

Deep-Sea Minerals: Why Manufacturers and Markets Should Engage Now

BRIEFING PAPER

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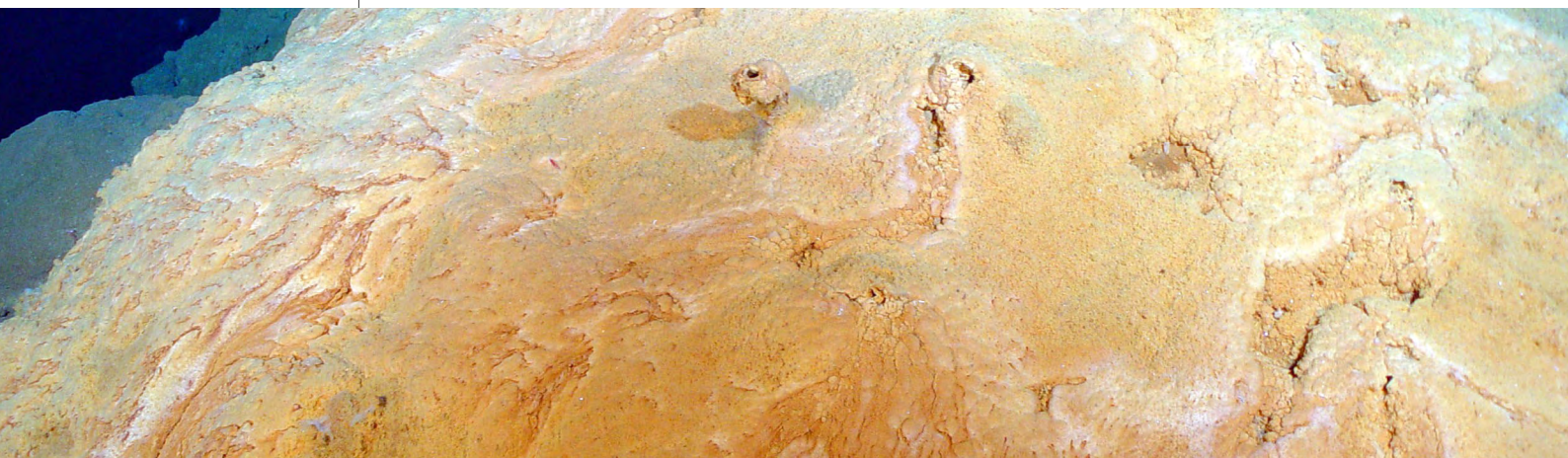
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This is the second in a series of three briefing papers about the potential extraction of deep-sea minerals, written for manufacturers and markets. The first paper introduces deep-sea mining and calls for responsible businesses to heighten participation in this topic. This second paper examines the applicability to deep-sea minerals of existing responsible sourcing approaches and identifies gaps and possible environmental and social risk exposure for manufacturers. The third paper will assess opportunities for manufacturers and markets to engage with regulators and other stakeholders in order to promote strong future environmental and social management systems.

New minerals, new expectations

The possibility of deep-sea minerals entering supply chains is leading to new stakeholder expectations.



Manufacturers' success is increasingly tied to the ways in which they respond to their stakeholders' perceptions of their environmental and social performance. Their customers expect stronger sustainability assurances than ever before;^{1,2,3} investors and lenders increasingly assess companies on environmental and social criteria;^{4,5} and civil society looks to corporations to adopt sound management practices for people and planet.^{6,7} Stakeholders have these expectations both for manufacturers' operations and for their supply chains.⁸

The first paper in this series, *Deep-Sea Minerals: What Manufacturers and Markets Need to Know*,⁹ highlights environmental and social considerations relevant for deep-sea extraction. These include potential negative impacts on biodiversity, indigenous peoples and fisheries, alongside potential positive impacts such as lower-carbon extraction compared with obtaining the same minerals from terrestrial deposits, societal benefits from taxation, royalties and mineral wealth distribution programmes, and indirect stimulus for the green transition.

The International Seabed Authority (ISA) is in the process of developing exploitation regulations¹⁰ and accompanying environmental standards and

guidelines¹¹ for the extraction of minerals in the international seabed area (the Area). It faces the formidable task of balancing the above-noted positive and negative considerations and many others. ISA decision-makers are its 167 member states (plus the European Union) – the parties to the 1982 United Nations Convention on the Law of the Sea (UNCLOS). Many of these member states have economic interests in deep-sea extraction. Countries including Norway, Japan and the Cook Islands are also developing regulations for the extraction of deep-sea minerals within their national jurisdictions.

