IN THE MATTER OF A PROPOSED MORATORIUM OR PRECAUTIONARY PAUSE ON DEEP-SEA MINING BEYOND NATIONAL JURISDICTION

OPINION

PART 1: INTRODUCTION AND SUMMARY

1. Since the 1960s, it has been apparent that the deep seabed beyond national jurisdiction holds a wealth of mineral resources. In one of the more extraordinary and progressive acts of multilateralism, States came to agree through negotiation that those resources should be shared and immune to claims of sovereignty or sovereign rights. The *United Nations Convention on the Law of the Sea* (**'UNCLOS'**) provides that the seabed beyond national jurisdiction (**'the Area'**) and its resources are the common heritage of humankind. All rights to the mineral resources of the Area are vested in humankind as a whole and any activities in the Area, including exploitation, must be carried out for peaceful purposes and for the benefit of humankind as a whole.

2. Pursuant to UNCLOS and the 1994 *Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982* (**'the 1994 Agreement**'), the International Seabed Authority (**'the ISA**') is mandated to act on behalf of humankind as a whole in the organisation, conduct and control of activities in the Area, including the exploitation of minerals. To this end, the ISA is mandated to promulgate rules, regulations and procedures (**'RRPs'**) to govern activities in the Area and provide for the equitable sharing of the financial and economic benefits derived from such activities.

3. Three main mineral resources are of commercial interest:

    a. polymetallic nodules are potato-sized lumps found in fields of the deep seabed, generally more than four kilometres down on the abyssal plains. They are particularly abundant in the Clarion Clipperton Zone (CCZ) in the north-central Pacific Ocean.

They are primarily made from manganese but also contain smaller quantities of nickel, cobalt, molybdenum and rare earth elements.

b. polymetallic sulphides are found on hydrothermal vents which generally occur at between one and four kilometres depth and, when active, are characterised by temperatures of up to 400 degrees centigrade. They are distributed along mid-oceanic ridge systems in the Pacific, Atlantic, Arctic and Indian Oceans. They have high sulphur content and are rich in copper, lead, zinc, gold, barium and silver.

c. cobalt rich ferromanganese crusts are found on the flanks of seamounts across the world's oceans. The more commercially attractive crusts are located in the central equatorial Pacific. Along with manganese and cobalt, the crusts contain traces of copper, nickel and platinum.

4. Proponents of deep-sea mining argue that exploitation of these minerals will facilitate the global transition to a low-carbon economy. The decarbonisation of the world's economies places a demand on copper, cobalt, nickel, manganese and rare earth metals for use in electric cables, electronic goods, and lithium ion batteries. The deep seabed is seen by proponents as an alternative source for these metals which can avoid some of the negative impacts of terrestrial mining, including deforestation, pollution and human rights abuses. Moreover, the commencement of commercial deep-sea mining is seen as the delivery of a long-held promise, contained in Part XI of UNCLOS, to develop the resources in the Area in a manner which fosters the healthy and equitable development of the world economy.

5. Since 2000, the ISA has promulgated three different sets of RRPs applicable to exploration in the Area, and has granted 31 exploration contracts with 22 contractors. However, commercial exploitation has not yet commenced. There are two reasons for this:

a. First, exploitation has not, to date, been commercially viable or technically feasible. However, rising demand for metals, together with developments in deep sea exploitation technology, mean some commercial operators have indicated they will be ready to commence exploitation activities within a few years.

b. Second, the ISA has not yet adopted a governing framework, by way of relevant RRPs, for exploitation. However, Nauru's triggering of the so-called 'two year rule' on 9 July 2021 means that the ISA must use best endeavours to complete the adoption of

relevant RRPs by 9 July 2023.[1] If it fails to achieve this, then the default position is that the ISA Council must consider for provisional approval any plan of work submitted to it which is consistent with the provisions of UNCLOS and any RRPs that the ISA Council may have adopted provisionally, and with norms contained in the 1994 Agreement.

6. Consequently, there is a real prospect that, within the next few years, the ISA could be asked to issue contracts for exploitation and deep-sea mining in the Area could commence. There are, however, significant concerns that exploitation of the Area cannot currently proceed without undermining key elements of UNCLOS.

7. First, there is substantial evidence to suggest that deep-sea mining risks causing irreversible and serious harm to the marine environment. Part XI of UNCLOS was agreed at a time when it was assumed the deep seabed was largely devoid of life. Subsequent research has disproved that assumption and demonstrated an abundance of biodiversity on the deep seabed and in the water column above it which stands to be impacted by deep-sea mining. States Parties to UNCLOS have an overarching obligation to protect and preserve the marine environment. Article 145 UNCLOS reflects that obligation in the specific context of the Area and requires the ISA to adopt RRPs that ensure the effective protection of the marine environment from the harmful effects of activities in the Area. The ISA Council is currently negotiating RRPs to achieve this end, but they are not yet in place and there are significant unresolved matters to be negotiated.

8. A central problem is the current paucity of rigorous scientific information concerning the biology, ecology and connectivity of deep-sea species and ecosystems, as well as the ecosystem services they provide. There is also a distinct lack of knowledge of the likely impacts of deep-sea mining on these matters. As a result, the current state of scientific knowledge is insufficient to enable robust environmental baselines to be described or robust environmental thresholds to be set in a manner that permits the adoption and application of environmental RRPs that guarantee the effective protection of the marine environment.

[1] ISBA/26/C/38 Annex II.

9. In addition, there are concerns about the institutional capacity of the ISA to review applications for plans of works for compliance with environmental RRPs, and subsequently to monitor and enforce compliance by contractors with those RRPs. The ISA's key advisory body, the Legal and Technical Commission (**'LTC'**), has limited scientific expertise and is not adequately resourced to manage the assessment of multiple applications for plans of work. Further, the ISA has no existing systems or structures through which to conduct monitoring and inspection of exploitation activities and no environmental compliance strategy.

10. Separately, key mechanisms to ensure the equitable sharing of the financial and other economic benefits of deep-sea mining are not in place. RRPs setting the financial regime are still under negotiation and neither the Enterprise nor the Economic Planning Commission has been operationalised. Without resolving these matters, deep-sea mining risks providing benefits to contractors without delivering on the UNCLOS Part XI promise of delivering benefits to humankind as a whole.

11. With this in mind, a growing number of NGOs, commercial enterprises and States are calling for a moratorium or precautionary pause on exploitation of the Area. They argue that until the gaps in scientific knowledge are filled and/or the ISA's institutional capacity is addressed, a precautionary approach (itself a core pillar of environmental law) demands that the commencement of any commercial exploitation is deferred. By contrast, the ISA Secretary-General, among others, has argued that a moratorium or precautionary pause would not be consistent with UNCLOS.

12. We have been asked for our opinion on whether a moratorium or precautionary pause could be implemented consistently with UNCLOS and the 1994 Agreement and, if so, what mechanisms are available to achieve it.

13. We consider the language of "moratorium" or "precautionary pause" obscures more than it reveals. Although we refer to that language in this opinion, we understand it to mean no more than the adoption of a legal measure to defer commencement of deep-sea mining until it can be carried out without risking significant harm to the marine environment. Understood that way, a moratorium or precautionary pause is not only consistent with UNCLOS, but is actually required by it. It is a core obligation of States Parties to protect and preserve the marine environment; it would be a violation of that obligation to enable

the commencement of exploitation of the Area at a time when scientific understanding of the deep sea, the existing regulatory arrangements, and the ISA's institutional capacity are insufficient to ensure that outcome.

14. We suggest in Section 7 below a number of legally viable mechanisms to defer the commencement of exploitation activities in the Area. Whichever mechanism is preferred, we consider that the necessary deferral of exploitation should be accompanied by parallel measures by member States to work cooperatively to address the insufficiencies that currently demand such a deferral. In our view, member States' duties to discharge the rights and obligations recognised in UNCLOS in good faith mean that they must cooperate to: improve the state of existing scientific knowledge; adopt a robust, UNCLOS-compliant framework of RRPs as soon as the science permits; and develop the ISA's institutional capacity to enable it reliably to organise and control activities in the Area in a manner that ensures the effective protection of the marine environment. These steps should be taken in tandem with the steps necessary to secure a deferral of exploitation activity.

PART 2: THE LEGAL FRAMEWORK

2.1 Background to the seabed mining regime in UNCLOS and the 1994 Agreement

15. Since the HMS Challenger expedition of the 1870s, the existence of mineral resources on the deep seabed has been well known. Widespread enthusiasm about their economic potential did not, however, arise until the 1960s. The 1967 speech of Arvid Pardo, the Maltese Ambassador to the UN, captured international attention and led to multilateral negotiations about the status of the deep seabed and its resources.[2]

16. In a context of decolonisation, developing and industrialised States negotiated a unique and unprecedented regime for the Area, based on the principle that the deep seabed constitutes the "common heritage of [hu]mankind", is not amenable to claims of sovereignty, and its resources cannot be alienated unilaterally.[3] Codified in Part XI of

[2] UNGA First Committee (22nd *Session) 'Speech by Arvid Pardo' (1 November 1967, 3pm)* UN Doc A/C.1/PV.1516.

[3] UNCLOS Arts 136, 137(2), 140 – 141.

UNCLOS in 1982, the regime had taken shape through a series of prior resolutions of the UN General Assembly.[4]

17. Part XI of UNCLOS (containing the legal framework applicable to the Area) was, however, contentious and opposed by a number of industrialised States who refused to ratify UNCLOS in the absence of amendments, in particular those relating to the mandatory transfer of technology,[5] and the subsidisation of the Enterprise by States Parties.[6] The compromise that enabled widespread ratification was the 1994 Agreement, which removed the more contentious obligations and elaborated the rules for the functioning of the ISA. The provisions of the 1994 Agreement and Part XI of UNCLOS are to be interpreted and applied as a single instrument.[7]

18. UNCLOS was negotiated and ratified as a "package deal"; that is, reservations to particular provisions or parts were not permitted as the Convention as a whole reflected finely balanced trade-offs between States with divergent interests. It was presented for signature on a "take-it-or-leave-it" basis which was critical to securing widespread agreement.

19. UNCLOS entered into force on 16 November 1994. It is an ambitious and comprehensive framework for the governance of the world's oceans and seas that has been ratified by 167 states and the European Union. Its key achievement has been to standardize states' claims to maritime zones and the resources within them. Many of its provisions bind non-signatories because they are accepted as now reflecting customary international law.

20. UNCLOS is commonly referred to as 'the constitution for the oceans'. As a framework convention, it sets out broad commitments and principles binding on parties, but leaves much of the detail to implementing agreements, national legislation, or to relevant international organisations.

21. While UNCLOS is generally agreed to be a landmark achievement in international law, developments in knowledge and understanding since it was negotiated have revealed a

[4] See UNGA Res 2574D (XXIV) (15 December 1969), which called for a moratorium on deep seabed mining in the Area, pending establishment of an international legal regime; UNGA Res 2749 (XXV) (17 December 1970) the *Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, Beyond the Limits of National Jurisdiction*.

[5] UNCLOS Annex III Art 5.

[6] UNCLOS Art 170(4).

[7] 1994 Agreement Art 2.

number of lacunae.[8] In particular, the implications of climate change are not directly addressed, nor is the need to respond to a global biodiversity crisis. Greater clarity on the former may be provided by the International Tribunal on the Law of the Sea (**'ITLOS'**) in response to a request for an Advisory Opinion on the matter from the Commission on Small Island States.[9] Greater clarity on the latter may be offered by the proposed Implementing Agreement to UNCLOS, the Treaty on Biodiversity Beyond National Jurisdiction, which is at an advanced (though not yet completed) stage of negotiation.[10] Further, and of particular relevance to this opinion, the scientific basis on which UNCLOS was negotiated has advanced significantly: the prevailing consensus in 1982 was that the deep sea was devoid of life; we now know that it supports a wealth of biodiversity.

2.2 Part XI and Annex III UNCLOS and the 1994 Agreement

2.2.1 Overview

22. Part XI UNCLOS, UNCLOS Annex III and the 1994 Agreement together provide the overarching framework on the status and management of the Area and its resources.

23. The Area includes the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction.[11] Its resources are limited to all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the sea-bed, including polymetallic nodules.[12]

24. Section 2 of Part XI sets out the principles governing the Area and provides that the Area's resources are the common heritage of humankind[13] and all rights in the resources of the Area are vested in humankind as a whole.[14] The ISA is mandated to provide for the equitable sharing of financial and other economic benefits derived from activities in the Area.[15] Minerals in the Area may only be alienated in accordance with the regime established by UNCLOS, the 1994 Agreement and the RRPs adopted by the ISA,[16] which

[8] For a recent review of UNCLOS and its continuing relevance in the 21st century see *UNCLOS: the law of the sea in the 21st century*, UK House of Lords International Relations and Defence Committee, 2nd Report of Session 2021-2022, March 2022, available at https://committees.parliament.uk/publications/9005/documents/159002/default/.

[9] See https://www.itlos.org/fileadmin/itlos/documents/cases/31/Request_for_Advisory_Opinion_COSIS_12.12.22.pdf.

[10] See https://www.un.org/bbnj/.

[11] UNCLOS Art 1(1).

[12] UNCLOS Art 133(a).

[13] UNCLOS Art 136.

[14] UNCLOS Art 137.

[15] UNCLOS Art 140(1).

[16] UNCLOS Art 137(2)(3).

are to include RRPs that ensure the protection of the marine environment from harmful effects of activities in the Area.[17]

25. Marine scientific research in the Area is to be carried out for the benefit of humankind as a whole.[18] The ISA has an obligation to promote and encourage scientific research in the Area and to disseminate the results of such research. It may carry out the research itself or enter into contracts for that purpose.[19] States Parties may also carry out marine scientific research in the Area and are required to promote international cooperation in such research, including by disseminating the results and analysis widely.[20]

26. Section 3 of Part XI elaborates the obligation for activities in the Area to be carried out in such a manner as to foster healthy development of the world economy and balanced growth of international trade, and to promote international cooperation for the overall development of all countries, especially developing States.[21] All mineral activities in the Area are to be organized, carried out and controlled by the ISA on behalf of humankind as a whole,[22] with a view to the development of the resources of the Area.[23]

27. Section 4 of Part XI establishes the ISA.[24] The ISA is made up of States Parties to UNCLOS and its primary purpose is to act as the vehicle through which States Parties discharge their obligation to "*organize and control activities in the Area, particularly with a view to administering the resources of the Area*".[25] That is significant: the obligations of the ISA as a whole, and the obligations of the specific organs of the ISA, reflect obligations that ultimately rest on States Parties.

