

Written evidence to the Foreign Affairs Committee: Inquiry on Critical Raw Minerals (MIN0020)

Environmental Justice Foundation

Introduction

The Environmental Justice Foundation (EJF) is an international NGO that exists to protect the natural world and defend our basic human right to a secure environment.

This document sets out EJF's written evidence to the Foreign Affairs Committee's inquiry on Critical Raw Minerals. Since our area of expertise is environmental protection, our evidence focuses on answering "What are the opportunities and challenges of deep seabed mining for critical minerals? What should the UK's role be in regulatory development around this?"

Our response looks at the two major impacts that deep-sea mining may have on marine biodiversity, global climate and the livelihoods dependent on a secure ocean environment, and considers the UK's leadership role in regulating the industry:

- I. Environmental Impacts of Deep-Sea Mining
- II. Implications for justice and equity
- III. The UK's role in regulatory development
- IV. Conclusions and recommendations

I. Environmental Impacts of Deep-Sea Mining

The deep sea remains a pristine ecosystem, largely untouched by human activity. It is enormous in size, covering two thirds of the seafloor and making up more than 95% of the Earth's biosphere.¹ It harbours an incredibly rich diversity of marine life, believed to be comparable only to the biodiversity of tropical rainforests.² The deep-sea is also one of the last frontiers of scientific knowledge on Earth, as its biodiversity and the functioning of its ecosystems remain in large part a mystery to science.³

Independent reviews of the available scientific evidence commissioned by governments⁴ and conducted by civil society organisations⁵ are in agreement that deep-sea mining will cause potentially severe adverse impacts to the marine

¹ Danovaro, R., Company, J. B., Corinaldesi, C., D'Onghia, G., Galil, B., Gambi, C., Gooday, A. J., Lampadariou, N., Luna, G. M., Morigi, C., Olu, K., Polymenakou, P., Ramirez-Llodra, E., Sabbatini, A., Sardá, F., Sibuet, M., & Tselepides, A. (2010). Deep-Sea Biodiversity in the Mediterranean Sea: The Known, the Unknown, and the Unknowable. *PLOS ONE*, 5(8), e11832. <https://doi.org/10.1371/JOURNAL.PONE.0011832>

² Snelgrove, P. V. R. & Smith, C. R. (2002). A Riot of Species in an Environmental Calm: The Paradox of the Species-Rich Deep-Sea Floor, in Gibson, R. N. *et al.* (eds.), *Oceanography and Marine Biology: An Annual Review*, vol. 40, Taylor & Francis, London, pp. 311–342.

³ Sinniger, F., Pawlowski, J., Harii, S., Gooday, A. J., Yamamoto, H., Chevaldonné, P., Cedhagen, T., Carvalho, G., & Creer, S. (2016). Worldwide analysis of sedimentary DNA reveals major gaps in taxonomic knowledge of deep-sea benthos. *Frontiers in Marine Science*, 3(JUN), 92. <https://doi.org/10.3389/FMARS.2016.00092/BIBTEX>

⁴ Lusty, P. A. J., Jones, D. O. B., Diz, D., Durden, J. M., Grant, H. L. J. & Josso, P. (2021). *Deep Sea Mining Evidence Review*. British Geological Survey Commissioned Report CR/21/119, 463pp. Report produced by the British Geological Survey, National Oceanography Centre and Heriot-Watt University under contract to FCDO. <https://www.bgs.ac.uk/download/deep-sea-mining-evidence-review/>; Dymont, J., Lallier, F., Le Bris, N., Rouxel, O., Sarradin, P.-M., Lamare, S., Coumert, C., Morineaux, M., Tourolle, J. (coord.) (2014). *Les impacts environnementaux de l'exploitation des ressources minérales marines profondes. Expertise scientifique collective*. Rapport, CNRS – Ifremer, 930pp. <https://www.inee.cnrs.fr/fr/impacts-environnementaux-de-lexploitation-des-ressources-minerales-marines-profondes>.

⁵ Chin, A. and Hari, K. (2020). *Predicting the impacts of mining of deep sea polymetallic nodules in the Pacific Ocean: A review of scientific literature*. Deep Sea Mining Campaign and MiningWatch Canada, 52pp. https://miningwatch.ca/sites/default/files/nodule_mining_in_the_pacific_ocean.pdf; Deep Sea Conservation Coalition (DSCC) (2022). *Deep-sea mining: the science and potential impacts*. https://savethehighseas.org/wp-content/uploads/2022/03/DSCC_FactSheet2_DSM_science_4pp_Feb22.pdf.

environment, its biodiversity, and ecosystems. Significant disturbances are expected, including direct damage to the benthic fauna, habitat destruction, pollution from sediment plumes and wastewater discharge, and noise and light pollution across the water column.⁶ These disturbances will result in biodiversity loss, disrupt marine ecosystem functions and food webs, and potentially impact fisheries and disrupt the oceanic carbon cycle.

