

Illuminating find: Here's how squid talk to each other in the dark

Research sheds new light on how deep-sea squid communicate essential messages.

Deep, dark water doesn't stop Humboldt squid from communicating. The creatures can talk to each other visually using bioluminescence, and, researchers now say, through changing skin color patterns that communicate precise messages that could be translated into warnings like "don't touch my food."



Humboldt squid (*Dosidicus gigas*) use their bioluminescent organs to make their whole bodies glow, but researchers from Stanford University and the Monterey Bay Aquarium Research Institute (MBARI) have discovered this also creates a backlight for shifting color patterns on their skin -- like words on an e-reader screen. Researchers studying the behaviors of Humboldt squid think the creatures use these changing skin patterns to signal one another in deep water and they published their new findings in March 23 in the journal *Proceedings of the National Academy of Sciences*.

"Many squid live in fairly shallow water and don't have these light-producing organs, so it's possible this is a key evolutionary innovation for being able to inhabit the open ocean," Benjamin Burford, a graduate student at the Stanford's School of Humanities and Sciences and lead author on the paper, said in a statement. "Maybe they need this ability to glow and display these pigmentation patterns to facilitate group behaviors in order to survive out there."

MBARI's remotely operated vehicles captured video footage of Humboldt squid living at depths of 870 to 2,750 feet (266 to 838 meters) off the California coast. From this footage, researchers determined the squid change pigmentation patterns on their skin to communicate signals.

Interestingly, researchers also suggest the squid communication could even be "broken down into distinct units that the squid recombine to form different messages, like letters in the alphabet." However, the researchers say

that it's too early to say squid communications are as complex as a human-like language.

"We sometimes think of squid as crazy lifeforms living in this alien world but we have a lot in common -- they live in groups, they're social, they talk to one another," Burford said. "Researching their behavior and that of other residents of the deep sea is important for learning how life may exist in alien environments, but it also tells us more generally about the strategies used in extreme environments on our own planet."

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