28. The principal organs of the ISA are the Assembly, Council and Secretariat.[26] The Council is supported by the LTC made up of members with appropriate qualifications relevant to exploration for and exploitation and processing of mineral resources, oceanology,

[17] UNCLOS Art 145.
[18] UNCLOS Art 143(1).
[19] UNCLOS Art 143(2); 1994 Agreement Annex s 1(5)(h) and (i)
[20] UNCLOS Art 143(3).
[21] UNCLOS Art 150.
[22] UNCLOS Art 153(1).
[23] UNCLOS Art 150(a)
[24] UNCLOS Art 156.
[25] UNCLOS Art 157.
[26] UNCLOS Art 158.

protection of the marine environment, or economic or legal matters relating to ocean mining and related fields of expertise.[27]

2.2.2 The common heritage of humankind

29. The ISA is required to regulate activities in the Area in accordance with the principle of the common heritage of humankind.[28] While UNCLOS does not define the principle, its framework is set out in Part XI through: the prohibition on claims to sovereignty or sovereign rights,[29] the requirement for peaceful purposes,[30] collective regulation,[31] the equitable sharing of financial and other economic benefits,[32] and the promotion of effective participation of developing and landlocked states,[33] including by way of the so-called parallel system.[34]

30. Underpinning the principle is the idea of equitable access to the benefits of the Area. A number of commentators have emphasized that the principle incorporates intergenerational, as well as international, equity and therefore embodies the ambition of sustainable long-term development.[35] The common heritage of mankind principle is now accepted as reflecting customary international law.[36]

2.2.3 RRPs, including effective protection

31. The ISA is required to adopt RRPs relating to, among other things, prospecting, exploration and exploitation in the Area, the equitable sharing of financial and other economic benefits derived from activities in the Area, and the financial management and internal administration of the ISA.[37] RRPs are developed by the LTC,[38] adopted provisionally by the Council[39] and approved by the Assembly.[40] RRPs relating to

[27] UNCLOS Arts 163, 165.
[28] UNCLOS Arts 136, 137(2), 153(1).
[29] UNCLOS Art 137(1).
[30] UNCLOS Art 141.
[31] UNCLOS Arts 153, 158 – 185.
[32] UNCLOS Art 140.
[33] UNCLOS Art 148.
[34] UNCLOS Annex III Art 8; 1994 Agreement Annex s 1(10).
[35] R Wolfrum, 'Common Heritage of Mankind' in *Max Planck Encyclopaedia of Public International Law*, paras 22–23.
[36] *ibid* at para 25.
[37] UNCLOS Arts 160(2)(f)(ii), 162(2)(o)(ii); Annex III Article 17. See also the 1994 Agreement Annex ss 1, 6, 8, 9
[38] UNCLOS Art 165(2)(f).
[39] UNCLOS Art 162(2)(o)(ii).
[40] UNCLOS Art 160(2)(f)(ii).

prospecting, exploration and exploitation in the Area must ensure the protection of the marine environment. Pursuant to Article 145 of UNCLOS:[41]

> "necessary measures shall be taken in accordance with this Convention with respect to activities in the Area to ensure effective protection for the marine environment from harmful effects which may arise from such activities. To this end, the Authority shall adopt appropriate rules, regulations and procedures for, inter alia:
> (a) the prevention, reduction and control of pollution and other hazards to the marine environment, including the coastline, and of interference with the ecological balance of the marine environment, particular attention being paid to the need for protection from harmful effects of such activities as drilling, dredging, excavation, disposal of waste, construction and operation or maintenance of installations, pipelines and other devices related to such activities;
> (b) the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment".

32. The expression "activities in the Area" , which means "all activities of exploration for, and exploitation of, the resources of the Area", is to be construed broadly. [42] It includes the recovery of minerals from the seabed, their lifting to the water surface, the evacuation of water from the minerals and the preliminary separation of materials of no commercial interest, including their disposal at sea.[43] "Marine environment" is similarly to be interpreted broadly, as confirmed by the exploration regulations adopted by the ISA.[44]

33. Article 145 UNCLOS reflects the obligations in Part XII of UNCLOS. Part XII UNCLOS contains general provisions on the protection and preservation of the marine environment. It sets out that "*States have the obligation to protect and preserve the marine environment*"[45] and requires States to take "*all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source*" including measures "*necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life*".[46]

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[41] See also UNCLOS Annex III Art 17(2)(f); and 1994 Agreement Annex s 1 para 5(g) and (k).

[42] UNCLOS Art 1(3)

[43] *Responsibilities and obligations of States with respect to activities in the Area*, Advisory Opinion, 1 February 2011, ITLOS Reports 2011, p. 10 ("Area Advisory Opinion").

[44] See, e.g. reg 1(3)(c) of the Polymetallic Nodules Regulations: *""Marine environment" includes the physical, chemical, geological and biological components, conditions and factors which interact and determine the productivity, state, condition and quality of the marine ecosystem, the waters of the seas and oceans and the airspace above those waters, as well as the seabed and ocean floor and subsoil thereof"*

[45] UNCLOS Art 192.

[46] UNCLOS Art 194.

34. The general obligations in Part XII apply to all States in all maritime areas, both inside the national jurisdiction of States and beyond it.[47] Article 192 imposes the dual obligation "*to take active measures to protect and preserve the marine environment, and by logical implication, entails the negative obligation not to degrade the marine environment*." Furthermore, Article 192 requires States to "*ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control*."[48] Articles 204-206 UNCLOS require an environmental impact assessment and monitoring and reporting where there are reasonable grounds for believing that activities may cause significant and harmful changes to the marine environment.[49]

35. The obligations in Part XII UNCLOS are not displaced by the specific regime established by Part XI of UNCLOS. Instead, as indicated by Article 209 UNCLOS, the RRPs established under Part XI are intended to give effect to States' general obligations (including under Part XII) in the specific context of activities in the Area.[50] When acting within the ISA Council or Assembly, States remain bound by their Part XII general obligation to protect and preserve the marine environment and must ensure that obligation is discharged when adopting RRPs and/or considering plans of work for approval.

2.2.4 Control over activities in the Area

36. Activities in the Area must be carried out in accordance with a formal "plan of work" approved by the Council acting on the recommendation of the LTC.[51] The plan of work must comply with UNCLOS and any relevant RRPs.[52] Except in limited circumstances, the Council must approve a plan of work if it conforms to the relevant provisions of the Convention and relevant RRPs.[53] If a plan of work is approved, the Authority shall "*accord the operator the exclusive right to explore and exploit the area covered by the plan of work in respect of a specified category of resources*".[54]

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[47] *South China Sea Arbitration, Philippines v China*, Award, PCA Case No 2013-19, ICGJ 495 (PCA 2016), 12th July 2016, Permanent Court of Arbitration [PCA] paras 927, 940

[48] *ibid* para 941

[49] The elaboration of these obligations is a matter for negotiation in the emerging BBNJ Treaty.

[50] See the *Area Advisory Opinion*, *supra* n.42 at para.97.

[51] UNCLOS Arts 153(3) and 165(2)(b); Annex III Arts 3(3) and 6; 1994 Agreement Annex s 3(15).

[52] UNCLOS Annex III Art 3(4)(a).

[53] UNCLOS Annex III Art 6; 1994 Agreement Annex s 3(11).

[54] UNCLOS Annex III Art 16.

37. States have a due diligence obligation to ensure that activities in the Area, whether by themselves or by sponsored contractors, are carried out in accordance with approved plans of work, the obligations of UNCLOS, and any relevant RRPs.[55] A sponsoring State's failure to comply with its due diligence obligation may result in liability for that sponsoring State for damage caused by the contractor. For that reason, Article 4 of Annex III UNCLOS stipulates that applicants must meet the nationality or control and sponsorship requirements of Article 153(2)(b) and follow the procedures and meet the qualification standards set forth in the RRPs of the Authority. Article 153(2)(b) UNCLOS stipulates that natural or juridical persons are qualified to apply as long as (i) they possess the nationality of States parties or are effectively controlled by them or their nationals, and (ii) are sponsored by such States. If a State that is different from the State of nationality or its nationals exercises effective control, or if the applicant has more than one nationality, the sponsorship of more than one State is required.

38. The ISA is also required to exercise such control over activities in the Area as is necessary for the purposes of securing compliance with the relevant provisions of UNCLOS and any relevant RRPs.[56] To this end, the ISA has the right to inspect all installations in the Area used in connection with activities in the Area and is required to establish appropriate mechanisms for directing and supervising a staff of inspectors who shall inspect activities in the Area to determine whether the activities are conducted in compliance with the terms of a contract, RRPs and the provisions of UNCLOS.[57]

39. By Article 162(2)(w), the ISA Council is required to "*issue emergency orders, which may include orders for suspension or adjustment of operations, to prevent serious harm to the marine environment arising out of activities in the Area*" and, pursuant to Article 162(2)(x) is required to "*disapprove areas for exploitation … where substantial evidence indicates the risk of serious harm to the marine environment*". It is unsettled whether the "serious harm" standard is also to be applied when adopting RRPs to ensure the protection of the marine environment from harmful effects that may arise from activities in the Area and ensure the prevention of damage to the flora and fauna of the marine environment. We consider that the two standards are intended to be different as they perform different

[55] UNCLOS Arts 139(1) and 153(4); Annex III Art 4(4). See also the *Area Advisory Opinion, supra* n.42.

[56] UNCLOS Art 153(4).

[57] UNCLOS Art 162.

functions. Article 145 prescribes standards to be met by all activities in the Area. Article 162(2)(w) and (x) identify the trigger for urgent preventative action by the ISA. In that light, we consider that Article 145 requires RRPs to achieve a higher standard of protection than merely avoiding "serious harm".[58] Nonetheless, it is clear from the drafting history of UNCLOS that even the "*serious harm*" threshold does not require irreversible harm.[59]

2.2.5 The two-year rule

40. By paragraph 5 of the Annex to the 1994 Agreement, the ISA's work is directed as follows:

> "Between the entry into force of the Convention and the approval of the first plan of work for exploitation, the Authority shall concentrate on:
> …
> (g) Adoption of rules, regulations and procedures incorporating applicable standards for the protection and preservation of the marine environment;
> (h) Promotion and encouragement of the conduct of marine scientific research with respect to activities in the Area and the collection and dissemination of the results of such research and analysis, when available, with particular emphasis on research related to the environmental impact of activities in the Area;
> (i) Acquisition of scientific knowledge and monitoring of the development of marine technology relevant to activities in the Area, in particular technology relating to the protection and preservation of the marine environment;
> (j) Assessment of available data relating to prospecting and exploration;
> (k) Timely elaboration of rules, regulations and procedures for exploitation, including those relating to the protection and preservation of the marine environment."

41. Paragraph 15 of the Annex to the 1994 Agreement introduced the so-called "two-year rule" which has now been triggered by Nauru. It provides:

> "15. The Authority shall elaborate and adopt, in accordance with article 162, paragraph 2(o)(ii), of the Convention, rules, regulations and procedures based on the principles contained in sections 2, 5, 6, 7 and 8 of this Annex, as well as any additional rules, regulations and procedures necessary to facilitate the approval of plans of work for exploration or exploitation, in accordance with the following subparagraphs:
> (a) The Council may undertake such elaboration any time it deems that all or any of such rules, regulations or procedures are required for the conduct of activities in the Area, or when it determines that commercial exploitation is imminent, or at the request of a State whose national intends to apply for approval of a plan of work for exploitation;
> (b) If a request is made by a State referred to in subparagraph (a) the Council shall, in accordance with article 162, paragraph 2(o), of the Convention, complete the adoption of such rules, regulations and procedures within two years of the request;
> (c) If the Council has not completed the elaboration of the rules, regulations and procedures relating to exploitation within the prescribed time and an application for approval of a plan of work for exploitation is pending, it shall none the less consider and provisionally approve such plan of work based on the provisions of the Convention and any rules, regulations and procedures that the Council may have adopted provisionally, or on the basis of the norms

[58] See discussion in Levin et al. *Defining "serious harm" to the marine environment in the context of deep-seabed mining* Marine Policy 74 (2016) 245-259.

[59] An early version of the text that became Article 162 referred to "irreparable harm to a unique environment" but was amended through negotiation to "serious harm to the marine environment": Third United Nations Conference on the Law of the Seas, 45th meeting of the First Committee, paras 49-50, U.N.Doc. A/CONF.62/C.1/SR.45 (Apr. 25, 1979).

contained in the Convention and the terms and principles contained in this Annex as well as the principle of non-discrimination among contractors."

42. Nauru's invocation of paragraph 15(c) places significant time pressure on States Parties to UNCLOS – acting through the ISA – to establish a fit-for-purpose and protective framework around anticipated exploitation.

2.3 Obligations and principles outside UNCLOS

43. Pursuant to Article 31(3)(c) of the Vienna Convention on the Law of Treaties, the obligations in UNCLOS and the 1994 Agreement are to be read in the context of any relevant rules of international law applicable in the relations between States Parties. This interpretative rule ensures the systemic integration of international law.[60]

44. Elements from across the corpus of international environmental law are thus relevant to the legal framework within which deep-sea mining in the Area is regulated. Much of this law has developed since UNCLOS was opened for signature and/or entered into force. The period from 1992 onwards has been described as a period of "*maturation*" of international environmental law, and its "*linkage with other areas of international law*"[61] including, here, the law of the sea. Indeed, the 1992 Rio Conference, which resulted in the Rio Declaration, "*laid the basis for the rapid development of new principles and rules of international environmental law*"[62].

2.3.1 The precautionary principle

45. Central to that rapid development was the establishment of the precautionary principle, which has become foundational to international environmental law. Principle 15 of the Rio Declaration enunciated the precautionary approach as follows: *"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"*.

