

# Study to investigate state of knowledge of deep sea mining

Final report Annex 2 Legal Analysis

FWC MARE/2012/06 – SC E1/2013/04

Client: DG Maritime Affairs and Fisheries

Rotterdam/Brussels,

15 October 2014





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## Summary

The legal framework for deep-sea mining derives from a number of different levels of law. Under **international law** the basic legal framework for deep-sea mining is set out in the United Nations Convention on the Law of the Sea ('UNCLOS') as modified by the Part XI Implementation Agreement. UNCLOS distinguishes between maritime zones under the jurisdiction of coastal States (internal and archipelagic waters, territorial sea, exclusive economic zone and continental shelf) and areas beyond national jurisdiction, namely the high seas and the seabed beyond the continental shelves of coastal States (called the "Area" in Part XI of UNCLOS). All rights in the mineral resources of the Area, which comprises the international seabed, ocean floor and subsoil, are 'vested in mankind as a whole'. The International Seabed Authority (ISA), an international organisation based in Kingston, Jamaica, is responsible for regulating deep-sea mining in the Area. The EU and Member States are members of ISA. The regulatory regime for deep-sea mining in the Area is not yet complete. Regulations on exploration have been adopted, while regulations on exploitation are currently being developed. Outstanding issues include the basis on which ISA will levy royalties for deep-sea mining, environmental standards and, in due course, benefit sharing. In its Advisory Opinion the Seabed Disputes Chamber of the International Tribunal for the Law of the Sea, a specialised court created under UNCLOS, provided guidance on the notion of 'sponsorship' of contractors engaged in deep-sea mining in the Area, and the need for such States to adopt laws, regulations and administrative measures to ensure compliance by such contractors.

As regards deep-sea mining in areas under national jurisdiction, coastal States clearly have regulatory jurisdiction in terms of international law and can design and adopt their own legislation accordingly subject to their obligations under international law. There are as yet no international standards for deep-sea mining in areas under national jurisdiction and consequently there is a risk that different, stricter standards may in due course apply in the Area than in areas under the coastal State jurisdiction. States are subject to a number of obligations in terms of international agreements of global or regional application, including the Convention on Biological Diversity and London Convention and Protocol, that tend to be of a rather general nature and the extent to which they may affect and deep-sea mining is not entirely clear. In due course there may be a need for the establishment of specific standards for vessels or platforms engaged in deep-sea mining as well as for the disposal of mining wastes.

**EU** law applies to deep-sea mining in the waters under the jurisdiction of the Member States. Unlike marine hydrocarbon extraction, however, the topic of deep-sea mining is not (yet) specifically addressed in EU legislation. Although plans or programmes that relate to deep-sea mining would be subject to strategic environmental assessment, deep-sea mining projects are not subject to the Environmental Impact Assessment Directive. Environmental data relating to deep-sea mining is currently subject to the Environmental Information Directive. Existing general EU waste legislation would apply to deep-sea mining but the specific directive on mining waste does not and while EU environmental liability legislation is potentially applicable to deep-sea mining its effectiveness might be reduced due to the need to prove fault on the part of an operator before liability can be established. Other environmental legislation may impact on how deep-sea mining is undertaken in European waters but will not prevent it taking place. Finally European companies engaged in deep-sea mining both in European waters and elsewhere in the world will be subject to the specific reporting requirements of extractive industries under the Accounting Directive.

As regards **national legislation** that governs deep-sea mining in the Area, many EU Member States have yet to adopt the necessary laws. Out of the eight Member States considered in this Study, only two, Germany and the UK have legislation on deep-sea mining in the Area in place although France has informed ISA that the preparation of such legislation is under way. The third countries considered in this study that have adopted legislation on deep-sea mining in the Area were party to the interim agreements that preceded UNCLOS. Most, but not all of these States, have updated their laws following the entry into force of UNCLOS. One exception in this respect is the USA which is not party to UNCLOS but which has retained its original legislation on deep-sea mining in the Area.

In the case of national legislation to regulate deep-sea mining in areas under national jurisdiction, it is more often the case that terrestrial mining legislation simply applies to the continental shelf or EEZ, rather than specific deep-sea mining legislation. In a number of cases, terrestrial mining legislation has been modified so as to include specific reference to deep-sea mining. Of the countries considered in this study, only the USA has specific legislation in place on deep-sea mining in areas under its national jurisdiction. Although deep-sea mining and terrestrial mining are both concerned with the extraction of mineral ores from the ground the extent to which terrestrial mining legislation is really suitable for application to the sea is surely questionable as shown by a number of practical questions raised in connection with deep-sea mining in the waters of Papua New Guinea. Also noteworthy, given that the nearby seabed appears to offer some of the most promising possibilities for deep-sea mining in European waters, is the fact that the Administration of the Azores took the decision to adopt its own specific legislation for deep-sea mining, even though this was subsequently ruled unconstitutional.



# 1 Introduction

This report contains a description of the legal framework governing deep-sea minerals exploration and extraction and exploitation in four different, yet inter-linked, spatial and jurisdictional contexts:

- (a) maritime areas under the jurisdiction of selected European Union (EU) Member States<sup>1</sup>;
- (b) maritime areas under the jurisdiction of the overseas countries and territories (OCTs) of the Member States<sup>2</sup>;
- (c) maritime areas of at least five other countries in which mining activity is already taking place or the results of underwater surveys have been promising<sup>3</sup>;
- (d) areas beyond the national jurisdiction of any country.

The legal framework for deep-sea mining derives from multiple levels of law. The foundation of the framework is provided by international law, the body of law that regulates the rights and duties of States and other actors, such as international organisations, recognised by international law. EU law applies to the Member States of the EU and in certain circumstances may also apply to their OCTs. Finally, maritime areas under the jurisdiction of States are subject to the national legislation of those States as shaped by international law and, in the case of the EU Member States, EU law. Moreover, as will be seen national law also has an important role to play in terms of the sponsorship of deep-sea mining in maritime areas beyond the jurisdiction of the State concerned.

This report is set out in six parts including the summary and this introduction.

In part three the relevant rules of international law are considered in so far as they apply to deep-sea mining in areas under the national jurisdiction of States as well as in areas beyond national jurisdiction.

Part four contains a description of the rules of EU law that are most directly relevant to deep-sea mining while national legislation relating to deep-sea mining in a selected number of EU and non-EU jurisdictions is considered in part five. Finally a number of conclusions are drawn in part six.

At the outset it is important to note that in the absence of actual deep-sea mining exploitation activity around the world to date, the legal framework described in this Annex is largely untried if not un-implemented. For the purpose of this report, deep-sea mining has been taken to mean the extraction of minerals from the sea bed from a depth of more than 200 metres. In other words this Annex does not address the specific legal framework for the extraction of marine aggregates (sand and gravel).

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<sup>1</sup> France, Germany, Greece, Italy, the Netherlands, Portugal, Spain and the United Kingdom.

<sup>2</sup> These are listed in Annex II of the Treaty on the Functioning of the European Union (OJ C 83, 30.3.2010 p. 47)

<sup>3</sup> Canada, China, Fiji, Japan, Papua New Guinea and the United States of America.

## 2 International law

The starting point for examining international law relating to deep-sea mining is the law of the sea, the branch of international law that is concerned with all uses and resources of the sea. The cornerstone of the law of the sea is the United Nations Convention on the Law of the Sea ('UNCLOS')<sup>4</sup> and its two implementing agreements: the Part XI Implementation Agreement<sup>5</sup> and the UN Fish Stocks Agreement.<sup>6</sup> UNCLOS was finally adopted in 1982, after a lengthy and difficult negotiation process, and entered into force in November 1994.

At present there are 166 parties to UNCLOS including the EU and its Member States.<sup>7</sup> It is, however, important to note that around 30 States are not party to UNCLOS, including the United States of America (USA), Colombia, Israel, Libya, Peru, Syria, Turkey and Venezuela.

The sources of the law of the sea are identical to those of international law in general, namely agreements (treaties) and customary international law. Apart from UNCLOS a number of other international agreements are also potentially relevant to deep-sea mining and these are considered below.

Before, however, turning to the provisions of UNCLOS that relate directly to deep-sea mining it is important to note the continued importance of customary international law, especially with respect to those areas of conventional law that are not clearly articulated in existing treaties or in areas where State practice may have extended the application of some treaty provisions. This phenomenon has been clearly recognised by the International Court of Justice in its decisions on the law of the sea.<sup>8</sup> In particular it should be noted that most of the provisions in UNCLOS relating to maritime zones are generally considered to be declaratory of customary international law.

### 2.1 UNCLOS

The over-arching objective of UNCLOS is to establish a universally accepted, just and equitable legal order - or 'Constitution'<sup>9</sup> - for the oceans that lessens the risk of international conflict and enhances peace and stability in the international community.<sup>10</sup> The development of UNCLOS required a balancing exercise between the competing interests and claims of States in their various capacities including coastal States and land-locked States, flag States and port States, and industrialized and developing States.

The issue of deep-sea mining was particularly controversial in this respect and is also one of the reasons why UNCLOS was finally adopted by a vote (rather than by consensus as had been hoped at the start of the negotiations) and is even one of the reasons why the USA has still to accede to it. Indeed the controversy over Part XI of UNCLOS, which is concerned with deep-sea mining, was

<sup>4</sup> United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982. In force: 16 November 1994, 1833 *United Nations Treaty Series* 3; <[www.un.org/Depts/los](http://www.un.org/Depts/los)>.

<sup>5</sup> Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, New York, 28 July 1994. In force 28 July 1996, 1836 UNTS 3; <[www.un.org/Depts/los](http://www.un.org/Depts/los)>.

<sup>6</sup> 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 New York, 4 August 1995. In force: 11 December 2001, 2167 *United Nations Treaty Series* 3; <[www.un.org/Depts/los](http://www.un.org/Depts/los)>.

<sup>7</sup> [http://www.un.org/Depts/los/reference\\_files/status2010.pdf](http://www.un.org/Depts/los/reference_files/status2010.pdf).

<sup>8</sup> Rothwell, D.R. & Stephens, T. *The International Law of the Sea*, 2010, Hart Publishing, Oxford at page 22.

<sup>9</sup> Remarks by Tommy Koh, Chair of the Third United Nations Conference on the Law of the Sea (UNCLOS III).

<sup>10</sup> See the fifth preambular paragraph of UNCLOS.

such that the adoption of an additional implementing agreement, in the form of the Part XI Mining Agreement, was subsequently found necessary to modify UNCLOS in order to facilitate its entry into force.

Part of the balance eventually achieved by UNCLOS was through the system of maritime zones that it provides for, including those that pertain to coastal States. These zones, which determine the spatial competence and jurisdiction of States, and thus which specific legal regime applies to deep-sea mining, are considered next.

### 2.1.1 *Maritime zones under UNCLOS*

The sovereignty of a coastal State extends beyond its land territory and internal waters to an adjacent belt of sea described as the **territorial sea** that may extend up to twelve nautical miles (nm)<sup>11</sup> measured from the baseline (usually the low water mark<sup>12</sup>). Within its territorial sea the authority of a coastal State is in principle absolute except as restricted by UNCLOS and other rules of international law<sup>13</sup>.

Beyond its territorial sea a coastal State may claim a contiguous zone, which is not relevant to deep-sea mining, and an exclusive economic zone (EEZ) that is. The **EEZ** can extend up to 200 nm from the baseline. Within its EEZ a coastal State does not enjoy sovereignty as such but a more limited set of “sovereign rights” relating to living and non-living resources and with regard to other activities for the economic exploitation and exploration of its EEZ, such as the production of energy, as well as deep-sea mining.

Article 56(1) states that:

In the exclusive economic zone, a coastal State has:

(a) sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds;

A coastal State also has the necessary jurisdiction related to these sovereign rights as well as jurisdiction for the establishment and use of artificial islands, installations and structures, marine scientific research and the protection and preservation of the marine environment.<sup>14</sup> The sovereign rights and jurisdiction conferred upon a coastal State imply the power to regulate those activities. On the other hand the coastal State does not enjoy sovereignty in the fullest sense. Article 56(2) of UNCLOS states:

In exercising its rights and performing its duties under this Convention in the exclusive economic zone, the coastal State shall have due regard to the rights and duties of other States and shall act in a manner compatible with the provisions of this Convention.

In other words coastal State regulatory competence in the EEZ is not plenary, but confined to the matters expressly indicated in UNCLOS in respect of which sovereign rights or jurisdictional powers are granted to a coastal State. Such rights apply for the purpose of ‘exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil’ (article 56) as well as other activities for the economic exploitation of the zone. Moreover UNCLOS subjects the exercise of this

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<sup>11</sup> 1 nm = 1,852 metres.

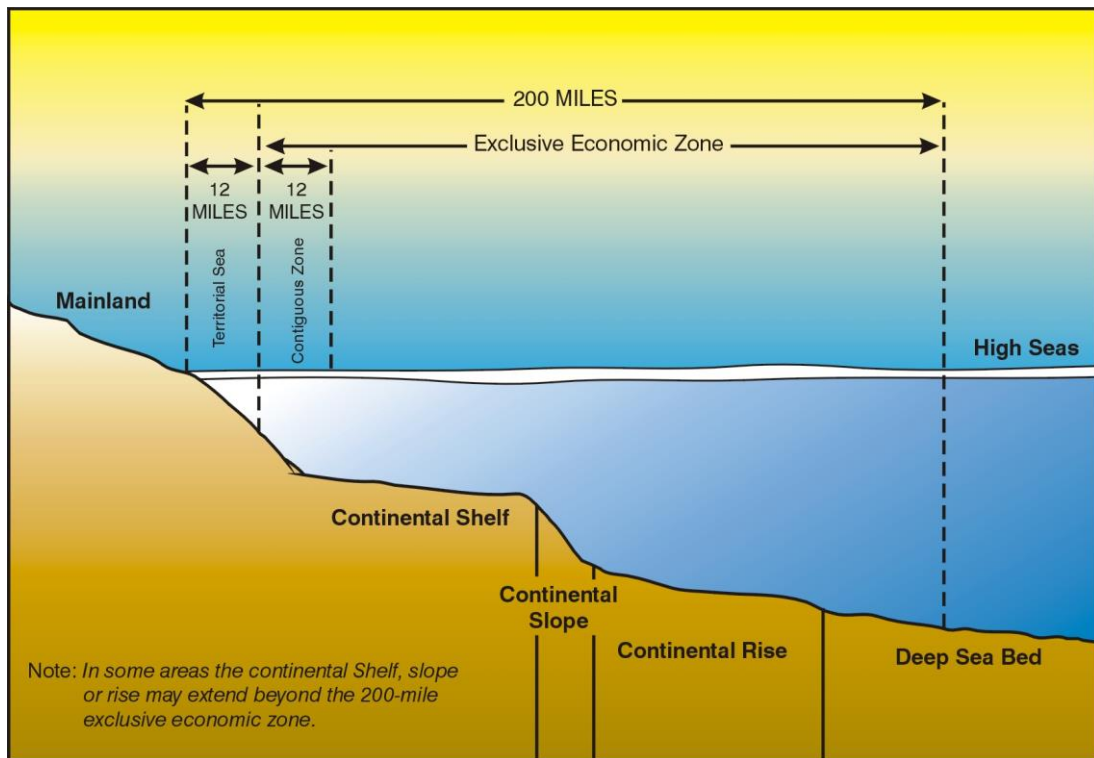
<sup>12</sup> In some circumstances a coastal State may draw a straight baseline for example on heavily indented coasts and over the mouths of bays and estuaries.

