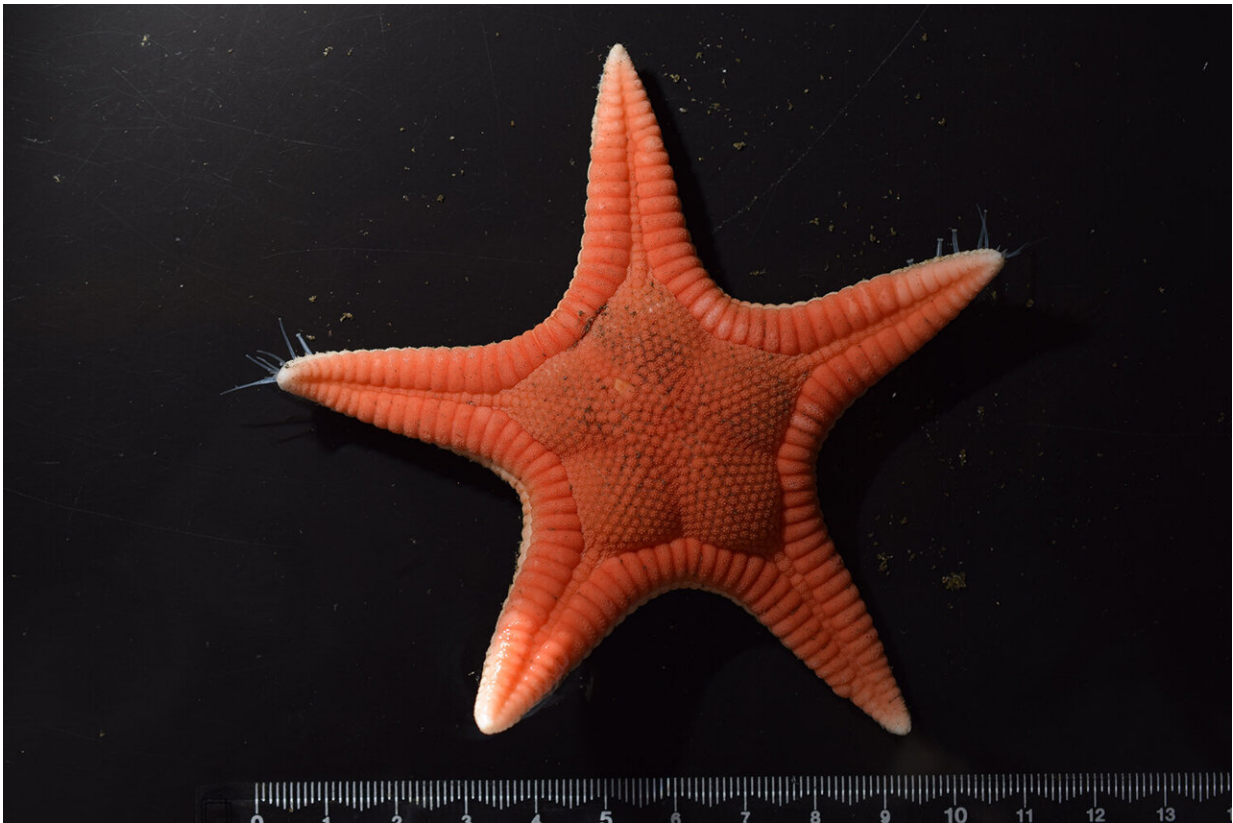


Catching a star: A new species of starfish discovered in Japan

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Starfish are classed as echinoderms, a word which comes from the Ancient Greek for "hedgehog skin." There are many types of starfish and this one is particularly adapted to living in sandy, muddy waters, a feature the researchers want to learn more about. Credit: I. Kobayashi

Researchers in Japan have discovered a new species of starfish. The

discovery came about thanks to collaborative work among researchers, fishers, and aquarium and museum staff.

The starfish, which has been named *Paragonaster hoeimaruae*, belongs to the family Pseudarchasteridae. It is a distinctive red and beige color, with five arms and spans just over 10 centimeters. The researchers say this discovery shows the importance and benefits of working together to better understand the diversity of our oceans.

The study is [published](#) in the *Journal of Natural History*.

Did you know that starfish are not really fish? Despite the name, they are more closely related to spiky sea urchins and squishy sea cucumbers. While they may appear docile and floppy stranded on a sandy beach, they are actually important predators which can have up to 50 arms, span a meter and live for decades.

There are about 2,000 known species of starfish. Now, a collaboration among researchers at the University of Tokyo, Enoshima Aquarium, Marine Science Museum, Fukushima Prefecture and the Yamaguchi Prefectural Fisheries Research Center in Japan has led to the discovery of a new species around the country's coast.

The new species belongs to a family of starfish called Pseudarchasteridae. Until now, only four species of Pseudarchasteridae, of two genera (biological ranking, between family and species, for classifying animals), had been seen in Japanese waters.

"We discovered the starfish—newly named *Paragonaster hoeimaruae*—off the coast of the Izu Peninsula in the Sagami Bay, south of Tokyo. We also found another in the Sea of Japan, northwest of Yamaguchi Prefecture in southwestern Japan," explained lead researcher Itaru Kobayashi from the Misaki Marine Biological Station of the

University of Tokyo.

"They were caught between 150 meters and 350 meters deep, have a well-proportioned body with five arms, and are a beautiful red on the surface and beige underneath."

The team gathered a variety of species from around Japan between 2021 and 2023. They were collected from shrimp and crab cages used by fishers in Hokkaido and Shizuoka prefectures, in northern and central Japan, respectively, and beam trawl surveys (where a large net is dragged across the [ocean floor](#)) conducted by a Yamaguchi prefectural fisheries research ship. The starfish's name, *hoei*, was taken from the fishing vessel *Hoei-maru*, which first collected the specimen.

The team also recorded other starfish in locations different to where they had previously been found. Of particular note was *Gephyreaster swifti*, a surprisingly large starfish about 30 centimeters in diameter, found off the north coast of Hokkaido. Previously, it had only been recorded across the Pacific west coast of the United States and Canada along to islands in the Bering Sea to the north.

"About 250 species of [starfish](#) live around Japan, and we were surprised that one so large as this had been overlooked. Our research highlights how the diversity of species in Japanese waters is still underestimated," said Kobayashi.

"These exciting discoveries show how important it is for fishers, aquariums, universities and other [research institutions](#) to work together to better understand our oceans and marine biodiversity."

More information: Itaru Kobayashi et al, Pseudarchasteridae (Asteroidea: Paxillosoida) in Japanese waters, with description of a new species and range extension of three species, *Journal of Natural History*

(2024). [DOI: 10.1080/00222933.2024.2377336](https://doi.org/10.1080/00222933.2024.2377336)

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