While the available scientific evidence establishes a clear risk of serious adverse environmental impacts, the extent and magnitude of the damage deep-sea mining would cause to the marine environment remain unknown. Critical knowledge gaps remain that prevent fully informed, science-based decision-making. In the absence of a solid baseline, environmental impact assessments are unreliable⁷ and are likely to underestimate the extent and magnitude of environmental impacts.

[Deep-sea mining may be one of the more damaging industrial impacts on the deep oceans, because of the potential for the broad spatial scale of the impacts. Impacts of nodule mining will be particularly extensive (likely 100s km² per operation)...Long-term (>centuries) and broad-scale (>1,000km²) impacts...are likely.⁸ UK Deep Sea Mining Evidence Review

II. Implications for equity and justice

The prospect of mining the international seabed has serious equity implications, both across humanity today and for future generations. The international seabed (the “Area”) and its resources are defined, under the United Nations Convention on the Law of the Sea (UNCLOS), as the “common heritage of [hu]mankind”.⁹ Being able to accurately quantify the net benefits from mining activities is central to implementing the common heritage principle, requiring an assessment of costs and benefits, both economic and ecological.¹⁰

There remains considerable uncertainty surrounding the economic outcomes and viability of deep-sea mining.¹¹ A number of factors confound attempts to accurately forecast revenues from mining activities,¹² and the compensation available for the common heritage of humankind. Studies suggest potential deep-sea mining benefits to individual ISA member countries in the region of US\$ 100,000 per year in net present value.¹³ This is vastly

⁶ Weaver, P. P. E., Billett, D. S. M. & van Dover, C. L. (2018). Environmental Risks of Deep-sea Mining, in Salomon, M. & Markus, T. (eds.) *Handbook on Marine Environment Protection: Science, Impacts and Sustainable Management*, vol. 1, Springer, Berlin, 215–246; Jones, D. O. B., Amon, D. J. & Chapman, A. S. A. (2018). Mining deep-ocean mineral deposits: what are the ecological risks?. *Elements*, 14, 325–330, <https://doi.org/10.2138/gselements.14.5.325>.

⁷ Clark, M. R., Durden, J. M. & Christiansen, S. (2020). Environmental Impact Assessments for deep-sea mining: Can we improve their future effectiveness? *Marine Policy*, 114, <https://doi.org/10.1016/j.marpol.2018.11.026>.

⁸ Lusty, P. A. J., Jones, D. O. B., Diz, D., Durden, J. M., Grant, H. L. J. & Josso, P. (2021). *Deep Sea Mining Evidence Review*. British Geological Survey Commissioned Report CR/21/119, 463pp. Report produced by the British Geological Survey, National Oceanography Centre and Heriot-Watt University under contract to FCDO. <https://www.bgs.ac.uk/download/deep-sea-mining-evidence-review/>

⁹ Article 136, UNCLOS

¹⁰ German Environment Agency/Umweltbundesamt (undated), ‘Deep-sea mining’, accessed 6.2.23. <https://www.umweltbundesamt.de/themen/wasser/gewaesser/meere/nutzung-belastungen/tiefseebergbau-andere-nutzungsarten-der-tiefsee>.

¹¹ Lusty, P. A. J., Jones, D. O. B., Diz, D., Durden, J. M., Grant, H. L. J. & Josso, P. (2021). *Deep Sea Mining Evidence Review*. British Geological Survey Commissioned Report CR/21/119, 463pp. Report produced by the British Geological Survey, National Oceanography Centre and Heriot-Watt University under contract to FCDO. <https://www.bgs.ac.uk/download/deep-sea-mining-evidence-review/>

¹² *Ibid.*

¹³ DSCC (2022). *Deep-sea mining: who stands to benefit?* https://savethehighseas.org/wp-content/uploads/2022/03/DSCC_FactSheet6_DSM_WhoBenefits_4pp_Feb22.pdf. The DSCC analysis was based on the initial report submitted by the MIT in 2019 (see Kirchain, R., Roth, R., Field, F. R., Muñoz-Royo, C. & Peacock, T. (2019). *Report to the International Seabed Authority on the Development of an Economic Model and System of Payments for the Exploitation of Polymetallic Nodules in the Area*. Materials Systems Laboratory, Massachusetts Institute of Technology, <https://isa.org/jm/files/files/documents/paysysmodel-3jun.pdf>). The authors of the MIT study subsequently revised their analysis

insufficient as compensation for the loss of the common heritage of present and future generations, while contributing very little to achieving the “overall development of all countries”, a central aim of deep-sea mining as set out in UNCLOS.¹⁴

When damage to ecosystem services and environmental costs are considered, the case for deep-sea mining – in terms of the benefit to humankind as a whole – becomes increasingly untenable. There remains considerable uncertainty surrounding the full scale and extent of environmental impacts of mineral extraction – which is expected to cause significant damage well beyond areas approved for mining.¹⁵ Critically, the value of deep-sea ecosystem services is yet to be quantified, a prerequisite to estimating the benefits that intact ecosystems provide to humankind¹⁶ and the costs arising from their destruction and degradation. This is a significant unknown and one that may prove impossible to calculate. Beyond economics is the need to consider the intrinsic value of deep-sea ecosystems that cannot be assigned a monetary value,¹⁷ as well as the spiritual and cultural ties that remote island nations have with the sea.¹⁸

