

## Briefing Note # 8

### Ocean20: Deep-sea Mining - Why a Precautionary Pause is Needed

#### Key Recommendations:

1. Urgently consider a precautionary pause on deep-sea mining, prioritising circular economy approaches, product innovation, and terrestrial mining reforms.
2. Insist on the completion and scientific validation of the International Seabed Authority (ISA) Mining Code.
3. Establish robust standards for compliance, transparency, and equitable benefit sharing, particularly for African and developing countries before any exploitation commences.
4. Advance research into deep-sea ecosystems, and close scientific knowledge gaps before irreversible decisions are made.
5. Build ocean governance and deep sea research and knowledge capacity, including on good practice legislation and regulations, in Africa and other developing nations.
6. Strengthen multilateral stewardship of seabed minerals under the UNCLOS "common heritage" principle, resisting unilateral licensing or mining ventures that circumvent international law.

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# Ocean20: Deep-sea Mining - Why a Precautionary Pause is Needed

## 1. Context

Technological advances have not diminished the uncertainty and risk associated with deep-sea mining. Exploratory mining activities in areas like the Clarion-Clipperton Zone cause destruction of seafloor habitats, impacting slow-growing benthic communities and generating sediment plumes that spread toxic<sup>1</sup> metals across marine environments<sup>2</sup>. The physical removal of habitat (for example nodules) and sediment disturbance kills immobile deep-sea fauna, including species not yet identified, impacting marine life far beyond mining sites. There exists no viable habitat rehabilitation process<sup>3</sup> and natural recovery of these ecosystems could take millions of years. These disturbances extend through the water column, potentially disrupting critical ocean processes such as carbon sequestration and threatening commercially important migratory fish stocks, with cascading effects on food security for vulnerable coastal and island nations<sup>4</sup>. In international waters, the International Seabed Authority (ISA) administers contracts for the exploration (and, in future, exploitation) of seabed minerals. Regulations for commercial exploitation of deep-sea minerals are still in development by the ISA and its member states.

## 2. Rethinking deep-sea mining in the green transition

Proponents frame deep-sea mining as indispensable to the global energy transition, particularly for metals like cobalt, nickel, and copper. However, growing evidence shows global supply chains can meet demand through terrestrial mining reforms, innovations in battery chemistry, and improved recycling, all with significantly lower economic, environmental and social costs. The European Academies Science Advisory Council (EASAC) illustrated that while global demand for metals is increasing, there is substantial untapped potential in circular economy strategies<sup>5</sup>, including large-scale recycling of existing materials, improved product design for reuse, and technological innovations that reduce reliance on new extraction<sup>6</sup>. Such approaches can meet resource needs without jeopardising deep-sea environments that are ecologically invaluable, and risk irreversible damage from mining.

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<sup>1</sup> Hauton, C. et al. (2017). Identifying toxic impacts of metals potentially released during deep-sea mining – A synthesis of the challenges to quantifying risk. *Frontiers in Marine Science*, 4. <https://doi.org/10.3389/fmars.2017.00368>

<sup>2</sup> Benthic communities refers to the diverse groups of organisms that live in, on, or around the seafloor or bottom of any aquatic body of water, such as an ocean, lake, or river.

<sup>3</sup> Niner, H.J. et al (2018). Deep-sea mining with no net loss of biodiversity - an impossible aim. *Frontiers in Marine Science*, 4.

<sup>4</sup> Crane, R., Laing, C., Littler, K. et al. (2024). Deep-sea mining poses an unjustifiable environmental risk. *Nat Sustain* 7, 836–838. <https://doi.org/10.1038/s41893-024-01326-6>

<sup>5</sup> Gaustas et al. 2018. Circular economy strategies for mitigating critical material supply issues. *Resources, Conservation and Recycling* 135, 24 - 33. [doi.org/10.1016/j.resconrec.2017.08.002](https://doi.org/10.1016/j.resconrec.2017.08.002)

<sup>6</sup><https://easac.eu/publications/details/deep-sea-mining-assessing-evidence-on-future-needs-and-environmental-impacts>

