

News > Science

Dragonfish: How deep-sea predator evolved nanocrystals that make its fearsome teeth invisible to prey

'They spend most of their time sitting around with their jaws open, waiting for something to come by,' says Audrey Velasco-Hogan

Phoebe Weston Science Correspondent | @phoeb0 | Wednesday 5 June 2019 16:26 |

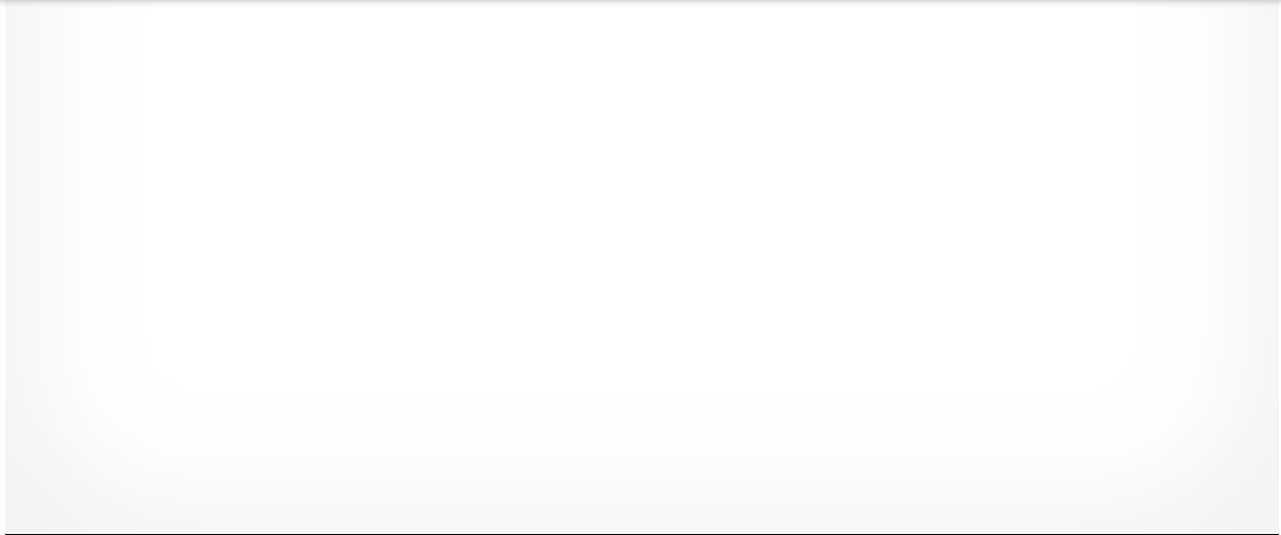
[Like](#)[Click to follow
The Independent](#)

with a large black gill and dark cone-like body, the deep sea dragonfish is one of the ocean's most formidable **predators**.

Part of this pencil-sized marauder's success is down to its fearsome set of fang-like teeth, which are covered in nanocrystals. This prevents light being reflected off them, meaning they are invisible to potential **prey**, according to the latest research.

“They spend most of their time sitting around with their **jaws** open, waiting for something to come by,” said lead researcher Audrey Velasco-Hogan, a PhD student at the University of California San Diego.

ADVERTISING



inRead invented by Teads

“Their teeth are always exposed, so it’s important that they are transparent so they don’t reflect or scatter any bioluminescent light from the environment.”

Despite measuring just 15 centimetres in length, deep-sea dragonfish (*Aristostomias scintillans*) are apex predators and feed on fish that are up to half their size. They are so voracious that they even eat each other.

TOP ARTICLES 1/6



Man trying to plug wasp's nest starts California's

If their teeth were visible, prey would immediately shy away, researchers say.

Scientists analysed the nanostructure of the teeth by using electron microscopy, which is a technique used to obtain high-resolution images of biological specimens. They discovered that like humans, dragonfish have an outer enamel-like layer and an inner dentin later.

The outer layer was covered in grain-sized nanocrystals arranged to prevent light being scattered or reflected off the surface of the teeth, according to the paper published in the journal *Matter*.