46. The precautionary principle or precautionary approach has been incorporated into a number of other treaties, including the 1995 Fish Stocks Agreement,[63] an implementing

[60] See C McLachlan *The Principle of Systemic Integration and Article 31 (3)(C) of the Vienna Convention,* International and Comparative Law Quarterly 54, 2005 pp 279–319.

[61] Weiss, E., *The Evolution of International Environmental Law*, 54 Japanese Y.B. Intl. L. 1-27 (2011) at p 2.

[62] *ibid.*

[63] The United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.

agreement to UNCLOS which, by Article 5(c) and Article 6, adopts the precautionary approach in the following terms:

> 1. States shall apply the precautionary approach widely to conservation, management and exploitation of straddling fish stocks and highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment.
> 2. States shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.

47. Versions of the precautionary principle have been adopted by Regional Fisheries Management Organisations (RFMOs): see for example OSPAR,[64] International Commission for the Conservation of Atlantic Tuna,[65] Western and Central Pacific Fisheries Commission,[66] and the South Pacific Regional Fisheries Management Organisation.[67] So too has the precautionary approach formed part of the Helsinki Convention,[68] London Protocol on Dumping,[69] the Convention on Biological Diversity (**'the CBD'**),[70] the UN Framework Convention on Climate Change[71] and in the ongoing negotiations for the BBNJ Convention.[72]

48. ITLOS has confirmed a trend towards the precautionary approach forming part of customary international law.[73] To the extent there is still a debate about its customary status, or its scope, that has been settled in the context of deep-sea mining: it has been adopted as a binding legal principle by the ISA. The three sets of exploration regulations all adopt the precautionary principle as one of the "fundamental policies and principles" set out in regulation 2 and provide that *"prospecting shall not be undertaken if substantial evidence indicates the risk of serious harm to the marine environment*". The draft exploitation regulations currently include the precautionary principle as a fundamental

[64] Convention for the Protection of the Marine Environment of the North-East Atlantic, Art 2.

[65] International Convention for the Conservation of Atlantic Tunas, Art 4.

[66] Convention on the Conservation and Management of High Migratory Fish Stocks in the Western and Central Pacific Ocean, Art 6.

[67] Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean, Art 2 and 3

[68] Convention on the Protection of the Marine Environment of the Baltic Sea Area, Art 3.

[69] Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Art 3.

[70] Convention on Biological Diversity preamble, para 9.

[71] United Nations Framework Convention on Climate Change, Art 3.

[72] Draft Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, Article 5(d) of the draft text for IGC5.

[73] *Area Advisory Opinion*, *supra* n.42 para 135. And see *Southern Bluefin Tuna Cases (New Zealand v Japan; Australia v Japan*) ITLOS order of 27 August 1999, paras 77-80.

policy and principle.[74] In the Area Advisory Opinion, the precautionary approach was described as "*Among the most important of the direct obligations incumbent on sponsoring States*" and as "*a binding obligation*" on both States and the ISA in respect of activities in the Area.[75]

49. In the ISA context, the precautionary principle demands a risk-based approach. Where there is substantial evidence of *the risk of* significant harm to the marine environment, a lack of scientific certainty about the nature or magnitude of that harm is not a reason to proceed with the activity regardless. As Jaeckel notes in her monograph on *The International Seabed Authority and the Precautionary Principle:*[76]

> *"*precaution applies not because of uncertainty but in spite of it… the trigger for precaution is the concern over environmental harm, not uncertainty itself. Here, it is also worth noting an easy misperception, namely that prevention relies on science whereas precaution does not. This is not true. Scientific considerations lie at the heart of the precautionary principle as it relies on an in-depth assessment of scientific knowledge, including any remaining uncertainties."

2.3.2 The ecosystem approach

50. Like the precautionary approach, the ecosystem approach has only recently emerged as a principle of international law. Its emergence is a response to growing recognition of a biodiversity crisis and the inadequacy of single species conservation measures. There is no single accepted definition of the ecosystem approach: in general terms, it promotes conservation and sustainable use through a focus on the impacts of human activities on the wider ecosystem, including its structure, functions and the interactions of organisms and their environment. It requires conservation and management measures to be designed and adapted with regard to the scales and dynamics of ecosystem characteristics.[77]

51. The ecosystem approach has particular resonance in the law of the sea. The principle first appeared in the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) in 1980. It is also implicit in UNCLOS, not only in the general Art 194 obligation to protect and preserve rare or fragile ecosystems, but also in the specific Art 145 obligation on the ISA to adopt RRPs which prevent, reduce and control interference with the ecological balance of the marine environment.

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[74] ISBA/27/C/IWG/IM/CRP.1: Draft regulations on exploitation of mineral resources in the Area Part I and Part II (partial) Regulations 1-5 (Jul 2022), draft reg 2(a)(ii).

[75] *supra* n.42 paras 122, 127, 131.

[76] A Jaeckel, *The International Seabed Authority and the Precautionary Principle*, Brill Nijhoff, 2017 p 36.

[77] See, for example, the CBD Guidelines on The Ecosystem Approach issued by the CBD Secretariat: https://www.cbd.int/doc/publications/ea-text-en.pdf.

52. Since UNCLOS was opened for signature in 1982, the ecosystem approach has been adopted widely in fisheries management. It drives the FAO Code of Conduct for Responsible Fisheries, and appears as a binding legal obligation in Article 5(d) and (e) of the UN Fish Stocks Agreement. It has been incorporated into the treaties underpinning, or the rules binding, most RFMOs. It has also been recognised by the parties to the CBD as a critical aspect of the discharge of obligations under that Convention.[78]

53. In the ISA context, the ecosystem approach is not firmly embedded in the Exploration Regulations. However, it is a specific goal of the ISA's Environmental Management Plan for the CCZ to "*establish ecosystem approaches to management*", to maintain "*ecosystem structure and function*" across the CCZ, and to "*manage the Clarion-Clipperton Zone consistent with the principles of integrated ecosystem-based management*".[79] The application of an ecosystem approach is also identified as a "*fundamental policy and principle*" in the draft exploitation regulations.[80]

54. As the precautionary principle and ecosystem approach have become more established at the centre of international environmental law, environmental management approaches have evolved to incorporate and implement their requirements. These include the requirement for "*best available scientific evidence*", "*best environmental practices*", and "*best available techniques*".

2.3.3 Biodiversity commitments

55. The biodiversity commitments of States Parties to UNCLOS are also relevant to the interpretation and discharge of UNCLOS obligations to protect and preserve the marine environment:

    a. The CBD established the conservation of biological diversity and the sustainable use of its components as objectives of the Convention. At COP15, States Parties to the CBD committed to protect at least 30 per cent of the ocean,[81] The COP specifically

[78] CBD 'Decision II/8, Preliminary Consideration of Components of Biological Diversity Particularly under Threat and Action which could be taken under the Convention' UN Doc UNEP/CBD/COP/DEC/II/8 (17 November 1995) para 1.

[79] ISBA/17/LTC/7: Environmental Management Plan for the Clarion Clipperton Zone (Jul 2011), adopted by the Council in July 2012, paras 35(b) and (d).

[80] *supra* n 73, draft reg 2(a)(iii).

[81] Kunming-Montreal Global Biodiversity Framework (2022) Target 3.

encouraged States to defer deep-sea mining pending further research on the impacts on the marine environment.[82]

b. The UN General Assembly has repeatedly recognised the "*immense importance and value of deep sea ecosystems and the biodiversity they contain*" and has called on States to take action immediately, individually and through RFMOs and arrangements, and consistent with the precautionary approach and ecosystem approaches, to manage fish stocks sustainably and protect vulnerable marine ecosystems, including seamounts, hydrothermal vents and cold water corals, from destructive fishing practices.[83]

c. The UN General Assembly has adopted 17 Sustainable Development Goals, including committing States "*to conserve and sustainably use the oceans, seas and marine resources for sustainable development*"[84] including, as a target, "*by 2020 sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience and take action for their restoration, to achieve healthy and productive oceans*".

d. In 2020, the leaders of 93 countries and the European Union made the *Leaders' Pledge for Nature,* committing to "*reversing biodiversity loss by 2030*". The Pledge emphasises that "*the interdependent crises of biodiversity loss and ecosystem degradation and climate change – driven in large part by unsustainable production and consumption – require urgent and immediate global action*".

56. It is plain that States' obligations under international environmental law, and the biodiversity commitments they have made, bear directly on the approach required for the exploitation of the Area. In particular, States are only permitted to proceed to exploitation

[82] In its decision on the conservation and sustainable use of marine and coastal biodiversity, the COP adopted the draft decision of Working Group II, which encouraged states to ensure that:

"before deep-sea mining proceeds, the impacts on the marine environment and biodiversity are sufficiently researched and the risks understood, the technologies and operational practices do not cause harmful effects to the marine environment and biodiversity, and appropriate rules, regulations and procedures are put in place by the International Seabed Authority, in accordance with the best available science and the traditional knowledge of indigenous peoples and local communities with their free, prior and informed consent, and the precautionary and ecosystem approaches, and consistent with United Nations Convention on the Law of the Sea and other relevant international law"

[83] Resolution 61/105 and subsequent Sustainable Fisheries Resolutions.

[84] UN Sustainable Development Goal 14.

if doing so would be consistent with the array of protective legal obligations under which States are required to operate.

2.3.4 International human rights law

57. International human rights law is also relevant to the discharge of States' obligations in the context of deep-sea mining and the mandate of the ISA. In particular:[85]

    a. obligations in UNCLOS to protect and preserve the marine environment and/or to adopt environmental RRPs must be read consistently with the right to a clean, healthy and sustainable environment.[86] In observing that right, and discharging the obligation on the ISA to organize, carry out and control activities in the Area for the benefit of humankind as a whole, States must have regard to the rights of future generations.[87]

    b. procedural rules in the ISA must be discharged consistently with rights to public participation in public decision-making.[88]

58. UNCLOS does not operate in a vacuum, and the obligations it imposes must be interpretated by taking into account the overlapping legal duties which exist in other areas of international law.

PART 3: PROGRESS OF RRPs FOR EXPLOITATION

3.1 Background to the current negotiations

[85] This list is not intended to be exhaustive and it is acknowledged that a number of other rights may be engaged by decisions taken by States in the context of deep sea mining: see E Morgera and H Lily *Public participation at the International Seabed Authority: An international human rights law analysis* RECIEL Vol 31, Issue 3, 374.

[86] This right was recognised by States in the UN Human Rights Council in October 2021 ('The Human Right to a Clean, Healthy and Sustainable Environment' UN Doc A/HRC/RES/48/13 (18 October 2021)) and the UN General Assembly in August 2022: 'The Human Right to a Clean, Healthy and Sustainable Environment' UN Doc A/RES/76/300 (1 August 2022).

[87] Note paras 9 and 13 of the preamble to the UNGA Resolution cited above at n.85. See also Stockholm Declaration, principles 1, 2, 5, 11; Rio Declaration, principle 3; *The Environment and Human Rights*, Advisory Opinion Right to A Healthy Environment, Advisory Opinion OC-23/17, Inter-American Court of Human Rights Series A No 23 (15 November 2017) at [59]; dissenting opinion of Judge Weeramantry in *Advisory Opinion on the Legality of the Use of Nuclear Weapons* (1996) ICJ Rep 226; R Wolfrum *supra* n 34 at para 22. Jaeckel, A., et al, *Conserving the Common Heritage of Humankind – Options for the deep-seabed mining regime*, Marine Policy 78 (2017) 150-157

[88] See International Covenant on Civil and Political Rights Art 25. See also the Aarhus and Escazu Conventions for more detailed application in the context of environmental decision making. Notwithstanding the limited ratification of the Aarhus Convention, the REMP for the CCZ contains a guiding principle requiring public participation in decision making in accordance with the requirements of the Aarhus Convention.

59. The ISA has promulgated three sets of exploration regulations in respect of nodules (2000, updated 2013),[89] sulphides (2010),[90] and crusts (2012).[91] Pursuant to these regulations, the ISA has agreed 31 exploration contracts with 22 contractors.[92] Nineteen of the contracts are for exploration for polymetallic nodules in the CCZ (17), Central Indian Ocean Basin (1) and Western Pacific Ocean (1). There are seven contracts for exploration for polymetallic sulphides in the South West Indian Ridge, Central Indian Ridge and the Mid-Atlantic Ridge and five contracts for exploration for cobalt-rich crusts in the Western Pacific Ocean.[93]

60. In 2012, in response to increasing activity in the CCZ and a concern to ensure an ecosystem approach to management which has regard to the cumulative effects of activities, the ISA adopted a Regional Environmental Management Plan (REMP) for the CCZ.[94] The REMP sets a vision, as well as goals and objectives which include "*to facilitate mining while minimizing as far as practically possible the impact of seabed mining activities, and preserving and conserving marine biodiversity and ecosystem structure and function*".[95] A central feature of the REMP is the establishment of "*areas of particular environmental interest*" (APEIs). No activities are to take place in APEIs in order to protect ecosystem structure and function.

61. REMPs for other areas in which exploration contracts have been issued are in various stages of development. The ISA Secretariat states that REMPs provide the ISA with a clear and consistent mechanism to identify particular areas thought to be representative of the full range of habitats, biodiversity and ecosystem structures and functions within the relevant management area, and provide those areas with appropriate levels of protection.[96] How REMPs are integrated into the decision-making framework for the approval of contracts, and whether they constitute part of the package of RRPs at all, is still under negotiation.

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[89] ISBA/19/C/17: Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area (2013)

[90] ISBA/16/A/12/REV1: Regulations on prospecting and exploration for polymetallic sulphides in the Area (2010)

[91] ISBA/18/A/11: Regulations on Prospecting and Exploration for Cobalt-rich Ferromanganese Crusts in the Area (2012)

[92] See: https://www.isa.org.jm/exploration-contracts

[93] *ibid*.

[94] ISBA/17/LTC/7 *supra* n 78.

[95] *ibid* at [33]

[96] ISBA/24/C/3: Preliminary strategy for the development of regional environmental management plans for the Area (2018).

62. The ISA commenced work on the RRPs for exploitation in 2014. They are complicated and cover a wide range of issues, including institutional, fiscal, regulatory, and environmental matters. The LTC presented drafts of the Exploitation Regulations in 2016 and 2017 before a further draft was handed to the ISA Council for negotiation in 2019.

