Conservation International Position Statement on Deep-Sea Mining

Conservation International calls for a minimum ten-year moratorium on deep-sea mineral exploitation in order to allow for (1) needed scientific studies to comprehensively understand the environmental, social, economic and legal risks of these activities, and (2) international authorities, governments, and the private sector to develop responsible policies, procedures and technologies to mitigate those risks and manage deep-sea ecosystems to ensure no loss of biodiversity, critical ecosystems, and the ecosystem services they provide.

Covering around half of the Earth's surface and 95% of the volume that is inhabitable to life, the deep sea (depths below 200 meters) encompasses the largest portion of our planet and harbors extraordinary biodiversity[1,2]. It is estimated that up to 10 million species exist in the deep sea, the vast majority of which are still to be discovered[1,2]. While deep-sea habitats are still poorly studied, they harbor a rich and unique fauna that is extremely vulnerable to any disturbance, due to the slow growth rates, late maturity, sensitivity, and long lifespans of many deep-sea species, which are on the order of many decades to millennia[1,3]. Thus, recovery from physical disturbances in the deep sea takes much longer than human lifetimes, if they recover at all[1,3,4,5,6,7].

The deep seafloor also contains commercially valuable mineral resources, including manganese nodules found on abyssal plains, seafloor massive sulfides found on hydrothermal vents, and cobalt-rich crusts found on seamounts[3,4]. Advances in technologies now make it possible to extract some of these resources commercially, although the long-term economic viability of deep-sea mineral extraction is difficult to predict[3,4,8]. The full consequences of commercial-scale seabed mining are unknown, because to date commercial deep-sea mineral exploitation has not occurred[3,4]. However, given the traits of most deep-sea organisms, which are adapted to the stable conditions of the deep ocean, environmental impacts from deep-sea mining will likely be permanent on human time scales[1,3,4,5,9].

Our current scientific understanding indicates that deep-sea mining will have substantial, adverse and long-term impacts on the species, habitats, and environmental quality of our oceans. These impacts will result from extraction activities directly disturbing the seafloor, as well as via sediment that will be stirred up into the water and impact habitats over large areas surrounding mining sites, and via increased noise, light, water temperature, electromagnetic disturbance as a result of mining operations[3,4,5,8,9]. While mitigation measures are often used to alleviate environmental impacts in terrestrial and marine industries, similar approaches are not currently available to deep-sea mining, because deep-sea mitigation measures are untested, biodiversity loss is likely unavoidable, and opportunities to restore or offset impacts on deep-sea ecosystems do not exist[5,9].

Deep-sea mining is not necessary to meet future global demands for minerals[10,11]. Even under the highest-demand prediction scenarios, future global demands for minerals can be met with terrestrial sources[10,11]. Additionally, metal recycling rates, which currently are very low, should be intensified to reduce the need for mining both on land and in the sea[10,11]. As such, the decision to exploit deep-sea minerals should be carefully and holistically evaluated.

Most importantly, deep-sea mining exploitation has not yet occurred at a commercial scale, and therefore the impacts are unknown and must be carefully assessed before any activities commence. Specifically, the decision to exploit deep-sea minerals requires that the environmental, social, economic and legal risks are comprehensively understood, and it can clearly be demonstrated that deep-sea mining can be managed in such a way to prevent loss of biodiversity, critical ecosystems, and the ecosystem services they provide.

Our Position

Apply a minimum ten-year moratorium on deep-sea mining exploitation.

Conservation International believes that it is imperative that international authorities, governments, and the private sector implement a minimum ten-year moratorium on the exploitation of deep-sea minerals or until rigorous and transparent impact assessments have been conducted; 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.

While little is known about the deep sea, existing science is clear that any physical disturbance in the deep sea has long-term impacts on species and habitats[1,3,4,5,6,7], making a minimum ten-year precautionary moratorium on deep-sea mineral exploitation warranted and needed. Current science is clear that deep-sea mining operations will lead to the direct mortality of organisms living on mineral resources, removal and fragmentation of seafloor habitat, and degradation of the environmental quality of seafloor habitats as well those in the waters above it[3,4,5,6,7,8,9]. Neither the extent nor the time duration of deep-sea mining impacts are known, because commercial deep-sea mineral exploitation currently does not exist[3,4]. However, even slight disturbances in the deep-sea have been shown to have long-term impacts due to the traits of many deep-sea organisms, which are adapted to stable conditions over evolutionary-long time scales[1,3,4,5]. The precautionary principle dictates that without complete scientific understanding of the ecosystems or the potential impacts, and where the possibility of harm is great, relevant authorities have the responsibility to prevent actions until thorough scientific studies have been conducted to ensure no loss of biodiversity, critical ecosystems, and the ecosystem services they provide.

The United Nations proclaimed 2021-2030 the Decade of Ocean Science for Sustainable Development in order to gather stakeholders worldwide behind a common framework that will ensure that science guides the sustainable use of our oceans[12]. We therefore believe that a moratorium on deep-sea mineral exploitation should extend at least until the year 2030. This moratorium will provide additional time for needed scientific research on the environmental, social, economic and legal risks of deep-sea mining and how, if possible, to mitigate those. This time will also allow governments and the International Seabed Authority to develop transparent, accountable, inclusive, effective and environmentally responsible decision-making and regulatory structures to manage deep-sea ecosystems in a way to prevent loss of or damage to biodiversity, critical ecosystems, and the ecosystem services they provide.

