



# Commentary: Threatened by mining, polymetallic nodules are required to preserve abyssal epifauna

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## A commentary on

### Threatened by mining, polymetallic nodules are required to preserve abyssal epifauna

by Vanreusel, A., Hilario, A., Ribeiro, P. A., Menot, L., and Martínez Arbizu, P. (2016). *Nat. Sci. Rep.* 6:26808. doi: 10.1038/srep26808

Every so often new species, habitats and interspecies relations are discovered in the deep sea which pose a fundamental challenge to the way in which the oceans are governed. The recent discovery of an abundant and diverse sessile epifauna on manganese nodules may be precisely such a case. A recent paper by Vanreusel et al. (2016) in *Nature Scientific Reports* presents the results of a research cruise conducted in 2015, in areas being considered for polymetallic nodule mining in the Clipperton-Clarion Fracture Zone of the central eastern Pacific Ocean. The research showed that “epifaunal densities are more than two times higher at dense nodule coverage... and that taxa such as alcyonacean and antipatharian corals are virtually absent from nodule-free areas. Furthermore, surveys conducted along tracks from trawling or experimental mining simulations up to 37 years old, suggest that the removal of epifauna is almost complete and that its full recovery is slow” (Vanreusel et al., 2016, p. 6).

This discovery should invite states and scholars to revisit the Common Heritage of Mankind, which is the overarching legal principle agreed to under Part XI of the UN Convention on the Law of the Sea (UNCLOS) to govern seabed resources on and below the seabed beyond national jurisdiction (the Area). The Common Heritage of Mankind is an accepted part of UNCLOS and an International Seabed Authority (ISA) has been established to administer the Area and its resources. In practice, the focus is mostly on those mineral deposits in the Area that are deemed to be commercially most relevant; polymetallic nodules, polymetallic sulphides, and ferromanganese crusts. The ISA is currently in the midst of defining a mining code, including regulations concerning minerals exploitation, status of contracts, environmental standards, and how financial receipts might be managed, invested and distributed for the benefit of mankind [International Seabed Authority (ISA), 2016]. In this context, states are in the process of defining how they wish to implement the Common Heritage of Mankind principle.

In 2015 the UN General Assembly adopted a resolution, which formally launched a new and separate set of negotiations under UNCLOS to address the use of marine biological diversity in areas beyond national jurisdiction. This resolution expressly instructs negotiators to address issues including “the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, in particular, together and as a whole, marine genetic resources, including questions on the sharing of benefits, measures such as area-based management tools, including marine protected areas, environmental impact assessments and capacity-building, and the transfer of marine technology” [United Nations (UN), 2015, paragraph 2]. The resolution makes no reference to the seabed, Part XI of UNCLOS or the Common Heritage of Mankind. However, the

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potential application of the principle is nonetheless being debated (see Matz-Lück, 2010; Oral, 2012; Scovazzi, 2012; Tladi, 2014). Specifically, at the first session of the Preparatory Committee tasked with negotiating the elements of what might constitute a legally-binding agreement on biological resources, the issue of the Common Heritage of Mankind was repeatedly raised. Developing countries tended to argue in favor of the application of the principle, whereas industrialized countries tended to be cautious and hesitant [International Institute for Sustainable Development (IISD), 2016].

What (Vanreusel et al., 2016) have raised with their research is that, in the case of polymetallic nodules, one cannot distinguish between the mineral and biological resources as the latter are dependent on the former. If the minerals are mined the organisms in that area are impacted as well. Given that the organisms identified by Vanreusel et al. (2016) are sessile, they undoubtedly constitute part of the Area. While UNCLOS doesn't specifically address biological resources in the Area, it does stipulate that the natural resources of the Area should be protected and conserved, and that damage to the flora and fauna should be protected (UNCLOS, Article 145). Since the Area and its resources are the Common Heritage of Mankind (UNCLOS, Article 136), arguably sessile organisms which could be resources someday should be subject to the principle. The danger of negotiating two separate agreements on mineral and biological resources is that it may result in

legal and institutional overlap with the consequence that these vulnerable ecosystems will not be effectively managed and protected.

On the back of such arguments, together with the compelling evidence uncovered by Vanreusel et al. (2016) this author believes a serious case has been made that, instead of negotiating competing sectoral legal regimes, efforts should be made to take a more integrated approach and to clearly define and implement what is already agreed. This argument is given further weight by the first interim review of the ISA which recently concluded "that the Authority is not yet fulfilling its obligations to ensure that activities in the Area are carried out for the benefit of mankind" (Johnson et al., 2016). Vanreusel et al. (2016) have provided an important science contribution that should be critically debated and, ultimately and hopefully, used as a basis for taking concrete action toward achieving the UN Sustainable Development Goal 14 to conserve and sustainably use marine resources for sustainable development.

## AUTHOR CONTRIBUTIONS

The corresponding author wrote and is solely responsible for this general commentary piece. The piece has been commented on by the author of the original article, Ann Vanreusel (Ghent University), and Til Markus (University of Bremen).

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