63. The COVID-19 pandemic interrupted negotiations and prevented in-person meetings of the LTC, Council and Assembly for two years. On 30 June 2021, while progress in the ISA was stalled and in-person meetings were impossible, Nauru notified the President of the ISA Council that Nauru Ocean Resources Inc. (NORI) intended to apply for approval of a plan of work for exploitation.[97] The notification had the effect of triggering section 1(15)(b) of the Annex to the 1994 Agreement (i.e. the two-year rule) and set the clock running for the completion of the adoption of RRPs within two years.

64. A first tranche of draft Standards and Guidelines were published in 2021.[98] Further, revised drafts of Parts I and II and Parts IV and VI of the draft Exploitation Regulations were published in February and July 2022.[99] While Regulations and Standards are binding when finalized, Guidelines are recommendatory only. Together, the Regulations, Standards and Guidelines are known as the 'Mining Code'.[100]

3.2 The state of the current negotiations

65. Negotiations continue in the ISA Council with three working groups on the following themes: (i) protection and preservation of the marine environment; (ii) inspection, compliance and enforcement; and (iii) institutional matters. As the ISA takes a "building block" approach to regulatory development, "*nothing is agreed until everything is agreed*"[101] and there are a significant number of outstanding issues. That said, one can describe the general shape of the draft RRPs, as regards the protection and preservation of the marine environment, as follows:

[97] See: https://isa.org.jm/files/files/documents/NauruLetter-Notification.pdf

[98] See latest versions at: https://isa.org.jm/mining-code/standards-and-guidelines.

[99] See latest versions at: https://isa.org.jm/mining-code/draft-exploitation-regulations. For a detailed summary of the process of developing RRPs for exploitation, see Blanchard et al, *The current status of deep-sea mining governance at the International Seabed Authority*, Marine Policy Vol 147, January 2023.

[100] The 'Mining Code' is not, however, a technical term and is often used to cover a narrower (excluding non-binding Guidelines) or wider (including LTC Recommendations) range of matters.

[101] ISA, *Developing a Regulatory Framework for Mineral Exploitation in the Area, Report to Members of the Authority and all Stakeholders* (Jul 2016) para. 12

a. As an overarching principle, the ISA is obliged, *inter alia*, to ensure the effective protection of the marine environment, including by applying the precautionary approach and ecosystem approach to the assessment and management of risk to the marine environment, to integrate best available scientific evidence in decision making, and to require best available techniques and best environmental practices.[102] Sponsoring states and contractors are obliged to apply the same principles when carrying out their functions or conducting activities in the Area.[103]

b. Applicants seeking approval of plans of work must:
   i. carry out detailed environmental impact assessments which, inter alia, are based on relevant baseline data, include an environmental risk assessment that takes into account the region as a whole, provides for stakeholder consultation, and is subject to independent scientific assessment prior to submission to the ISA.[104] The results of that assessment must be submitted in a written Environmental Impact Statement which demonstrates the proposed operation to be in accordance with all relevant environmental Standards and with the requirements of the relevant REMP.[105]
   ii. prepare detailed Environmental Management and Monitoring Plans ('EMMPs') based on the environmental impact assessment and Environmental Impact Statement and in accordance with the relevant REMP and prepared in accordance with best industry practice, best available scientific evidence, best environmental practices and best available techniques.[106]

c. Contractors must take all necessary measures to protect and preserve the marine environment[107] and must monitor and report annually on the environmental effects of their activities on the marine environment and on the implementation and effectiveness of their EMMP.[108]

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[102] ISBA/27/C/IWG/IM/CRP.1 *supra* n 73, draft reg 2; ISBA/27/C/IWG/ENV/CRP.1/Rev.1 Draft regulations on exploitation of mineral resources in the Area Parts IV and VI and related Annexes (Jul 2022), draft reg 44(1)(a).

[103] ISBA/27/C/IWG/ENV/CRP.1/Rev.1, *ibid*, draft reg 44(1)(c).

[104] *ibid*, draft reg 46bis.

[105] *ibid*,draft regs 46bis, 47.

[106] *ibid*,draft regs 46(2), 46bis (2) and (3), 46ter, 48.

[107] *ibid*,draft reg 49.

[108] *ibid*,draft regs 51, 52.

d. The ISA is to establish appropriate mechanisms for inspection and inspectors have powers to inspect vessels and installations used in the Area in connection with activities in the Area, to conduct investigations into non-compliance, and to report to the Secretary-General of the ISA.[109]

66. In broad terms, therefore, the draft RRPs are in general alignment with the requirements of UNCLOS and the wider principles of international environmental law addressed above. However, there are some significant gaps in the draft RRPs, including:

a. There are no clear criteria for evaluating the adequacy of an Environmental Impact Statement, and in particular no clear criteria for evaluating whether the environmental baseline is sufficient to predict or assess impacts. While the LTC has made recommendations on environmental baseline requirements,[110] and some of those recommendations appear in non-binding Guidelines,[111] it is not clear what legally binding standards will be applied to assess the adequacy of environmental baseline data and the sufficiency of an Environmental Impact Statement by reference to the baseline.

b. There is no clear definition of "effective protection", "harmful effects" and "serious harm" nor any specific guidance on how these terms will be applied to determine applications for plans of work or liability for non-compliance.

c. There are no specific thresholds or tests to be applied by the ISA when considering whether a proposed plan of work risks having "harmful effects on", causing "damage to the flora and fauna of", or "interfering with the ecological balance of", the marine environment. With that in mind, the Council has tasked the LTC to prepare, as binding standards, specific threshold values against which to assess the environmental acceptability of a proposed plan of work,[112] but work has only just commenced on that task.

[109] *ibid*,Part XI.

[110] ISBA/25/LTC/6/Rev.1: Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area (Mar 2019).

[111] Draft guidelines for the establishment of baseline environmental data (Jan 2022).

[112] ISBA/27/C/42:Decision of the Council of the International Seabed Authority relating to the development of binding environmental threshold values (Nov 2022)

d. There is no agreement on whether and how contractors should be required to conduct and report on at-scale test mining before applying for a plan of work, and no agreement on how such test mining, if required, is to be regulated.[113]

e. There is a divergence of view as to whether REMPs should be legally binding or mere policy or guidance documents.

f. There are significant unsettled policy questions about the content of RRPs relating to the inspection and compliance regimes,[114] including whether to establish a new oversight body known as the Compliance Committee, and how that Committee might operate.[115]

g. There are no standardised procedures for public outreach and stakeholder consultation in relation to ISA rule and decision-making.[116]

67. Separately, there is still no agreed definition of "effective control" for the purposes of ensuring compliance with Article 4 of Annex III and Article 153(2)(b) UNCLOS. In 2014, the LTC expressed the preliminary view that it is for sponsoring States to be satisfied of "effective control" over contractors before issuing a certificate of sponsorship, and the ISA can treat a certificate of sponsorship as determinative.[117] However, there is a difference of view among States as to whether that is correct. The requirement for sponsoring States to have "effective control" over contractors is closely tied to the due diligence obligation on those sponsoring States to ensure compliance with RRPs and the terms of the contract. The "effective control" standard is therefore directly relevant to the ability of sponsoring States to ensure the effective protection of the marine environment from harmful effects arising from activities in the Area. In light of the serious liability consequences flowing from sponsorship,[118] the concerns expressed by the Seabed Chamber of ITLOS with regard to

[113] See Germany's proposal for revised draft regulation 48bis (Jul 2022).

[114] See ISBA/27/C/IWG/ICE/CRP.1: Draft regulations on exploitation of mineral resources in the Area Part XI: Regulations 96 to 105 (Jul 2022), in particular the comments/remarks in draft regulations 96 and 97.

[115] See the joint submission of Brazil, Chile and Costa Rica, cosponsored by Federal States of Micronesia, New Zealand and Panamá, to the IWG on Inspection, Compliance and Enforcement for the establishment of a Compliance Committee (Oct 2022).

[116] See E Morgera. and H Lily *supra n 84*; J Ardron, H Lily and A Jaeckel, *Public Participation in the Governance of Deep-Seabed Mining in the Area* in R Rayfuse, A Jaeckel and N Klein (eds), Research Handbook on International Marine Environmental Law (2nd edn) 2023, Edward Elgar.

[117] ISBA/20/LTC/10: Analysis of regulation 11.2 of the Regulations on Prospecting and Exploration for Polymetallic Nodules and Polymetallic Sulphides in the Area (Jun 2014)

[118] See the *Area Advisory Opinion supra* n.42

the possibility of "sponsoring States of convenience",[119] and factual concerns relating to the apparently tenuous link between some contractors and their sponsoring States and the power imbalance between them,[120] the Informal Working Group on Institutional Matters has indicated that "effective control" must be defined in RRPs and applied by the ISA when considering applications for plans of work.[121] Little progress, however, has been reached in negotiating that definition. In addition, there has been very limited progress in negotiating the scope and mandate of an Environmental Compensation Fund to meet the liability lacuna identified in the *Area Advisory Opinion*, and determining whether that fund needs to be in place prior to the commencement of exploitation activities and/or test mining.

68. A number of other critical elements of the RRPs to be adopted by the ISA are also unfinished: the financial regime is proving challenging to agree,[122] not least because of the unknown environmental costs of exploitation activities in the Area,[123] and the ISA's equitable benefit-sharing regime has yet to be determined. Neither the Enterprise nor the Economic Planning Commission, both of which are key organs of the ISA designed to contribute to the delivery of equitable sharing of the benefits of seabed mining, have been operationalised.[124]

69. Accordingly, in its current state, the regulatory framework for exploitation is still at an early stage of negotiation. Shortly after Nauru's triggering of the two-year rule, a number of States expressed reservations as to whether it was realistic to complete the elaboration of RRPs within the necessary timeframe: the African Group, for instance, described the

[119] *ibid* at [159]

[120] K Willaert and P Singh *Deep Sea Mining Partnerships with Developing States: Favourable Collaborations or Opportunistic Endeavours?* (2021) The International Journal of Marine and Coastal Law, 36(2), 199-217. See also: Lipton E, 'Secret Data, Tiny Islands and a Quest for Treasure on the Ocean Floor' *The New York Times* (29 August 2022); Bloomberg News, 'A Mining Startup's Rush for Underwater Metals Comes With Deep Risks – BNN Bloomberg' (*BNN*, 23 June 2021).

[121] ISBA/27/C/IWG/IM/CRP.1 *supra* n 73, introductory comments by co-facilitators and comments/remarks in draft reg 5.

[122] See for example the African Group Submission Suggesting Amended Text for the Payment Regime Provided for in the Draft Regulations on the Exploitation of Mineral Resources in the Area (Aug 2022).

[123] The Council has asked the Secretary-General to commission a study on the environmental costs of exploitation activities, including how to internalize the costs associated with environmental externalities) but the tender process has only recently commenced: see ISBA/27/C/43: Decision of the Council of the International Seabed Authority relating to the commissioning by the secretariat of a study on the internalization of environmental costs of exploitation activities the Area into the production costs of minerals from the Area (Nov 2022).

[124] See ISBA/27/C/25: Operationalization of the Economic Planning Commission (May 2022); and African Group Proposal for the Operationalisation of the Enterprise (Jul 2018).

task set by Nauru as "seemingly insurmountable".[125] As States enter the final six months of negotiations, many of them have reached the same conclusion:[126]

a. Costa Rica has described the exploitation regulations as being at a "fledgling stage";

b. Brazil has said it is "not realistic" that regulations would be adopted by the end of the two-year period;

c. Belgium has noted that, despite progress in the development of the exploitation regulations, "a lot of work remains" and "there is no chance to finalize work before the two-year timeline";

d. The Netherlands has described the draft regulations and standards as requiring "quite a lot of further substantive work";

e. Cuba has observed that "there are still many gaps and open issues in spite of all the efforts undertaken to meet the deadlines in the approved roadmap, and it will be difficult to conclude them all by July 2023";

f. Australia has noted that "a considerable amount of work remains" to be done on the exploitation regulations;

g. Panama has said that the regulatory framework is "far from complet[e]";

h. Chile and Spain have described the two-year deadline as a "sword of Damocles".

70. Similarly, in its October 2022 call for a conditional moratorium, New Zealand observed that, "progress on the Mining Code to date has been slow. We are not confident that a robust regulatory framework for deep-sea mining beyond national jurisdiction, which ensures the effective protection of the marine environment, can be agreed by the required deadline."[127]

[125] ISBA/26/C/40: Submission of members of the Council of the International Seabed Authority from the African Group in relation to the request made by Nauru pursuant to section 1, paragraph 15, of the Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 (Jul 2021).

[126] See IISD Earth Negotiations Bulletin, Daily Report on 27th Session of the Assembly of the International Seabed Authority (ISA-27), 4 August 2022; Save the High Seas, Key Statements by States, 5 November 2022 and 11 November 2022.

[127] https://www.beehive.govt.nz/release/nz-backs-conditional-moratorium-seabed-mining-international-waters (Oct 2022).

71. It now seems impossible that fit-for-purpose RRPs, addressing each of the outstanding issues identified above, will be in place by the end of the two-year deadline 9 July 2023.

PART 4: THE STATE OF THE OCEAN AND THE SCIENCE OF DEEP-SEA MINING

4.1 State of the Ocean

72. The legal framework, including what is required to comply with existing legal obligations, is inextricably linked to the factual and scientific context of the deep sea. Our understanding of the deep sea and its importance to the sustainability of life on earth has developed extensively since exploitation of the Area was first contemplated in the 1980s under the UNCLOS framework.

73. The ocean covers over 70% of, and contains around 90% of the habitable space on, the planet. It contains around 250,000 known species, with many more remaining to be discovered.[128] The ocean currently supplies around half of the world's oxygen[129] and absorbs around 26 per cent of the anthropogenic carbon dioxide emitted into the atmosphere.[130] A healthy ocean is critical to a healthy planet.

74. Biological diversity in the oceans has decreased dramatically over the last fifty years. Marine fish populations have declined by around 38% compared to levels in 1970.[131] Over one-third of marine mammals and nearly one-third of sharks, shark relatives, and reef-forming corals are currently threatened with extinction.[132] The primary causes are well known: the impacts of industrial fishing, including the destruction of habitats by trawler fishing; plastic and chemical pollution; ocean eutrophication and acidification; and climate change. The Global Assessment Report on Biodiversity and Ecosystem Services concluded that 66% of the ocean is experiencing increasing cumulative impacts of human activity and only 3% of the ocean is free from human pressure.[133]

4.2 Science of the deep seabed and the impact of deep sea mining

[128] Census of Marine Life.

