Some species of anglerfish may spend their whole lives swimming upside down

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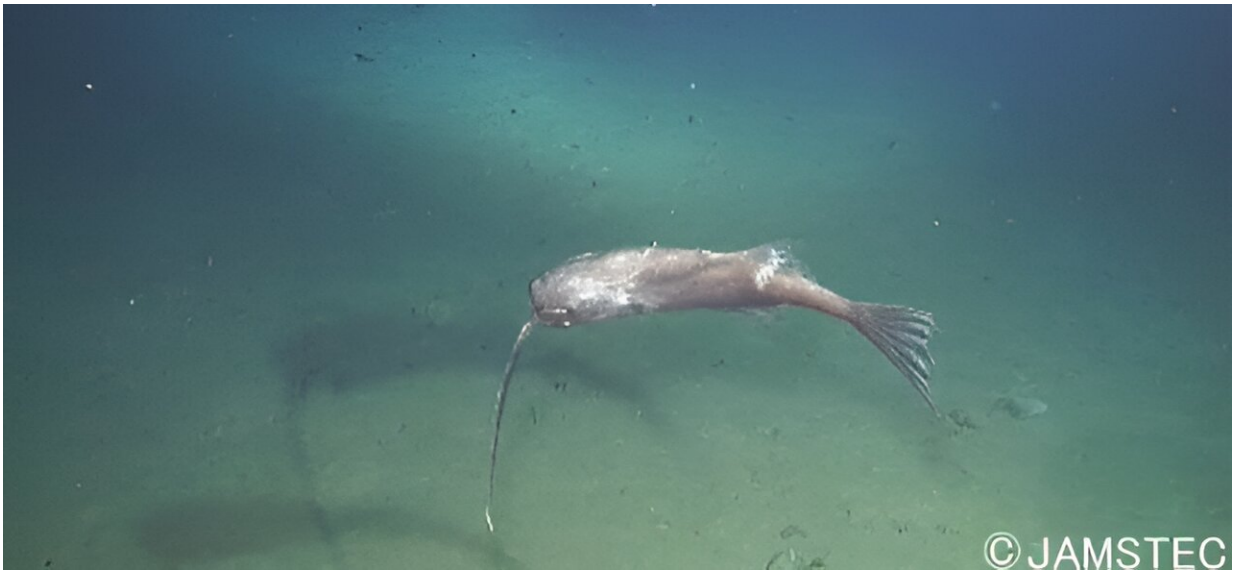

Credit: *Journal of Fish Biology* (2023). DOI: 10.1111/jfb.15609

A multi-institutional team of oceanographers and marine biologists has found evidence showing that some deep-sea species of anglerfish spend their entire lives swimming upside down. In their paper published in the *Journal of Fish Biology,* the group describes their study of video captured by several remotely operated undersea vehicles.

Prior research has shown that some species of anglerfish have natural lures that hang from their faces—the lures attract bacteria, which attract

prey. Prior research has also shown that some anglerfish living in the deep sea are large, up to 45 centimeters, with extremely long lures—in some cases, up to four times their body length—and that the lures have bioluminescence.

Up until now, researchers have assumed that the fish used their natural lures in the same way as their smaller cousins. But that is not the case, as the researchers with this new effort discovered when studying video obtained via an ROV conducting research in the Izu-Ogasawara Trench off Japan—it showed a large anglerfish with its extremely long lure swimming upside down. This phenomenon had been seen by other researchers back in 1999, but it was presumed anomalous.

Intrigued by the finding, the researchers studied video captured by other ROVs and found observations of anglerfish swimming in an inverted position in eight of them. In studying the imagery, the research team found that it was not a behavior used for a specific activity, such as fishing—it was a full-time behavior. Regardless of what the fish were doing, they were doing it upside down.

The researchers suggest that the fish evolved the behavior after finding it easier to manipulate such a long lure in an inverted position, in which the lure hangs from the top lip, which is closest to the sea bed when the fish is inverted. The findings show just how valuable ROV research has become in research involving deep-sea creatures.

More information: Andrew L. Stewart et al, Upside-down swimming: in-situ observations of inverted orientation in Gigantactis, with a new depth record for the Ceratioidei, *Journal of Fish Biology* (2023). DOI: 10.1111/jfb.15609