Guidelines

While we insist that a minimum ten-year moratorium on deep-sea mining activities is essential, Conservation International recognizes there are already ongoing deep-sea exploration and prospecting activities at numerous sites globally[3,5,8]. Furthermore, despite the clear need for extensive further research to develop procedures and technologies to ensure no loss of biodiversity, critical ecosystems, or the ecosystem services they provide, some governments or private sector entities may nevertheless proceed with exploitation of deep-sea minerals. In these instances, Conservation International calls on governments, international authorities, and the private sector to adopt the following guidelines.

1. Apply the precautionary principle to deep-sea mineral exploration and prospecting activities.

Conservation International recognizes that deep-sea exploration and prospecting activities are already ongoing[3,5,8]. International authorities, governments, and the private sector should apply the precautionary principle to any deep-sea mineral exploration and prospecting activities and should work together to

develop responsible policies, procedures and technologies to prevent loss of biodiversity, critical ecosystems, and ecosystem services. Thorough and transparent environmental impact assessments, strategic environmental assessments, and social impact assessments must be conducted by independent scientists not associated with the mining sector, to characterize ecosystems and understand the direct, indirect and cumulative impacts of deep-sea mineral exploration activities, as well as evaluate whether those are acceptable. These assessments should be made public for external review and feedback, engaging relevant stakeholders in the decision-making process in accordance with international best practices. As exploration activities proceed, they should go slowly and apply the precautionary principle to understand and mitigate impacts as thoroughly as possible, applying adaptive management to adjust approaches when necessary to prevent damage to the environment. Furthermore, as new technologies are developed that address the risks of deep-sea mining, these should be reviewed by independent and technically-qualified experts to ensure no loss of biodiversity, critical ecosystems, and ecosystem services.

2. Conduct comprehensive planning prior to any deep-sea mining exploitation activities to ensure conservation of ecologically or culturally sensitive areas, as well as prevent conflict with other ocean users.

If scientific research determines that deep-sea mining can be conducted without loss of biodiversity, critical ecosystems and ecosystem services, then international authorities, governments and the private sector should work together to develop comprehensive regional environmental management plans before mineral exploitation commences. Mining activities should be balanced with conservation of critical biological and cultural resources, as well as prevent conflict with other ocean user groups. Mining concessions should avoid ecologically and culturally sensitive areas, and protected areas (non-mined) should be established to conserve sensitive areas using ecosystem-based principles[13,14], including buffer zones around protected habitats that minimize mining impacts on surrounding habitats. All national and international laws, agreements and designations should be respected, such as marine protected areas (MPAs), vulnerable marine ecosystems (VMEs), particularly sensitive sea areas (PSSAs), areas of particular environmental interest (APEIs), RAMSAR sites, International Whaling Commission sanctuaries, ecologically or biologically significant marine areas (EBSAs), MARPOL special areas, and UNESCO world heritage sites. Additionally, governments and international authorities will need to establish strong regulations that require thorough environmental impact assessments, strategic environmental assessments, social impact assessments and ongoing monitoring of impacts, as well as adopting ecosystem-based policies that consider the maintenance of connectivity among biological communities.

Planning for any deep-sea mining activities should respect national, regional, and international agreements, as well as remain aligned with the mandates and regulations of the United Nations Convention on the Law of the Sea (UNCLOS), the Convention on Biological Diversity (CBD), the United Nations Framework Convention on Climate Change (UNFCCC), the International Seabed Authority (ISA), the International Maritime Organization (IMO), the International Convention on the Prevention of Pollution from Ships (MARPOL), the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, regional seas conventions, the Convention on International Trade of Endangered Species (CITES), the RAMSAR Convention, the Convention on Migratory Species (CMS), and other relevant conventions. Furthermore, planning for deep-sea mining activities should respect other ocean user groups, including those from traditional uses, tourism, fisheries, shipping, pharmaceutical, cultural and recreational sectors, and conduct thorough public consultations to prevent user conflicts.

3. Apply the polluter pays principle to ensure seabed mining developers and operators compensate for impacts, including potential unanticipated accidents.

If deep-sea mining exploration or exploitation activities result in damage, degradation or loss of biodiversity, critical ecosystems, or the ecosystem services they provide, the developers and operators of those activities should provide full compensation for those damages. As opportunities do not exist to restore or offset mining impacts to unique deep-sea ecosystems, seabed mining developers should compensate for the impact of their activities. Compensation should include directing financial resources into long-term conservation of deep-sea ecosystems to ensure the maintenance of these biodiverse and unique areas. The polluter pays principle should be followed and the seabed mining sector should bear the costs for any damage done to the environment and human communities, including unanticipated damage that may only be detectable many years after interventions. Since unanticipated accidents might occur, the mining sector must set aside funds equivalent to the degree of potential damage, including long-term damage that is incurred by the natural environment and those who depend on it.

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