[129] The First Global Integrated Marine Assessment (World Ocean Assessment I) (United Nations, 2016):

[130] Corinne Le Quere and others, *Global carbon budget 2015*, Earth System Science Data, Vol. 7, No. 2 (December 2015), 349 at 371.

[131] Hutchings et al. *Trends in Abundance of Marine Fishes*, Canada Journal of Fisheries and Aquatic Sciences 67(8) 2010

[132] Global Assessment Report on Biodiversity and Ecosystem Services (2019), p.24

[133] *ibid*

4.2.1 Absence of robust baseline data

75. While the deep seabed remains one of the least understood places on Earth, it is now clear that it is not the barren desert it was thought to be at the time UNCLOS was negotiated.[134] Recent research suggests an abundance of rare and unique biodiversity across much of the Area.[135]

76. That said, even in the most well-studied deep sea regions such as the CCZ, only around 8-13% of species living on the seabed have been identified and over 60% of the known species have been recorded only once.[136] Information of species in the water column is even more deficient, as benthic ecosystems have been the focus of the majority of research to date (both by independent researchers and mining contractors).[137] Amon et al. recently reviewed the corpus of scientific literature on deep-sea mining since 2010. Their review indicated significant scientific gaps in relation to baseline data available for deep sea mining. Those gaps related to abiotic baseline information, taxonomic and ecological information, variability, connectivity, and ecosystem structure and services.[138] As LTC member, Dr Malcolm Clark, wrote in April 2020: "The structure and function of such ecosystems is poorly understood as are the spatial scales at which processes operate…"[139]

77. The result is that it is currently impossible to describe the environmental baselines that are the foundation for assessing and managing the environmental effects of deep-sea mining in a robust manner.[140] As Clark noted: "EIA preparation and the development of environmental management plans are almost by definition working in a knowledge-poor

[134] Written evidence of the Ocean Law Specialist Group to the House of Lords International Relations and Defence Committee, 12 November 2021.

[135] J Drazen, C Smith, K Gjerde *Report of the workshop evaluating the nature of midwater mining plumes and their potential effects on midwater ecosystems*, Research Ideas and Outcomes 5, 6 February 2019; C Van Dover et al. *Scientific rationale and international obligations for protection of active hydrothermal vent ecosystems from deep-sea mining*, Marine Policy 90:20-28, 2018; L Watling and PJ Auster, *Seamounts on the high seas should be managed as vulnerable marine ecosystems*. Front. Mar Sci Vol 4, 2017; C Van Dover, *Inactive Sulfide Ecosystems in the Deep Sea: A Review*. Front. Mar. Sci. Vol 6 2019.

[136] Rabone et al. *First Synthesis of Metazoan Biodiversity in the World's Largest Mineral Exploration Frontier* Current Biology, Under Review, Nov 2022.

[137] Drazen et al. 2020. *Midwater ecosystem must be considered when evaluating environmental risks of dep-sea mining.* Biological Sciences 117(30): 17455-17460.

[138] Amon et al. *Assessment of scientific gaps related to the effective environmental management of deep-seabed mining*, Marine Policy Vol 138, April 2022. Some contractors have criticized the paper by Amon et al. on the basis that it focuses on scientific gaps at the regional scale and contend that there are less scientific knowledge gaps at the contractor scale. Even if this is correct (which is not clear because of limited access to contractor data), adequate environmental risk assessments must take account of the region as a whole (as reflected in current draft Regulation 46bis(4)(b)).

[139] M Clark et al. *Environmental Impact Assessments for deep-sea mining: Can we improve their future effectiveness?* Marine Policy Vol 114, April 2020.

[140] See Christiansen et al. *Evaluating the quality of environmental baselines for deep seabed mining* Front. Mar. Sci. Vol 9 2022.

situation, with many gaps in information for risk assessment, and high uncertainty."[141] The difficulties of establishing adequate environmental baseline data were also highlighted by the Chair of the LTC in his 2022 report.[142]

4.2.2 Uncertainty about likely impacts of deep-sea mining

78. The nature of the likely impacts of deep-sea mining on the marine environment is generally understood. The British Geological Survey, National Oceanography Centre, and Herriot Watt University published the results of an extensive evidence review in 2021 ('the BGS Review'). They noted:[143]

> "Mining in the deep sea will cause adverse impacts to the environment: DSM will affect the composition, structure, and functioning of some biological communities. Mining activities will cause a combination of direct and indirect, and separate, cumulative and combined effects. More studies investigate mining impacts on the seafloor than in the water column. DSM 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 year per operation). The impacts caused by mining are varied. The actions of the mining vehicle are highly likely to lead to habitat destruction and elimination of most living organisms within its direct path, although this hasn't been assessed directly. The surface sediment layers, which support the most life, will be extracted and removed. This poses a particular risk to fauna that exist on the minerals themselves, for example, more than 50 per cent of seafloor megafauna in the CCZ are nodule dwelling. Sediment plumes are expected to extend the impacts beyond the path of the mining vehicle. Releasing sediment-laden water could have far-reaching impacts on the marine environment. Deep-sea ecosystems are expected to be particularly sensitive to disturbance. Detailed studies on experimental mining tracks all show distinct tracks that had changed little since they were formed decades ago. Some mobile species moved back into the tracks but there was very little recolonisation of disturbed areas. Biogeochemical changes persist for decades, and microbial communities remain impacted in disturbed areas. Recovery from commercial-scale mining is likely to be even slower, as both the temporal and spatial scales of disturbance will be much larger than those of the experiments. Long-term (> centuries) and broadscale (> 1,000 km2) impacts of DSM are likely."

79. However, there is significant uncertainty as to the magnitude of these impacts. The BGS Review continued:[144]

> "The magnitude, spatial and temporal extent of DSM impacts and environmental effects are poorly known and cannot currently be predicted with any certainty. This results from uncertainty in the nature of the mining activities and the environmental response to these. New information is being gathered quickly that addresses some of these issues. The evidence available in mid-2021 suggests that for DSM we currently cannot assess what level of harm is

[141] *supra* n 138.

[142] ISBA/27/C/16/Add.1: Report of the Chair of the Legal and Technical Commission on the work of the Commission at the second part of its twenty-seventh session (Jul 2022), paras 19 – 22. The Deep Ocean Stewardship Initiative (DOSI) has highlighted the inadequacy of baseline data in an actual Environmental Impact Statement submitted by NORI in advance of its prototype collector test: see https://www.dosi-project.org/wp-content/uploads/NORI_EIS_Case_Study.pdf.

[143] Lusty et al. *Deep Sea Mining Evidence Review*, British Geological Survey 2021 p xii.

[144] *ibid* at p xiv. This view is reflected by Clark, *supra* n 138 who states: "there is limited knowledge of the actual nature and extent of mining impacts, especially given the large spatial and long timescales of potential mining operations (with mining technology not well developed). While many papers have addressed potential impacts, there has to date been no disturbance on the scale of that which would occur with an actual mining operation." See also Amon et al, *supra* n 137 at 3.1.2.

serious and whether serious harm will occur. Key knowledge gaps include: the nature of the mining impact (type of disturbance, magnitude, temporal and spatial scales), the extent of plumes and their effects on benthic and pelagic organisms, impact thresholds for ecological effects – particularly ecological tipping points, and timescales of recovery (or phase shifts) for all aspects of the environment. Many of these gaps may be addressed by experimental evaluations of mining disturbance, the results of which are expected to be available in the coming years. Addressing these knowledge gaps also requires basic and fundamental knowledge of the environmental baseline (including natural variability) as well as potential non-mining impacts (e.g., climate change). Some information exists on baseline conditions for most aspects of the environment in areas of mining interest. However, there are gaps in understanding that limit our ability to make comprehensive descriptions or predictions of conditions. Broad-scale models that describe physical conditions (e.g., hydrodynamics and mineral resources) are available. It is uncertain whether these can describe fine-scale (< 10 km) conditions. All other aspects of the environment, especially biological attributes, cannot be accurately and precisely predicted at this stage. While information is being assembled quickly, understanding many aspects of the environment require extensive and intensive sampling in space and time. Basic information we have on land (and have had for centuries) is missing for the deep sea, for example knowledge of species present, interactions and functions."

80. Amon et al. confirm the considerable uncertainty about the role of the deep ocean in carbon capture, climate regulation, food provision, and other ecosystem services.[145] Evidence submitted by contractors is not dissimilar. In its June 2022 filing to the United States SEC, The Metals Company (which is the 100% owner of NORI) stated:[146]

> "Nodule collection operations in the CCZ are certain to disturb wildlife in the operating area and may impact ecosystem function. The nature and severity of these impacts on CCZ wildlife are expected to vary by species and are currently subject to significant uncertainty. Our studies baselining wildlife and ecosystem function, piloting the nodule collection system and assessing impacts arising from the use of this system are currently in progress and, similar to studies conducted in respect of land-based mining, may not definitively establish the impacts of activities on the biodiversity in the CCZ. Given the significant volume of deep water and the difficulty of sampling and retrieving biological specimens, a complete biological inventory might never be established. Accordingly, impacts on CCZ biodiversity may never be, completely and definitively known. For the same reasons, it may also not be possible to definitively say whether the impact of nodule collection on global biodiversity will be less significant than those estimated for land-based mining for a similar amount of produced metal."

4.2.3 More research needed

81. There appears to be a scientific consensus that more research is needed to develop robust environmental baselines and to identify reliable environmental thresholds to enable adequate prediction of when deep-sea mining risks having "harmful effects on", causing "damage to the flora and fauna of", or "interfering with the ecological balance of", the marine environment.[147] Indeed, as mentioned above, at the March 2022 session of the ISA

[145] Amon et al., *supra* n 137.

[146] https://investors.metals.co/node/7826/html.

[147] See the list of scientific gaps and recommendations for further research in the BGS Review, *supra* n 142 at 5.15. See also Amon et al. *supra* n 137 at 3.2.

Council, LTC Member Dr Malcolm Clark confirmed his view that there is not currently enough information to reliably define environmental thresholds of acceptability for deep sea mining. Amon et al. suggest it will take several decades to close existing scientific gaps in relation to the extraction of all mineral resources in all areas. However, they propose a roadmap for further research, concentrating first on the CCZ, which contemplates exploitation proceeding on an adequate scientific basis within a decade.[148] That timeframe is consistent with the proposal of more than 650 marine scientists and policy experts who have called for a deferral on any exploitation activity in the deep seabed until sufficient and robust scientific information has been obtained to make informed decisions as to whether deep-sea mining can be authorized without significant harm to the marine environment and, if so, under what conditions.[149] Like others, they point to the UN Decade of Ocean Science (2021 – 2030) as the opportune period in which to scale up marine scientific research for this purpose.

82. We note, in this regard, the ISA's mandate to promote and encourage marine scientific research in the Area and its significant efforts to do so.[150]

PART 5: CALLS FOR A MORATORIUM / PRECAUTIONARY PAUSE

83. In light of all of this, and notwithstanding some progress in negotiations on the Mining Code, an increasing number of scientists,[151] NGOs,[152] commercial organizations,[153] and States[154] are calling for a moratorium or precautionary pause on all exploitation activities in the Area.

84. While there may be semantic differences between a "moratorium" or a "precautionary pause", we do not consider them to be material. We understand the terms to mean the same thing: a measure to defer commencement of deep-sea mining until it can be carried out

[148] Amon et al. *supra* n 137 at 4.3.

[149] Deep Sea Mining Statement: https://www.seabedminingsciencestatement.org/.

[150] The extensive work of the ISA related to MSR in the Area includes the ISA's Sustainable Seabed Knowledge Initiative, Action Plan on Marine Scientific Research, and the DeepData Database, amongst other initiatives.

[151] 168 marine science and policy experts from over 44 countries issued a joint call for a moratorium on deep-sea mining : https://www.seabedminingsciencestatement.org/.

[152] See https://savethehighseas.org/voices-calling-for-a-moratorium-civil-society/.

[153] Including BMW, Google, Patagonia, Philips, Renault, Rivian, Samsung, Scania, Volkswagen Group, Volvo Group.

[154] Palau, Fiji, Federated Stated of Micronesia, Samoa, Germany, France, New Zealand, Costa Rica, Chile, Spain, Panama, Ecuador.

without a risk of significant harm to the marine environment. Such a measure has support among a broad range of stakeholders.

85. In January 2018 the European Parliament adopted a resolution calling on European States to stop sponsoring deep-sea exploration in international waters and to support a moratorium on commercial deep-sea mining exploitation licences until such time as the effects of deep-sea mining on the marine environment, biodiversity and human activities at sea have been studied and researched sufficiently and all possible risks are understood.[155] In January 2019, His Excellency Peter Thomson, UN Special Envoy on Oceans, called for a 10-year moratorium on deep-sea mining at the World Economic Forum in Davos. He tied the call to the UN Decade for Ocean Science, which provided an opportunity to scale up scientific knowledge of the potential impacts of such mining.

86. At the International Union for the Conservation of Nature ('IUCN') World Conservation Congress in September 2021, IUCN members adopted a resolution supporting a moratorium on deep-sea mining until certain conditions are met.[156] Resolution 122, which was passed by an overwhelming majority of both governmental and NGO members of the IUCN,[157] sets out that there should be no new exploration or exploitation contracts, and nor should exploitation regulations be adopted by the ISA until:

    a. rigorous and transparent impact assessments have been conducted, the environmental, social, cultural and economic risks of deep seabed mining are comprehensively understood, and the effective protection of the marine environment can be ensured;

    b. the precautionary principle, ecosystem approach, and the polluter pays principle have been implemented;

    c. policies to ensure the responsible production and use of metals, such as the reduction of demand for primary metals, a transformation to a resource-efficient circular economy, and responsible terrestrial mining practices, have been developed and implemented; and

[155] European Parliament resolution of 16 January 2018 on international ocean governance: an agenda for the future of our oceans in the context of the 2030 SDGs, P8 TA(2018)0004.