The EASAC also finds that the production targets envisioned by the ISA for nodule mining would contribute a relatively small fraction of future demand for metals like nickel and copper. Research on mining polymetallic sulfides, such as those in hydrothermal vent fields found along the Mid-Atlantic Ridge and western Indian Ocean Ridges around Africa, indicates that even in regions where the ISA has issued exploration contracts, the potential yield is marginal compared to what can be achieved through robust circular economy measures<sup>7</sup>. Protecting deep-sea ecosystems while advancing metal recovery from existing supply chains represents a more sustainable pathway to a carbon-neutral future.

### 3. Lack of agreement on regulations

The absence of internationally agreed regulations and a broad social license, with mounting opposition from countries, indigenous groups, fishers, scientists, and corporations alike, underscore the urgent need for precaution. The potential for deep-sea mining to exacerbate global biodiversity loss and undermine ocean health is at odds with international commitments to sustainable development, ocean governance, and climate resilience.

The rush for deep-sea mining ignores the risks of irreparable harm to complex ecosystems that are the least understood on the planet. An intermittent pause on deep-sea mining, in line with the precautionary principle of international law, is warranted until robust scientific assessments, regulatory frameworks, and sustainable alternatives are established to prevent irreversible harm to marine ecosystems and biodiversity<sup>8</sup>.

### 4. Critique of deep-sea mining narratives

Multiple governments, scientists, and civil society organisations have called for a precautionary pause or moratorium, recognising deep-sea mining as profiteering by a few at the expense of shared ocean heritage and global stability<sup>9</sup>. The economic viability of deep-sea mining remains uncertain, raising questions about its long-term stability and ability to deliver equitable benefit sharing, environmental management, compliance, and transparency.

States should recognise that deep-sea mining, as a source of short-term economic gain, is fundamentally misleading, given robust scientific evidence showing the risks to deep-sea biodiversity and global ecosystem functions remain unresolved and could cause irreversible harm. It is essential to ensure that gaps between the temporary commercial benefits to seabed miners translate to compensation for the

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<sup>7</sup> Van Dover, et al (2018). Scientific rationale and international obligations for protection of active hydrothermal vent ecosystems from deep-sea mining. *Marine Policy*, 346.

<https://www.sciencedirect.com/science/article/pii/S0308597X17306061>

<sup>8</sup> Amon, et al (2022). Assessment of scientific gaps related to the effective environmental management of deep-seabed mining, 138 *Marine Policy*. <https://doi.org/10.1016/j.marpol.2022.105006>

<sup>9</sup><https://news.mongabay.com/2025/06/madness-world-leaders-call-for-deep-sea-mining-moratorium-at-un-ocean-summit/>

long-term threats to economies dependent on sustainable land-based mineral exports and vibrant ocean systems.

- Countries at risk of economic harm due to deep-sea mining, including those reliant on terrestrial mining and healthy marine environments, should insist on clear and robust compensation mechanisms, as required under international law, before any mining begins.
- Compensation schemes must fully account for lost export revenues, negative ecosystem impacts, and broader socio-economic damages, including for developing states, as stipulated by the United Nations Convention of the Law on the Sea (UNCLOS).
- In the absence of agreed mechanisms to ensure sufficient and equitable compensation for vulnerable states, a precautionary pause should be adopted to halt deep-sea mining activities until outstanding scientific, economic, and justice issues are resolved through transparent multilateral negotiations.
- Such a pause aligns with the precautionary principle and respects the principle that ocean resources in international waters constitute the “common heritage of humankind”, requiring careful stewardship for current and future generations

Further, the widespread myth that deep-sea mining is essential for national security, often leveraged by mining interests, fails to address real supply chain bottlenecks, which lie in policy, not resource scarcity. The international community has highlighted that mining the deep seabed risks undermining decades of multilateral ocean protection efforts and breaches the “common heritage of humankind” principle enshrined in UNCLOS.