<sup>13</sup> The most important restriction is the right of ‘innocent passage’ through the territorial sea, which is enjoyed by ships of all States (article 17)

<sup>14</sup> UNCLOS, article 56(1)(b).

competence to various conditions and obligations explicitly foreseen, such as the freedom of navigation of other States' vessels,<sup>15</sup> as well as to its provisions on the protection of the marine environment (which are considered below)<sup>16</sup>.

Figure A.2.1. Maritime zones under UNCLOS



UNCLOS also recognises the rights of a coastal State over its adjacent **continental shelf**, which comprises the seabed and subsoil of the 'submarine areas' beyond the territorial sea. The continental shelf may extend as far the natural prolongation of the land territory to the outer end of the continental margin adjusted under a complex formula, or to a distance of 200 nm from the baseline in cases where the outer edge of the continental margin does not extend that far.

In other words some, but not all, coastal States may be entitled to a **continental shelf** that extends beyond 200 nm from the baseline and thus beyond the outer edge of the EEZ (although the final outer limit cannot exceed 350 nm from the baseline or in some cases 100 nm from the 2 500 m isobath.<sup>17</sup> In these cases the coastal State is expected to submit information on its outer limits on the basis of criteria specified in Article 76 of UNCLOS to the Commission on the Limits of the Continental Shelf (CLCS). The limits of the outer continental shelf established by the coastal State 'on the basis of the recommendations of the CLCS are final and binding' (article 76(8)). A number of continental shelf submissions around the world have been made, including by States that are considered in this study, and most of them still await recommendations from the CLCS.<sup>18</sup> The regime for the part of the continental shelf beyond 200 nm is essentially identical to that of the part within 200 nm save that rules on refusing consent to marine scientific research are stricter and a specific revenue sharing regime applies as regards deep-sea mining which is considered below.<sup>19</sup>

<sup>15</sup> Freedom of navigation in the EEZ is not absolute, but a balancing exercise between the coastal State and the flag State, inasmuch as by UNCLOS Article 58(3) its exercise is subject to due regard to the coastal State's rights and duties and compliance with its laws in so far as they are not incompatible with Part V of the Convention.

<sup>16</sup> In section 2.1.4.

<sup>17</sup> UNCLOS, article 76(5) and (6).

<sup>18</sup> See [http://www.un.org/depts/los/clcs\\_new/commission\\_submissions.htm](http://www.un.org/depts/los/clcs_new/commission_submissions.htm).

<sup>19</sup> In section 2.4.5.

With regard to its continental shelf, Article 77(1) of UNCLOS provides that a coastal State exercises 'sovereign rights for the purpose of exploring it and exploiting its natural resources'. In other words, as with the rights of a coastal State over its EEZ, something less than full sovereignty is conferred. Article 77(2) goes on to clarify that the rights of the coastal State are exclusive in that, if it does not explore its continental shelf or exploit its natural resources, no one else may undertake such activities without the express consent of the coastal State.

The sovereign rights of the coastal State regarding the continental shelf include the exploitation of living organisms belonging to 'sedentary species' (which are defined as organisms that, at the harvestable stage of their lifecycle, are either 'immobile, on or under the sea-bed or are unable to move except in constant physical contact with the sea-bed or the subsoil'), drilling, tunnelling, and the use of artificial islands, installations, and structures as well as deep-sea mining.

Article 78(1) of UNCLOS states that:

The rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters or of the air space above those waters.

Thus in the absence of an EEZ claim (or claims to some, but not all, of the sovereign rights associated with an EEZ), the coastal State has no rights with regard to the waters over the sea-bed, which have the status of high seas, as does airspace beyond the territorial sea. Except to the extent necessary to make use of its economic rights on the continental shelf, a coastal State must avoid interference with navigation and other rights and freedoms of other States as laid down in the regime of the high seas (considered below).<sup>20</sup>

A coastal State is entitled to a continental shelf of 200 nm (or more in the circumstances mentioned above) even if it has chosen not to establish an EEZ. Moreover, unlike the EEZ, a coastal State gains its continental shelf by operation of law, without the need to claim it.<sup>21</sup> Otherwise the rights that a coastal State enjoys over the seabed within its EEZ are essentially the same as those it enjoys over its continental shelf. The question can therefore be legitimately asked as to why there are two separate, albeit similar, regimes over what is effectively the same seabed area. The short answer lies in the negotiating process that led to UNCLOS: disagreements between States as to the respective merits of the EEZ concept coupled with attachment to the idea of the continental shelf as a prolongation of land territory by those countries with larger continental shelves.

In practice most States seek to claim all of the maritime zones that they can.<sup>22</sup> Most coastal States have therefore claimed an EEZ that by implication, also applies to the seabed of their continental shelf. Conversely, a State that has not claimed an EEZ still nevertheless enjoys the full range of legal rights over its continental shelf. In other words, other than with regard to spatial extent, in that a continental shelf may extend beyond 200 nm from the baseline, there is essentially no difference between the rights that a coastal state enjoys over and beneath the seabed of its EEZ and those that apply to its continental shelf.

Two other points need to be made about these maritime zones. First of all they can only extend as far as there is sufficient sea space. In the case of narrow or constrained seas, the breadth of the continental shelf and/or EEZ of a coastal State may be limited by those of States on the opposite

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<sup>20</sup> UNCLOS, article 78(2).

<sup>21</sup> UNCLOS, article 77(3).

<sup>22</sup> The Mediterranean Sea was long an exception in this respect. However more recently the majority of the coastal States of the Mediterranean have taken steps to claim EEZs. See [http://ec.europa.eu/maritimeaffairs/documentation/studies/study-maritime-zones-in-mediterranean-sea\\_en.htm](http://ec.europa.eu/maritimeaffairs/documentation/studies/study-maritime-zones-in-mediterranean-sea_en.htm).

shore. Moreover, the precise boundaries of such maritime zones (which in the ordinary course of things should logically be the same but in practice may not be<sup>23</sup>) still need to be precisely delimited and agreed with neighbouring or opposite States or resolved through one of various forms of dispute resolution procedure foreseen by UNCLOS.

Beyond the outer edge of the continental shelf (of 200 nm or more if the conditions for this are satisfied) lies the **Area**, defined by UNCLOS as the 'seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction', and which is the subject of Part XI of UNCLOS. No State may claim sovereignty or sovereign rights over any part of the Area or its resources. Instead, all rights in the 'resources' of the Area are 'vested in mankind as a whole' on whose behalf the International Seabed Authority (ISA), established pursuant to UNCLOS, is to act.<sup>24</sup> Further provisions on the functioning of ISA are set out in the Part XI Implementation Agreement and this will be considered in more detail below.

The water column and the surface waters of the sea directly above the Area (and above any part of the continental shelf that extends beyond 200 nm from the baseline) are the **high seas** which include all parts of the sea that do not form part of the EEZ, territorial sea or other maritime zones of coastal States.<sup>25</sup> The high seas are the subject of Part VII of UNCLOS. The provisions of Part VII therefore apply to the airspace, surface waters and water column beyond the outer limit of the EEZ and the seabed and subsoil of that same area. In other words, the UNCLOS regime for the high seas overlaps with its regime for the Area and, as noted, may overlap with the regime of the continental shelf (to the extent applicable).<sup>26</sup> All States enjoy the freedoms of the high seas, which include the freedoms of over-flight, fishing and scientific research. Moreover no State may seek to subject any part of the high seas to its sovereignty.

Finally it should be noted that most of the provisions in UNCLOS relating to the spatial extent of maritime zones are generally considered to be declaratory of customary international law.

### *2.1.2 Deep-sea mining in areas under national jurisdiction*

While UNCLOS clearly confers the necessary jurisdiction on each coastal State to regulate deep-sea mining in areas under its national jurisdiction (in other words within its internal waters and archipelagic waters if any, its territorial sea, EEZ and continental shelf including any part beyond 200 nm) in accordance with its own legislation, it offers very little guidance as to how this is to be done. In other words just as there is no comprehensive international legal framework for the regulation of land based mining, precisely how coastal States are to regulate deep-sea mining is not specified in international law. Nevertheless, the rights of coastal States are not absolute. In regulating deep-sea mining in areas under its national jurisdiction, a coastal State may be subject to other more generally applicable rules of international law, including those contained in UNCLOS and other international agreements, in particular as regards environmental matters. The potential scope of such obligations is considered in more detail below.

One exception to this general principle concerns deep-sea mining on the continental shelf beyond 200 nm. While not specifying how this is to be undertaken, article 82 of UNCLOS does determine what is to happen to the proceeds. More specifically this article requires the coastal State to make

<sup>23</sup> Such a situation can arise where the continental shelf and EEZ are delimited at different times, including where the baseline changes. The legal test for delimitation is however identical as regards the EEZ and continental shelf.

<sup>24</sup> Article 137.

<sup>25</sup> In other words if a coastal State does not claim an EEZ the surface waters and water column above its continental shelf may also be considered to form part of the high seas.

<sup>26</sup> For a comprehensive discussion see A.G. Oude Elferink, "The Regime of the Area: Delineating the Scope of Application of the Common Heritage Principle and Freedom of the High Seas", 22 *International Journal of Marine and Coastal Law* 143-176 (2007).

annual payments or contributions in kind in respect of deep-sea mining in that part of the continental shelf. Such payments and contributions are to be made through ISA which is then responsible for distributing them to the parties to UNCLOS on the basis of equitable sharing criteria 'taking into account the interests and needs of developing States, particularly the least developed and the land-locked among them'. The obligation to make such payments and contributions starts five years after the start of production at a particular site at a rate of 1% of the value or volume of the 6<sup>th</sup> year of production at that site. This subsequently increases by annual increments of 1% to a final rate of 7% from the 12<sup>th</sup> year onwards.

In contrast, coastal States may retain all of the royalties that they can recover from deep-sea mining within 200 nm from the baseline. Moreover coastal States are basically free to determine how such royalties are to be structured and set in accordance with their own economic development priorities and legislation.

### 2.1.3 *Deep-sea mining in the Area*

In contrast to the relatively sparse legal framework for deep-sea mining in areas under national jurisdiction, UNCLOS, supplemented by the Part XI Implementation Agreement, established a relatively detailed, although as will be seen as yet incomplete, legal framework for deep-sea mining in the Area.

Part XI of UNCLOS establishes a number of generally applicable principles with regard to the conduct of States in relation to the Area including peace, security, international cooperation and mutual understanding, the responsibility to ensure compliance and liability for damage, the use of the Area for exclusively peaceful purposes. The main focus of Part XI, however, is on the exploration and exploitation of the resources of the Area. These are defined in article 133 of UNCLOS as 'all solid, liquid or gaseous mineral resources *in situ* in the Area at or beneath the seabed, including polymetallic nodules'. In other words the focus of Part XI is on very much on deep-sea mining.

At the core of Part XI is the notion, already mentioned, that the (mineral) resources of the Area are vested in mankind as a whole on whose behalf ISA is to act. The relevant article goes on to provide that such resources are not subject to 'alienation', although the minerals that are recovered from the Area may be alienated in accordance with Part XI and the rules, regulations and procedures of ISA. In other words the role of ISA is to act both as trustee of the resources of the Area and as regulator with regard to deep-sea mining undertaken there.

Comprising just under 60 articles, Part XI is one of the longer parts of UNCLOS. Additional more detailed provisions on deep-sea mining relating to prospecting, exploration and exploitation are contained in Annex III while Annex IV is concerned with the statute of the 'Enterprise', an organ of ISA. Before examining how Part XI was amended by the Part XI Implementation Agreement it is appropriate also to briefly outline other provisions in UNCLOS that may be relevant to deep-sea mining.

### 2.1.4 *Protection of the marine environment*

The protection and preservation of the marine environment is the subject of Part XII of UNCLOS. Part XII imposes a general and unqualified (in that no exceptions are permitted) obligation on States to protect and preserve the marine environment<sup>27</sup> and provides both that States are

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<sup>27</sup> Article 192.



responsible for fulfilling their international obligations concerning this matter and that they bear liability for the consequences of any breach of such obligations.<sup>28</sup> Most of the focus of Part XII is on the prevention of pollution of the marine environment, a term that is comprehensively defined (in article 1(4)) such that no activity that affects or may affect the marine environment is excluded from the scope of UNCLOS.

Article 206 imposes an obligation on States to undertake 'as far as practicable' an assessment where there are reasonable grounds to believe that the potential impacts of planned activities under their jurisdiction and control may cause 'substantial pollution' or 'significant and harmful changes to the marine environment'. In other words this environmental impact assessment obligation is not very stringent.

As will be seen below the provisions of Part XII are, or will be, further elaborated in terms of deep-sea mining through other legal instruments. Such instruments are potentially more relevant to deep-sea mining in areas beyond national jurisdiction given that the scheme of UNCLOS is to require the issue of the environmental impact of deep-sea mining in the Area to be addressed under the Part XI regime.

With regard to deep-sea mining in areas under national jurisdiction, article 208(1) imposes a duty on coastal States to adopt laws and regulations to prevent, reduce and control pollution of the marine environment from or in connection with sea-bed activities subject to their jurisdiction. Moreover, article 208(3) goes on to provide that: '(s)uch laws, regulations and measures shall be no less effective than international rules, standards and recommended practices and procedures'.

