

Human rights implications of deep-seabed mining from the perspective of protecting everyone's human right to health in the context of climate change

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This brief summarizes the human rights implications of deep-seabed mining and outlines relevant international obligations. In particular, this brief clarifies State obligations in protecting marine biodiversity in supporting the human right to health, including from the impacts of climate change. In doing so, it draws on the International Tribunal for the Law of the Sea (ITLOS) in its Advisory Opinion No. 31 (2024), which clarifies State obligations in the context of climate change. This brief should be read in conjunction with the clarifications provided the UN Special Rapporteur on the Human Right to a Healthy, Clean and Sustainable Environment on the protection of the human right to a healthy environment in the context of ocean governance.¹

metals in marine food webs that could enter the human food chain,³ presenting particular risks for vulnerable groups such as children and pregnant women.⁴

Ecosystem disruption: Deep-seabed mining may also alter ecosystem composition and functions, with the potential to disrupt the delivery of key ecosystem services⁵ that are essential for human

The risks of deep-seabed mining for the human right to health

Threats to food security: Noise and light pollution, discharges and infrastructure linked to deep-seabed mining are expected to disrupt fish movement, threatening the rights to health. This is particularly acute for vulnerable coastal communities that rely on fisheries for sustenance and economic stability,² but it is also true for the whole of humanity who rely on fish as a nutritious source of food that support physical and mental health.

Pollution: Pollution from deep-seabed mining is expected to increase ambient metal concentrations in the water column, which has the potential to harm human health through bioaccumulation of

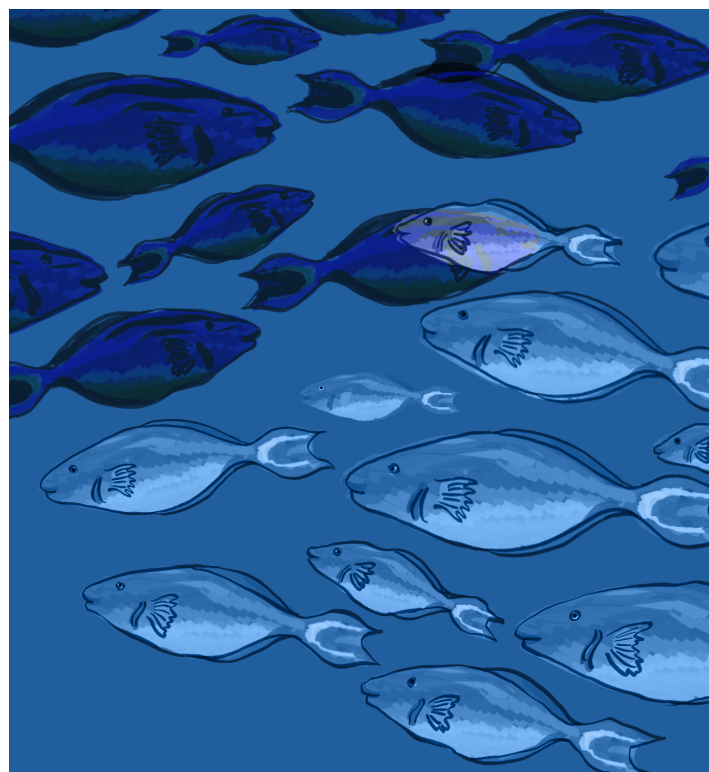


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¹ UN Doc A/HRC/58/59 (2025).

² Graham Hamley, 'The Implications of seabed mining in the Area for the human right to health' (2022) 31 RECIEL 389; Graham Hamley, 'The Human Health and Marine Biodiversity Nexus: An Integrated Approaches for a Healthy Future' (PhD thesis, University of Strathclyde, UK, 2023: <https://stax.strath.ac.uk/concern/theses/rn301202h>)160–161