## **5. A deep-sea mining pause is in harmony with the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement**

The BBNJ Agreement, having reached over 60 ratifications, presents a historic opportunity for the G20 to demonstrate international leadership in ocean governance through support for a precautionary pause on deep-sea mining. Harmony between a deep-sea mining pause and the BBNJ’s objectives is reflected in several key articles, notably the commitment to the “conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction” and the explicit emphasis on measures such as Marine Protected Areas (MPAs) and environmental impact assessments.

A precautionary pause on deep-sea mining aligns with Article 7 of the BBNJ Agreement on the application of the precautionary approach, enabling rigorous scientific and technical review before any industrial exploitation, while Article 8 ensures that states actively promote the objectives of the Agreement during international decision-making, including at the ISA<sup>10</sup>. This approach not only

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<sup>10</sup> Thiele, T. and Kachelriess, D. (2024) Deep Dives? Part VII of the BBNJ Agreement: Financial Resources and Mechanism. High Seas Alliance Briefs. At <https://highseasalliance.org/wp-content/uploads/2024/05/DeepDives-finance-2.pdf>

safeguards rare species and vulnerable marine ecosystems but also facilitates capacity-building, fair and equitable benefit sharing, and technological cooperation as stipulated in the Agreement.

The two governance systems, ISA's mining regime and BBNJ's conservation mandate, risk mis-alignment if deep-sea mining precedes systematic prioritisation of important biodiversity areas and spatial planning to support coordinated ecosystem-based management. Mining exploitation contracts in key biodiversity areas, including areas that the BBNJ Agreement seeks to safeguard through MPAs, could render BBNJ protections ineffective, especially if not preceded by robust scientific baselines and environmental assessment<sup>11</sup>.

## 6. The leadership required

A precautionary pause on deep-sea mining is legally crucial because current regulatory gaps and scientific uncertainties make responsible exploitation impossible under international law. UNCLOS mandates the ISA to protect the "common heritage of humankind," but in 2021, the so-called "two-year rule"<sup>12</sup> was invoked by Nauru, a Small Island Developing State in Micronesia, formally requesting the ISA to finalize the exploitation regulations within that time frame. The ISA has failed to adopt such regulations, resulting in a governance vacuum and significant risk to marine ecosystems. The two-year rule has thus forced the ISA to consider mining applications without clear safeguards in place<sup>13</sup>. Still, this rule does not obligate approval without proper environmental protection or full regulatory frameworks, and ultimately demonstrates why a precautionary pause accords with the precautionary obligations of UNCLOS. Importantly, UNCLOS was negotiated during the 1970s, when climate concerns were minimal in international discourse, and so its frameworks need to be complemented by contemporary scientific findings around ocean resilience and climate impacts.

A precautionary pause on deep-sea mining would offer several benefits: it would give time for the international community to fill regulatory, scientific, and institutional gaps, strengthen global governance, and avoid irreversible harm to deep-sea ecosystems, while aligning with the precautionary approach necessary for intergenerational equity. Achieving a precautionary pause on deep-sea mining demands bold leadership, particularly at platforms such as the G20, where broad consensus and political commitment are required to ensure that deep-sea mining is not authorised until all risks are understood and regulated; this safeguards both global environmental interests and the standing of international law in an era of climate emergency.

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<sup>11</sup> Hernández, A. (2024). The interaction between the BBNJ Agreement and the ISA regulatory regime: A case study on the EIA and ABMT (Master's thesis, Joint Nordic Masters Programme in Environmental Law).

<https://munin.uit.no/bitstream/handle/10037/34405/thesis.pdf?sequence=2&isAllowed=y>

<sup>12</sup> <https://enb.iisd.org/international-seabed-authority-isa-council-28-2-summary>

<sup>13</sup> Singh, P. A., Jaeckel, A., & Ardron, J. A. (2025). A Pause or Moratorium for Deep Seabed Mining in the Area? The Legal Basis, Potential Pathways, and Possible Policy Implications. *Ocean Development & International Law*, 56(1), 18–44. <https://doi.org/10.1080/00908320.2024.2439877>