To this end States must endeavour to harmonise their policies at the appropriate regional level. Moreover article 208(5) provides:

States, acting especially through competent international organizations or diplomatic conference, shall establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment referred to in paragraph 1. Such rules, standards and recommended practices and procedures shall be re-examined from time to time as necessary.

To date, no such global or regional rules have been specifically developed to prevent, reduce and control pollution from seabed activities such as deep-sea mining in areas subject to national jurisdiction.

### **2.1.5 Marine scientific research**

The issue of marine scientific research is addressed in Part XIII of UNCLOS. Marine scientific research, which term is not actually defined in the convention, in areas under the jurisdiction of a coastal State (in other words in its territorial sea and any waters landward of it, continental shelf or EEZ) is subject to the prior consent of that State. This includes research relating to deep-sea mining.

With regard to marine scientific research in the territorial sea, the sovereignty of the coastal State implies that it has full regulatory and enforcement powers regarding marine scientific research and thus a complete discretion whether or not to permit this. As regards marine scientific research within the EEZ and on the continental shelf, while the consent of the coastal State is required in any event, article 246 distinguishes between what may be described as 'applied research' and 'pure

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<sup>28</sup> Article 235.



research', without using those terms. While there is a presumption in favour of granting consent for pure research,<sup>29</sup> article 246(5) makes it clear that a coastal State has full discretion to refuse to grant consent for applied research, such research relating to deep-sea mining. Moreover consent to undertake marine scientific research in the EEZ or on the continental shelf is in any event subject to conditions imposed by the coastal State regarding a range of issues including coastal State participation in the research activities, the provision of preliminary reports as well as data and samples, on request, as well as an assessment of such data, also on request, in addition to any other conditions imposed in coastal State legislation.<sup>30</sup>

On the high seas, marine scientific research is a high seas freedom. In other words every State enjoys the right to undertake marine scientific research on the surface of the sea and in the water column. However, as regards marine scientific research in the Area, the relevant provision of Part XIII also provides that all States have the right to conduct marine scientific research but only in conformity with the provisions of Part XI.<sup>31</sup>

Article 143, which provides that scientific research in the Area shall be carried out exclusively for peaceful purposes and for the benefit of mankind as a whole, states that States may carry out marine scientific research in the Area and requires States to 'promote international cooperation' through *inter alia* participation in international programmes and disseminating research results. The Authority is also entitled to carry out marine scientific research in the Area. It is, however, important to note that UNCLOS distinguishes between marine scientific research and prospecting and exploration activities relating to (mineral) resources that are subject to the prior approval of the Authority (as described in more detail below).

#### 2.1.6 Technology transfer

Part XIV of UNCLOS imposes a general obligation on States, either directly or through international bodies, to cooperate in accordance with their capabilities to actively promote the development of and transfer of marine science and marine technology on fair and reasonable terms and conditions.<sup>32</sup> Moreover States are required to actively cooperate with competent international organisations and ISA to 'encourage and facilitate the transfer to developing States, their nationals and the Enterprise of skills and marine technology with regard to activities in the Area'.<sup>33</sup> Article 274, which is entitled 'Objectives of the Authority', describes in more detail how such transfers should take place.

#### 2.1.7 Dispute resolution

Finally it is also to be noted that UNCLOS creates a special forum for the resolution of disputes relating to activities in the Area.<sup>34</sup> This is the Sea-Bed Disputes Chamber of the International Tribunal for the Law of the Sea (ITLOS), which is based in Hamburg, Germany. The Statute of ITLOS is set out in Annex VI of UNCLOS. The Sea Bed Disputes Chamber is also bound to provide advisory opinions at the request of the Assembly or the Council of ISA.

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<sup>29</sup> Churchill, R.R. & Lowe, A.V. *op cit* at page 405.

<sup>30</sup> Article 249.

<sup>31</sup> Article 256.

<sup>32</sup> Article 266(1).

<sup>33</sup> Article 273.

<sup>34</sup> The types of dispute are specified in article 187.

## 2.2 Part XI Implementation Agreement

### 2.2.1 Background

The background to the development of the Part XI Implementation Agreement lies in the rejection by many industrialized countries of the provisions included in Part XI of the final version of UNCLOS. Concerns were expressed by these countries over a range of issues including provisions on mandated technology transfer, royalties, taxes and other payments as well as the potentially bloated institutional arrangements. Particular concerns were raised by industrialized countries about the significant role envisaged for the Enterprise, a potentially unwieldy and bureaucratic body, as the ISA organ responsible for directly carrying out mining activities in the Area.

Pending the entry into force of UNCLOS various interim agreements were concluded between States with an interest in deep-sea mining. These included the 1984 Provisional Understanding Regarding Deep Seabed Matters<sup>35</sup> (entered into by Belgium, France, the Federal Republic of Germany, Italy, Japan, the Netherlands, the United Kingdom and the USA) and the 1987 Agreement on the Resolution of Practical Problems with Respect to Deep Seabed Mining Areas<sup>36</sup> (which was entered into by Canada, Belgium, Italy, the Netherlands, and the then Union of Soviet Socialist Republics). In brief the purpose of these agreements was to coordinate approaches to deep-sea mining activities so as to prevent overlapping mining claims.

Eventually following lengthy negotiations the Part XI Implementation Agreement was concluded on 28 July 1994, paving the way for the entry force of UNCLOS later that year. Although the Agreement did not alter the basic principle that the resources of the Area are the common heritage of mankind, it disapplied the provisions of Part XI on detailed production policies, systems of assistance to land-based producers or provisions on the mandatory transfer of technology. Instead it takes a more market-oriented approach that combines a reduction in the size of the institutions of ISA, and broader representation in decision-making bodies.

### 2.2.2 The relationship between the Part XI Implementation Agreement and UNCLOS

The Part XI Implementation Agreement has a slightly unusual relationship with UNCLOS. Article 2(1) of the Part XI Implementation Agreement provides that its provisions and Part XI of UNCLOS are to be 'interpreted and applied together as a single instrument' with the provisions of the Part XI Implementation Agreement prevailing in the event of inconsistency. In other words it is necessary to consider both instruments together in order to understand the current legal regime for deep-sea mining in the Area.

## 2.3 ISA

With the entry into force of UNCLOS in 1994, ISA came into existence as an international organisation (and thus a body recognised by international law). The members of ISA are *ipso facto* the parties to UNCLOS and therefore include the EU and its Member States. ISA currently, therefore, has 166 members although there is a slight legal incongruity in that 21 members of ISA have yet to ratify the Part XI Implementation Agreement.<sup>37</sup> The USA participates as an observer.

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<sup>35</sup> 1985 UKTS 24.

<sup>36</sup> 26 ILM 1502 (1987).

<sup>37</sup> See the informal advanced text of the 2014 report of the Secretary-General of ISA at <http://www.isa.org.jm/files/documents/EN/20Sess/Assembly/SG-ARep.pdf>.

Since its establishment ISA has acquired permanent observer status to the United Nations General Assembly and memoranda of understanding have been concluded with the International Oceanographic Commission of the United Nations Scientific and Culture Organization, the OSPAR Commission (see section 2.8 below) and the International Cable Protection Committee which is a private body.

The budget of ISA is based on the United Nations (UN) scale of assessments modified to take account of the fact that ISA has fewer members than the UN.

The principal organs of ISA foreseen in Part XI of UNCLOS are the Assembly, the Council and the Secretariat as well as the Enterprise. The Council is also assisted by a Legal and Technical Commission and an Economic Planning Commission.

### 2.3.1 *The Assembly*

The Assembly, which comprises one representative from each ISA member, is the supreme organ of ISA responsible for establishing the general policies of the organization. Meetings of the Assembly, which must take place at the seat of ISA in Kingston, Jamaica unless the Assembly decides otherwise, are usually held once a year over a four-day period each July.

As a general rule, decision making in all of the organs of ISA should be by consensus<sup>38</sup>, although if consensus is not possible each member of the Assembly has one vote. In practice, to date, all decisions of the Assembly have been taken by consensus. Although the Assembly is considered to be the supreme organ of ISA, and as such is responsible for *inter alia* electing the members of the Council and the Secretary-General and approving the budget, with regard to a wide range of issues in terms of rule- and policy-making the Assembly may only consider and accept the recommendations of the Council or alternatively reject them and return them to the Council for reconsideration. In other words the Assembly does not have the power to modify such recommendations. To date, because of the consensual manner in which ISA operates, no Council recommendation has yet been rejected.

### 2.3.2 *The Council*

The Council is the executive organ of ISA which establishes the specific policies to be followed by the organisation as well as approving applications for exploration/exploitation rights. It consists of 36 members of the Authority elected by the Assembly on the basis of specific criteria laid down in paragraph 15 of the Annex to the Part XI Implementation Agreement so as to provide a balanced composition.

The criteria for Council membership are somewhat complex. In brief the rules provide for the division of the Council into a series of groups. Group A is made up of major consumers of commodities produced from the categories of minerals to be derived from the Area. The current members are: China, Italy<sup>39</sup>, Japan and the Russian Federation. Group B is made of the four ISA members among the eight State Parties that have made the largest direct or indirect investments relating to activities in the Area. The current members are France, Germany, India and the Republic of Korea. Group C comprises four ISA members that are major net exporters of the categories of minerals to be found in the Area. The current members are Australia, Chile, Canada and South Africa. Group D is made up of six ISA members from among developing States representing

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<sup>38</sup> Section 3 (2) of the Annex to the Part XI Implementation Agreement.

<sup>39</sup> Italy occupies the seat notionally 'reserved' for the USA if and when it becomes a member of ISA.

different special interests such as States with large populations, landlocked or geographically disadvantaged States and island States. Finally Group E has 18 members elected in accordance with the principle of ensuring an equitable geographical distribution of seats in the Council on the basis of the following geographical regions: Africa, Asia, Eastern Europe, Latin America & the Caribbean and Western Europe and others. Current EU members of Group E are: Poland, the United Kingdom (UK)<sup>40</sup>, the Netherlands and the Czech Republic. Other members of Group E are Norway, Mozambique, Namibia, Senegal, Nigeria, Cameroon, Côte d'Ivoire, Kenya, Vietnam, Sri Lanka, Argentina, Indonesia, Mexico, Guyana and Trinidad & Tobago.

Over the years a number of EU Member States have been particularly active in terms of the Council including France, Germany, the Netherlands and the UK, as well as Spain, Portugal and Belgium.

As with the Assembly, decisions of the Council are in principle to be taken by consensus. If, however, a vote becomes necessary each group will be treated as a chamber and depending on the subject matter a majority in each chamber may be required. In other words the voting system is extremely complex and fortunately, as decisions have also been taken on the basis of consensus, it has yet to be tested in practice. Because the Assembly is restricted to accepting or rejecting in full the recommendations of the Council the latter is in practice in an extremely powerful position within ISA.

The Council also now meets once a year, usually for a six-day period immediately before the meeting of the Assembly.<sup>41</sup>

### *2.3.3 Legal and Technical Commission and the Finance Committee*

Article 163 of UNCLOS provides that the Council is to have two organs, namely the Legal and Technical Commission and the Economic Planning Commission. For the time being, however, in accordance with Section 1(4) of the Annex to the Part XI Implementation Agreement the functions of the latter commission are discharged by the Legal and Technical Commission (LTC).<sup>42</sup>

The LTC comprises 25 suitably qualified members elected for a five year term by the Council to undertake a range of tasks including reviewing applications for plans of work for activities in the Area, supervising exploration or mining activities, assessing the environmental impact of such activities and advising the ISA Assembly and Council. The LTC usually meets twice a year, in February and in July immediately before the meetings of the Council and the Assembly.

Mention can also be made of the Finance Committee provided for by Section 9 of the Annex to the Part XI Implementation Agreement, the members of which are elected by the Assembly for a term of five years. The basic task of the Finance Committee is to make recommendations to the Council on a range of financial issues. The Council is required to take account of such recommendations but is not bound by them.

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<sup>40</sup> Which was elected for a four-year term on the understanding that it will relinquish its seat after years to Norway in 2015.

<sup>41</sup> Many members of the Assembly attend the meetings of the Council as observers. This has tended to help the consensual nature of ISA decision-making.

<sup>42</sup> This arrangement will remain in place until the Council determines otherwise or until the approval of the first plan of work for exploitation.

#### 2.3.4 *The Secretariat*

The ISA Secretariat, which comprises a Secretary-General elected for a four-year term by the Assembly, and 'such staff as the Authority may require', is located in Kingston, Jamaica. There are currently around 40 technical and non-technical staff.

#### 2.3.5 *The Enterprise*

As noted above, one of the objectives of the Part XI Implementation Agreement was to reduce the size of the institutions foreseen under Part XI of UNCLOS including the Enterprise. As originally envisaged in UNCLOS, the Enterprise was to have sufficient legal and operational capacity to play a significant and active role in deep-sea mining on behalf of the international community. The industrialised countries were in particular concerned that in this form the Enterprise would have been bureaucratic and unwieldy. The Part XI Implementation Agreement substantially modified the provisions on the Enterprise and provides that the ISA Secretariat is to perform the tasks of the Enterprise on an interim basis. In reality the Enterprise exists on paper only.

Having said that, though, in 2012 an application was made by the Canadian deep-sea mining company Nautilus Minerals Inc. to activate the Enterprise. Under the Part XI Implementation Agreement the only way the Enterprise can now exist is through a joint venture. Under the scheme for deep-sea mining activity in the Area, which will be considered in more detail below, a reserve area must be set aside in respect of each block. Activities in such areas are reserved to developing countries or the Enterprise. In the end the Council turned down Nautilus' application due in part to the fact that a developing country, Singapore, had also applied for the same reserve area. It remains to be seen if the Enterprise will ever be formally established.

### 2.4 *The regulatory regime for deep-sea mining in the Area*

The regulatory regime for deep-sea mining in the Area is set out principally in Annex III of UNCLOS, which is entitled 'Basic conditions of prospecting, exploration and exploitation', as modified by the Part XI Implementation Agreement. In outline, exploration and exploitation activities may only be carried out in areas specified in detailed and approved plans of work by suitably qualified applicants in terms of financial and technical capabilities and on the basis of authorizations issued by ISA. Moreover such activities may only be undertaken by the Enterprise or by State Parties or by state enterprises or legal or natural persons that are sponsored by a State Party. The notion of 'sponsorship' is unique to Part XI and will be considered in more detail below. The regime addresses the three steps mentioned in the title of Annex III namely prospecting, exploration and exploitation.

