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TITLE: The first global deep-sea stable isotope assessment reveals the unique trophic ecology of Vampire Squid Vampyroteuthis infernalis (Cephalopoda)

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ABSTRACT:

Abstract Vampyroteuthis infernalis Chun, 1903, is a widely distributed deepwater cephalopod with unique morphology and phylogenetic position. We assessed its habitat and trophic ecology on a global scale via stable isotope analyses of a unique collection of beaks from 104 specimens from the Atlantic, Pacific and Indian Oceans. Cephalopods typically are active predators occupying a high trophic level (TL) and exhibit an ontogenetic increase in ? 15 N and TL. Our results, presenting the first global comparison for a deep-sea invertebrate, demonstrate that V. infernalis has an ontogenetic decrease in ? 15 N and TL, coupled with niche broadening. Juveniles are mobile zooplanktivores, while larger Vampyroteuthis are slow-swimming opportunistic consumers and ingest particulate organic matter. Vampyroteuthis infernalis occupies the same TL (3.0?4.3) over its global range and has a unique niche in deep-sea ecosystems. These traits have enabled the success and abundance of this relict species inhabiting the largest ecological realm on the planet.

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