“...there is little consensus on whether [seabed mining] is likely to yield net benefits or costs”.¹⁹

Furthermore, **deep-sea mining would likely exacerbate global inequalities**, in direct conflict with the key UNCLOS principles of equitable benefit-sharing, of prioritising the needs of developing states, and of promoting international cooperation for the overall development of all countries.²⁰

The potential profits from deep-sea mining activities are set to flow to some of the world’s largest economies, and to the shareholders and investors of a handful of private-sector mining companies, located overwhelmingly in the Global North.²¹ Developing states and vulnerable groups would bear the disproportionate burden of environmental risks and harm.

following stakeholder feedback (see Kirchain, R., Roth, R., Field, F.R., Muñoz-Royo, C. and Peacock, T. (2021). *UPDATE: Report to the International Seabed Authority on the Development of an Economic Model and System of Payments for the Exploitation of Polymetallic Nodules in the Area Based on Stakeholder Feedback*. MIT Materials Systems Laboratory, Massachusetts Institute of Technology, <https://isa.org.jm/files/files/documents/Nodule%20Financial%20Payment%20System%20Report%20October%202020%20V3.p df>). However the cumulative ISA revenue projected by MIT was of the same order of magnitude before and after incorporating stakeholder feedback in the model, thus the findings of the DSCC analysis still stand. ISA revenue in net present value (NPV) terms was not provided in the updated report.

¹⁴ DSCC (2022). *Deep-sea mining: who stands to benefit?* https://savethehighseas.org/wp-content/uploads/2022/03/DSCC_FactSheet6_DSM_WhoBenefits_4pp_Feb22.pdf. See also: Remaoun, M. (2019). *Opening statement of Algeria, on behalf of the African Group of nations, to the 25th Session of the Council of the International Seabed Authority*, page 13, https://isa.org.jm/files/files/documents/1-algeriaoboag_finmodel.pdf

¹⁵ Miller, K. A., Brigden, K., Santillo, D., Currie, D., Johnston, P., & Thompson, K. F. (2021). Challenging the Need for Deep Seabed Mining From the Perspective of Metal Demand, Biodiversity, Ecosystems Services, and Benefit Sharing. *Frontiers in Marine Science*, 8, 1040. <https://doi.org/10.3389/FMARS.2021.706161/BIBTEX>.

¹⁶ Jaeckel, A. (2020). Benefitting from the Common Heritage of Humankind: From Expectation to Reality. *The International Journal of Marine and Coastal Law*, 35(4), 660–681. <https://doi.org/10.1163/15718085-BJA10032>.

¹⁷ DSCC (2022). *Deep-sea mining: who stands to benefit?* https://savethehighseas.org/wp-content/uploads/2022/03/DSCC_FactSheet6_DSM_WhoBenefits_4pp_Feb22.pdf

¹⁸ Vierros, M. K., Harrison, A. L., Sloat, M. R., Crespo, G. O., Moore, J. W., Dunn, D. C., Ota, Y., Cisneros-Montemayor, A. M., Shillinger, G. L., Watson, T. K., & Govan, H. (2020). Considering Indigenous Peoples and local communities in governance of the global ocean commons. *Marine Policy*, 119, 104039. <https://doi.org/10.1016/J.MARPOL.2020.104039>; Miller, K. A., Brigden, K., Santillo, D., Currie, D., Johnston, P., & Thompson, K. F. (2021). Challenging the Need for Deep Seabed Mining From the Perspective of Metal Demand, Biodiversity, Ecosystems Services, and Benefit Sharing. *Frontiers in Marine Science*, 8, 1040. <https://doi.org/10.3389/FMARS.2021.706161/BIBTEX>; see also <https://isa.org.jm/files/2022-03/Micronesia-AnnexIV-merged.pdf>

¹⁹ Folkersen, M.V., Fleming, C.M., and Hasan, S. (2019). Depths of Uncertainty for Deep-Sea Policy and Legislation, 54 *Global Environmental Change* 1–5, <https://doi.org/10.1016/j.gloenvcha.2018.11.002>.

²⁰ Articles 140 and 150, UNCLOS

²¹ Greenpeace International (2020). *Deep Trouble: The murky world of the deep sea mining industry*. <https://www.greenpeace.org/international/publication/45835/deep-sea-mining-exploitation/>

EJF's analysis of the exploration contracts concluded to date²² highlights that political and economic interests in mineral extraction are **concentrated among a limited number of state and non-state (private) entities**. Of the 31 exploration contracts concluded to date, 22 have been awarded to governments or state-owned enterprises, 19 of which are held by only 7 countries (China, Russia, South Korea, France, Germany, India and Japan) (**Table 1**). Of these, considering only those contracts awarded to individual governments and state-owned enterprises (i.e. excluding consortia),²³ **China alone accounts for nearly one quarter of contracts issued, followed by the Russian Federation and Korea, which together account for around 28% of contracts**. China holds exploration rights to the largest area overall, accounting for 18% of the total area under exploration contracts to date.

