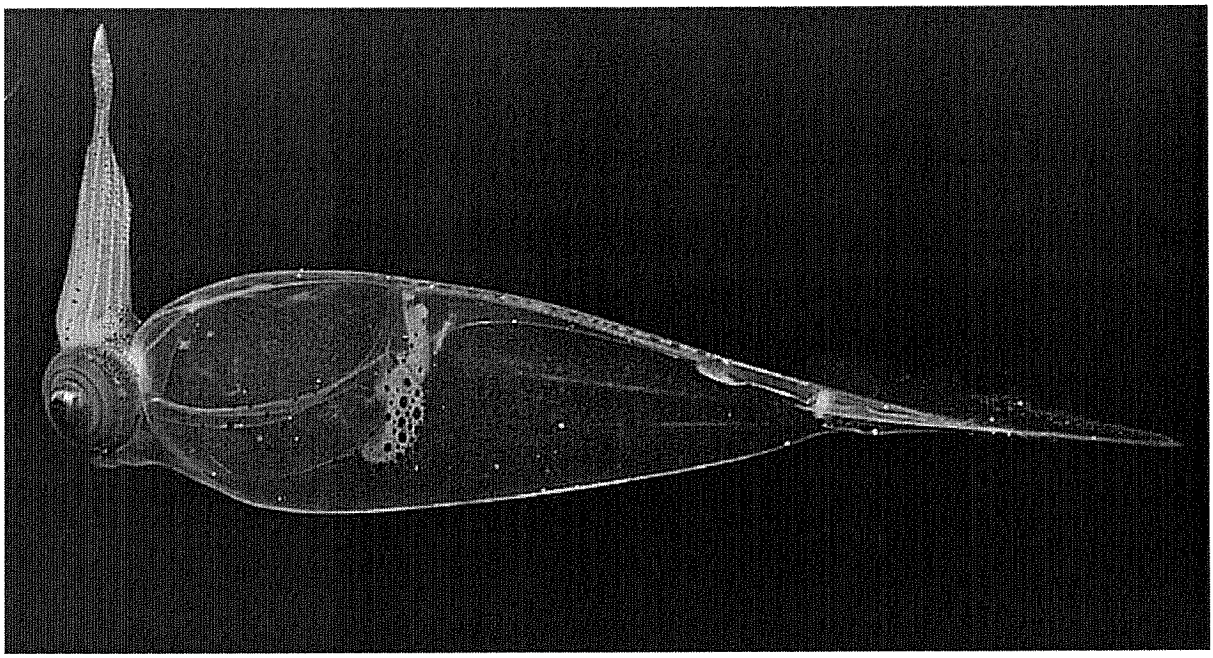
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Squids use leaking light for effective camouflage

By Tim Sandle Jun 13, 2016 in Environment

Glass squids have remarkable properties for evading detection. Properties with bioluminescent cells allow the sea creature mask itself from predators.



Scientists have discovered that bioluminescent cells found in some glass squids are biologically inefficient. However, this inefficiency, whereby light is leaked outwards rather than channelled inwards, works to the sea creature's advantage.

There are some 60 species of glass squid (from the family *Cranchiidae*) found within the world's oceans. The squids are transparent and they spend most of their time in partially sunlit shallow waters, where their transparency provides camouflage. The camouflage provides protection from predators, since most predators scan the waters above for silhouettes of prey (as science follower Sae (@Eldarim) tweeted in response to the new research: "#RandomSquidFacts #ToMakeOneSmile The common name, glass squid, derives from the transparent nature of most species .")

The squid are found in each of the major seas, typically at a depth of 2 kilometers below the surface.

There is one feature of the squid that is not transparent and which could act as a signal to prey — the eyes. However, the squid has a developed protection here as well. The large eyes of the squid are camouflaged with bioluminescence.

Underneath the eyes of the squid are silvery patches of cells called photophores. These provide under surface bioluminescence which adds to the camouflage. The cells leak put light in multiple directions that effectively make the squid invisible when viewed from above. The resultant glowing blur makes the eyes of the glass squid less conspicuous to predator approaching from a variety of angles.

Discussing this 'inefficient' light leakage, Steven Haddock of Monterey Bay Aquarium Research Institute in California, told Science News: "We always expect that the most 'perfect' or efficient

mechanism will be the pinnacle of evolution, but this study shows that there are many ways to solve challenges imposed by the environment."

The description of the eyes has been published in the *Journal of the Royal Society Interface*. The research paper is headed "Open water camouflage via 'leaky' light guides in the midwater squid *Galiteuthis*."

Read more: http://www.digitaljournal.com/news/environment/squids-use-leaking-light-for-effective-camouflage/article/467634#ixzz4CZaCYiEB