[156] WCC-2020-Res-122-EN Protection of deep-ocean ecosystems and biodiversity through a moratorium on seabed mining

[157] https://www.iucncongress2020.org/sites/www.iucncongress2020.org/files/motion_069.png

d. public consultation mechanisms have been incorporated into all decision-making processes related to deep-sea mining ensuring effective engagement allowing for independent review, and, where relevant, that the free, prior and informed consent of indigenous peoples is respected and consent from potentially affected communities is achieved.

87. Since then, a number of States have advocated the deferral of deep-sea mining in the Area. The advocacy has been led by Pacific Island States who, as occupants of the Pacific Ocean, sit in a region conflicted by the risks and potential benefits of deep-sea mining. While a small number of Pacific Island States see development opportunities through deep-sea mineral exploitation, others have concerns for the security of their current and future food sources and the health of the ocean that is their home. The Pacific region has the greatest dependency on fisheries in the world and this is reflected by the fact that the Pacific Ocean supplies half the world's Tuna (as well as other species which make extended dives down to 1,000 metres or more).[158] For that reason, amongst others, Pacific voices have highlighted the need for a precautionary approach to activities that will potentially compound impacts on marine ecosystems and species.[159] Fiji, Palau, the Federated States of Micronesia and Samoa have formed an Alliance of Countries for a Deep-Sea Mining Moratorium which supports a moratorium on the issuance of new deep-sea mining exploration contracts, exploitation contracts, and an adoption of the Mining Code in international waters by the ISA.[160]

88. France, whose Pacific territories are directly affected by mining proposals, also supports a moratorium. On 10 December 2022, France made a declaration to the ISA Council (which

[158] Forum Fisheries Agency (FFA) Fact Sheet for the Ocean Fisheries Management Project (OFMPZ)

[159] The Secretariat of the Pacific Regional Environmental Programme ('SPREP') *Deep-Seabed Mining: A Pacific Environmental and Governance Challenge* (2021) 30SM/Officials/WP 8.4.3/Att.1. 1. The concerted advocacy of Pacific states such as the Republic of Fiji (which now chairs the regional inter-governmental agency in the Pacific comprising 17 member states) and the Independent State of Samoa (which since February 2023 has chaired the Alliance of Small Island States, comprising 44 island and low lying coastal states) as powerful proponents of a moratorium underscore that, for many communities in the midst of the Pacific Ocean, the anticipated economic benefits of deep-sea mining do not outweigh the anticipated environmental damage and risk to food sources and the cultural observances and livelihoods based on them.

[160] https://gov.fm/index.php/component/content/article/27-fsm-pio/news-and-updates/622-following-palau-s-leadership-fsm-to-join-alliance-of-countries-for-a-deep-sea-mining-moratorium-president-panuelo-to-solicit-members-of-pacific-islands-forum-to-oppose-deep-sea-mining?Itemid=177;

https://www.fiji.gov.fj/Media-Centre/News/FIJI-SUPPORTS-MORATORIUM-ON-DEEP-SEA-MINING#:~:text=Fiji%20reinforced%20its%20support%20for,aim%20of%20protecting%20our%20ocean.

followed a similar statement by President Macron to the UN Ocean Conference in June 2022 and to COP27 on 7 November 2022) affirming that: [161]

> "France supports the banning of any deep seabed mining… As the effects of climate change become increasingly threatening and the erosion of biodiversity continues to accelerate, today it does not seem reasonable to hastily launch a new project, that of deep seabed mining, the environmental impacts of which are not yet known and may be significant for such ancient ecosystems which have a very delicate equilibrium. …
>
> Currently, given the absence of scientific knowledge, we cannot today guarantee that mining mineral resources in the Area would not cause irreversible damage to the seabed and its biodiversity. That is why France, which has the second-largest exclusive economic zone, calls on its partners to make the same commitment to preserve this highly valuable marine ecosystem. Our precautionary principle must translate into tangible action, for the benefit of all humankind. At the same time, exploration to improve our scientific knowledge of the deep seabed must not only continue, but grow, particularly in a framework of international cooperation among researchers around the world. The deep seabed must be what space was during the Cold War: a new frontier for cooperation and multilateralism."

89. Fringing the Pacific region, New Zealand supports a moratorium on mining activity until an adequate legal framework based on sufficient scientific knowledge for protection of the marine environment is in place.[162] Chile supports a 15-year moratorium, by way of a 15-year extension to the two-year deadline for adoption of an adequate legal framework, during which time no exploitation contracts should be issued, on the basis that such period is necessary "in order to obtain more evidence and scientific certainty to ensure the protection of the marine environment".[163] Costa Rica has identified "a need to implement a precautionary pause [to] use the last eight years that remain of the UN Decade of Ocean Science to promote and finance marine scientific research that will allow us to gain knowledge with regard to what is at the deep seabed before we take actions that will cause irreversible harm."[164]

90. States from beyond the Pacific region are also in support. Germany has called for a "precautionary pause" on deep-sea mining to prevent damage to the marine environment and facilitate further marine scientific research, and has stated its intention to "not sponsor any plans of work for exploitation until the deep-sea ecosystems and the impacts of deep-sea mining have been sufficiently researched and until there are exploitation regulations

[161] https://isa.org.jm/files/files/documents/DECLARATION-FRANCE-TO-THE-ISA.pdf

[162] https://www.rnz.co.nz/international/pacific-news/477510/new-zealand-opposes-seabed-mining-in-international-waters#:~:text=The%20New%20Zealand%20government%20has,robust%20science%2C%20are%20in%20place

[163] https://www.un.org/Depts/los/meeting_states_parties/documents/Splos3215ChilePositionPaperAdvanceVersion.pdf

[164] https://savethehighseas.org/isa-tracker/2022/08/04/759/

with strict environmental standards in place, ensuring that the marine environment is not seriously harmed".[165]

91. Both the African Group[166] and GRULAC,[167] while not calling for a moratorium or precautionary pause *per se*, have expressed the view that a pre-requisite to the commencement of exploitation is the adoption of robust RRPs that ensure the effective protection of the marine environment and elaborate a financial regime that properly compensates humanity for its resources and land-based miners for their losses. Further, at the CBD COP15, the COP encouraged States to defer deep-sea mining pending further research on the impacts on the marine environment.[168]

92. As for the effect of the two-year rule on the proposed moratorium or precautionary pause, Spain and New Zealand have both suggested that, while the two-year rule requires member States to use best endeavours to adopt exploitation regulations before the expiry of the two-year deadline, and requires the ISA to consider proposals for exploitation after the expiry that deadline, it does not require the ISA to adopt rules that are unfinished, nor to approve proposals that risk having harmful effects on the marine environment.[169]

93. There is thus growing support for a legal measure to defer the commencement of deep-sea mining. That support is cross-regional and includes both developed and developing countries, and countries who currently sponsor deep-sea mining exploration contracts. Proponents are motivated by a desire to ensure the protection of the marine environment and compliance with States' well-established legal obligations. The primary concern is that the current scientific understanding of the deep seabed is insufficient to enable the

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[165] https://isa.org.jm/files/files/documents/221031_GER_Opening%20Statement_fin.pdf

[166] ISBA/26/C/40, *supra* n 124.

[167] November 2022 Council session statement: "Our Group is committed to continue actively participating in the negotiations of the legal framework, including the Regulations and the relevant Standards and Guidelines GRULAC believes that we shall be guided by the Principle of the Common Heritage of Humankind. Our countries have the common vision that exploitation cannot initiate until a robust legal framework, including the Regulations and the relevant Standards and Guidance, has been adopted by the Council. Our Group believes that the legal framework, including the Regulations and the relevant Standards and Guidelines, shall ensure the effective protection of the marine environment, in accordance with art 145 of UNCLOS."

[168] In its decision on the conservation and sustainable use of marine and coastal biodiversity, COP Working Group II encouraged states to ensure that:

"before deep-sea mining proceeds, the impacts on the marine environment and biodiversity are sufficiently researched and the risks understood, the technologies and operational practices do not cause harmful effects to the marine environment and biodiversity, and appropriate rules, regulations and procedures are put in place by the International Seabed Authority, in accordance with the best available science and the traditional knowledge of indigenous peoples and local communities with their free, prior and informed consent, and the precautionary and ecosystem approaches, and consistent with United Nations Convention on the Law of the Sea and other relevant international law"

[169]See IISD Earth Negotiations Bulletin, Daily Report on 27th Session of the Assembly of the International Seabed Authority (ISA-27) 4 August 2022.

adoption of RRPs that reliably ensure the effective protection of the marine environment. There is, however, an additional secondary concern about the institutional capacity of the ISA to consider and approve detailed applications for plans of work, and thereafter to monitor and inspect their implementation. There are two aspects to this concern:

a. First, the LTC is responsible for the detailed consideration of applications and making recommendations on plans of work. However, its members are unpaid, generally have substantial external obligations, and have limited time to dedicate to LTC work.[170] The 2016 Periodic Review of the ISA concluded that the current and projected workload of the LTC was unmanageable and its members "lack sufficient time to tackle complex and difficult tasks."[171] The LTC also lacks sufficient expertise to oversee and implement environmental standards. Its 41 members are made up largely of lawyers, geologists and diplomats and there are only a few experts in environmental science, with even fewer marine biologists. In her monograph, Jaeckel noted that "without diverse expertise in environmental management and related disciplines, it is difficult to see how the LTC can effectively perform its tasks to assess environmental impacts, recommend protective measures, and respond to environmental emergencies".[172] This concern is compounded by the much-criticised lack of transparency of the LTC's work, which has a material impact on observers' confidence in the LTC's capacity as an expert adviser, acting as a *de facto* regulator.[173]

b. Secondly, the ISA Secretariat is under-resourced and has no supervisory capacity or mandate. It currently has around 50 staff and a budget of only around US$10 million.[174] While the LTC has reported that several contractors have violated the terms of their exploration contracts, no enforcement or disciplinary action has been taken and it is not clear how the LTC and ISA more generally would effectively monitor compliance with exploitation contracts over large areas that are thousands of miles offshore. The 2016 Periodic Review emphasised the urgent need for the ISA to establish an inspectorate – in accordance with Art 162(2)(z) – to ensure compliance

[170] Although the Rules of Procedure of the LTC permit meetings "as often as required", the LTC generally only meets twice a year.

[171] ISA Article 154 Review: Final Report (Dec 2016) p 51.

[172] Jaeckel *supra* n 75, p 290.

[173] *ibid* chapter 7.4.

[174] ISBA/26/FC/7: Future financing of the International Seabed Authority (Mar 2021).

with RRPs and contractual obligations. To date, no inspectorate has been established and there are no concrete plans to do so. At present, and in the absence of any ISA-inspectorate, the only means of monitoring compliance with the terms of exploration contracts (and any future exploitation contracts) is self-reporting to the LTC by the relevant contractor, as part of the annual report cycle. There are obvious problems with that model. As highlighted by the October 2022 submission of Brazil, Chile and Costa Rica to the IWG on Inspection, Compliance and Enforcement, this is not just a practical problem; it is a matter that goes directly to the ISA's fulfilment of its legal obligation to control activities in the Area and to ensure compliance with RRPs.[175]

94. These institutional weaknesses, together with the scientific uncertainties around the impacts of deep sea mining, underpin the growing calls for a legal measure to defer the commencement of deep sea mining.

95. Proponents of a moratorium point to established precedents of multilateral moratoriums in the interest of environmental protection.[176] Of most relevance is the moratorium adopted by the Parties to the International Whaling Convention to prevent the taking of whales.[177] At the time of negotiation, it was argued that a moratorium on taking whales was inconsistent with the object and purpose of the Convention, which is premised on whaling taking place.[178] Nevertheless, the moratorium was adopted and has endured for 35 years on the basis of a precautionary approach to uncertain scientific information.

PART 6: IS A MORATORIUM OR PRECAUTIONARY PAUSE CONSISTENT WITH STATES PARTIES' OBLIGATIONS UNDER UNCLOS?

6.1 Our opinion

[175] *supra* n 114. The joint submission also highlights the question of institutional competence: ensuring substantive compliance with terms of contracts and RRPs is primarily a matter for the Council not the Secretariat.

[176] The Conference of the Parties to the CBD has adopted precautionary moratoriums on terminator seeds (COP5, Decision V/5, para 23 available at www.cbd.int/doc/decisions/COP-05-dec-en.pdf), ocean fertilization (COP 9, Decision IX/16.C, available at http://www.cbd.int/decision/cop/?id=11659) and geo-engineering (COP 10, Decision X/33, paragraph 8(w), available at http://www.cbd.int/nagoya/outcomes). All three moratoriums reflect the precautionary principle and the need to pause potentially harmful activity until reliable scientific data on risks is available and an effective system for control and regulation of the activity is in place. See also the Antarctic Treaty Environmental Protocol ("the Madrid Protocol"), which entered into force in 1998, and imposes a moratorium on all mining in Antarctica, save for scientific research.

[177] Schedule to the International Convention on Whaling, para 10(e).

[178] See IWC Chair's report 1982, Agenda Item 6, page 21

96. In our opinion, States Parties are required to ensure that exploitation activities in the Area are deferred until they can be carried out without the risk of significant harm to the marine environment. A legal measure to ensure this outcome is wholly consistent with UNCLOS.

97. UNCLOS is a constitution not a code. It sets the international law framework in which States and the ISA operate but does not prescribe specific outcomes for every eventuality. Indeed, as the Secretary-General of the ISA has noted: [179]

> "The inherently evolutionary design of Part XI UNCLOS and the 1994 Implementation Agreement has allowed the Authority to adapt to changing commercial, economic and scientific realities as well as new developments in international law, particularly in the field of marine environmental law."

98. That evolutionary design requires States and the ISA to have regard to the development of the science of the deep seabed as well as to the evolution of international environmental law, including the precautionary principle, the ecosystem approach, States' evolving commitments to protect biodiversity in the face of a global biodiversity crisis, human rights, and an evolving understanding of the need to take into account the rights of future generations in the interests of humankind as a whole.