Since 2011, when the ISA issued the first contracts to non-state actors,²⁴ the sector has **become increasingly dominated by private enterprises**, who have emerged as the lead proponents of deep sea mining.²⁵ **Currently, almost a third of the 31 exploration contracts (9 in total) are held by private (non-state) entities** – exclusively for polymetallic nodule mining in the Pacific Ocean's Clarion-Clipperton Fracture Zone (CCZ). Private entities hold half of the contracts for nodule mining exploration (9 of 19 contracts), representing 45.6% of the contracted exploration area (**Table 2**). Private sector exploration activities are dominated by three corporations headquartered in developed nations: (1) The Metals Company²⁶ (TMC) (formerly DeepGreen), headquartered in Canada; (2) UK Seabed Resources Limited (UKSR), a subsidiary of US-based Lockheed Martin;²⁷ and (3) Belgian corporation Dredging, Environmental and Marine Engineering NV (DEME).²⁸

TMC is a lead proponent of deep-sea mining and one of the entities that stands to benefit most from opening up the international seabed to mineral extraction.²⁹ Several incidents point to the extent of TMC's alleged influence over the government of Nauru – sponsor of the exploration contract held by its subsidiary Nauru Offshore Resources Inc (NORI) – and the ISA as regulator.³⁰ Ocean Mineral Singapore Pte. Ltd (OMS), a subsidiary of Singapore-based Keppel Offshore and Marine, and Jamaican-registered corporation, Blue Minerals Jamaica (BMJ), a subsidiary³¹ of Swiss-registered group Allseas, also each hold an exploration contract for polymetallic nodules. Allseas is also an operational partner in TMC's NORI project.³²

²² ISA (undated), 'Exploration Contracts', accessed 7.2.2023, <https://www.isa.org.jm/exploration-contracts>

²³ i.e. excluding the contract issued to the Interoceanmetal Joint Organization (IOM) composed of Bulgaria, Cuba, the Czech Republic, the Russian Federation, Slovakia and Poland.

²⁴ DSCC (2022). *Deep-sea mining: who stands to benefit?* https://savethehighseas.org/wp-content/uploads/2022/03/DSCC_FactSheet6_DSM_WhoBenefits_4pp_Feb22.pdf.

²⁵ Greenpeace International (2020). *Deep Trouble: The murky world of the deep sea mining industry*. <https://www.greenpeace.org/international/publication/45835/deep-sea-mining-exploitation/>

²⁶ The Metal Company (undated), accessed 7.2.2023 <https://metals.co/>

²⁷ Lockheed Martin (undated), "UK Seabed Resources", accessed 7.2.2023 <https://www.lockheedmartin.com/en-gb/products/uk-seabed-resources.html>

²⁸ DEME Group (undated), accessed 7.2.2023 <https://www.deme-group.com/>

²⁹ See, for example: Silva, E. (3.1.2023), 'Deep-sea mining may slam into regulatory wall', *S&P Global Market Intelligence*, accessed 7.2.2023, <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/deep-sea-mining-may-slam-into-regulatory-wall-73336472>; Greenpeace (9.12.2022). Doomed deep sea miner The Metals Company under huge pressure, accessed 7.2.2023, <https://www.greenpeace.org/usa/news/doomed-deep-sea-miner-the-metals-company-under-huge-pressure/>

³⁰ Deep Sea Mining Campaign, London Mining Network, Mining Watch Canada (2019). *Why the Rush? Seabed Mining in the Pacific Ocean*. July 2019, pp 26. <http://www.deepseaminingoutofourdepth.org/wp-content/uploads/Why-the-Rush.pdf>; Barron, G. (27.2.2019), 'Address to the ISA Council by Gerard Barron, CEO & Chairman of DeepGreen Metals Member of the Nauru Delegation', <https://www.isa.org.jm/files/files/documents/nauru-gb.pdf>; Lipton, E. (29.8.2022), 'Secret Data, Tiny Islands and a Quest for Treasure on the Ocean Floor', *The New York Times*, accessed 25.10.2022. <https://www.nytimes.com/2022/08/29/world/deep-sea-mining.html>

³¹ Blue Minerals Jamaica Ltd is a subsidiary of Blue Minerals Switzerland S.A., a holding company acting for the Allseas Group and directed by the same board of directors – see: Blue Minerals Jamaica Ltd (2022). Annual Return for Companies with Shares for the period ending 12 December 2020, obtained by EJF from the Companies Office of Jamaica; and Federal Commercial Registry Office (ZEFIX) (undated). Blue Minerals Switzerland SA, accessed 31.1.2023, <https://www.zefix.ch/en/search/entity/list/firm/1438678>

³² Allseas (14.11.2022), 'Trial run concludes with record haul', accessed 7.2.2023, <https://allseas.com/news/trial-run-concludes-with-record-haul/>

Table 1: Overview of sponsoring state interests in exploration contracts (all types of mineral deposit, both private and state entities)³³