Over 90 civil society organizations,^{12,13} which manufacturers might count among their stakeholders, have voiced concerns over the potential environmental effects of deep-sea mineral extraction and the associated regulations and compliance systems that are currently under consideration. For example, the World Wide Fund for Nature (WWF) and the Deep Sea Conservation Coalition have called for a moratorium on deep-sea mining until a range of conditions are met, including comprehensive understanding of environmental, social and economic risks, the establishment of public consultation and free, prior and informed consent processes, and reform of ISA.^{14,15} The BMW Group, Volvo Group, Google and Samsung SDI have joined a public statement

supporting a moratorium and committed not to use metals produced from deep-sea mining until the environmental risks are “comprehensively understood.”^{16,17}

Conservation International¹⁸ and Sustainable Ocean Alliance¹⁹ have called for a minimum 10-year moratorium on deep-sea mineral exploitation. Greenpeace,²⁰ the Pacific Network on Globalization²¹ and other organizations have called for the deep ocean to remain off-limits to mining operations. Leading deep-sea scientists have called for a ban on extraction on active hydrothermal vents, which are one of the deposit types for deep-sea minerals.²² Amnesty International has called on businesses to refuse minerals from the seabed.²³ Others, such as the World Bank, urge a precautionary approach.²⁴ Appendix II contains more information on moratorium positions.

ISA requires environmental impact assessments to be conducted at mineral extraction sites, and has public consultation processes to solicit input on its draft regulations. Seabed mining contractors say that many of the protections being called for are already in place. However, the civil society organizations listed above do not consider the current draft of ISA's exploitation regulations, nor the processes used to negotiate them, as adequately reflecting their concerns.

This disparity could signal a future gap between the expectations of some stakeholders of manufacturers and the regulatory environment under which minerals in the Area are extracted. A similar gap between stakeholder expectations and regulations could arise in countries that are considering extraction in their exclusive economic zones, depending on the decision-making process and the nature of the regulations they develop.



Entering uncharted waters

Responsible sourcing standards and tools used for minerals on land may not readily transfer to the deep sea.



On land, manufacturers' procurement and compliance officers can utilize voluntary sourcing standards and tools to demonstrate that their sourcing is responsible, when gaps exist between stakeholder expectations and supply chains performance. Examination of prominent land-based mineral sourcing standards and tools, and of the frameworks that underlie them, shows challenges that would be encountered if they were to be transferred to the context of the deep sea, however.

Moreover, while site-level environmental and social standards do exist for the exploitation of non-mineral resources offshore, including oil, gas and sand, no significant responsible sourcing schemes exist for the supply chains of these resources, which could be transferred to deep-sea minerals. Challenges may also arise from the special legal status that minerals hold in the international seabed area.

Some examples of challenges that could be encountered are given below.

2.1 OECD due diligence guidance

The OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, the OECD DDG,²⁵ aims to combat instances of conflict funding, serious human rights abuses and financial crime in mineral supply chains, and is a cornerstone of responsible mineral sourcing worldwide. It is published as voluntary guidance, but it is also embedded into US law²⁶ and EU law²⁷ (for gold, tin, tungsten and tantalum) and forthcoming London Metal Exchange listing requirements²⁸ (for base metals). The China Chamber of Commerce of

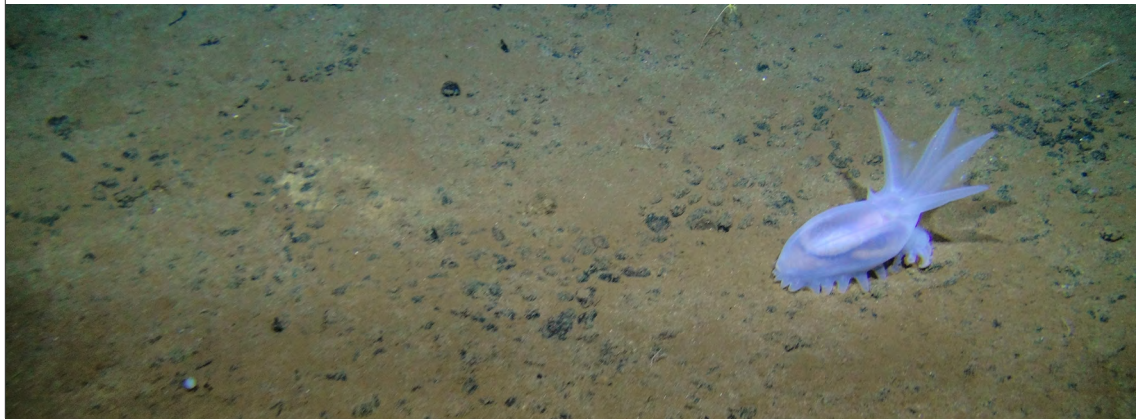
Metals, Minerals & Chemicals Importers & Exporters (CCCIMC) has also published due diligence guidelines modelled on the OECD DDG. Appendix I contains further context on the OECD DDG.