99. Central to the existing framework under UNCLOS is the collective obligation of States, through the ISA, to adopt and apply RRPs which – inter alia – ensure the protection of the marine environment from harmful effects which may arise from activities in the Area, prevent damage to the flora and fauna of the marine environment, and prevent, reduce or control any interference with the ecological balance of the marine environment. States must not permit exploitation to be undertaken if they cannot be confident of achieving those protective outcomes. States must, through the ISA or as sponsors, actively intervene to prevent or stop activities taking place where they risk causing serious harm to the marine environment. Above all, States must organize, carry out and control activities in the Area for the benefit of humankind as a whole, including future generations. And in discharging these obligations, States must adopt a precautionary approach, taking particular care in the face of genuine scientific uncertainty. These obligations form a necessary part of the legal framework for deep sea mining.

[179] M Lodge 'The International Seabed Area' para 32 in *The Max Planck Encyclopaedia of International Law.*

100. While the framework established by UNCLOS and the 1994 Agreement *does* anticipate the exploitation of the mineral resources of the Area, it *does not* anticipate exploitation taking place come-what-may. Instead, it confers on States, acting collectively through the ISA, the obligation to set the conditions, including environmental conditions, in which exploitation may take place. The *travaux préparatoires* for the 1994 Agreement indicate that concerns about the environmental impacts of deep-sea mining were raised frequently in negotiations but it was decided, without diminishing their importance, that these were matters for the ISA to consider in due course, in accordance with its mandate.[180]

101. It is clear to us that the current state of science, the current state of draft RRPs and the current institutional capacity of the ISA are insufficient to provide any confidence that deep-sea mining could proceed without risking significant harm to the marine environment:

a. the current state of scientific knowledge does not permit the description of a robust environmental baseline or the setting of reliable environmental thresholds against which to assess whether exploitation activity will cause harmful effects on or serious harm to the marine environment.

b. the current draft RRPs leave unresolved what constitutes "effective protection", "harmful effects" and "serious harm"; they lack any reliable thresholds for environmental acceptability and adequate environmental baseline data; and they do not settle what is required to establish the "effective control" of a sponsoring State.

c. the current state of the ISA's institutional capacity gives rise to serious doubts as to whether it is capable of rigorously scrutinizing applications for plans of work, monitoring and inspecting activities, and enforcing RRPs and plans of work to ensure the effective protection of the marine environment.

102. In those circumstances it is not only lawful for States to advocate the deferral of exploitation activities; it is necessary. Deferral is not a ban, it is a pause. And it is a pause to ensure compliance with the environmental protection imperatives of UNCLOS.

[180] See DH Anderson *Resolution and Agreement Relating to the Implementation of Part XI of the UN Convention on the Law of the Sea: A General Assessment* at p 281; and Satya N. Nandan, Michael W. Lodge, and Shabtai Rosenne, *United Nations Convention on the Law of the Sea, 1982: A Commentary*, Volume VI (Martinus Nijhoff Publishers, 2002) at [197] – [199].

103. We acknowledge that Part XI UNCLOS is premised on the assumption that deep sea mining will take place and that States – acting through the ISA – have an obligation to cooperate towards enabling the development of the resources of the Area for the benefit of humankind. By deferring exploitation activities, the delivery of those benefits is also deferred. But there is no legal barrier to such a deferral. While it may be correct that, as a whole, UNCLOS establishes a legal framework that balances conservation with sustainable use, it is not correct to say that Part XI UNCLOS requires or permits the "balancing" of environmental protection objectives against economic development objectives. Exploitation activities that cause significant harm to the marine environment cannot be justified by the economic benefits they bring, however overwhelming they may be. There is simply no support for such an approach in UNCLOS or the 1994 Agreement, and it conflicts with the precautionary approach. As addressed above, there is a genuine – and as yet unresolved – question about the level of harm that may be acceptable within the regulatory arrangements set by the ISA. Deep-sea mining inevitably has some detrimental impacts and UNCLOS does not prohibit all such impacts, however insignificant they may be. Determining the threshold of acceptability for "harmful effects", "damage to flora or fauna" or "interference with the ecological balance of the marine environment" is an important matter to be determined by the ISA. But that is a separate issue from whether States can permit deep-sea mining to proceed where it risks harmful effects or serious harm on the grounds that the economic benefits outweigh that harm. Plainly they cannot.

104. Instead, the obligation to facilitate the development of the resources of the Area for the benefit of humankind and the obligation to protect and preserve the marine environment must be construed consistently, as pulling in the same direction in the interests of inter-generational equity and the need for sustainable development. In that respect, a deferral of the immediate benefits of exploitation in the long-term interests of environmental protection and the interests of future generations is entirely consistent with UNCLOS. Moreover, in circumstances where RRPs relating to the ISA's financial arrangements (including the payment regime and compensation regime) are still subject to negotiation, deferral of exploitation is likely to enhance, rather than diminish, the prospect that it will deliver equitable benefits for all, in particular developing countries. As highlighted by the June 2022 submission of the African Group on the payment regime:[181]

[181] African Group Submission on the Payment Regime for Deep Sea Mining in the Area (Jun 2022).

> "Deep-sea mining (DSM) should also only proceed if it is demonstrably beneficial to mankind. DSM will involve the loss of resources to common ownership, and mankind must be fairly compensated for that loss. If DSM is such a high cost, risky and inefficient industry that miners cannot afford to fairly compensate mankind, then it would be better if DSM in the Area did not proceed until such a time that adequate compensation is viable."

105. It is clear that more time is needed to reach agreement on the negotiation of appropriate payment and compensation regimes which deliver on Part XI UNCLOS and the promise of equitable benefit sharing. So even if there is a theoretical conflict between the obligation to protect and preserve the marine environment and the obligation to cooperate towards enabling the development of the resources of the Area in the interests of humankind (which we do not accept), no such conflict currently exists because both obligations currently favour the deferral of exploitation.

6.2 The argument against

106. The Secretary-General of the ISA, H.E. Mr Michael Lodge has expressed the view that a moratorium or precautionary pause on exploitation activities would be inconsistent with UNCLOS. He has described calls for a moratorium or a precautionary pause on deep-sea mining in the Area as "anti-science, anti-knowledge, anti-development and anti-international law".[182] In a speech on 8 December 2022, commemorating the fortieth anniversary of the adoption and opening for signature of UNCLOS, he said the following:

> "From the outset, the Convention was regarded as a package deal. There would have been no agreement on all other elements of the package without agreement on the status and use of the seabed beyond national jurisdiction.
> It is important not to forget this.
> This is also why it was necessary to adopt an Implementing Agreement in 1994 to reflect the understanding on the deep seabed and to bring the Convention into force.
> The 1994 Agreement was critical in ensuring that the 1982 Convention could enter into force with the full participation of all States. The Agreement introduced various safeguards and compromises intended to make Part XI of the Convention (the deep-sea mining provisions) broadly acceptable to all States. These included new provisions relating to the composition of the Council and decision-making, technology transfer, the status of the Enterprise and provisions to guarantee the rights of the registered pioneer investors.
> The 1994 Agreement introduced the evolutionary approach to the establishment and work of the Authority, including a detailed roadmap on the work to be done by the Authority between the entry into force of the Convention and the approval of the first plan of work for exploitation of seabed minerals in the Area.
> This roadmap is a central element of the package that constituted the 1994 Agreement and the overall compromise that all States reached in deciding to adopt it.
> That package also contained provisions to protect the rights of all States Parties to conduct activities in the Area in accordance with the rules, regulations, and procedures of the Authority.
> Since its establishment in 1994, the Authority, from our permanent headquarters in Jamaica, has implemented in good faith the roadmap established by the 1994 Agreement.

[182] Speech to Belgian Parliament 2020: http://www.dekamer.be/media/index.html?sid=55U0739.

It has adopted regulations governing exploration for three mineral resources in the Area. It has issued contracts for exploration to 31 different entities sponsored by 22 different States Parties, including 11 developing States.
It has made the most important contribution to marine science and massively improved our collective understanding of the deep sea and its ecosystems while sharing that knowledge with the developing world.
The fact that there have been no unilateral claims to the Area outside the rules set by the Authority under the Convention is a testament to the success of the regime.
However, this success must not be taken for granted.
Until now, all States Parties, irrespective of their national position regarding sponsorship of activities in the Area or mineral exploitation within national jurisdiction, have acted with the necessary caution and restraint to avoid an extreme polarization of views, which would run the risk of denying the achievements of the Convention and its contribution to peace and good order in the ocean.
The regime, and the entire Convention, are threatened and undermined when States Parties act unilaterally, outside the rules set by the Convention and its implementing agreements.
It is a matter of the greatest concern, therefore, when States Parties promote positions that radically change the rules of engagement and even deny the essential vision set out in the Convention.
To do so not only risks undermining the law of the sea but also threatens multilateralism at a time when we need it more than ever.
These developments should serve as a timely reminder to all of us of the critical need to take a consistent approach in implementing all the provisions of the Convention.
Each chapter of the Convention is an integral part of the whole. Its provisions reflect the ecological unity of the ocean and are carefully designed to respond to the interests of all States, including developing States.
We cannot pick and choose different elements to support short-term positions. With benefits come obligations and responsibilities.
What is important now is to reinforce our collective action to ensure that this framework is respected and reinforced and, most of all, that the institutions created for its implementation are strengthened and not undermined."

107. In essence, the argument against a moratorium or precautionary pause is that the adoption of such a measure would have the effect of unpicking a key element of the package deal reflected by UNCLOS. Moreover, it would undermine the fundamental right of all states to exploit minerals in the Area, subject only to the condition that such exploitation is carried out in accordance with the RRPs of the ISA, including those relating to the protection of the marine environment. On that view, the protection of the marine environment is properly achieved through the **adoption** of RRPs consistent with Article 145 UNCLOS, the **application** of those RRPs to proposed plans of work, and the subsequent **monitoring** and **enforcement** of activities in the Area to ensure continued compliance with the RRPs.

108. However, for the reasons we set out above it is not currently possible to adopt, apply, monitor and enforce RRPs in a manner which provides any confidence that they will effectively protect the marine environment from the harmful effects of deep-sea mining.

In those circumstances a temporary deferral of exploitation activities is entirely consistent with UNCLOS. In our view, the Secretary-General's position overlooks the fact that the "package deal" of UNCLOS includes Article 145 and the Part XII obligations to protect and preserve the marine environment. Neither they, nor the expectation of exploitation in the Area provided by Part XI, can trump the other. There is no hierarchy of obligations whereby the obligation to cooperate towards enabling the development of the resources of the Area requires exploitation to proceed regardless of the environmental impacts. The resources of the Area can only be developed consistently with the environmental objectives of UNCLOS and the principle of sustainable development embodied in the concept of the common heritage of mankind. If that requires the deferral of exploitation activities, then that is entirely consistent with UNCLOS.

109. We agree with the Secretary-General that, in the absence of an amendment to the treaty, a *permanent ban* on deep sea mining would currently be inconsistent with States' obligations under UNCLOS and the mandate of the ISA. A *permanent ban* would unpick a key element of the package deal and would likely give rise to destabilising unilateral action outside the multilateral framework agreed in UNCLOS and the 1994 Agreement.[183] However, for the reasons set out above, we do not agree that the temporary *deferral* of exploitation in the Area until such time as it can be carried out without risking significant harm to the marine environment is inconsistent with UNCLOS or the 1994 Agreement. Indeed, we consider international law currently requires such a deferral.

6.3 Necessary conditions for a lawful precautionary pause or moratorium

110. As the adoption of a legal measure to defer exploitation activity has the effect of restricting, for a period, the development of the resources in the Area and the exercise of rights that are contemplated in UNCLOS, we consider any such measure can only be justified if:
    a. the deferral endures only as long as strictly necessary to ensure compliance with co-existing obligations under UNCLOS, i.e. the effective protection of the marine environment. That would mean that it only endures until:
        i. the science has improved sufficiently to enable an adequate environmental baseline to be described and acceptable environmental thresholds to be set; and
        ii. RRPs are adopted that fully comply with Art 145 UNCLOS; and

[183] We do not rule out the possibility that further scientific research could establish a clear evidential foundation to justify an indefinite deferral of exploitation activities and/or an amendment to UNCLOS to impose a permanent ban. However, the current state of knowledge does not, in our opinion, justify such steps at this stage.

iii. the ISA is institutionally capable of reliably scrutinizing applications and ensuring compliance with RRPs and terms of contracts.

b. the measure to defer exploitation activities is adopted and maintained in good faith.

111. The requirement at (b) above reflects the obligation of good faith embodied in Article 300 UNCLOS. That obligation is meaningful and does, in our opinion, have consequences in the current context. In short, States must not – consistently with their obligation of good faith under Art 300 UNCLOS – take steps to establish and maintain a temporary moratorium or precautionary pause as a Trojan Horse for a permanent ban. Consequently, steps to secure a necessary deferral of exploitation should be accompanied by parallel measures by member States to work cooperatively to address the deficiencies that currently demand such a deferral. Member States should therefore work together to improve the state of existing scientific knowledge,[184] adopt a robust, UNCLOS-compliant framework of RRPs as soon as the science permits,[185] and develop the ISA's institutional capacity to enable it reliably to organise and control activities in the Area in a manner than ensures the effective protection of the marine environment.[186] These steps are aimed at bringing the deferral of exploitation activities to an end as soon as reasonably practicable.

PART 7: MECHANISM TO ACHIEVE A DEFERRAL OF EXPLOITATION

112. There is a range of options to achieve the deferral of exploitation activities in the Area. Some fit better with the description of "moratorium" or "precautionary pause" than others; some more securely achieve a deferral than others. All are legally viable options. Which options are most politically viable is for States to determine and is outside the scope of this opinion.

7.1 Option 1: no specific mechanism required

113. There is a compelling argument that no formal mechanism is required to achieve the deferral of exploitation activities in the Area. Such an argument turns on the proper construction and application of the two-year rule.

[184] This is consistent with existing obligations under the 1994 Agreement, Annex s 1(5)(h) – (j).

[185] This is consistent with existing obligations under the 1994 Agreement, Annex s 1(5)(k).

[186] This is consistent with existing obligations under UNCLOS Art 153 and 162(w) and (x).