The regulatory regime is supplemented by a series of rules, regulations and procedures adopted by ISA that together make up the 'Mining Code'. These include the following instruments:

- Decision of the Assembly of the International Seabed Authority regarding the amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area (ISBA/19/A/9) (the 'Nodules Regulations');
- Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the Area (ISBA/16/A/12/Rev.1) ('the Sulphides Regulations');
- Decision of the Assembly of the International Seabed Authority relating to the Regulations on Prospecting and Exploration for Cobalt-rich Ferromanganese Crusts in the Area (ISBA/18/A/11) (the 'Crusts Regulations'); and the

- Decision of the Assembly of the International Seabed Authority concerning overhead charges for the administration and supervision of exploration (ISBA/19/A/12).

A number of formal recommendations have also been adopted. The key point to emphasize about the regulations adopted to date is that they are only concerned with exploration. Regulations on exploitation and royalties have yet to be adopted. In other words although much work has been accomplished to date, the legal framework for deep-sea mining in the Area is not yet complete.

#### 2.4.1 *Prospecting*

Prospecting is the subject of article 2 of Annex III of UNCLOS. Article 2(1)(b) requires a proposed prospector to: (a) provide a written undertaking to ISA to comply with the requirements of UNCLOS; and (b) to notify ISA of the approximate area or areas in which prospecting will take place. Additional provisions on prospecting are contained in the Nodules Regulations, the Sulphides Regulations and the Crusts Regulations. The regime for prospecting is slightly curious in that it does not actually confer any rights on the prospector in terms of exclusivity or the acquisition of mining rights. In other words there is basically no difference between prospecting and marine scientific research. Consequently it is probably not surprising that to date only one country has made a notification under article 2.

#### 2.4.2 *Exploration*

Exploration activities may only be carried out in areas specified in detailed and approved plans of work by suitably qualified applicants in terms of financial and technical capabilities and on the basis of authorizations issued by ISA. The main legal provisions on exploration are contained in article 153 and Annex III of UNCLOS, as amended by the Part XI Implementation Agreement, and in the Nodules Regulations, the Sulphides Regulations and the Crusts Regulations depending on the type of resource in question.

The three sets of regulations are essentially in the same form. The Nodules Regulations were adopted first in order to 'grandfather' the rights of the pioneer investors as required by the Part XI Implementation Agreement.<sup>43</sup>

The regulations are rather detailed and are set out in ten parts. Part I, 'Introduction' includes a number of definitions. In the case of the Nodules Regulations these include the following definition of 'exploration':

"Exploration" means the searching for deposits of polymetallic nodules in the Area with exclusive rights, the analysis of such deposits, the use and testing of recovery systems and equipment, processing facilities and transportation systems and the carrying out of studies of the environmental, technical, economic, commercial and other appropriate factors that must be taken into account in exploitation;

Similar definitions are found in the other regulations. Part II is concerned with Prospecting. Part III describes the content of applications to ISA for the approval of plans of work. Each application is to be made in the standard form prescribed in Annex II to the regulations accompanied by a certificate of sponsorship as necessary, information about the financial and technical capabilities of the applicant, information about previous contracts with ISA, written undertakings to comply with the applicable legal regime, a description of the area to which the application relates, sufficient to

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<sup>43</sup> In fact the LTC developed a single set of regulations for both sulphides and crusts but the Council decided that each resource should be the subject of a separate set of regulations. It is anticipated that a single set of exploitation regulations will be developed for all three types of resource.

enable the LTC to designate a 'reserved area'<sup>44</sup> and information necessary for the approval of the plan of work. Moreover each application is to be accompanied by an application fee, currently USD 500,000. Subsequent regulations detail how applications are to be processed by ISA and then considered by the LTC. Regulation 21 contains relatively detailed provisions in this respect: having determined whether an applicant has complied with formal requirements of the regulations and provided the necessary undertakings and assurance, the LTC must also consider whether or not the applicant: (a) has the necessary financial and technical capability to carry out the proposed plan of work; and (b) has satisfactorily discharged obligations to ISA under previous contracts. Next the LTC must determine whether or not the proposed plan of work will comply with health and safety requirements, provide for *inter alia* effective protection and preservation of the marine environment and that it will not interfere with navigation or fishing activities. If the LTC considers that the requirements are met it next recommends approval of the plan of work to the Council.

Part IV of the regulations is concerned with contracts for exploration: once a plan of work is approved a contract between ISA and the applicant is concluded in the form set out in Annex III of the regulations and containing the standard clauses set out in Annex IV, which include an express recognition of the security of tenure of the contractor which may only be suspended, terminated or revised in accordance with the contract.

Each contractor has the exclusive right to explore an area subject to a plan of work for specified resources and a preference and priority for exploitation in that area or those resources. Each contract also specifies the maximum size of the area allocated to the contractor. This varies depending on the type of resource. Thus the total area for nodules is 150 000 km<sup>2</sup> while for sulphides it is 10 000 km<sup>2</sup> divided into 100 blocks of 10 km<sup>2</sup> within an overall constraint area of 300,000 km<sup>2</sup>. As regards Crusts, each 'cobalt crust block' may not exceed 20 km<sup>2</sup> in size (it may be square or rectangular) and there may be a maximum of 150 blocks, making a total exploration area of 3 000 km<sup>2</sup>, which must be arranged in clusters of 5 contiguous blocks within a constraint area of 550 x 550 km.

It should also to be noted that in order to ensure the availability of potential mine sites for the Enterprise or for developing countries, the regulations provide for a system of 'site banking'. In outline each applicant for an exploration contract sponsored by a developed country must propose two sites of equal estimated commercial value. One site is allocated to the applicant while the other site is retained by ISA as a reserved area available for use by the Enterprise or a developing country.

The regulations also specify the area and timetable whereby portions of the area are to be relinquished over the term of the contract. Again the proportion or size of the areas to be relinquished varies in accordance with the type of resource. In the case of contracts relating to nodules, a contractor must by the end of the third year have relinquished at least 20% of the allocated area, with an additional 10% to be relinquished by the end of the fifth year and a further 20% after eight years or such larger amount as would exceed the exploitation area decided upon by ISA (with limitations in the cases where the total allocated area does not exceed 75,000 km<sup>2</sup>). As regards sulphides, the contractor must, by the end of the eighth and tenth years from the start of the contract, relinquish at least 50% and 75% of the area originally allocated while in the case of crusts the contractor must relinquish at least one third of the originally allocated area by the end of the eighth year of the contract and two thirds by the end of the tenth year. In all cases the relinquished areas revert to the Area.

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<sup>44</sup> Additional provisions apply to applications that themselves relate to a reserved area (Regulation 17).

Each contract lasts for 15 years, after which the contractor must apply for a plan of work for exploitation unless the contractor has already obtained an extension.<sup>45</sup> Extensions for a period of five years are approved by the Council on the recommendation of the LTC. Other regulations in Part IV are concerned with the training obligation of the contractor, the periodic review of the implementation of the plan of work by the contractor and ISA, the termination of sponsorship and responsibility and liability.

In practice applying for an exploration contract is not a trivial matter. According to ISA, a contractor will typically spend around one year preparing an application and engaging in informal discussions with it before submitting an application. Applications are usually considered by the LTC over the course of at least two meetings. Therefore depending on when an application is submitted, the shortest period in which an application can be dealt with is between nine months and one year. After an application has been approved by the Council a contract must be finalised. Even though the content of such contracts are specified in the regulations this typically takes a minimum of six months to conclude.

Part V addresses the protection and preservation of the marine environment. To this end ISA is required, on the basis of recommendations from the LTC, to establish and periodically review rules, regulations and procedures to ensure the effective protection of the marine environment, to which end both ISA and sponsoring States must apply the precautionary principle. The LTC must also develop and implement procedures for determining on the basis of the best available scientific and technical information whether proposed activities would have serious harmful impacts on vulnerable marine ecosystems and to ensure that measures are taken to prevent such impacts or to refuse to authorise them. Contractors are required to take the necessary measures to prevent, reduce and control pollution and other hazards to the marine environment resulting from their activities in the Area and to apply a precautionary approach and best environmental practices. Moreover contractors, sponsoring States and other interested parties must cooperate with ISA to establish monitoring programmes. Subsequent regulations are concerned with contractual requirements to establish environmental baselines and to undertake monitoring programmes in accordance with LTC recommendations, responses to incidents that cause or pose a threat of serious harm to the marine environment including the issuance by the Council of emergency orders to suspend or modify operations, the rights of coastal States and the obligation of contractors to immediately report to ISA finds of human remains and objects of an archaeological or historical nature.

Although the exploration regime provides for the recovery of small quantities of minerals, so far most of the exploration activities undertaken are largely unobtrusive relying as they do on remotely operated vehicles for the acquisition of samples. So far no mining tests have actually been undertaken within claim areas.

Part VI of the regulations is concerned with the issue of confidentiality. In particular there is a presumption that data and information transferred to ISA pursuant to the regulations or a contract and designated as confidential by the contractor will be so treated subject to certain exemptions such as public availability from other sources. However data and information that are necessary for the formulation by ISA of rules, regulations and procedures concerning the protection and preservation of the marine environment are, with the exception of proprietary equipment design data, not considered to be confidential. Confidential data may be used only by ISA although the regulations do make provision for the periodic review of confidential data and information by ISA and the contractor to determine whether it should remain confidential.

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<sup>45</sup> This is specified in section 1(9) of the Annex to the Part XI Implementation Agreement.



The remaining parts of the regulations are relatively short. Part VII is concerned with general procedures, such as the service and delivery of notices under the contract and the adoption by the LTC of technical or administrative recommendations for the guidance of contractors, Part VIII is concerned with the settlement of disputes, Part IX is concerned with the finds of resources other than those which are the subject of the contract and Part X calls for the periodic review of the regulations.

As already mentioned the regulations contain a series of annexes: Annex I specifies the contents of a prospecting notification; Annex II sets out the form of application for a plan of work for exploration; Annex III sets out the form of an exploration contract; and Annex IV sets out a series of standard clauses for such contracts.

While more detail on deep-sea mining activity is provided elsewhere in the report to which this Annex is attached, at the time of writing there are 16 exploration contracts in place and another 10 in various stages of preparation. These are increasingly being concluded with private sector operators. Among the existing contractors are a number of 'pioneer investors' whose interests have been grandfathered into the current regime. This process was concluded in 2001, meaning that the exploration contracts will shortly reach the end of their 15 year term.

### 2.4.3 Exploitation

Work has begun on the development of the exploitation regulations that will form the exploitation code. ISA has recently completed a major stakeholder survey and the issue was discussed by the LTC at its most recent meeting in February 2014.

The development of the new regulations will inevitably be a very complex and challenging task that will need to address *inter alia* the applicable financial and environmental regimes. In terms of the financial arrangements key issues that will need to be addressed include the approach to royalties payable to ISA, the method of calculating such royalties and the relationship with national taxation regimes. A certain degree of guidance is provided by section 8(1) of the Annex to the Part XI Implementation Agreement, which sets out a series of guiding principles. Apart from stipulating that the system of payments must be fair both to the contractor and to ISA (and that they must provide adequate means to determine that the contractor has complied with the system) the paragraph: indicates that the rates of payment should be within the range of those prevailing in respect of land-based mining to prevent competitive distortions; specifies that the system should not be complicated or impose major administrative costs (to this end the options of a royalty scheme or combined royalty and profit sharing system are canvassed); provides for the payment of annual fixed fees; calls for the periodic review of the system of payments; and provides that disputes shall be resolved in accordance with UNCLOS.

As regards matters of principle it is anticipated that the environmental framework will be easier to agree in that it will clearly require environmental impact assessment and environmental monitoring mechanisms. Environmental considerations certainly appear to be at the forefront of ISA's work. There will also be procedural issues to address as well as matters relating to the financial qualifications of applicants, guarantees and performance bonds. The Code for Environmental Management developed by the International Marine Minerals Society may provide a useful starting point for discussions in this respect.<sup>46</sup>

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<sup>46</sup> International Marine Minerals Society Code for Environmental Management of Marine Mining, International Marine Minerals Society, London, 2011, at [http://www.immsoc.org/IMMS\\_code.htm](http://www.immsoc.org/IMMS_code.htm).

There is some time pressure here given that the first exploration contracts will end in 2016: the Part XI Implementation Agreement specifies that the Council must thereafter consider and provisionally approve an application for a plan of work for exploitation even if the rules, regulations and procedures for exploitation are not in place.

#### 2.4.4 *Benefit sharing*

While the adoption of exploitation regulations will be a challenging task, it is likely that a far more challenging task for ISA will be development of the legal framework for the equitable sharing of financial and other economic benefits derived from activities in the Area. For the time being, however, ISA proposes to focus on the exploitation code and to leave the issue of benefit sharing until a later stage, by which time a clearer picture of the benefits of deep-sea mining in the Area should emerge.

#### 2.4.5 *Who may undertake activities in the Area and the notion of sponsorship*

As noted above, UNCLOS provides that activities in the Area may be carried out by the Enterprise and, in association with ISA, by States Parties, or state enterprises or natural or juridical persons which possess the nationality of States Parties or are effectively controlled by them or their nationals, when sponsored by such States.<sup>47</sup> Moreover, in accordance with article 139(1) of UNCLOS a State Party must ensure that activities in the Area carried out by natural or legal persons that possess the nationality of that State or are effectively controlled by nationals of that State must be carried out in conformity with Part XI.

In addition, article 4(4) of Annex III of UNCLOS provides that such a sponsoring State or States has the responsibility to ensure, within its legal system that a contractor so sponsored shall carry out activities in the Area in conformity with the terms of its contract and its obligations under UNCLOS. The article goes on to provide, however, that a sponsoring State will not be liable for damage caused by any failure of a contractor sponsored by it to comply with its obligations if that State 'has adopted laws and regulations and taken administrative measures which are, within the framework of its legal system, reasonably appropriate for securing compliance by persons under its jurisdiction'.

The precise nature of the obligations of sponsoring States was further examined by the Seabed Disputes Chamber of ITLOS, in its advisory opinion on the 'Responsibilities and obligations of States sponsoring persons and entities with respect to activities in the Area'.<sup>48</sup> The case arose in the following circumstances. In 2008 ISA received applications for approval of a plan of work for exploration from a company registered in and sponsored by the Republic of Nauru and a company registered in and sponsored by the Kingdom of Tonga. In March 2010 Nauru submitted a request to the ISA Council that it seek an advisory opinion from the Seabed Disputes Chamber regarding the notion of sponsorship. The Council subsequently agreed to formulate three questions to the Seabed Disputes Tribunal and the proceedings were initiated in May 2010. Written statements were submitted by a number of countries (including EU Member States Germany, the Netherlands, Romania and the UK) as well as various non-government organisations. Following public hearings in September 2010, during the course of which oral submissions were made by *inter alia* counsel for Germany, the Netherlands and the UK, the advisory opinion was issued in February 2011.

