

The pioneering technology that is uncovering the mysteries of the 'kraken'

April 27 2021



Credit: CC0 Public Domain

The legend of the "kraken" has captivated humans for millennia. Stories of deep-sea squid dragging sailors and even entire ships to their doom can be found in everything from ancient Greek mythology to modern-

day movie blockbusters. It is therefore ironic that the species that inspired these stories, the giant squid *Architeuthis dux*, is camera-shy. In fact, filming this species in the wild has proven an insurmountable challenge for countless scientists, explorers, and filmmakers. To date, only one scientist, Dr. Edith Widder of the Ocean Research & Conservation Association, has repeatedly caught a live giant squid on camera. [In a new study, Dr. Widder and her colleagues have finally revealed the secrets behind their success.](#) This study, which is free to access, also includes several fascinating videos of large deep-sea squid that have never been published before.

The giant squid is the largest invertebrate (=animal without a backbone) on this planet, reaching total lengths of up to 14 m (46 ft). Even though most of the squid's body is made up of its long sinuous tentacles, you would still think that an animal of this size would be easy to spot. However, the giant squid lives at depths of over 400 m, where very little sunlight penetrates. To adapt to these conditions of almost perpetual darkness, the giant squid has evolved the largest eyes in the animal kingdom. Reaching diameters of 30 cm, [these dinner plate-sized eyes are sensitive enough to see under the dimmest light.](#) In fact, the authors of this study think that giant squid eyes might have such good eyesight that they have been able to spot and avoid most submarines or underwater cameras that people have previously used to try and film these [species](#).

To design a camera that the giant squid would not be able to see, Widder used dim-red lights instead of the conventional bright white lights that most deep-sea submarines or underwater cameras use to pierce the inky darkness. As most squid are unable to see red light, these cameras would therefore be all but invisible to any nearby squid.

To observe these giants requires more than stealth. There also needs to be a way to lure them in close enough so that they can be filmed. To address this problem, Widder once again thought about the giant squid's

impressive eye. Even though bright white lights likely scare these animals away, giant squid often hunt deep-sea prey that create their own light—called bioluminescence. So Widder built a lure called an E-Jelly that mimicked the bioluminescent display of a deep-sea jellyfish (*Atolla* sp.). The neon blue pin-wheel display of the E-Jelly would suggest the presence of a nearby meal and hopefully bring the squid close enough to be caught on camera.

The use of red illuminators and the E-Jelly bait was clearly a winning combination, and this technology was key to filming the first footage of live giant squid in both Japanese and US waters. Moreover, the authors of this study also report on several other species of squid, each over 1 m in length, that were successfully filmed with this technology within the Wider Caribbean Region.

The effectiveness of this pioneering technology for filming large deep-sea [squid](#) has the potential to keep generating ever-more engaging footage of the mysterious and little understood species. Yet perhaps more importantly, it can also provide new scientific insights into the behavior, distribution, and threats that these animals may face. Without this information, we simply do not know if the [giant squid](#), like many other deep-sea species, is able to adapt to growing threats such as climate change or marine pollution. As Dr. Nathan Robinson, an Adjunct Researcher at the Cape Eleuthera Institute and the main author of this study, states, "without this information, the future of these enigmatic species will remain uncertain."

More information: Nathan J. Robinson et al, Studying the swift, smart, and shy: Unobtrusive camera-platforms for observing large deep-sea squid, *Deep Sea Research Part I: Oceanographic Research Papers* (2021). [DOI: 10.1016/j.dsr.2021.103538](https://doi.org/10.1016/j.dsr.2021.103538)

Provided by Ocean Research & Conservation Association

Citation: The pioneering technology that is uncovering the mysteries of the 'kraken' (2021, April 27) retrieved 25 June 2024 from <https://phys.org/news/2021-04-technology-uncovering-mysteries-kraken.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.