Should manufacturers or metals exchanges one day seek to transfer the approach of the OECD DDG to the deep sea to promote the exclusion of minerals whose production circumstances do not meet their environmental or social expectations, or those of their stakeholders, the task would be formidable.

The OECD DDG is a 120-page document, which details roles, responsibilities, risks, model policies and recommended actions in a range of specified circumstances for each entity in the supply chain. Initially designed for application to small-scale mining in areas of physical insecurity, the text of the document reflects circumstances that are very different to those of deep-sea mineral extraction. Additional guidance, requiring working group consultations and lengthy stakeholder engagement processes, was required for each new sector that the OECD DDG was adapted to. Moreover, the issues manufacturers and metal exchanges currently address through the OECD DDG – the

association of mineral extraction with gross human rights violations and conflict – are not stakeholders' principal concern with deep-sea minerals.

New and detailed guidance would need to be written and agreed upon if the approach of the OECD DDG were to be transferred to deep-sea minerals, and this process could take many years. Ten years elapsed between the inception of the OECD DDG, in 2006, and the first pilot alignment of a voluntary standard with the guidance, in 2016–2017. Meanwhile, deep-sea minerals could enter supply chains within three to four years.²⁹



2.2 Biodiversity impact management

When sourcing minerals produced through conventional, land-based mining, procurement and compliance officers can demonstrate manufacturers' responsibility by promoting the adoption of mining site-level standards within their supply chains. Many of these standards (see Table 1) include common frameworks, such as the mitigation hierarchy for limiting or eliminating net negative impacts on biodiversity. Some of these standards go further than simply requiring that the mitigation hierarchy be applied, by specifying in detail how mining sites should apply it, with guidance that incorporates scientific knowledge on the environmental impacts of extraction.

The mitigation hierarchy states to first avoid negative impacts where possible, then to minimize unavoidable impacts, then to restore ecosystems, and finally to offset any impacts that remain after the first three steps.³⁰ Avoidance and minimization of negative impacts requires detailed scientific understanding of the biodiversity impacts that could occur. According to some organizations, this is not yet the case for the deep sea. The International Union for Conservation of Nature (IUCN), for example, states that “at present there is little, if any, empirical information on the [environmental] impacts of deep seabed mining.”³¹

The IUCN's Red List of Threatened Species is often used to assess potential biodiversity impacts of mining, and underpins frameworks to establish biodiversity protection areas including World Heritage sites (through World Heritage Criterion 10).³² “No-go” requirements for World Heritage sites are referred to in many land-based standards (see Table 1), but the IUCN Red List presently has sparse coverage of the deep sea. The first marine species identified as threatened by deep-sea extraction was added to the list very recently, in July 2019.^{33,34}

Restoration and offsetting follow avoidance and minimization in the mitigation hierarchy, but some academic papers have argued that a lack of practical experience, and of research on the effects of potential actions, and the long timescales for ecological recovery in the deep sea, would hamper their application.^{35,36}

Consequently, provisions for biodiversity impact management based on the mitigation hierarchy or World Heritage areas, within existing terrestrial site-level standards, may require significant adaptation, underpinned by further scientific research, before they can be applied in a standardized way to deep sea minerals.



2.3 Rights of indigenous peoples and other communities

Standards for conventional, land-based mining frequently refer to the principle of free, prior and informed consent (FPIC) of indigenous communities, for projects that affect them (see Table 1).

The FPIC principle is enshrined in the United Nations Declaration on the Rights of Indigenous Peoples (2007),³⁷ as a state responsibility. Subsequently, mining standards and frameworks have placed the responsibility to achieve FPIC on extractive companies too (for example, Chapter 2.10 of the Initiative for Responsible Mining Assurance Standard for Responsible Mining, and Principle 3.7 of the International Council on Mining and Metals Mining Principles). This corporate responsibility has also been established in the UN Guiding Principles on Business and Human Rights,³⁸ and implementation frameworks have been developed for companies to use toward the FPIC goal.³⁹ Promoting the adoption of FPIC standards and frameworks to suppliers can help manufacturers demonstrate that they are sourcing responsibly.

