

# Polymetallic nodule fields are hotspots of abundance and diversity for a highly vulnerable abyssal fauna

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An international group of researchers has published results from a recent research campaign (SO-239, March-April 2015) onboard the new German research vessel SONNE in the Clarion-Clipperton Fracture Zone (CCZ, Central Eastern Pacific), by which they demonstrate that polymetallic nodule fields are hotspots of abundance and diversity for a highly vulnerable abyssal fauna.

The results of this study underlie the need for careful considerations of strategies for biodiversity conservation. Especially the CCZ area is recently of growing interest for industry because of the high concentration of polymetallic nodules present at abyssal depths (> 4000 m water depth).

However being one of the remotest [areas](#) on earth, very little is known on its biodiversity and ecosystem functioning. In the context of future exploitation licences which will be provided by the International Seabed Authority (ISA) for different license areas in the CCZ, this international group of scientists investigated the abyssal biota present here to understand potential [mining](#) impacts.

Based on 17 Remotely Operated Vehicle (ROV 6000 Kiel, GEOMAR) video transects conducted for the first time on these poorly-known abyssal communities, the paper shows that the fauna associated with polymetallic nodules is more abundant and diverse than in areas without

or only low nodule numbers, a pattern which is consistent across the four areas licensed for nodule exploration which have been visited during SO239.

They also provided, for the first time, ecological data from one Area of Particular Environmental Interest (APEI, Number 3) established by the International Seabed Authority (ISA) to be safeguarded from mining.

Finally, they also report on the high impact and lack of recovery of fauna on 2 trawling tracks and experimental mining simulations up to 37 years old, suggesting that mining impacts may be long-lasting or even permanent. Based on these observations, the researchers argue that preservation zones within mining areas should be established in areas rich in nodules. The results of this study are considered of the highest importance for policy-makers and the industry to incorporate whilst developing mining strategies and policies.

**More information:** Ann Vanreusel et al. Threatened by mining, polymetallic nodules are required to preserve abyssal epifauna, *Scientific Reports* (2016). [DOI: 10.1038/srep26808](https://doi.org/10.1038/srep26808)

Provided by Ghent University

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