	Sponsoring state	State or private contractor	Number of contracts	% of total contracts	Exploration area (km ²)	% of total exploration area (according to published contracts)	Reserved area (km ²)	% of total reserved area allocated
1	China	State	5	16.1	234797	17.9	72745	17.0
2	Korea	State	3	9.7	88000	6.7	-	-
3	Russian Federation	State	3	9.7	Not public			
4	France	State	2	6.5	85000	6.5	-	-
5	Germany	State	2	6.5	87230	6.7	-	-
6	India	State	2	6.5	85000	6.5	-	-
7	Japan	State	2	6.5	78000	6.0	-	-
8	UK	Private	2	6.5	133539	10.2	-	-
9	Belgium	Private	1	3.2	74990	5.7	-	-
10	Brazil	State	1	3.2	3000	0.2	-	-
11	Cook Islands	Private	1	3.2	73177.64	5.6	71937	16.8
12	Jamaica	Private	1	3.2	Not public			
13	Kiribati	Private	1	3.2	74990	5.7	74990	17.5
14	Nauru	Private	1	3.2	74830	5.7	74830	17.5
15	Singapore	Private	1	3.2	58280	4.4	58280	13.6
16	Tonga	Private	1	3.2	74713	5.7	74713	17.5
17	Poland	State	1	3.2	10000	0.8	-	-
18	Consortium - Bulgaria, Cuba, Czech Republic, Poland, Russian Federation, Slovakia	State	1	3.2	75000	5.7	-	-
		Total	31	100.00	1310546.64	100.00	427495	100.0

³³ ISA (undated), 'Exploration Contracts', accessed 7.2.2023, <https://www.isa.org.jm/exploration-contracts>

Table 2: Exploration contracts for polymetallic nodules by type of contractor (state/private)³⁴

Type of contractor	Exploration area (km ²)	% of total exploration area	Reserved area (km ²)	% of total reserved area
State	674027	54.4	72745	17.0
Private	564519.64	45.6	354750	83.0

A significant concern from a justice perspective is how companies based in the Global North have secured access to areas reserved for developing countries – using ostensibly local entities in predominantly small island developing states, which have in turn provided sponsorship for the ISA exploration contracts.

EJF’s analysis found that currently, private entities hold 83% of the total reserved area allocated to ‘developing states’ (**Table 3**). Canada-based TMC alone holds the exploration rights to over half (52.5%) of the reserved area allocated via local subsidiaries/partnerships. Through ostensibly local entities in Nauru, Tonga and Kiribati, TMC has gained effective access to 224,533 square kilometres of the CCZ for polymetallic nodule exploration previously reserved for developing states. DEME and Keppel Offshore and Marine hold the remaining reserved areas allocated to private companies.

“Given the privileges awarded to developing states, it should be scrutinized whether such partnerships do not undermine the principle of the common heritage of mankind and the objective to realize benefits for mankind as a whole.”³⁵

Table 3: Exploration contracts for polymetallic nodules allocated to private contractors (by overseas entity with a significant interest in the contract or effective control)

Overseas entity with a significant interest in the contract or effective control	Country of HQ/registered location	No. of contracts	Exploration area (km ²)	Reserved area (km ²)	% of total reserved area allocated (as at January 2019)
The Metals Company (TMC) ³⁶	Canada	3	224533	224533	52.5

³⁴ ISA (undated), ‘Exploration Contracts’, accessed 7.2.2023, <https://www.isa.org.jm/exploration-contracts>

³⁵ Willaert, K., & Singh, P. A. (2021). Deep sea mining partnerships with developing states: Favourable collaborations or opportunistic endeavours? *International Journal of Marine and Coastal Law*, 36(2), 199–217. <https://doi.org/10.1163/15718085-BJA10052>

³⁶ Exploration contracts held by: (i) Nauru Ocean Resources Inc. (NORI) and sponsored by Nauru; (ii) Tonga Offshore Mining Limited (TOML) and sponsored by Tonga, and (iii) Marawa Research and Exploration Ltd. and sponsored by Kiribati. For details of TMC’s involvement in these contracts, see: Sustainable Opportunities Acquisition Corp (2021). Form S-4 filing with Securities and Exchange Commission. 5 August 2021. https://www.sec.gov/Archives/edgar/data/1798562/000121390021040480/fs42021a5_sustainableopp.htm; and TMC (undated). NORI-D Project – Nauru Ocean Resources Inc, accessed 7.2.2023, <https://metals.co/nori/>. NORI and TMC are both wholly-owned subsidiaries of TMC while TMC, through its wholly-owned subsidiary DGE, entered into an agreement in 2013, “granting DGE the exclusive right for 40 years to carry out exploration and collection in the Marawa Contract Area as well as purchase polymetallic nodules collected from the Marawa Contract Area.” (see Form S-4 filing referred to above)

Dredging, Environmental and Marine Engineering NV (DEME) ³⁷	Belgium	2	148167.64	71937	16.8
Lockheed Martin ³⁸	USA	2	133539	-	-
Keppel Offshore and Marine ³⁹	Singapore	1	58280	58280	13.6
Allseas Group ⁴⁰	Switzerland	1	Not public	Not public	Not public
	Total	9	506239.64	354750	83.0

Developing states and vulnerable groups will bear the burden of risks and harm.