The questions posed by the Council were as follows:

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<sup>47</sup> Article 153(2).

<sup>48</sup> 1 February, 2011, Case No. 17, ITLOS Reports 2011, p. 10.

1. What are the legal responsibilities and obligations of States Parties to the Convention with respect to the sponsorship of activities in the Area in accordance with the Convention, in particular Part XI, 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?
2. What is the extent of liability of a State Party for any failure to comply with the provisions of the Convention, in particular Part XI, and the 1994 Agreement, by an entity whom it has sponsored under Article 153, paragraph 2(b), of the Convention?
3. What are the necessary and appropriate measures that a sponsoring State must take in order to fulfil its responsibility under the Convention, in particular Article 139 and Annex III, and the 1994 Agreement?

In outline the findings of the Chamber were as follows.

As regards Question 1, the Chamber found that Sponsoring States have two kinds of obligations under UNCLOS and related instruments. First there is an obligation to ensure compliance by sponsored contractors with the terms of the contract and the obligations under UNCLOS. This is a duty of 'due diligence' whereby the sponsoring State must make the best possible efforts to secure compliance by the contractors. The standard of diligence may vary over time and depends on the level of risk and the activities involved. The duty of due diligence requires sponsoring States to take measures within their respective legal systems in the form of laws, regulations and administrative measures that must be 'reasonably appropriate'. The second type of obligations with which sponsoring States must comply include obligations to assist ISA, to apply a precautionary approach, to apply 'best environmental practices', to adopt measures to ensure the provision of guarantees in the event of an emergency order by ISA and the obligation to provide recourse for compensation. The sponsoring State must also ensure compliance by the contractor with its obligations to undertake an environmental impact assessment. Such obligations apply to both developed and developing States except if applicable provisions specifically provide otherwise (such as where an obligation is qualified).

As regards Question 2, the Chamber held that the liability of the sponsoring State arises only from its failure to fulfil its own obligations under the relevant legal framework and does not automatically arise from the failure of the contractor to comply with its own obligations. In other words the notion of sponsorship under the deep-sea mining regime does not envisage a system of strict or 'no-fault' liability on the part of sponsoring States or amount to a guarantee by them of the performance of the entities they sponsor. The pre-requisites for the liability of a sponsoring State are: (a) a failure of that State to carry out its responsibilities under UNCLOS; and (b) the occurrence of damage. Moreover there must be a clear causal link between the failure of the State to comply with its due diligence obligations and the damage that occurs and a State will be absolved from liability if it has taken 'all necessary and appropriate measures to secure effective compliance'. Among other points raised in connection with the issue of possible State liability it is interesting to note that the Chamber also raised the idea that a trust fund should be developed to cover damage from deep-sea mining that is not covered under UNCLOS.

Finally in terms of Question 3, the Chamber held that UNCLOS requires a sponsoring State to adopt within its legal system laws, regulations and administrative measures that have two distinct functions, namely to ensure compliance by the contractors with its obligations and to exempt the sponsoring State from liability. While the scope and extent of such legislative and administrative measures will depend on the legal system of the sponsoring State, they should be in force at all times that a contract with ISA is in force. A contractual arrangement between a sponsoring State and a contractor is not sufficient. In terms of the content of legislation, the sponsoring State must

act in good faith and measures relating to the protection of the marine environment cannot be less stringent than those adopted by ISA. Moreover national legislation may need to address such issues as the financial viability and technical capacity of sponsored contractors, conditions for issuing a certificate of sponsorship and penalties for non-compliance by contractors.

In conclusion the advisory opinion provides useful guidance as to the scope of the responsibility and liability of sponsoring States, particularly as regards the necessity of adopting legislation. What is unique about the Part XI regime and the notion of sponsorship is that it does not directly link the responsibility of the sponsoring State to the flag of the vessel used for deep-sea mining. This is a matter for the sponsoring State to determine in accordance with its own laws, regulations and administrative practices.

#### 2.4.6 *The relationship between the future regulatory regime for deep-sea mining in the Area and deep-sea mining in areas under national jurisdiction*

As noted above, in terms of deep-sea mining undertaken in areas under its national jurisdiction, a coastal State is subject to the obligations set out in UNCLOS and other international agreements as regards environmental matters. In particular article 208(1) of UNCLOS provides that coastal States must adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with *inter alia* 'sea-bed activities subject to their jurisdiction'. In other words such legislation must be adopted in connection with deep-sea mining. To this end coastal States must take such measures as may be necessary to prevent, reduce and control such pollution.<sup>49</sup> Article 208(3) of UNCLOS provides that '(s)uch laws, regulations and measures shall be no less effective than international rules, standards and recommended practices and procedures'.

But what are those international rules, standards, practices and procedures? On the one hand it may be argued that the effect of article 208(3) of UNCLOS is that once the exploitation regulations are finalised by ISA, then coastal State standards in terms of environmental protection should be no less effective than the ISA standards. But is this really the case? The standards that are adopted by ISA are, by their very nature, the standards that apply to the Area. Put another way, they are international standards but international standards that apply in the Area. They are not necessarily international standards that apply in areas under national jurisdiction. Moreover, article 208(4) of UNCLOS provides that States should harmonise their policies at the appropriate regional level, while article 208(5) says that: 'States, especially acting through competent international organizations, shall establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment' arising from *inter alia* sea bed activities in areas under national jurisdiction. Again if the ISA exploitation regime, or at least its provisions on environmental protection, must be applied automatically to areas under national jurisdiction then it makes no sense for the word organizations to be in the plural and the reference to regional standards is superfluous. In short there is scope for competing interpretations on this point.

What does seem relatively clear, though, is that while ISA itself is required to develop a robust legal regime for deep-sea mining in terms of the protection of the marine environment, the same may not be the case for deep-sea mining in areas under national jurisdiction, either because less strict rules will apply or because the necessary mechanisms for the enforcement of such rules may be lacking. In short there is a risk of different standards being applied: stricter standards in the Area applied by ISA and less strict standards in areas under the national jurisdiction of, for example, developing countries.

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<sup>49</sup> Article 208(2).

## 2.5 Convention on Biological Diversity

As noted above, UNCLOS imposes rather general obligations on States to protect the marine environment, including within waters and the seabed subject to their national jurisdiction. The Convention on Biological Diversity (CBD),<sup>50</sup> to which the EU and the Member States are Contracting Parties, strengthens these obligations. The CBD has its own Secretariat, based in Montreal, Canada, which is institutionally linked to the United Nations Environment Programme (UNEP).

The jurisdictional scope of the CBD is specified in Article 4. This states:

Subject to the rights of other States, and except as otherwise expressly provided in this Convention, the provisions of this Convention apply, in relation to each Contracting Party:

(a) in the case of components of biological diversity, in areas within the limits of its national jurisdiction; and (b) in the case of processes and activities, regardless of where their effects occur, carried out under its jurisdiction or control, within the area of its national jurisdiction or beyond the limits of national jurisdiction.

However, while article 3 of the CBD expresses the general responsibility of all States to ensure that activities within their jurisdiction or control do not cause damage to the environment of areas beyond national jurisdiction, the Contracting Parties to the CBD are urged to cooperate with other Contracting Parties directly or, where appropriate, through competent international organisations for the conservation and sustainable use of biological diversity.<sup>51</sup>

Article 8 of the CBD provides the following specific, but highly qualified, responsibilities for Contracting Parties in relation to protected areas, ecosystems and natural habitats within national jurisdiction:

- (a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;
- (b) Develop, where necessary, guidelines for the selection, establishment and management of protected areas or where special measures need to be taken to conserve biological diversity;
- (c) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation or sustainable use;
- (d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;
- (e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas.

Moreover the Contracting Parties are required to prepare and update inventories of biological resources as a basis for planning and decision-making. The CBD also obliges its parties to develop national strategies for the conservation and sustainable use of biological diversity, including the establishment of protected areas. It also requires the Contracting Parties to integrate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies. However the CBD itself foresees that its provisions should be applied with respect to the marine environment consistently with the rights and obligations of States under the law of the sea.<sup>52</sup>

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<sup>50</sup> Rio de Janeiro, 5 June 1992; 1760 UNTS 79.

<sup>51</sup> Article 5.

<sup>52</sup> Article 22(2).

Reporting requirements under the CBD are set out in article 26, which says:

Each Contracting Party shall, at intervals to be determined by the Conference of the Parties, present to the Conference of the Parties, reports on measures which it has taken for the implementation of the provisions of this Convention and their effectiveness in meeting the objectives of this Convention.

There are no sanctions for non-compliance through failing to make such reports.<sup>53</sup>

As seen the CBD's jurisdictional scope is not limited to areas under national jurisdiction. Although it is clearly understood that any measures beyond the limits of national jurisdiction must be carried out within the framework of the UNCLOS legal regime, one of the main achievements of the CBD has been to stimulate the perception of ecosystems and habitats (and "areas") in the marine environment even though in legal terms UNCLOS imposes more extensive and largely unqualified obligations on States with regard to the protection of the marine environment.<sup>54</sup>

The CBD is potentially relevant to deep-sea mining particularly as regards activities undertaken within areas under national jurisdiction. Coastal States authorizing such activities must ensure that these are in conformity with their obligations under the CBD.

At the tenth meeting of the Conference of the Parties to the CBD, which was held in October 2010 in Nagoya Japan, a revised and updated Strategic Plan for Biodiversity was adopted that included specific targets for the period 2011 to 2020 in the form of the 'Aichi Biodiversity Targets'. The Parties agreed to translate the Aichi targets into their revised and updated national biodiversity strategies and action plans. The target calls *inter alia* for 10% of coastal and marine areas, and in particular areas of particular importance for biodiversity and ecosystem services, to be conserved through 'effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes'.<sup>55</sup>

## 2.6 London Convention

Article 210 of the UNCLOS provides for the legislative powers of (coastal) States with regard to dumping at sea. Article 210 states:

1. States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment by dumping.
2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.
3. Such laws, regulations and measures shall ensure that dumping is not carried out without the permission of the competent authorities of States....

In other words UNCLOS clearly foresees that any dumping shall not be carried out without the express prior approval of the coastal State, which has the right to permit, regulate and control such dumping.<sup>56</sup> UNCLOS grants coastal States the right to enforce generally accepted international rules and standards vis-à-vis foreign vessels: pursuant to Article 216(1) laws and regulations adopted in accordance with Article 210 and applicable international rules and standards established through competent international organisations or diplomatic conferences for the prevention,

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<sup>53</sup> The reports are available on line at: <http://www.cbd.int/reports/>

<sup>54</sup> Many of the obligations imposed by the CBD are qualified by the words 'as far as possible and appropriate'.

<sup>55</sup> See: <http://www.cbd.int/sp/targets/>.

<sup>56</sup> Article 210(5).

reduction and control of pollution by dumping shall be enforced by the coastal State with regard to dumping within its EEZ or onto its continental shelf.

At the international level this issue is regulated through the legal regime of the London Convention. The original Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter<sup>57</sup> (the London Convention) imposed a system with three different categories: dumping of waste of category I was generally prohibited, waste of category II required a prior special permit, while for waste of category III a prior general permit was needed. Contracting Parties were required to designate an authority to deal with permits, keep records, and monitor the condition of the sea (Article VI).

The 1996 Protocol to the London Convention<sup>58</sup> was agreed to further the Convention and to replace it generally. The Protocol prohibits all at-sea incineration of wastes, waste storage in the seabed, and all other waste dumping, except for a "reverse list" of substances that may be dumped at sea. While at first sight the London Convention and the Protocol seem to be potentially relevant to the topic of deep-sea mining, in fact article III (c) of the London Convention expressly excludes the dumping of wastes arising from deep-sea mining from its scope.<sup>59</sup> Similar, albeit slightly broader wording is to be found in the Protocol, but with the same effect: the Protocol does not apply to waste arising from deep-sea mining either.<sup>60</sup>

Instead, in accordance with article XII of the London Convention, the Parties agreed to promote measures to protect the marine environment against pollution caused by *inter alia* 'wastes or other matter directly arising from, or related to the exploration, exploitation and associated offshore processing of sea-bed mineral resources' within 'the competent specialized agencies and other international bodies'. In other words the issue of wastes arising from deep-sea mining is to be regulated under the auspices of ISA.

## 2.7 Agreements on navigation concluded under the auspices of the International Maritime Organization

UNCLOS does not itself set out detailed rules regarding the safety of navigation but confines itself to stating where the authority to make such rules lies. It does this through the incorporation by reference of the rules made by what it refers to as the "competent international organization", namely the International Maritime Organization (IMO).<sup>61</sup> Aspects of IMO's overall mandate of potential relevance to deep-sea mining include: (i) vessel-source pollution; (ii) maritime safety; and (iii) maritime security.

Within the auspices of IMO, a wide range of binding and non-binding instruments have been adopted. Of these, the most important binding instruments include:

- The Convention on the International Regulations for Preventing Collisions at Sea, London, 20 October 1972 (COLREG 72) In force 15 July 1977, as regularly amended,<sup>62</sup>

<sup>57</sup> London, Mexico City, Moscow and Washington, 29 December 1972; 1046 UNTS 120.

<sup>58</sup> London, 7 November 1996; (1997) 36 *ILM* 1.

<sup>59</sup> Article III (c) states: 'The disposal of wastes or other matter directly arising from, or related to the exploration, exploitation and associated off-shore processing of sea-bed mineral resources will not be covered by the provisions of this Convention'.

<sup>60</sup> In article 1(4.3) which provides: 'The disposal or storage of wastes or other matter directly arising from, or related to the exploration, exploitation and associated off-shore processing of sea-bed mineral resources is not covered by the provisions of this Protocol.'

<sup>61</sup> Although not named as such, the IMO is universally regarded as the body meant by this phrase.

<sup>62</sup> 1050 *United Nations Treaty Series* 16.