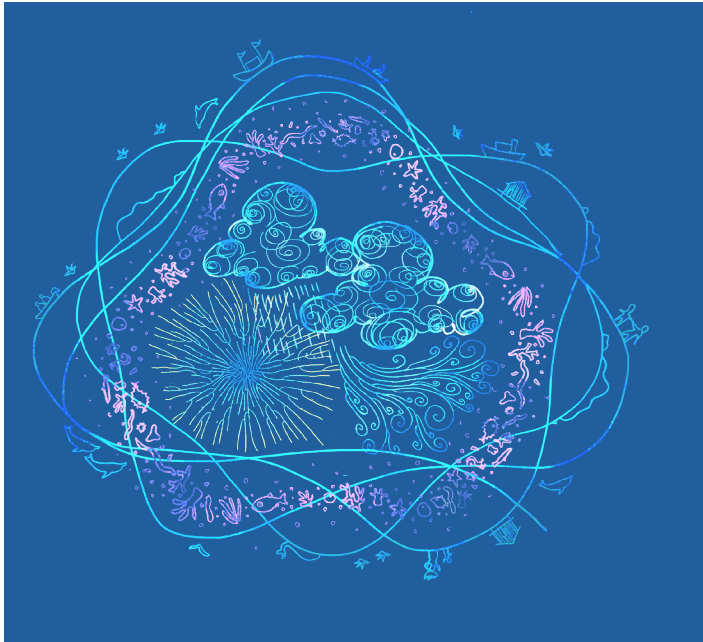


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health and wellbeing, such as pollution, air quality and climate control, as well as fresh water, waste treatment, erosion control, food and energy. Such disruptions could extend to oxygen production, given the ocean's critical role in generating the air we breathe, while also curtailing the right to science by destroying unexplored ecosystems that hold untapped knowledge about our planet and its life-sustaining processes,⁶ including the potential for bio-medical discovery.⁷

Worsening of the global climate crisis: The deep seabed is a significant carbon sink, and deep-seabed mining has the potential to undermine its role in climate regulation, with adverse impacts for the enjoyment of several human rights, including the rights to life and health in terms of climate-related premature deaths and impacts of physical and mental health.⁸ With current mining technologies, deep-seabed mining vehicles will disrupt the seabed resuspending sequestered carbon, which can remineralise into carbon dioxide that could potentially be re-released into the atmosphere.⁹ Moreover, deep-seabed mining will also negatively impact on marine biodiversity, as deep-sea mining could lead to species extinction¹⁰ and an irreversible loss

of marine ecosystem function,¹¹ including species and ecosystems that enable carbon sequestration.¹²

Negative impacts on cultural and spiritual connections to the deep seabed¹³ can also have negative impacts on the physical and mental health of health of Indigenous knowledge holders, local knowledge holders.

Against the backdrop of these risks, currently we lack sufficient knowledge of:

- how far impacts could occur (vertically or horizontally) beyond the location of the mining site,
- what management interventions could prevent or mitigate those impacts, and
- what indirect or wider repercussions from those impacts may arise, for example adverse effects to ecosystem services performed by the ocean.¹⁴

11 E Simon-Lledó et al, 'Biological Effects 26 Years after Simulated Deep-Sea Mining' (2019) 9 Scientific Reports 8040; K Miller et al, 'An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps' (2018) 4 Frontiers in Marine Science 418.

12 Elisa Morgera et al, Ocean-based Climate Action and Human Rights Implications under the International Climate Change Regime, 38 The International Journal of Marine And Coastal Law 411 (2023); and Elisa Morgera et al, Addressing the Ocean-Climate Nexus in the BBNJ Agreement: Strategic Environmental Assessments, Human Rights and Equity in Ocean Science, 38 The International Journal of Marine And Coastal Law 447 (2023).

13 M Vierros et al, 'Considering Indigenous Peoples and Local Communities in Governance of the Global Ocean Commons' (2018) 119 Marine Policy 104039; CY Mulalap et al, 'Traditional Knowledge and the BBNJ Instrument' (2020) 122 Marine Policy 104103; P Turner et al, 'Memorializing the Middle Passage on the Atlantic seabed in Areas Beyond National Jurisdiction' (2020) 122 Marine Policy 104254; D Johnson, 'Protecting the Lost City Hydrothermal Vent System: All is Not Lost, or Is It?' (2019) 107 Marine Policy, 103593

14 Miller et al (n 11).



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Toxic Impacts of Metals Potentially Released During Deep-Sea Mining — A Synthesis of the Challenges to Quantifying Risk' (2017) 4 Frontiers in Marine Science article 368 <<https://doi.org/10.3389/fmars.2017.00368>> accessed 23 December 2022.