Sponsoring states are exposed to substantial liability and financial risk – potentially being held liable for reparations in the event of environmental harm, should they fail to uphold their legal obligations as sponsoring states. A key concern is whether sponsoring states such as Pacific island nations could be realistically expected to regulate the multinational parent companies of their sponsored contractors, considering limits on technical, financial and human resources and where they may lack effective control over these operations.

Furthermore, deep-sea mining has the potential for significant environmental harm that threatens to severely impact vulnerable groups. Disturbance to the seabed could impair the ocean's ability to sequester carbon and limit global heating, which would have potentially devastating consequences for communities on the frontlines of the climate crisis. Local and Indigenous communities, which rely heavily on marine resources for their food security and livelihoods, will likely shoulder the major burden of deep-sea mining activities. Deep-sea mining is predicted to negatively impact fisheries, causing potential declines in fish populations. Scientists also warn of the potential for bioaccumulation of toxins in food webs, with possible risks for human consumption.⁴¹ Mining operations further risk disrupting local cultural traditions and deep-rooted spiritual connections to the ocean.⁴²

³⁷ Exploration contracts held by: (i) Global Sea Mineral Resources NV and sponsored by Belgium, and (ii) Cook Islands Investment Corporation (CIIC) and sponsored by the Cook Islands. For details of DEME's involvement in these contracts, see: GSR (undated), Harnessing ocean minerals, accessed 7.2.2023, <https://deme-gsr.com/>; and CIIC Seabed Resources Limited (undated). 20/21 Application for a seabed minerals exploration licence. https://static1.squarespace.com/static/5cca30fab2cf793ec6d94096/t/6186fa13f5624d55b5d3182d/1636235798565/CIICSR_Public+summary+of+application.pdf. The document notes that CIIC Seabed Resources (CIIC-SR) is a joint venture between Cook Islands Investment Corporation (CIIC – a statutory Corporation of the Cook Islands Government) and Global Sea Mineral Resources Cook Islands (GSR-CI), owned by Global Sea Mineral Resources NV (GSR), part of the DEME Group, located in Belgium.

³⁸ Exploration contracts held by UK Seabed Resources Ltd. and sponsored by the UK. For details of Lockheed Martin's involvement in these contracts, see: Lockheed Martin (undated), UK Seabed Resources, accessed 7.2.2023, <https://www.lockheedmartin.com/en-gb/products/uk-seabed-resources.html>; and UK Seabed Resources Limited (2022). *Annual Report and Financial Statements for the year ended 31 December 2021*. <https://find-and-update.company-information.service.gov.uk/company/08058443/filing-history/MzM1MzcxNDg4M2FkaXF6a2N4/document?format=pdf&download=0>. The latter document identifies Lockheed Martin as the "ultimate parent undertaking and controlling party" of UKSR (at p.16)

³⁹ Exploration contract held by Ocean Mineral Singapore Pte Ltd. See: Reuters (16.6.2015), Keppel Corp unit signs seabed exploration contract, accessed 7.2.2023, <https://www.reuters.com/article/keppel-corp-contract-seabed-idUKL3N0Z23IL20150616>. Ocean Mineral Singapore Pte Ltd (OMS), Keppel's subsidiary and holder of the contract, reportedly has a partnership arrangement with UKSR/Lockheed Martin. UKSR holds a 19.9% share in a joint venture with OMS according to UKSR's Annual Report and Financial Statements for the year ended 31 December 2021.

⁴⁰ Exploration contract held by Blue Minerals Jamaica Ltd (BMJ) and sponsored by Jamaica. BMJ is a subsidiary of Blue Minerals Switzerland S.A., a holding company acting for the Allseas Group and directed by the same board of directors – see: Blue Minerals Jamaica Ltd (2022). *Annual Return for Companies with Shares for the period ending 12 December 2020*, obtained by EJJ from the Companies Office of Jamaica; Federal Commercial Registry Office (ZEFIX) (undated). Blue Minerals Switzerland SA, accessed 31.1.2023, <https://www.zefix.ch/en/search/entity/list/firm/1438678>

⁴¹ van der Grient, J. M. A., & Drazen, J. C. (2021). Potential spatial intersection between high-seas fisheries and deep-sea mining in international waters, *Marine Policy*, 129, 104564. <https://doi.org/10.1016/J.MARPOL.2021.104564>; Clark, M. (2013). Oceanic and deep-sea fishery resources of the Pacific: the potential impacts of deep sea mining, in Secretariat of the Pacific Community & Secretariat of Pacific Regional Environment Programme, *4th Environmental Perspectives of Deep Sea Mineral Activities, Proceedings report*, Nadi, Fiji, 18, <https://dsm.gsd.spc.int/public/files/2014/4thWorkshopProceedingsReport.pdf>.