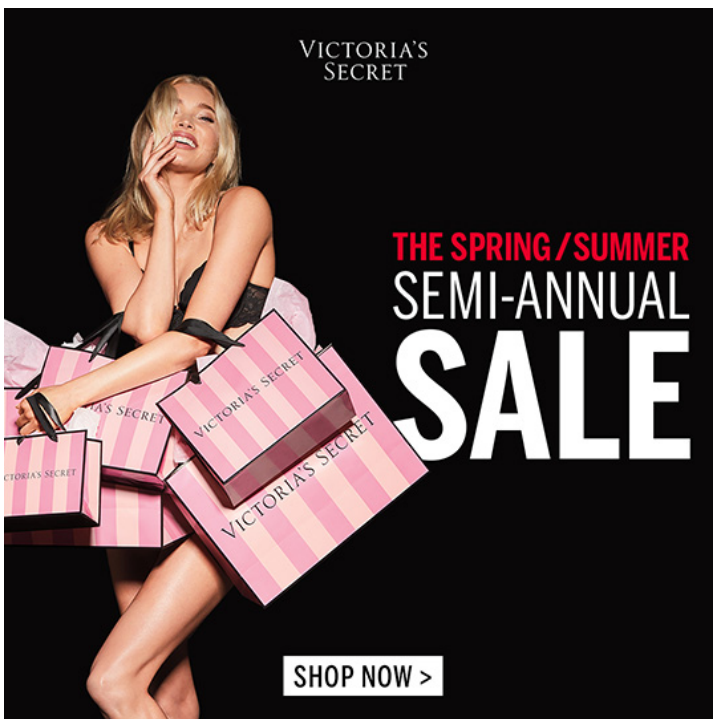
 **Weird & Wonderful: life in the deep sea**

[Show all 11](#)



The inner layer is also structured in a different way, and does not have microscopic channels called dentin tubes which normally give teeth their ivory colour. The fact their teeth are very thin adds to the light-scattering effect.

ADVERTISING



inRead invented by Teads



Sponsored

“From a materials perspective, it’s really interesting to see that dragonfish teeth have architectures that we do not see in others. By studying why these teeth are transparent, we can better understand deep-sea organisms like the dragonfish and the adaptations they evolved to live in their environments,” Ms Velasco-Hogan said.

Read more

Highly sensitive colour vision discovered in deep-sea fish

Deep sea snailfish has 'soft bones and open skull to survive pressure'

The findings could provide inspiration for researchers looking to develop transparent ceramics.

“Taking advantage of the ultimate adaptation organisms show to specific environments has always been a driver for

technological innovation, and the dragonfish is no exception to this,” said Dimitri Deheyn, a marine biologist at the Scripps Institution of Oceanography at UC San Diego.

“There is clearly still broad inspiration to gather from the dragonfish and nature in general, and this intercept between biology and engineering through biomimicry is clearly a lucrative path for sustainable innovations.”

AMERICAS

Theme park worker praised for reaction to autistic boy's meltdown

HOME NEWS

British teacher died after swallowing bag of cocaine at airport

AMERICAS

Alien reptile conspiracy at heart of murder trial baffles prosecutors

The Dead Giveaway That Tells You When Amazon's Giving You A Better Price Than Other Retailers

WIKIBUY | Sponsored

Real U.S. Towns That Are Unbelievably Weird

RANKER | Sponsored

Wall Street Legend's "Tech Talk" Shocks Audience

BANYAN HILL | Sponsored

The Biggest Movie Flops That Ruined Careers

HISTORY A2Z | Sponsored

Windshield Note Looked Like Parking Ticket & Is Way Funnier

NINJAJOURNALIST | Sponsored



David Letterman reveals the question he'd ask 'psychotic' Trump

SPORTS & FITNESS **THE 10 BEST Children's Coats**

5 reasons to book tickets to see WICKED this year

PROMOTED BY THE INDEPENDENT | Sponsored

15 Real Faces Of Famous Historical Figures Recreated In CGI

PAST FACTORY | Sponsored

Independent news email

Enter your email address

Continue

Register with your social account or [click here](#) to log in



Comments

Share your thoughts and debate the big issues

[Learn more](#)

Join the discussion

Loading comments...



GIVE IT LOVE | Sponsored

ASIA

North Korea death squads 'publicly executing people in schools'

FORMULA 1

Rosberg gives verdict on Vettel-Hamilton incident in Canadian GP

World's First Surviving Octuplets Are All Grown Up. Look At Them 9 Years Later

DIRECTEXPOSE | Sponsored

HOME NEWS

Penis mown into field to protest Trump is altered after police probe



GET IN TOUCH

Contact us

Jobs



LEGAL

Code of conduct and complaints

OUR PRODUCTS

Subscriptions

Install our apps

Archive

OTHER PUBLICATIONS

Evening Standard

Novaya Gazeta

EXTRAS

All topics

[SUBSCRIBE NOW / REGISTER](#)

[LOGIN](#)



[User policies](#)