ISA and other regulatory bodies have public consultation processes in which civil society organizations and other stakeholders can participate. However, the Deep Sea Conservation Coalition, a coalition of over 90 organizations that includes WWF and Conservation International, views this level of consultation as insufficient. According to this coalition, establishing a framework for the free, prior and informed consent of indigenous peoples, where relevant, as well as ensuring consent from other potentially affected communities and stakeholders, and attaining general public support, should be essential preconditions for the commencement of deep-sea extraction.⁴⁰

The physical remoteness of deep-sea mining means that future impacts on the rights and interests of indigenous peoples and other communities are currently unclear. According to one academic paper, “opposition to deep-sea mining will likely arise from a wider and more diverse group of stakeholders, who have less well-defined relationships to the mine site”, compared to those affected by land-based extraction. The paper also notes that the potential application of FPIC to deep-sea minerals is untested.⁴¹

Opposition movements with the characteristics described in the quotation have already occurred against deep-sea extraction in national territorial waters, among indigenous communities in Papua New Guinea⁴² and New Zealand.⁴³ Meanwhile, new paradigms of mining-affected communities may be emerging. For example, slave-descendant communities and slavery researchers are calling for parts of the Atlantic seabed to be declared a memorial to the maritime slave trade, and for associated cultural heritage to be considered in decision-making on deep-sea mining.^{44,45}

Detailed guidance on the identification of, and engagement with, mining-affected communities is incorporated into some voluntary standards for land-based mining (for example, the Towards Sustainable Mining Indigenous and Community Relationships Protocol⁴⁶). Should manufacturers wish to promote the adoption of FPIC and the protection of cultural heritage with future suppliers of deep-sea minerals, however, such existing frameworks may require significant adaptation.

TABLE 1 | Frameworks that are widely incorporated into responsible sourcing standards, but which may not readily transfer to the context of deep-sea minerals.

			Frameworks that are referred to in each standard (left-most column)			
Standard	Mineral coverage	Supply chain stages covered	OECD DDG	Biodiversity mitigation hierarchy	World Heritage classification system	Free, prior and informed consent
Initiative for Responsible Mining Assurance Standard for Responsible Mining	All	Extraction	Yes	Yes	Yes	Yes
Towards Sustainable Mining Standard	All	Extraction	Yes ⁴⁷	Yes	Yes	Yes
Responsible Jewellery Council Code of Practices	Gold, platinum group metals, diamonds and some colored stones	All stages of the jewelry supply chain	Yes	Yes	Yes	Yes
International Council on Metals and Mining, Mining Principles	All	Extraction	Yes	Yes	Yes	Yes
The Copper Mark Risk Readiness Assessment	Copper	Extraction and Refining	Yes	Yes	Yes	Yes
Aluminium Stewardship Initiative Performance Standard	Aluminum	All stages of the aluminum supply chain	Yes	Yes	Yes	Yes

2.4 | The common heritage of humankind and the precautionary principle

UNCLOS designates the international seabed area and its resources “the common heritage of mankind” (art. 136), and requires that extractive activities “shall ... be carried out for the benefit of mankind as a whole” (art. 140).⁴⁸ These principles are reflected in Section 2.IX of ISA’s draft exploitation regulations.⁴⁹

Principles such as the free, prior and informed consent of indigenous communities, and the need to mitigate biodiversity impacts, are applied across a range of industries today. In contrast, the requirement to extract for the benefit of humankind as a whole is entirely novel.

Manufacturers' stakeholders may have different views to the regulators on whether activities at a given deep-sea extraction site could be to the common benefit of humankind, and how this common benefit could be achieved, when all the positive and negative social and environmental risks and impacts are weighed together. Without alignment of views, manufacturers may need to develop new responsible sourcing frameworks to assure their stakeholders that the UNCLOS principle is not compromised within their supply chains.

As part of ISA's stewardship of the common heritage of humankind, UNCLOS mandates the organization to "ensure effective protection for the marine environment from harmful effects which may arise", including from mining activities (art. 145),⁵⁰ and most stakeholders agree on the application of the precautionary principle of international law to deep-sea minerals. This principle is stated in the Rio Declaration as "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental

degradation."⁵¹ ISA's draft mineral exploitation regulations establish the necessity of applying the precautionary approach in the Area (reg. 2.e.ii).