⁴² See, for example: Fainu, K. (30.9.21), "Shark calling: locals claim ancient custom threatened by seabed mining", accessed 7.2.23, <https://www.theguardian.com/world/2021/sep/30/sharks-hiding-locals-claim-deep-sea-mining-off-papua-new-guinea-has-stirred-up-trouble> and Childs, J. (19.2.2019), 'Deep sea mining threatens indigenous culture in Papua New Guinea',

III. The UK's role in regulatory development

The ISA has a clear mandate and legal obligations under UNCLOS to protect and conserve the marine environment, its biodiversity, and ecosystems.⁴³ Under UNCLOS, the ISA Council is under an obligation to “disapprove areas for exploitation by contractors...in cases where substantial evidence indicates the risk of serious harm to the marine environment”.⁴⁴ The concept of “serious harm to the marine environment” is defined in the ISA regulations as “any effect from activities...which represents a significant adverse change in the marine environment”.⁴⁵ When exercising its powers under UNCLOS, the ISA is under an obligation to apply a precautionary approach.⁴⁶ Where the available science establishes the existence of a *risk of serious harm* to the marine environment but is insufficient to fully predict the *extent and magnitude of the harm*, the ISA must take preventive measures to safeguard the marine environment.

Structural issues within the ISA have resulted in the ISA's Legal and Technical Commission (LTC) having (near) *de facto* power to make decisions on mining contracts.⁴⁷ The LTC is a non-democratically elected body – its 41 members are elected based on nominations by the ISA Council⁴⁸ which is itself skewed towards mining interests⁴⁹ – that is unrepresentative of humanity as a whole and whose opaque decision-making procedures provide little to no opportunity for effective oversight or participation. Further concerns have been raised concerning the impartiality of the ISA and key ISA officials.⁵⁰

“The [ISA] provided data identifying some of the most valuable seabed tracts, and then set aside the prized sites for the company's future use” Eric Lipton, New York Times⁵¹

Furthermore, despite making recommendations with critical implications for the future of the global commons, **the LTC's decisions and procedures are highly opaque.** Meetings of

accessed 7.2.23, <https://theconversation.com/deep-sea-mining-threatens-indigenous-culture-in-papua-new-guinea-112012>

⁴³ UNCLOS, Art. 145

⁴⁴ UNCLOS, Art. 162(2)(x)

⁴⁵ Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, annexed to ISA Council Doc. ISBA/19/C/17 (22 July 2013), Regulation 1(3)(f); Regulations on prospecting and exploration for polymetallic sulphides in the Area, annexed to ISA Council Doc. ISBA/16/A/12/Rev.1 (15 November 2010), Regulation 1(3)(f); Regulations on Prospecting and Exploration for Cobalt-rich Ferromanganese Crusts in the Area, annexed to ISA Council Doc. ISBA/18/A/11 (22 October 2012), Regulation 1(3)(f).

⁴⁶ *Responsibilities and obligations of States with respect to activities in the Area*, Advisory Opinion, 1 February 2011, ITLOS Reports 2011, p. 10, paras 125–135.

⁴⁷ According to Section 3(11)(a) in the Annex of 1994 Agreement, if the LTC makes a recommendation to the Council to approve a plan of work, the plan of work is effectively considered approved after a certain period of time, unless a majority of two thirds of the members of the Council present and voting, *including a majority of members present and voting in all five chambers*, decide the application should be rejected. Given that two of the five chambers are elected on the basis of pro-mining criteria – with one chamber specifically composed of states with a direct interest in deep-sea mining activities – it is difficult to see how decisions about an application could be made impartially, which raises doubts as to whether the majority required to reject an application could ever be reached.

⁴⁸ UNCLOS, Article 163(2).

⁴⁹ Article 161, UNCLOS. Eight of the Council's 36 member states are elected based on criteria with a pro-mining bias, namely from state parties which are major importers of minerals of the categories derived from the Area (Group A: four members), or have made large investments in the conduct of mining activities in the Area (Group B: four members), with each forming one of the five chambers or interest groups of the Council. The criteria for electing the representatives of “special interests” of developing states (Group D: six members) also includes states which are major importers of minerals derived from the Area, and states that are potential producers of such minerals, potentially skewing the Council's composition further towards pro-mining interests. Only half of the Council's members are elected according to the principle of ensuring an equitable geographical distribution of seats in the Council. See: ISA (undated), ‘The Council’, accessed 7.2.2023, <https://www.isa.org.jm/index.php/authority/council/members>

⁵⁰ See, for example: Lipton, E. (29.8.2022), ‘Secret Data, Tiny Islands and a Quest for Treasure on the Ocean Floor’, The New York Times, accessed 25.10.2022, <https://www.nytimes.com/2022/08/29/world/deep-sea-mining.html>

⁵¹ Lipton, E. (29.08.2022), Secret Data, Tiny Islands and a Quest for Treasure on the Ocean Floor, The New York Times, accessed 25.10.2022, <https://www.nytimes.com/2022/08/29/world/deep-sea-mining.html>

the LTC are conducted behind closed doors and detailed minutes are not published.⁵² Key information upon which decisions are based is not made available to the public. The approval of exploration contracts, and the most recent decision to authorise test mining, have been made without the open and transparent consultation of state parties to the ISA or relevant stakeholders.⁵³ Despite the absence of a Scientific Committee, only around a fifth of current LTC members have a background relevant to the protection of the marine environment – a key mandate of the ISA.⁵⁴ Civil society access to recent ISA meetings has been highly restricted.⁵⁵

The UK has a key opportunity to provide input and oversight into these processes, and ensure due diligence is followed. The UK is strongly urged to pledge not to agree to the adoption of exploitation regulations at the ISA, unless and until the environmental, social and economic risks are comprehensively understood and it can be clearly demonstrated that deep-sea mining can be managed in such a way that ensures the effective protection of the marine environment and prevents loss of biodiversity, and the ISA is fit for purpose, acknowledging that this is not achievable by July 2023.