- The International Convention for the Prevention of Pollution from Ships, London, 2 November 1973, as modified by the 1978 Protocol (London, 1 June 1978) (MARPOL 73/78) and the 1997 Protocol (London, 26 September 1997) and as regularly amended;<sup>63</sup>
- The International Convention for the Safety of Life at Sea, London, 1 November 1974 (SOLAS 74) as regularly amended;<sup>64</sup>
- The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, London, 1 December 1978 as amended in 1995 and 2010. In force 28 April 1984;<sup>65</sup>
- The International Convention on the Control of Harmful Anti-fouling Systems on Ships, London, 5 October 2001. In force 17 September 2008;<sup>66</sup>
- The International Convention for the Control and Management of Ships' Ballast Water and Sediments, London, 13 February 2004;<sup>67</sup>
- The International Convention on Oil Pollution Preparedness, Response and Co-operation, London, 30 November 1990. In force 13 May 1995;<sup>68</sup>
- The Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances, London, 15 March 2000 (2000 HNS Protocol). In force 14 June 2007;<sup>69</sup>
- The International Convention on Civil Liability for Oil Pollution Damage, Brussels, 29 November 1969. In force 19 June 1975;<sup>70</sup>
- The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, Brussels, 18 December 1971. In force 16 October 1978 and as amended in 1992 and 2003;<sup>71</sup>
- The International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, London, 3 May 1996. Not in force;<sup>72</sup> and
- The International Convention on Civil Liability for Bunker Oil Pollution Damage, London, 23 March 2001. In force 21 November 2008.<sup>73</sup>

All of these instruments, which are legally binding or will be legally binding when they enter into force, have a global scope of application, although they vary in what they define as a ship, in particular not all of them cover floating structures. Moreover they contain a wide range of different types of standard including (i) discharge and emission standards; (ii) construction, design, equipment and manning standards; (iii) navigation standards; (iv) contingency planning and preparedness standards; and (v) liability, compensation and insurance standards.

The legal framework for navigational issues created under the auspices of IMO is potentially relevant in terms of the safety of vessels and floating structures used for deep-sea mining. More specifically such vessels will likely be subject to the various IMO conventions although they are not subject to a specific regulatory regime of their own. Moreover the existing IMO legal framework is very much focused on merchant shipping. Vessels and structures involved in deep-sea mining will likely have quite different characteristics in terms of their construction and also manning, safety and training requirements. Although formal links have yet to be established between ISA and IMO it is not entirely inconceivable that the development of specific standards under one organisation, or jointly under both organisations, may be desirable in the future.

<sup>63</sup> 1340 *United Nations Treaty Series* 62.

<sup>64</sup> 1184 *United Nations Treaty Series* 278.

<sup>65</sup> 1361 *United Nations Treaty Series* 190. The 2010 amendments are not yet in force.

<sup>66</sup> IMO Doc. AFS/CONF/26, of 18 October 2001.

<sup>67</sup> Not in force, IMO Doc. BWM/CONF/36, of 16 February 2004.

<sup>68</sup> 30 *International Legal Materials* 733 (1990).

<sup>69</sup> IMO Doc HNS-OPRC/CONF/11/Rev.1, of 15 March 2000.

<sup>70</sup> 9 *International Legal Materials* 45.

<sup>71</sup> 11 *International Legal Materials* 284.

<sup>72</sup> 35 *International Legal Materials* 1415.

<sup>73</sup> OJ L 256/7 (2002).



In this connection it is also appropriate to consider the provisions of article 209 of UNCLOS, entitled 'Pollution from activities in the Area', which calls in paragraph (1) for the establishment of rules, regulations and procedures in accordance with Part XI to prevent, reduce and control pollution of the marine environment from such activities. Moreover article 209(2) requires States to adopt legislation to prevent, reduce and control pollution of the marine environment from activities in the Area 'undertaken by vessels, installations, structures and other devices flying their flag or of their registry or operating under their authority, as the case may be'. Such standards must be no less effective than those adopted under paragraph (1) through ISA. In other words, such rules would apply not only to sponsoring States but also to the flag States of country vessels used for deep-sea mining.

## 2.8 Regional agreements

In addition to the international agreements of global application described in the previous paragraphs, a number of agreements regarding the sea and its protection and use have been concluded at the regional level and therefore form part of the regional international law framework with potential relevance to the deep-sea mining. This is not because they seek to regulate or prevent deep-sea mining: most of them do not. Rather it is because they establish rules relating to the protection of the marine environment that may impact on deep-sea mining or the potential for deep-sea mining.

The regional agreements that appear to be most relevant to deep-sea mining are the Barcelona Convention, which applies to the Mediterranean and Black Seas, the OSPAR Convention which applies to parts of the North Atlantic Ocean and the Noumea Convention which applies to parts of the Pacific Ocean as well as the Antarctic Treaty and associated instruments.

The **Barcelona Convention**<sup>74</sup> was concluded within the framework of the Regional Seas Programme of UNEP, which is intended to foster regional co-operation for the benefit of the marine and coastal environment. The EU and its Mediterranean and Black Sea Member States are party to the Barcelona Convention. Comprising 35 articles, the Barcelona Convention is essentially a framework convention. Although it sets out a number of general obligations (in article 4) as well as specific norms relating to certain activities (such as pollution caused by dumping (article 5), pollution from ships (article 6), pollution from land based sources (article 8), and the conservation of biodiversity (article 10)), these tend to be somewhat qualified in that the contracting parties are required to take 'appropriate measures', or to undertake measures 'as far as possible'.

Most of the detail of the legal framework created under the auspices of the Barcelona Convention is contained in a series of protocols adopted at diplomatic conferences of the contracting parties in accordance with article 21. Most of the protocols, which require the contracting parties to implement their provisions through national legislation, relate to measures against pollution.

The historical focus of the **OSPAR Convention**<sup>75</sup>, and the earlier Oslo and Paris Conventions from which it emerged, has been on pollution prevention. It also requires the Contracting Parties to 'take the necessary measures to protect the maritime area against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystems and, when

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<sup>74</sup> Convention for the Protection of the Marine Environment and Coastal Regions of the Mediterranean. Originally the Convention for the Protection of the Mediterranean Sea against Pollution, Barcelona, 16 February 1976; 1102 UNTS 27.

<sup>75</sup> Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR), Paris, 22 September 1992; 2354 UNTS 67.

practicable, restore marine areas which have been adversely affected'.<sup>76</sup> In addition, the OSPAR Commission, established pursuant to the OSPAR Convention, may adopt non-binding recommendations and also binding decisions (Articles 10 (3) and 13). There are currently 16 parties to the OSPAR Convention: the coastal States bordering the North-East Atlantic except the Russian Federation, three States (Finland, Luxembourg and Switzerland) that are located upstream on watercourses reaching the OSPAR Maritime Area, and the EU.

The OSPAR Convention contains a set of basic rules and principles which are elaborated in its 5 Annexes and 3 accompanying Appendices. The four Annexes that were adopted together with the Convention deal with pollution from land-based sources (Annex I), pollution by dumping or incineration (Annex II), pollution from offshore sources (Annex III) and the assessment of the quality of the marine environment (Annex IV). Annex V on the Protection and Conservation of Ecosystems and Biological Diversity of the Maritime Area was adopted in 1998, together with Appendix 3 containing criteria for identifying human activities for the purpose of Annex V, and entered into force in 2000. The main pillars to guide the implementation of the OSPAR Convention and its Annexes are the six strategies that were reaffirmed and updated in 2003, including the Biological Diversity and Ecosystems Strategy (OSPAR Biodiversity Strategy).<sup>77</sup>

Annex V to the OSPAR Convention on the Protection and Conservation of the Ecosystems and the Biological Diversity of the Maritime Area and a related Biodiversity Strategy expands on the OSPAR Convention in terms of nature conservation provisions. In order to perform their obligations under the OSPAR Convention and the Convention on Biological Diversity, the Contracting Parties are obliged by Article 2 of Annex V:

- to take the necessary measures to protect and conserve the ecosystems and the biological diversity of the maritime area, and to restore, where practicable, marine areas which have been adversely affected; and
- to co-operate in adopting programmes and measures for those purposes for the control of the human activities identified by the application of the criteria in Appendix 3 of Annex V.

Measures according to Annex V include the designation and the establishment of marine protected areas (MPAs) or rather a system of marine areas that need to be protected by means of appropriate programmes and measures against the adverse effects of human activities. The work of OSPAR in establishing a network of MPAs in the North Atlantic in areas both under the national jurisdiction of coastal States and in areas beyond national jurisdiction is in particular of potential relevance to deep-sea mining. In particular six sites for MPAs in areas beyond national jurisdiction have been identified including the Charlie-Gibbs North High Seas Marine Protected Area which was established in 2012 on the basis of OSPAR Decision 2012/1, which entered into force on 1 January 2013.<sup>78</sup>

The **Noumea Convention**,<sup>79</sup> which was adopted in 1986, aims to ensure that resource development in the Pacific takes place in harmony with the maintenance of the unique environmental quality of the region and the evolving principles of sustained resource management. The parties to the Noumea Convention are the Cook Islands, Fiji, Federated States of Micronesia, Nauru, Papua New Guinea, Republic of the Marshall Islands, Samoa and the Solomon Islands. The Convention has two Protocols: one on dumping and the other on cooperation in combating oil

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<sup>76</sup> Article 2(1)(a).

<sup>77</sup> Strategies of the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic, Chapter I (OSPAR Agreement 2003-21; Summary Record OSPAR 2003, OSPAR 03/17/1-E, Annex 31).

<sup>78</sup> See: [http://www.ospar.org/v\\_measures/browse.asp?menu=00510416000000\\_000000\\_000000](http://www.ospar.org/v_measures/browse.asp?menu=00510416000000_000000_000000).

<sup>79</sup> The Convention for the Protection of Natural Resources and the Environment of the South Pacific Region <http://www.sprep.org/attachments/NoumeConventiontextATS.pdf>

pollution. It applies to contracting Parties' EEZs and also to areas of the high seas beyond national jurisdiction that are completely enclosed by these EEZs (the 'Convention Area').

The Noumea Convention requires contracting Parties to prevent, reduce and control pollution of the Convention Area, from any source, and to ensure sound environmental management and development of natural resources, using for this purpose the best practicable means at their disposal, and in accordance with their capabilities. Moreover the parties must prevent, reduce and control pollution in the Convention Area caused by discharges from vessels, and resulting directly or indirectly from exploration and exploitation of the seabed and its subsoil.

Again such regional agreements are more likely to be relevant to deep-sea mining undertaken in areas under national jurisdiction.

Finally mention can be made of the body of five international agreements that make up the Antarctic Treaty System. Central to this system is the Antarctic Treaty of 1959, which applies to all areas south of 60° South and therefore includes large areas of the Southern Ocean. The Antarctic Treaty was supplemented by the Protocol on Environmental Protection to the Antarctic Treaty, which was adopted in Madrid on 4 October 1991 and entered into force in 1998. The protocol designates Antarctica as a 'natural reserve, devoted to peace and science'. In particular article 7 prohibits all activities relating to Antarctic mineral resources, except for scientific research.

### 3 European Union law

As already mentioned, the European Union (EU) and all of the Member States are parties to UNCLOS. Consequently, as recognised by the European Court of Justice (ECJ), its provisions form ‘an integral part’ of the EU legal order.<sup>80</sup> It is, moreover, now clearly established that EU law applies to maritime areas over which EU Member States have jurisdiction.<sup>81</sup> In other words EU law will apply to deep-sea mining and related activities conducted in the areas under the jurisdiction of Member States.

At the outset it is important to note that, unlike marine hydrocarbon extraction, which is subject to the regulatory framework created by the Hydrocarbons Directive<sup>82</sup>, the topic of deep-sea mining is not directly addressed in EU law. This is not really surprising given that deep-sea mining does not yet take place in EU waters and its prospects in this respect are not entirely clear. The seabed in many areas within European waters is simply not suitable for deep-sea mining. The instruments of EU law that are potentially of most relevance to deep-sea mining, should it take place in areas under the jurisdiction of the Member States, are concerned with environmental protection.

The Treaty on the Functioning of the European Union<sup>83</sup> (TFEU) requires the integration of environmental protection into the definition and implementation of the Union's policies and activities.<sup>84</sup> The issue of the environment is addressed in more detail in Title XX of the TFEU. Article 191(1) provides that EU policy on the environment must contribute to the following objectives:

- preserving, protecting and improving the quality of the environment,
- protecting human health,
- prudent and rational utilisation of natural resources,
- promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change.

Article 191(2) goes on to provide that:

2. Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.

...

The precautionary principle was added by the Maastricht Treaty to article 130r of the then EEC Treaty (which then became article 174 of the revised treaty). It had not been mentioned in any of the Environmental Action Plans before 1991 and it is noticeable that principle is not actually defined in the TFEU.

This has led to much academic speculation as to the precise scope of this principle and thus the meaning of article 192(2) in this respect. For although the precautionary principle is widely known

<sup>80</sup> Case C-459/03, *Commission v. Ireland*, [2006] ECR I-4635.

<sup>81</sup> See, for example, Case 61/77 *Commission v Ireland* [1978] ECR 417, paragraphs 45 to 51.

<sup>82</sup> Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorizations for the prospecting, exploration and production of hydrocarbons (OJ L 79, 29.3.1996). See also the recently adopted Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on safety of offshore oil and gas operations and amending Directive 2004/35/EC (OJ L 178 28.6.2013, p. 66) which was adopted to improve the safety of offshore oil and gas installations following the Deepwater Horizon oil spill in the Gulf of Mexico.

<sup>83</sup> Consolidated version of the Treaty on the Functioning of the European Union (OJ C 83, 30.3.2010 p. 47).

<sup>84</sup> Article 11, TFEU.

as a principle of international environmental law, there are a number of formulations with subtle, yet distinct, differences. In 2002 the European Commission adopted a Communication on the Precautionary Principle<sup>85</sup> that sets out guidelines for its application. It follows that while the precautionary principle does not preclude deep-sea mining in European waters, any future EU policy on the topic will need to be guided by the precautionary principle as informed by the 2002 Communication.

### 3.1 The Environmental Impact Assessment Directive

The Environmental Impact Assessment Directive<sup>86</sup> requires the environmental consequences of certain public and private projects that are likely to have significant effects on environment by virtue, *inter alia*, of their nature, size or location to be assessed before authorisation. Article 2(1) provides:

Member States shall adopt all measures necessary to ensure that, before consent is given, projects likely to have significant effects on the environment by virtue *inter alia* of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects...