6 A Sweetman et al, Evidence of dark oxygen production at the abyssal seafloor (2024) 17 Nature Geoscience 737.

7 I Aguiar Blanco et al, The Ocean Genome Helps Fight Disease: Here's How We Save It (2020).

8 UN Special Rapporteur on the promotion and protection of human rights in the context of climate change, Elisa Morgera: Policy Brief - Climate Change, Mental Health and Human Rights (2024); <https://www.ohchr.org/en/documents/policy-briefs/policy-brief-climate-change-mental-health-and-human-rights>

9 Hamley (2023) (n 2) 163–165.

10 E Thomas et al, 'A Global Red List for Hydrothermal Vent Molluscs' (2021) 8 Frontiers in Marine Science 713022.

State obligations

According to ITLOS Advisory Opinion No. 31 (2024), States have strict due diligence obligations under the law of the sea, additional to those contained in the Paris Agreement, to take all necessary measures to prevent future or potential marine pollution from greenhouse gas emissions from all sources; and to conserve marine biodiversity and restore marine ecosystem which promote the resilience of living marine resources while enhancing carbon sequestration. These obligations are essential also to protect human rights in the context of climate change.¹⁵ These obligations must be interpreted and implemented in accordance with the ecosystem and precautionary principles,¹⁶ which have also been considered under international human rights law to entail an obligation to take 'effective and proportionate measures' to prevent foreseeable environmental harm as well as foreseeable negative impacts on human rights, 'especially when there are threats of serious or irreversible damage.'¹⁷

Accordingly, States must agree on and implement a specific application of the precautionary approach to ensure that deep-seabed mining will not be authorized before clear scientific evidence and adequate regulations are in place to prevent further foreseeable negative impacts on the climate system and on the human right to health.

In addition, on the basis of the clarifications provided by ITLOS and the obligations arising from the human right to health, the following obligations should also be applied in the context of the International Seabed Authority (ISA):

- cooperate to promote and undertake scientific research and ensure the exchange of information and data on marine pollution from anthropogenic greenhouse gas emissions, its pathways, risks and remedies, including mitigation and adaptation measures, as well as on the contributions of marine biodiversity to human health and wellbeing;
- subject to an environmental and human rights impact assessment any activity in the deep seabed (e.g. testing of technology, etc.) that may contribute to climate change or the destruction of marine biodiversity, considering: disproportionate negative impacts on those states most ecologically connected to the deep-seabed; negative impacts on holders of cultural rights linked to the seabed; and disproportionate health risks for human rights holders in vulnerable situations such as women, children and the elderly from loss and/or degradation of marine biodiversity;
- ensure participatory and transparent decision-making process on the deep seabed, which requires significant reforms of current, well-documented sub-standard practices at the ISA, in the light of the rights of freedom of expression, freedom of association and peaceful assembly, information, participation and remedy, protection of environmental human rights defenders and respectful integration of Indigenous knowledge and local knowledge, including that of small-scale fishers.

15 UN Docs [A/79/176](#) and [A/HRC/56/46](#) (2024).

16 International Tribunal for the Law of the Sea (ITLOS), Advisory Opinion No. 31 (2024), at 152.

17 J Knox, 'Report of the Special Rapporteur on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment: Framework Principles on Human Rights and the Environment' UN Doc A/HRC/37/59 (2018) Framework Principle 11, para 33(c).

18 ITLOS (n 16) at 150.

19 Hamley (2023) (n 2) 109–113.

20 E Popova et al., 'Ecological connectivity between the areas beyond national jurisdiction and coastal waters: Safeguarding interests of coastal communities in developing countries' (2019) 104 *Maine Policy* 90–102, doi: 10.1016/j.marpol.2019.02.050

21 Hamley (2023) (n 2) 129–132.

22 Morgera and Lily, Public participation at the International Seabed Authority: An international human rights law analysis' (2022) 31 *RECIEL* 374–388; Morgera, 'Participation of Indigenous Peoples in Decision Making Over Deep-Seabed Mining' *American Journal of International Law – Unbound* 118 (2024), 93–97.

23 Framework Principle 11, para 33(a), making reference also to Framework Principles 4–10.



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