It is also recommended that a commitment is made that the UK delegation at the International Seabed Authority would **vote against approval of any Plan of Work for exploitation** on the deep seabed received before all of the above conditions are fulfilled.

IV. Conclusions and recommendations

Mining this vital part of our ocean could be catastrophic, with potentially global and irreversible implications. Deep-sea mining risks disrupting the global carbon cycle, threatens fisheries and food security, and would lead to extensive and irreparable biodiversity loss with devastating consequences for both people and planet.

Critical gaps in our understanding of the deep sea prevent fully informed, science-based decision-making. **Against this background, an ever-increasing number of scientists, non-governmental organisations, businesses, policymakers, states and state-like entities stand up and strongly oppose deep-sea mining.**

1. **Support a moratorium or precautionary pause on deep-sea mining.** The depths of the ocean contain some of the most biodiverse, undisturbed, and vulnerable ecosystems on the planet. However, all scientific evidence gathered so far indicates that the consequences will be devastating for the deep-sea ecosystem, with immense risks for the health of the ocean as a whole and the benefits it can provide for people.
2. **Scale up investment in deep-sea research with a view to protect our ocean and climate.** Critical gaps in our understanding of the deep sea prevent fully informed,

⁵² Morgera, E., and Lily, H. (2022). Public participation at the International Seabed Authority: An international human rights law analysis. *Review of European, Comparative & International Environmental Law*, 31(3), 374–388. <https://doi.org/10.1111/REEL.12472>

⁵³ See concerns raised by the Belgian ISA Delegation (10.11.2022). *Statement of Belgium regarding LTC report on NORI testing*, ISA - The 27th Session of the International Seabed Authority, accessed 21.11.2022, <https://isa.org.jm/node/20798/session/statements#block-media-2> and the Costa Rican ISA delegation (10.11.2022). *Statement at the November ISA council meeting*: <https://savethehighseas.org/isa-tracker/2022/11/10/key-statements-by-states-10-11-22/>

⁵⁴ Based on EJF's analysis of the CVs of the 41 LTC members who took up their positions in the LTC for a five-year period starting on 1 January 2023: ISA (undated), 'Legal and Technical Commission', accessed 7.2.2023, <https://www.isa.org.jm/authority/legal-and-technical-commission>

⁵⁵ DSCC (5.8.2022), 'Deep-sea mining negotiations close as global concern surrounding the industry reaches all time high', accessed 25.10.2022, <https://www.savethehighseas.org/isa-tracker/2022/08/05/deep-sea-mining-negotiations-close-as-global-concern-surrounding-the-industry-reaches-all-time-high/>

science-based decision-making. The UK should support and promote scientific research on the deep-sea environment, with a view to improving our understanding of its functioning, its rich biodiversity and the ecosystem services it provides, including its role in the oceanic carbon cycle.

3. **Invest in and implement circular economy solutions.** Both governments and industry must stop following the “take, make, waste” economic model, and transition urgently to a circular economy. This should include promoting and implementing large-scale electronics reuse and recycling programmes and the extension of product life cycles, and investing in energy efficiency and public shared transport systems to reduce the need for resource-intensive energy infrastructure.
4. **Call for a reform of the International Seabed Authority.** There is an urgent need to improve transparency and accountability of decision-making at the ISA – including through access to information and opportunities for meaningful public participation in deliberations of the Legal and Technical Commission – and to address potential conflicts of interest through an independent periodic review process. In the absence of a Scientific Committee and in light of the ISA’s clear mandate to protect the marine environment, the composition of the LTC should be reformed to significantly increase expertise in marine biology and conservation. A further, broader overhaul of ISA structures and procedures is also needed, including the criteria for electing members to the ISA Council and the procedure for approving applications for exploration/exploitation. Until credible, transparent and independent governance structures for managing the deep-sea commons are in place, no democratic legitimate decisions about deep-sea mining can be made in the interests of all humankind.
5. **Ensure the protection of deep-sea biodiversity.** In line with Target 3 of the Kunming-Montreal Global Biodiversity Framework, governments must designate at least 30% of the ocean – including national and coastal waters and the high seas – as ecologically representative, fully or highly protected marine areas (MPAs) by 2030, and provide the resources necessary to ensure they are monitored and fully enforced. Critical in achieving this, is the need for prompt agreement of a strong, comprehensive and legally binding High Seas Treaty with high standards of protection for marine ecosystems in areas outside of national jurisdiction, including through the establishment of effective MPAs in the high seas.

February 2023