The types of project that are subject to the directive, and thus susceptible to the environmental impact assessment (EIA) procedure that it provides for, are defined in article 4. Article 4 in turn refers to various types of project listed in Annexes I and II of the directive.

For projects listed in Annex I of the directive, an EIA is mandatory. However as regards projects listed in Annex II of the directive, Member State authorities are required to determine through a case-by-case examination or general thresholds or criteria whether the project is to be made subject to an assessment (Article 4(1)). In all cases the criteria set out in Annex III of the directive must be taken into account.

Because the directive applies only to those types of project that are contained in the lists set out in Annexes I and II, it follows that if a project is not included in either one of those lists, the directive does not apply to it.

Among the projects listed in Annex I are 'Quarries and open-cast mining where the surface of the site exceeds 25 hectares, or peat extraction, where the surface of the site exceeds 150 hectares' and the 'Extraction of petroleum and natural gas for commercial purposes where the amount extracted exceeds 500 tonnes/day in the case of petroleum and 500 000 cubic metres/day in the case of gas'. There is no explicit reference to deep-sea mining and it is difficult to see how deep-sea mining could be brought under the heading of open cast mining.

Under the heading 'Extractive Industry' the following projects are listed in Annex II:

- (a) Quarries, open-cast mining and peat extraction (projects not included in Annex I);
- (b) Underground mining;
- (c) Extraction of minerals by marine or fluvial dredging;
- (d) Deep drillings, in particular: (i) geothermal drilling; (ii) drilling for the storage of nuclear waste material; (iii) drilling for water supplies; with the exception of drillings for investigating the stability of the soil.

Again it is difficult to see how deep-sea mining could be included under any of these categories. In this connection it is worth noting that while the European Court of Justice has held that the wording

<sup>85</sup> European Commission *Communication on the precautionary principle* COM (2000)1 of 2 February 2000.

<sup>86</sup> Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (OJ L 26, 28.1.2012, p. 1).

of the EIA Directive indicates that it has a wide scope and broad purpose<sup>87</sup> the Court has also cautioned that a purposive interpretation of the directive cannot in any event disregard the clearly expressed intention of the legislature.<sup>88</sup>

Consequently it does not appear that the directive currently imposes any requirement for EIA for deep-sea mining activities in maritime areas subject to the jurisdiction of the Member States.

### 3.2 The Strategic Environmental Assessment Directive

The Strategic Environmental Assessment Directive<sup>89</sup> (the SEA Directive) requires a formal environmental assessment of certain plans and programmes which are likely to have significant effects on the environment.

The plans and programmes that are subject to strategic environmental assessment (SEA) are defined in Article 2 (a). This provision states:

- 'plans and programmes' shall mean plans and programmes, including those co-financed by the European Community, as well as any modifications to them:
- which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and
  - which are required by legislative, regulatory or administrative provisions;

Authorities which prepare and/or adopt such a plan or programme must prepare a report on its likely significant environmental effects and alternatives, propose mitigation measures, consult environmental authorities and the public, and take the report and the results of the consultation into account during the preparation process and before the plan or programme is adopted. They must also make information available on the plan or programme as adopted and how the environmental assessment was taken into account.

According to the SEA Directive an environmental assessment has to be carried out for plans and programmes which are likely to have 'significant environmental effects'. Because unlike the EIA Directive, however, the SEA Directive is not concerned with individual projects, its scope is broader. It applies to plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, and which set the framework or future development consent of projects listed in Annexes I and II to the EIA Directive (see below). The SEA Directive also applies to plans and programmes requiring an assessment pursuant to the Habitats Directive (which is considered below).

In other words it would appear that the preparation of comprehensive plans or programmes that relate to deep-sea mining, such as specific policies or strategies on deep-sea mining or mining in general that might include deep-sea mining, as well as maritime spatial plans that address the topic of deep-sea mining will require a SEA in accordance with the requirements of the SEA Directive. Article 7 of the SEA Directive contains express provisions on transboundary consultation in cases where a proposed plan or programme is likely to have significant effects on the environment in another Member State, or where a Member State likely to be significantly affected so requests.

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<sup>87</sup> C-72/95, *Kraaijeveld and Others*, paragraphs 31, 39; C-435/97, *WWF and Others*, paragraph 40; C-2/07, *Abraham and others – Liège airport*, paragraph 32, C-275/09, *Brussels Hoofdstedelijk Gewest and Others*, paragraph 29.

<sup>88</sup> C-275/09, *Brussels Hoofdstedelijk Gewest and Others*, paragraph 29. These decisions are described in European Commission *Environmental Impacts of Projects – Rulings of the Court of Justice* EU, Brussels, 2013.

<sup>89</sup> Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (*OJ L 197, 21.7.2001, p. 30*).

### 3.3 The Marine Strategy Framework Directive

The Marine Strategy Framework Directive<sup>90</sup> (MSFD) constitutes the environmental pillar of the EU's Integrated Maritime Policy.<sup>91</sup> It requires the Member States to “take the necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest”.<sup>92</sup>

The MSFD applies to all ‘marine waters’, which are defined in article 3(1) to mean the waters, seabed and subsoil that extend from the baseline of the territorial sea to the ‘outermost reach of the area where a Member State has or exercises jurisdiction’. In other words the MSFD applies to the outermost boundary of the continental shelf (including beyond 200 nm as applicable).

The Directive does not directly restrict any maritime activities and therefore does not as such restrict or prevent deep-sea mining. Nevertheless the directive is potentially relevant to deep-sea mining in seabed areas subject to Member State jurisdiction to the extent that such activities may hinder the achievement of ‘good environmental status’ (GES).

The definition of GES is based on a list of generic qualitative descriptors contained in Annex I of the MSFD. A number of these descriptors appear to be potentially relevant to deep-sea mining in that deep-sea mining has the potential to prevent the achievement of the standards specified in the descriptors. These include:

- (1) Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.
- ...
- (4) All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.
- (5) Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.
- (6) Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.
- (7) Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.
- (8) Concentrations of contaminants are at levels not giving rise to pollution effects.
- ....
- (11) Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.

These descriptors were further elaborated in Commission Decision 210/477/EU which set out criteria and methodological standards on GES of marine waters<sup>93</sup>.

For the purpose of achieving GES, the MSFD requires the development and implementation of marine strategies in order: to protect and preserve the marine environment, prevent its deterioration, or, where practicable, restore marine ecosystems in areas where they have been adversely affected; and to prevent and reduce inputs in the marine environment with a view to phasing out pollution so as to ensure that there are no significant impacts on or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea.<sup>94</sup>

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<sup>90</sup> Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for Community action in the field of marine environmental policy OJ L 240, 10.7.2004, p. 17.

<sup>91</sup> Recital 3 of the Directive.

<sup>92</sup> Article 1(1).

<sup>93</sup> Commission Decision of 1 September 2010 on criteria and methodological standards on good environmental status of marine waters OJ L 232, 2.9.2010, p. 14.

<sup>94</sup> Article 1(2).

The procedure for the development of marine strategies is set out in Chapter II of the directive. In outline it requires the Member States to make an initial assessment of their respective marine waters,<sup>95</sup> by reference to criteria and standards set out in the above-mentioned Commission decision, which is then to be used to inform the determination of a set of characteristics for GES.<sup>96</sup> This is then notified to the European Commission. The initial assessment is also to be used to establish a comprehensive set of environmental targets<sup>97</sup> and associated indicators to be used to guide progress towards achieving GES. The first round of MSFD reporting, comprising the initial assessment, determination of GES and establishment of environmental targets is now complete. In February 2014, the European Commission published its assessment of this reporting exercise.<sup>98</sup>

The next stage of implementation requires each Member State to establish a coordinated monitoring programme for the on-going assessment of environmental status in its marine waters.<sup>99</sup> Each Member State must then develop, adopt and implement a programme of measures necessary to achieve GES.<sup>100</sup>

The MSFD clearly states that MPAs must be part of the national programmes of measures. Measures proposed for inclusion in programmes of measures include<sup>101</sup>:

- Input controls: management measures that influence the amount of a human activity that is permitted;
- Management coordination measures: tools to ensure that management is coordinated;
- Spatial and temporal distribution controls: management measures that influence where and when an activity is allowed to occur;
- Mitigation and remediation tools: management tools which guide human activities to restore damaged components of marine ecosystems.

The MSFD as such does not preclude the possibility of deep-sea mining in European waters. Rather it will guide how such activity is to be undertaken in order to enable the achievement of GES. The recently-agreed directive on Maritime Spatial Planning (see below) is also recognised as a tool by which GES can be achieved, and thus the MSFD can be implemented.

### 3.4 The Birds Directive and the Habitats Directive

The Birds Directive<sup>102</sup> and the Habitats Directive<sup>103</sup> are *inter alia* the means by which the EU meets its obligations as a party to the Convention on the Conservation of European Wildlife and Natural Habitats<sup>104</sup> (the 'Berne Convention'). The overall approach of both directives is similar. Both call for the protection of specified species as well habitats, which may include the habitats of the specified species. The latter objective is to be achieved through the creation of a network of protected areas. To this end the Birds Directive calls for the establishment of Special Protected Areas (SPAs) for birds, while Special Areas of Conservation (SACs) for habitats or species are implemented through the Habitats Directive.

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<sup>95</sup> Article 8.

<sup>96</sup> Article 9.

<sup>97</sup> Article 10.

<sup>98</sup> COM 2014/097 final. All relevant documentation is available at [http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/reports\\_en.htm](http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/reports_en.htm)

<sup>99</sup> Article 11.

<sup>100</sup> Article 13.

<sup>101</sup> See Annex VI dealing with programmes of measures referred to in Articles 13(1) and 24.

<sup>102</sup> Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds *OJ L 103, 25.4.1979, p. 1*.

<sup>103</sup> Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora *OJ L 206, 22.7.1992, p. 7*.

<sup>104</sup> Berne, 19 September 1979; 1284 UNTS 209.



It is now settled law that both directives also apply to areas under the jurisdiction of coastal Member States including the EEZ and continental shelf. The issue of geographical coverage was referred to by the Commission<sup>105</sup>:

... if a Member State exerts its sovereign rights in an exclusive economic zone of 200 nautical miles (for example, the granting of an operating licence for a drilling platform), it thereby considers itself competent to enforce national laws in that area, and consequently the Commission considers in this case that the "Habitats" Directive also applies, in that Community legislation is an integral part of national legislation.

There is also political agreement at EU level that the Directives apply to the EEZ of those EU Member States that have declared EEZs. The Council of Ministers has also encouraged the Member States 'to continue their work towards the full implementation of the Birds and Habitats Directives in their exclusive economic zones'<sup>106</sup>. As to Member States not having declared an EEZ, following a ruling of the UK High Court, the Habitats Directive was found to apply to the UK Continental Shelf, as well as to the waters above the seabed, up to a limit of 200 nautical miles from the baseline.<sup>107</sup>

Thus each Member State is required to establish a national list of sites in proportion to the representation within its territory of the natural habitat types and the habitats of species listed in the Directives.

In terms of its requirements, the Habitats Directive requires the establishment of a coherent European ecological network of SACs to be set up under the title 'Natura 2000'. The network is to include: (a) sites hosting the natural habitat types listed in its Annex I; and (b) habitats of the species listed in Annex II, so as to enable such habitat types and species habitats to be maintained at a favourable conservation status.

The Member States are required to: (a) establish the necessary conservation measures, which may include specific management plans, as well as appropriate statutory, administrative or contractual measures that correspond to the ecological requirements of the Annex natural habitat types in Annex I and the Annex II species present on the sites; and (b) to take appropriate steps to avoid the deterioration of the natural habitats within SACs as well as the disturbance of the related species there.

Moreover an appropriate assessment of the implications for any SAC of a proposed plan or project that is likely to have significant effects on that site must be undertaken in view of the site's conservation objectives. Following such an assessment, the competent national authorities may agree to the plan or project only if they are satisfied that it will not adversely affect the integrity of the site concerned.

Natura 2000 also includes SPAs established pursuant to the Birds Directive. Each Member State is required to contribute to Natura 2000 in proportion to the representation within its territory of the natural habitat types and the habitats of species. The basic procedure is for each Member State to propose a list of sites to the European Commission, which then establishes a draft list of sites of Community importance. Once the list of sites of Community importance is established the Member States have to designate such sites as SACs and to establish priorities for them.

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<sup>105</sup> COM (1999) 363 final Communication from the Commission to the Council and the European Parliament "Fisheries Management and Nature Conservation in the Marine Environment" (p10)

<sup>106</sup> 2344th Council Meeting, Fisheries, 25 April 2001, Council Conclusions on the integration of environmental concerns and sustainable development into the Common Fisheries Policy, 8077/01, Luxembourg.

<sup>107</sup> R v. The Secretary of State for Trade and Industry *ex parte* Greenpeace Limited, Case No: CO/1336/1999.

Member States must also establish the necessary conservation measures for SACs including as necessary management plans and other statutory, administrative or contractual measures. In addition Member States are under a duty to take appropriate steps to avoid the deterioration of national habitats and the habitats of species within SACs as well as the significant disturbance of such species. Moreover plans or projects that may have significant impacts on SACs, even if not directly connected with them, must be subject to an appropriate assessment. Plans or projects with a negative assessment may only be carried out for imperative reasons of overriding public interest, including those of a social or economic nature and provided all compensatory measures are taken to protect the overall coherence of Natura 2000. The potential interaction between this directive and deep-sea mining could therefore arise if deep-sea mining activities were to negatively impact on a marine SAC.

Member States are required to undertake surveillance of the conservation status of natural habitat types and species.

Most of the marine habitats are listed in the directive are clearly unlikely to be relevant to deep-sea mining. The only types of marine habitat that may be of possible relevance are:

1. 1170 “reefs”, and
2. 1180 “submarine structures made by leaking gases”

As regards species conservation Member States must take requisite measures to establish a system of strict protection for a number of animal species listed in Annex IV of the directive, which include a number of marine species.

The Habitats Directive applies to the continental shelf and to any maritime zones claimed by Member States. Basically SACs must be established if they contain various habitat types listed in Annex I or if they are the habitats of the species types listed in Annex II. All of the marine habitat types are located on the seabed and thus already covered by the continental shelf regime. However the water column may provide the habitat of relevant species listed in Annex II. Certain of the species mentioned in the Habitats Directive may potentially be affected by deep-sea mining.<sup>108</sup>

### 3.5 Waste legislation

A feature of deep-sea mining like any kind of mining activity is the production of waste. The overall legal framework for waste management in the EU is set out in the Waste Framework Directive,<sup>109</sup> which is accompanied by additional instruments concerned with different types of waste and disposal methods. The Waste Framework Directive sets out a number of basic concepts and definitions relating to waste management while also setting out basic waste management principles.

