

News in Brief: Animals,Biophysics,Evolution

## Tiny structures in dragonfish teeth turn them into invisible daggers

*The translucent chompers probably help surprise prey*

By Carolyn Wilke 11:00am, June 5, 2019



**FREAKY TEETH** The spearlike teeth of deep-sea dragonfish are translucent, thanks to nanostructures that allow more light to pass through.

Audrey Velasco

In the deep sea, dragonfish lure smaller fish near their gaping jaws with beardlike attachments capped with a light. But the teeth of the pencil-sized predators don't gleam in that glow.

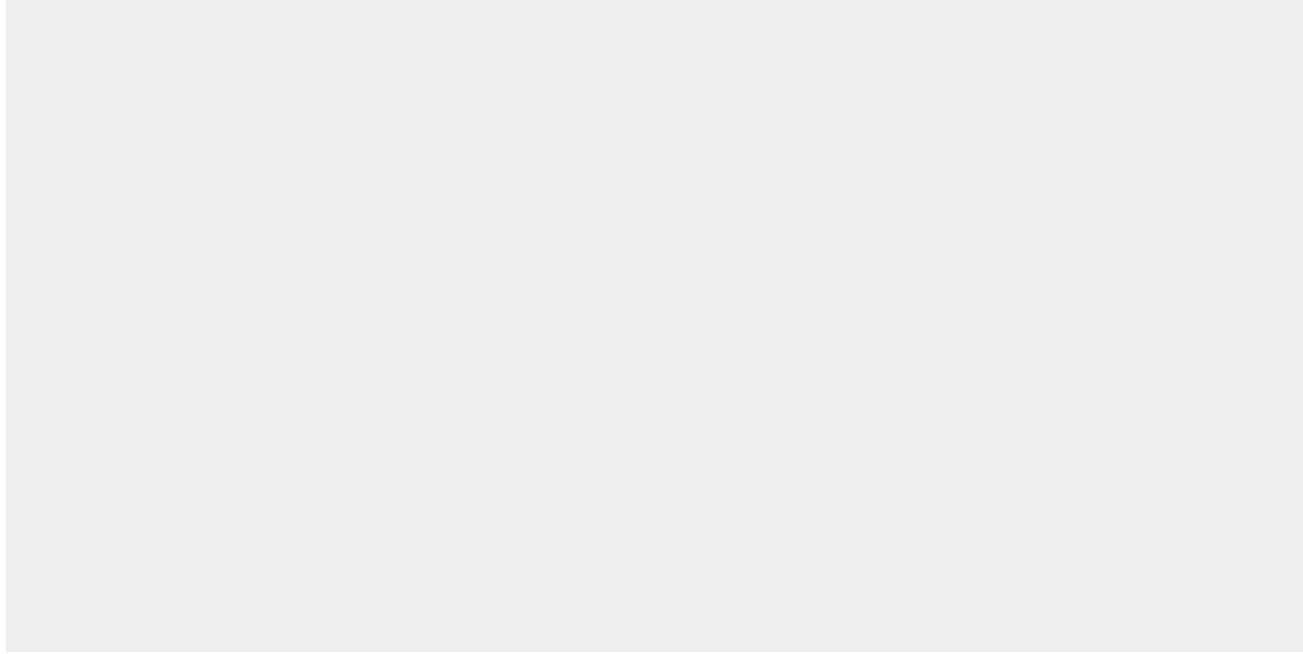
Instead, dragonfish teeth are transparent and hard to see, thanks to nanoscale structures that reduce the amount of light scattered by the teeth, researchers report June 5 in *Matter*.

The clear daggers vanish into the animals' dark mouths, probably to help dragonfish surprise their prey, says study coauthor Marc Meyers, a materials scientist at the University of California, San Diego. "They are mini-monsters of the ocean."

The teeth of dragonfish are similar to those of most animals: They contain a dense outer layer of enamel-like material that coats a hard tissue called dentin. But nanostructures in both layers set these tiny chompers apart from others' pearly whites.

Transmission electron microscopy of the teeth of one dragonfish species (*Aristostomias scintillans*) revealed tiny crystals, around 20 nanometers in size, in the enamel. In the dentin, the researchers found nanosized rods of the protein collagen coated with the mineral hydroxyapatite. If bigger, such structures would scatter light, but because of their small size, the light passes by with less being deflected, the scientists say. The teeth themselves are also very thin, which also helps transmit light.

Dragonfish aren't the only creatures with transparent teeth, but this is the first study to look at how such teeth interact with light, Meyers says. The scientists captured the fish with a net from their ocean abode at a depth of around 500 meters.



**SIGHT UNSEEN** The transparent teeth of deep-sea dragonfish (*Aristostomias scintillans* shown) probably evolved to help dragonfish surprise their prey.

David Baillot/UC San Diego Jacobs School of Engineering

## Citations

A. Velasco-Hogan *et al.* [On the nature of the transparent teeth of the deep-sea dragonfish, \*Aristostomias scintillans\*](#). *Matter*. Vol. 1, July 10, 2019. doi:10.1016/j.matt.2019.05.010.

## Further Reading

C. Martin. [Dragonfish opens wide with flex neck joint](#). *Science News*. Vol. 191, March 4, 2017, p. 5.

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