114. Consistent with the position articulated by New Zealand, we consider the two-year rule imposes a "best endeavours" obligation on States to complete the adoption of RRPs within two years of the trigger. Notwithstanding the use of the word "shall" in section 1(15)(b) of the Annex to the 1994 Agreement, we do not consider the two-year rule requires the adoption of RRPs by July 2023; such a mandatory requirement would render section 1(15)(c) of the Annex superfluous. Consequently, while States must strive in good faith to adopt RRPs by July 2023, they are entitled to continue negotiating beyond that date if it is simply not possible to reach agreement on UNCLOS-consistent RRPs before then.

115. That then gives rise to questions on the application of section 1(15)(c) when, in the absence of adopted RRPs, an application for a plan of work is submitted to and is pending before the Council. We consider that the application of section 1(15)(c) should not, in the contemplated circumstances, result in the issue of an exploitation contract by the Secretary-General. We say that for the following three reasons.

116. First, as noted by Pradeep Singh in his recent article, '*The Invocation of the "Two-Year Rule" at the International Seabed Authority: Legal Consequences and Implications*',[187] section 1(15) of the Annex to the 1994 Agreement distinguishes between the "adoption" of RRPs in section 1(15)(b) and the "elaboration" of RRPs in section 1(15)(c). Singh notes that only if the ISA has failed to *elaborate* RRPs does the requirement to consider and provisionally approve plans of work come into play. In Singh's view:

> "if this interpretation is accepted, it would effectively mean that [as long as the Council has elaborated regulations, but even if it has not adopted them yet] the remaining parts of section 1(15)(c) will not come into operation, or in other words, the Council would not be legally bound to consider any pending applications until the regulations (the elaboration of which have been completed) are adopted and provisionally applied by the Council".

117. Second, if section 1(15)(c) applies, and the Council has not provisionally adopted any RRPs, we consider the ISA would be bound to disapprove a plan of work when assessed against the norms contained in UNCLOS (those norms being the relevant benchmark under section 1(15)(c) in the absence of RRPs). It is clear that no plan of work could currently describe an adequate environmental baseline or demonstrate to a precautionary standard that it would not have "harmful effects" on, cause "damage to the flora and fauna of", or unacceptably "interfere with the ecological balance of" the marine environment. In those circumstances, member States could not be satisfied they could approve a plan of work

[187] (2022) 37 The International Journal of Marine and Coastal Law 375.

consistently with their obligation to protect and preserve the marine environment, and the ISA could not reasonably conclude that a plan of work is consistent with the norms contained in the Convention.[188] This would mean that the LTC, if it were to make a recommendation to approve or disapprove a plan of work pursuant to section 1(15)(c), would be bound to recommend disapproval. Similarly, the Council would be bound to act on the LTC's disapproval recommendation or disapprove notwithstanding any recommendation to approve received by the LTC.

118. This scenario does, however, raise an important question about how best to apply appropriate limits on the power of the LTC, a technical subsidiary body of the Council, while member States in the Council are still negotiating substantive political issues. Given that a supermajority of the Council is required to overturn the LTC's recommendation for approval of a plan of work,[189] the Council may wish to direct the LTC to refrain from making any recommendations for approval or disapproval until negotiations on substantive political issues are resolved. It could achieve this by way of: i) the adoption of a specific policy under Article 162(1) UNCLOS;[190] ii) by making a request for advice under Art 165(2)(a) UNCLOS, specifically constraining the scope of that advice; or iii) by giving the LTC a specific directive pursuant to Article 163(9) UNCLOS. All these measures would be consistent with the legal framework. Contrary to a common misconception, neither UNCLOS nor the 1994 Agreement requires the LTC to make a recommendation for approval or disapproval of a plan of work.[191] Instead, pursuant to Article 165(2)(b) UNCLOS, the LTC is required to "review" plans of work and "submit appropriate recommendations to the Council… [based] solely on the grounds stated in Annex III". Appropriate recommendations could include recommendations on the relevant factors for the Council to consider when determining an application for a plan of work, having regard to the grounds in Annex III and the LTC's technical analysis, without a specific recommendation to approve or disapprove the plan of work.

[188] Although the language of section 1(15)(c) is that the Council must "consider and provisionally approve" a plan of work, disapproval is plainly available. We agree with the analysis of Pradeep Singh, amongst others, on this point: see *ibid*.

[189] 1994 Agreement Annex s 3(11)(a).

[190] Akin to the Germany/Netherlands zero draft proposal at: https://twitter.com/EricLiptonNYT/status/1588651439622352896

[191] See Articles 153(3), 165(2), and Annex III to UNCLOS, none of which require the LTC to recommend approval or disapproval of an application for a plan of work. Where a recommendation to approve *is* made by the LTC, then a two-thirds majority of the Council is required to overrule it: s3(11)(a) of the Annex to the 1994 Agreement.

119. Third, even if the Council were to provisionally approve a plan of work in accordance with section 1(15)(c) of the Annex to the 1994 Agreement, we consider it could not direct the Secretary-General to issue an exploitation contract until the Assembly has approved the RRPs and the Council has given the plan of work its final approval. That is the necessary implication of "provisional" approval; that is, approval that is temporary only and subject to change. The Secretary-General cannot issue a contract giving the contractor security of tenure[192] if the Council's approval of the plan of work is not secure and subject to change. That approach is consistent with the precedent set in relation to the issue of exploration contracts to the Pioneer Investors.[193]

120. Accordingly, we consider that no specific mechanism is required to ensure that exploitation activities are deferred until the ISA has adopted robust and UNCLOS-consistent RRPs. However, we recognize that this argument depends on a construction of the two-year rule that is not settled and a distinction between the provisional approval of a plan of work and the issue of a contract by the ISA that is not universally accepted. Consequently, relying on the 'no specific mechanism' option may not provide for a secure or certain basis to defer exploitation of the Area. For that reason, States Parties may prefer alternative options which offer more certain foundations for a precautionary pause or moratorium.

7.2 Option 2: the provisional adoption of temporary, precautionary RRPs

121. The Council is entitled to adopt RRPs under Article 162(2)(o)(ii) and apply them provisionally pending approval by the Assembly. Section 1(15)(c) envisages circumstances where, at the conclusion of the two-year period, the Council has not completed the elaboration of long-term RRPs, but instead adopts provisional, temporary RRPs to apply to plans of work submitted for approval in the interim period.

122. It is now clear that the elaboration of long-term RRPs will not be complete prior to the expiry of the two-year period. Accordingly, the Council could adopt provisional RRPs applying precautionary thresholds for a temporary period.

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[192] See UNCLOS Art 153(6).

[193] The Pioneer Investors' plan of work was approved by the Council in August 1997 under paragraph 8 of Resolution II of the UNCLOS Final Act and paragraph 6(a), section 1 of the Annex to the 1994 Agreement. However, the first exploration contract was not signed until March 2001, following the Assembly's approval of the first exploration regulations in July 2000 and the Council's subsequent request for the Secretary-General to issue a contract *"in accordance with the regulations on prospecting and exploration for polymetallic nodules in the Area and a standard form of contract to be approved by the Council"*: see ISBA/3/C/9. (Aug 1997).

123. The provisional RRPs would acknowledge the prevailing scientific uncertainty about the impact of exploitation activities on the marine environment, the absence of agreement on thresholds to identify "harmful effects" or "serious harm", and other significant uncertainties in the emerging regulatory framework, and would therefore apply a precautionary approach. This would include requiring the provision of comprehensive environmental baseline data and setting precautionary thresholds that would, in light of current scientific knowledge and existing technology, be very difficult – if not impossible – to meet.[194]

124. This option has the benefit of permitting exploitation of the Area in principle, consistently with the regime envisioned by Part XI of UNCLOS, while incentivising scientific progress to be made to enable the replacement of the temporary RRPs with their long-term successors. Moreover, it is an approach which aligns with the scheme envisaged by the two-year rule: it would amount to the provisional adoption of RRPs under s.1(15)(b) within the two-year period, and the application of those provisionally adopted RRPs to applications for plans of work. In short, it would be a settlement that would appropriately balance the competing obligations currently at play.

7.3 Option 3: the temporary disapproval of all areas for exploitation

125. The ISA Council has power to disapprove areas for exploitation under Article 162(2)(x) UNCLOS where there is "substantial evidence indicating the risk of serious harm to the marine environment". While the state of the science is currently insufficient to establish with any confidence the level of harm that will be caused by deep sea mining, and how it might be avoided, it is clear that there *is* sufficient scientific understanding of the deep sea to provide substantial evidence of a *risk* of serious harm arising from exploitation activities. At this point in time, the risk is not area-specific but general and applies to all forms of commercial exploitation in all areas. Accordingly, we consider the Council is entitled to disapprove exploitation, for a temporary period and pending further scientific research, in *all* contract areas.

7.4 Option 4: the adoption of policy imposing a moratorium

[194] We note that the regulatory framework for deep-sea mining in New Zealand's exclusive economic zone adopts such a precautionary approach, with the result that -- to date -- there have been no successful permit applications. For a discussion of this precautionary approach by New Zealand's Supreme Court see *Trans-Tasman Resources v Taranaki-Whanganui Conservation Board and others* [2021] NZSC 127.

126. The Assembly has the power to adopt general policies within the competence of the ISA: Article 160(1). The Council has the power to adopt specific policies to be pursued by the ISA, in conformity with the general policies adopted by the Assembly: Article 162(1) UNCLOS. We consider both the Assembly and (subject to conformity with the general policies of the Assembly) the Council are empowered to adopt policies effectively introducing a moratorium on deep-sea mining. In the case of the Assembly that might, for example, be the adoption of a general policy to temporarily defer the consideration of all exploitation plans of work for a defined period (e.g. to 2030) or until certain conditions are met, for example: (a) scientific knowledge enables a robust description of the environmental baseline of the deep seabed relevant to contract areas; and (b) the ISA's institutional capacity is sufficient to discharge its full range of obligations and ensure the effective protection of the marine environment.

127. For all the reasons discussed above, we consider such a policy would be within the competence of the Authority and could be adopted and implemented lawfully by the ISA. A policy adopted by the Assembly would have political benefit as it is the "*supreme organ*" of the ISA (Article 160(1)) and all Member States have a seat.

7.5 Option 5: An UNGA or SPLOS Resolution

128. Some commentators have recommended the adoption of a moratorium by way of a resolution by the UN General Assembly, or by States' Parties to the Convention on the Law of the Sea **('SPLOS')**. Such resolutions would not have binding legal effect but may be persuasive to unblock any procedural hurdles in the ISA context.

7.6 Consequences for contractors

129. We have set out five potential mechanisms to achieve the deferral of exploitation but we acknowledge there may be other options that achieve the same effect. As indicated above, as member States have an obligation to ensure that exploitation does not commence while it carries a risk of significant harm to the marine environment, there is an obligation on States to explore what is politically viable and, thereafter, to pursue its implementation as a matter of urgency.

130. A deferral of consideration of applications for plans of work for exploitation may have potential effects on contractors' rights. Under paragraph 9 of section 1 of the Annex to the 1994 Agreement a contractor must apply for a plan of work for exploitation at the expiry

of the 15 year period for exploration, unless the contractor has obtained an extension for the exploration plan of work. The ISA can grant such extensions "if the contractor has made efforts in good faith to comply with the requirements of the plan of work but for reasons beyond the contractor's control has been unable to complete the necessary preparatory work for proceeding to the exploitation stage or if the prevailing economic circumstances do not justify proceeding to the exploitation stage."

131. Where the ISA has adopted a legal measure to defer the consideration of plans of work for exploitation, some contractors may need to apply for extensions of their exploration plans of work. There should be no reason to deny such extensions: where exploitation cannot proceed on account of a legal measure adopted by the ISA, that is plainly a reason beyond the contractor's control which prevents the contractor from completing the necessary preparatory work for proceeding to the exploitation stage.

132. Where the ISA has <u>not</u> adopted a legal measure to defer the consideration of plans of work for exploitation, but where contractors or their state sponsors consider that exploitation activities should be deferred for the reasons set out in this opinion, those contractors may also apply for extensions of their exploration plans of work. In those circumstances, we do not consider it could reasonably be said that no extension could be granted because the reason for the requested extension is not "beyond the contractor's control". If a contractor or state sponsor wishes to defer an application for an exploitation plan of work on the grounds of inadequate science or incomplete draft RRPs, the extension request would be based on reasons beyond the contractor's control which prevent the completion of necessary preparatory work for proceeding to the exploitation stage.

PART 8: CONCLUSIONS

133. UNCLOS is a "package deal" which includes the Part XI promise of the development of the mineral resources of the deep seabed in the interests of humankind. But that promise is not unconditional and can only be delivered consistently with the environmental imperatives contained in UNCLOS Part XII, as reflected in the specific context of the Area in UNCLOS Articles 145 and 162(w) and (x), and in the preamble of, and s 1(5)(g)-(k) of the Annex to, the 1994 Agreement. Those environmental imperatives must be understood in light of wider international environmental law, including the precautionary principle,

the ecosystem approach, and the emergence of a human right to a clean, healthy and sustainable environment which protects not just current but also future generations.

134. There are significant lacunae in scientific knowledge of the ecosystem structure and function of the deep seabed and the likely impacts of deep-sea mining on those matters. The lacunae prevent a reliable description of the environmental baseline against which the impacts of deep-sea mining can be assessed and they make it impossible to identify reliable environmental thresholds against which to judge the acceptability of the impacts of deep-sea mining. These lacunae contribute to the inability of States to complete the elaboration of RRPs that comply with UNCLOS Article 145.

135. International law requires States to cooperate to ensure that exploitation of the Area does not proceed unless it can be carried out without risking significant harm to the marine environment. Under the framework established by UNCLOS and the 1994 Agreement, the most straightforward way to achieve that is through the adoption of RRPs consistent with Article 145 UNCLOS, the application of those RRPs to proposed plans of work, and the subsequent monitoring and enforcement of activities in the Area to ensure continued compliance with the RRPs. However, for reasons discussed above, these steps do not currently (individually or cumulatively) provide sufficient assurance that exploitation activities can proceed without risking significant harm to the marine environment.

136. In circumstances where the two-year period for elaboration of relevant RRPs is soon to expire, and the ISA may be asked to approve plans of work in the absence of any robust regulatory framework, there is a range of legally viable mechanisms (including a moratorium or precautionary pause) available to achieve a deferral of exploitation activity. Such a mechanism is not only consistent with UNCLOS, it is actually required by it.

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