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DID ANTARCTIC OCTOPUSES COLONISE THE DEEP SEA?

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This study uses octopuses as model organisms to test the hypothesis that the Antarctic has acted as a centre for evolutionary innovation and radiation and as a source of taxa that have invaded the deep sea. It is likely that the deep-sea fauna was depauperate following extinction events associated with past global climate change causing, for example, deep-ocean oxygen minima. Such events have been recorded from the Late Cretaceous and Palaeocene / early Eocene, prior to the opening of the Drake Passage. The subsequent development of deep-water connections between the Southern Ocean and the major oceans which surround it would have facilitated the expansion of biogeographic boundaries. The present study aims to characterise the micro- and macro-evolutionary processes of endemic Antarctic octopod fauna and the macro-evolutionary processes of the deep-sea octopod fauna using molecular methodologies. Bayesian analytical procedures incorporating fossil constraints will then be used to estimate the divergence times of these taxa thereby providing a means of testing the hypothesis that, in evolutionary history, Antarctic taxa invaded the deep sea.