While there is broad agreement that the precautionary principle should be implemented for deep-sea minerals, stakeholders disagree markedly on *how* it should be implemented. Civil society groups claimed at ISA's 2019 session that the ISA secretariat focuses primarily on the procedural aspects of the precautionary approach, and pays less attention to the capacity of ISA to implement the principle, and the substantive measures it entails to protect the marine environment. These groups also questioned the use of the Rio Declaration formulation of the precautionary principle by ISA, when stronger formulations are also used in the practice of international law.^{52,53}

Unless greater consensus is reached, manufacturers may be unable to assure their stakeholders that the precautionary principle has been observed in a way that meets their expectations, for the deep-sea minerals that they might one day source.



A time to act

Proactive engagement today could pay future dividends.



If exploitation regulation is adopted in coming years, by ISA or national regulators, deep-sea minerals could be inside consumer products and used within industrial processes by the end of this decade. Manufacturers and metals exchanges may soon seek to assure their stakeholders that they do not use or trade deep-sea minerals that fall short of those stakeholders' expectations. They will not be able to do so without broadly agreed norms for what is acceptable, and comprehensive supply chain systems to ensure adherence to these norms.

This paper has argued that existing responsible sourcing frameworks, designed for land-based mining, may require significant adaptation before they can be applied to the deep sea. Its examination of applicability challenges is in no way exhaustive. The paper has examined just two sustainability areas – biodiversity impacts and community rights – whereas comprehensive site-level voluntary standards can cover 30 areas or more. Upon examination, many more challenges may be identified when applying land-based frameworks to the deep sea. Comprehensive supply chain systems for deep-sea minerals would require the development of a range of new guidance materials, and time is short for this to happen.

Manufacturers and markets have a unique opportunity to relay their views, and promote the views of their stakeholders, as inputs into the on-going development of systems for the management of deep-sea mineral resources. Proactive engagement today could contribute to a future where deep-sea minerals are not extracted except under conditions of environmental and social performance that meet their expectations, and those of their customers, clients, financiers and civil society stakeholders, and of other concerned parties, worldwide. Engaging now while regulatory decision-making is still underway could forestall a future piecemeal approach in which overlapping standards are created in reaction to negative publicity on environmental or social issues.

The breadth of current engagement opportunities will shrink rapidly if decisions to begin extraction are made and if regulations that could govern extraction are adopted. This chance will not wait.

The third and final paper of this series will assess approaches to engagement for manufacturers and metal exchanges to seize the opportunities that are currently before them.

Appendix I: Background information on OECD due diligence guidance⁵⁴

The OECD Guidelines for Multinational Enterprises⁵⁵ are recommendations addressed by governments to companies providing voluntary principles for responsible business conduct in areas such as employment, human rights, environment, information disclosure, combating bribery, consumer interests, science and technology, competition and taxation. The guidelines specifically recommend that companies carry out supply chain due diligence focused on those issues as a crucial way for them to ensure they are doing business responsibly and not contributing to adverse impacts through their supply chain purchasing practices. Based on this recommendation of the guidelines, the OECD has developed sector-specific guidance for carrying out supply chain due diligence in the minerals⁵⁶ sector.

The OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, the OECD DDG, was developed to help all companies in the minerals supply chain identify and address risks of contributing to human rights impacts, financial crime and conflict financing in order to harness the positive potential of the mining sector for development. The OECD DDG is a leading international standard for businesses on sourcing responsibly in the mining sector, having been incorporated in numerous UN Security Council resolutions as well as regulations in the US (Dodd Frank Act Section 1502⁵⁷) and EU (Regulation 2017/821⁵⁸). International market-makers such as the London Bullion Market Association, London Metals Exchange, Indian National Stock Exchange and Dubai Multi Commodities Centre have all also committed to requiring implementation of the OECD DDG as a condition to trade on their exchanges.

The OECD DDG sets out a common government-backed framework to help companies in mineral supply chains identify and address negative impacts in their supply chains, with specific tailored recommendations for companies depending on their size and position in the supply chain. The recommendations of the OECD DDG apply to all mineral supply chains, all supply chain actors (from

mine to final product manufacturer) and are global in scope. Most importantly, the OECD DDG is a tool to help companies source from high-risk contexts in order to support sustainable development.

Despite the initial focus of the OECD Responsible Minerals Implementation Programme⁵⁹ on the African Great Lakes Region, the OECD DDG can support responsible sourcing in any high-risk context. The framework for due diligence is the same. To summarize, companies are expected to:

- Develop a responsible sourcing policy and appropriate internal management systems
- Map out their supply chain to the greatest extent possible in order to identify risks,
- Take steps to address those risks (e.g. through stakeholder consultation, mine site monitoring, trainings, etc.)
- Track progress overtime and support audits at certain points in the supply chain
- Report publicly on their due diligence process with a focus on progressive improvement overtime

Key to this process is the principle of progressive improvement. To support long-term engagement, companies are not expected to disengage from high-risk contexts unless they identify only the most serious human rights abuses or conflict finance, or if there is no measurable improvement in the situation despite good faith due diligence efforts. To supplement the OECD DDG a general Due Diligence Guidance for Responsible Business Conduct was developed in 2018 that draws on learnings from years of implementation of the OECD DDG and fleshes out some of the recommendations in more detail. Likewise, multistakeholder and industry-led groups in various mineral supply chains (e.g. gemstones and precious metals, copper and other base metals, mica and coal) have developed tailored approaches to support implementation of the OECD DDG in their unique contexts.

Appendix II: Civil Society Positions on Deep-Sea Mining and Contractor's Response

Deep Sea Conservation Coalition position

The Deep Sea Conservation Coalition holds that there should be a moratorium on deep seabed mining, the adoption of seabed mining regulations for exploitation (including the International Seabed Authority Exploitation Regulations), and the issuing of exploitation and new exploration contracts, unless and until:

- The environmental, social and economic risks are comprehensively understood.
- It can be clearly demonstrated that deep seabed mining can be managed in such a way that ensures the effective protection of the marine environment and prevents loss of biodiversity.
- Where relevant, there is a framework in place to respect the free, prior and informed consent of indigenous peoples, and to ensure consent from potentially affected communities.
- Alternative sources for the responsible production and use of the metals also found in the deep sea have been fully explored and applied, such as reduction of demand for primary metals, a transformation to a resource efficient, closed-loop materials circular economy and responsible terrestrial mining practices.
- Public consultation mechanisms have been established and there is broad and informed public support for deep seabed mining, and that any deep seabed mining permitted by the International Seabed Authority fulfils the obligation to “benefit (hu)mankind as a whole” and respects the common heritage of mankind.
- Member states reform the structure and functioning of the International Seabed Authority to ensure a transparent, accountable, inclusive and environmentally responsible decision-making and regulatory process to achieve the above.

WWF position

WWF is calling for a moratorium on deep-sea mining until a range of conditions are met, including comprehensive understanding of environmental, social and economic risks, and until it can be clearly demonstrated that deep seabed mining can be managed in such a way that ensures the effective protection of the marine environment and prevents loss of biodiversity, and that alternative sources for the responsible production and use of the metals also found in the deep sea have been fully explored and applied, public consultation and free, prior and informed consent processes have been established, and ISA reform has been undertaken.

Conservation International position

Conservation International has called for a minimum 10-year moratorium on deep-sea mineral exploitation, or until the environmental, social, cultural, economic and legal risks of deep-sea mining are comprehensively understood and mitigated, and the effective protection of the marine environment, including the prevention of biodiversity loss and its ecosystem services, can be ensured.

Global Sea Mineral Resources' response to calls for moratorium⁶⁰

Global Sea Mineral Resources NV (GSR) is an ISA contractor engaged in deep-seabed exploration and responds to the calls for moratorium as follows:

“We believe that it is premature to discard deep seabed mining as an option for delivering the metals the planet needs. For many environmental and social reasons, we believe that seabed minerals could be an important part of the solution. The research that moratorium campaigners are calling for is already required by the International Seabed Authority (ISA) and it is important to recognize that a moratorium would have the opposite of the claimed effect. Far from creating time and space for more research to be conducted, it would instead result in much of the current funding for research provided by industry being suspended or withdrawn altogether. This would deny scientists, regulators and legislators the opportunity to gather the data necessary for rational, evidence-based decisions about where new sources of metal should come from with least impact possible.”

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58. <http://ec.europa.eu/trade/policy/in-focus/conflict-minerals-regulation/>
59. The main objective of the OECD Responsible Minerals Implementation Programme is to promote responsible sourcing and trading of minerals through dissemination, adoption and use of the OECD DDG. The OECD Secretariat works with governments, companies, and civil society to support responsible sourcing efforts through the development of research, tools, training and awareness raising, <https://mneguidelines.oecd.org/mining.htm>.
60. Position relayed by GSR in direct discussion with the World Economic Forum for this paper.



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