The Waste Framework Directive identifies a number of categories of waste that are excluded from its scope including mining waste covered by the 2006 Mining Waste Directive.<sup>110</sup> However this directive does not apply to waste generated as a result of deep-sea mining: article 2(2)(b) expressly provides that it does not apply to ‘waste resulting from the offshore prospecting, extraction and

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<sup>108</sup> These include the Mediterranean Monk Seal, the Bottlenose Dolphin, the Loggerhead Sea Turtle, the Green Sea Turtle, the European Sea Sturgeon, most Cetacean species, the Hawksbill Sea Turtle, the Leatherback Sea Turtle, sea urchins and various species of mussel.

<sup>109</sup> Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22/11/2008, p. 3).

<sup>110</sup> Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC (OJ L 102, 11.4.2006, p. 15).

treatment of mineral resources'.<sup>111</sup> Moreover the Waste Framework Directive expressly lists release of waste to seas/oceans as a category of waste disposal operation for which a permit is required and moreover refers to the London Convention and Protocol, mentioned above, in the recitals.

In other words the disposal of wastes from deep-sea mining would appear to be subject to the general regime created by the Waste Framework Directive. The problem with this situation is that the overall approach of the Waste Framework Directive is designed for waste in general and as such may be considered less than fully appropriate for the management of waste generated by deep-sea mining. For example the Waste Framework Directive sets out a mandatory and priority 'waste hierarchy' in article 4 as follows: prevention, preparing for re-use, recycling, other recovery and finally disposal. The problem of seeking to apply this hierarchy to the bulky inert waste generated by land based mining is one of the reasons why that category of waste is separately regulated in the Mining Waste Directive. Similar observations apply to the mining waste from deep-sea mining which has its own peculiarities and specificities. In short, while it appears that the disposal of waste from deep-sea mining falls within the overall legal regime of the Waste Framework Directive, it is difficult to conclude that this will be an entirely appropriate framework.

### 3.6 The Maritime Spatial Planning Directive

In April 2014 the EU adopted the Maritime Spatial Planning Directive.<sup>112</sup> The directive, which must be transposed by 18 September 2016, will require Member States to develop maritime spatial plans covering activities taking place in their 'marine waters' as defined in the MSFD and including the water column, seabed and subsoil.

The directive includes a number of policy objectives for maritime spatial planning (MSP), including securing the EU's energy supply, and also lists a number of maritime activities that must be taken into consideration, including maritime transport routes, fishing areas and marine protected areas. However, although it does not contain any explicit reference to deep-sea mining, this would be expected to be addressed in any assessment of activities taking place within the areas covered by a Maritime Spatial Plan. The potential interactions between deep-sea mining and other uses made of marine and coastal resources should also be addressed so that the effective planning for their sustainable development and utilisation can be successfully carried out.

### 3.7 The Environmental Information Directive

The Environmental Information Directive<sup>113</sup> seeks to make Member States' laws on access to environmental data consistent with the Aarhus Convention.<sup>114</sup> The Aarhus Convention, to which the EU and Member States are party, aims at granting the public rights and imposing obligations upon public authorities regarding access to information and public participation and access to justice regarding environmental matters.

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<sup>111</sup> Paragraphs 7 and 9 of the directive, read together, suggest that the reason why waste from deep-sea mining is excluded from the scope of the directive was 'to avoid duplication and disproportionate administrative requirements' by limiting its scope 'to those particular operations considered to be a priority for the purposes of meeting its objectives', thus its focus on land-based mining.

<sup>112</sup> Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning (OJ L 257, 28.8.2014, p. 135).

<sup>113</sup> Directive 2003/4/EC of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC, OJ L 41/26 of 14 February 2003.

<sup>114</sup> The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters which was concluded at Aarhus in Denmark on 25 June 1998 under the auspices of the United Nations Economic Commission for Europe..

The objective of the Environmental Information Directive is to guarantee the right of access to environmental information held by, or for, public authorities and to set out the basic terms and conditions of, and practical arrangements for, the exercise of this right of access. In addition, the Environmental Information Directive aims to ensure that environmental information is actively and progressively made available and disseminated to the public in the widest possible sense (in particular through the use of information and communication technologies).

The effect of the Environmental Information Directive is that Member States must ensure that their public authorities are required to make available environmental information held by or for them to any “applicant” requesting that information and without the applicant having to state an interest<sup>115</sup>. The term “applicant” means “any natural or legal person requesting environmental information”<sup>116</sup>.

“Environmental information” is broadly defined as follows<sup>117</sup>:

Any information in written, visual, aural, electronic or any other material form on:

(a) the state of the elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites including wetlands, coastal and marine areas, biological diversity and its components, including genetically modified organisms, and the interaction among these elements;

(b) factors, such as substances, energy, noise, radiation or waste, including radioactive waste, emissions, discharges and other releases into the environment, affecting or likely to affect the elements of the environment referred to in (a);

(c) measures (including administrative measures), such as policies, legislation, plans, programmes, environmental agreements, and activities affecting or likely to affect the elements and factors referred to in (a) and (b) as well as measures or activities designed to protect those elements;

(d) reports on the implementation of environmental legislation;

(e) cost-benefit and other economic analyses and assumptions used within the framework of the measures and activities referred to in (c); and

(f) the state of human health and safety, including the contamination of the food chain, where relevant, conditions of human life, cultural sites and built structures inasmuch as they are or may be affected by the state of the elements of the environment referred to in (a) or, through those elements, by any of the matters referred to in (b) and (c).

In other words, the definition of ‘environmental information’ is sufficiently broad to cover data regarding the impacts of deep-sea mining.

The Environmental Information Directive applies to environmental information held by “public authorities”. Such entities are broadly defined as<sup>118</sup>:

(a) government or other public administration, including public advisory bodies, at national, regional or local level;

(b) any natural or legal person performing public administrative functions under national law, including specific duties, activities or services in relation to the environment; and

(c) any natural or legal person having public responsibilities or functions, or providing public services, relating to the environment under the control of a body or person falling within (a) or (b).

The definition encompasses government or public administrations whether or not they have specific responsibilities for the environment. The Environmental Information Directive applies to information held by a public authority (*i.e.* information in its possession which was produced or received by that authority), as well as information held for a public authority (*i.e.* information which is physically held by a natural or legal person on behalf of a public authority).

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<sup>115</sup> Article 3 (1).

<sup>116</sup> Article 2 (5).

<sup>117</sup> Article 2 (1).

<sup>118</sup> Article 2 (2).

Environmental information should be made available to applicants as soon as possible and within a reasonable time and having regard to any timescale specified by the applicant. The Member States are required to determine the practical arrangements under which environmental information is effectively made available.

Pursuant to the Environmental Information Directive, the disclosure of information is the general rule. However, Member States may provide that a request for environmental information can be refused by public authorities in specific and clearly defined cases. This will be the case if one of the exceptions laid down by Article 4 of the Environmental Information Directive is applied. According to this Article, Member States may provide for a request to be refused if:

- (a) the information requested is not held by or for the public authority to which the request is addressed....<sup>119</sup>;
- (b) the request is manifestly unreasonable;
- (c) the request is formulated in too general a manner;
- (d) the request concerns material in the course of completion or unfinished documents or data<sup>120</sup>;
- (e) the request concerns internal communications, taking into account the public interest served by disclosure.

In addition, Member States may provide for a request for environmental information to be refused if disclosure of the information would adversely affect:

- (a) the confidentiality of the proceedings of public authorities, where such confidentiality is provided for by law;
- (b) international relations, public security or national defence;
- (c) the course of justice, the ability of any person to receive a fair trial or the ability of a public authority to conduct an enquiry of a criminal or disciplinary nature;
- (d) the confidentiality of commercial or industrial information where such confidentiality is provided for by national or Community law to protect a legitimate economic interest, including the public interest in maintaining statistical confidentiality and tax secrecy;
- (e) intellectual property rights;
- (f) the confidentiality of personal data and/or files relating to a natural person where that person has not consented to the disclosure of the information to the public, where such confidentiality is provided for by national or Community law;
- (g) the interests or protection of any person who supplied the information requested on a voluntary basis without being under, or capable of being put under, a legal obligation to do so, unless that person has consented to the release of the information concerned;
- (h) the protection of the environment to which such information relates, such as the location of rare species<sup>121</sup>.

Not only are these grounds exhaustive,<sup>122</sup> but the Environmental Information Directive also provides that they are to be 'interpreted in a restrictive way', taking into account (for each particular case) the public interest served by disclosure (i.e. balance of interest between the application of a refusal ground and the public interest of disclosure).

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<sup>119</sup> In which case, where that public authority is aware that the information is held by or for another public authority, it shall, as soon as possible, transfer the request to that other authority and inform the applicant accordingly or inform the applicant of the public authority to which it believes it is possible to apply for the information requested.

<sup>120</sup> It is further provided that where a request is refused on the basis that it concerns material in the course of completion, the public authority shall state the name of the authority preparing the material and the estimated time needed for completion.

<sup>121</sup> In certain instances, there may be legitimate reasons to restrict access to data on the location of biological resources for the sake of conservation.

<sup>122</sup> Judgment of the Court of Justice of 26 June 2003, *Commission v. France*, Case C-233/00.

Article 6 of the Environmental Information Directive also provides a right for the applicants to seek an administrative and judicial review of the acts (or the omissions) of a public authority in relation to an information request. The directive also addresses the issue of charges<sup>123</sup> which may not “exceed a reasonable amount”.<sup>124</sup> In addition to guaranteeing the public access to environmental information as described above, Member States are also required by the Environmental Information Directive to actively and systematically make available and disseminate environmental information to the public in the widest possible sense<sup>125</sup>.

### 3.8 The Environmental Liability Directive

The Environmental Liability Directive<sup>126</sup> could potentially be of relevance to deep-sea mining undertaken in European waters. The purpose of the Directive is to establish a framework for environmental liability based on the ‘polluter-pays’ principle, to prevent and remedy environmental damage.<sup>127</sup>

‘Environmental damage’ is defined so as to include: (a) ‘damage to species and natural habitats’ protected under the Birds Directive and the Habitats Directive which is ‘any damage that has significant adverse effects on reaching or maintaining the favourable conservation status of such habitats or species’; and (b) ‘water damage’ which is in turn defined so as to include any damage that significantly adversely affects the environmental status of marine waters as defined in the MSFD. Damage means ‘a measurable adverse change in a natural resource or measurable impairment of a natural resource service which may occur directly or indirectly’.<sup>128</sup>

In terms of its scope the directive applies to a number of occupational activities that are listed in Annex III, damage to protected species and natural habitats caused by any occupational activities other than those listed in Annex III as well as to any imminent threat of such damage occurring by reason of any of those activities, but only in cases where the ‘operator’ has been at fault or negligent. In other words a strict liability regime applies to the activities listed in Annex III. As Annex III does not include deep-sea mining the directive would only apply in so far as an operator is at fault.

It is further to be noted that the term ‘damage to species and habitats’ does not include previously identified adverse effects which result from an act by an operator which was expressly authorised by the relevant authorities in accordance with *inter alia* the relevant provisions in the Habitats Directive. In other words provided appropriate EIA is undertaken the potential for the directive to apply to deep-sea mining would appear relatively slight. In terms of its substantive provisions, the directive requires an operator to take preventative measures where there is an imminent threat that such damage will occur<sup>129</sup> and to take remedial action in the event that it does occur. The operator is liable to take the necessary preventive and remedial action and to bear the costs of prevention and remediation.<sup>130</sup>

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<sup>123</sup> Article 5.

<sup>124</sup> Article 5 (1) however stipulates that access to any public registers or lists referred to in the Directive shall be free of charge. The same applies to the *in situ* examination of information by applicants.

<sup>125</sup> Articles 1(b) and 7 of the Environmental Information Directive.

<sup>126</sup> Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage (OJ L, 30.4.2004, p. 56).

<sup>127</sup> Article 1.

<sup>128</sup> Article 2(1) and (2).

<sup>129</sup> Article 5.

<sup>130</sup> Article 8.

### 3.9 The Accounting Directive

Finally the Accounting Directive<sup>131</sup> is potentially relevant to the European deep-sea mining sector. Unlike all of the other instruments considered in this part, the directive also applies to deep-sea mining undertaken beyond marine areas under European jurisdiction. More specifically, Chapter 10 of the Accounting Directive imposes specific requirements for large and listed companies of all sizes that operate in the 'extractive industries' to publish an annual report on the payments they make to governments.

The term 'undertaking active in the extractive industry' is defined to mean 'an undertaking with any activity involving the exploration, prospection, discovery, development, and extraction of minerals, oil, natural gas deposits or other materials, within the economic activities listed in Section B, Divisions 05 to 08 of Annex I to Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 (1)'. This term is broad enough to include undertakings involved in deep-sea mining: the activities listed in Section B, Divisions 05 to 08 of Annex I the NACE Code include the mining of metal ores.

Article 42 of the Accounting Directive provides that such undertakings must, in accordance with the Member State legislation that transposes the directive, prepare and make public an annual report on payments made to governments of more than EUR 100,000 in a financial year. Subsequent articles contain more detail provisions on the content of such reports, publication and so forth. In other words, the directive requires European companies engaged in deep-sea mining in areas under national jurisdiction to publish an annual report on all payments made to the government of the state in question including as regards the amount of royalty and other licensing payments made. The directive does not, however, apply to payments made by subsidiary companies owned by European companies but registered in third countries.

The Member States must bring into force the laws, regulations and administrative provisions necessary in order to transpose the directive by 20 July 2015. Moreover the Member States may provide that the obligations of the directive are first to apply to financial statements for financial years beginning on 1 January 2016 or during the calendar year 2016.

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<sup>131</sup> Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC (OJ L 182, 29.6.2013, p. 19).

## 4 National legislation

Before turning to the issue of national legislation relating to deep-sea mining it is worth recapitulating the various levels of law that apply within the different spatial and jurisdictional contexts examined in this report.

In outline, international law underpins the entire legal framework for deep-sea mining.

Deep-sea mining on the continental shelf of an EU Member State is subject to the national legislation of the Member State concerned as well as EU law, both of which are informed by international law. Similar observations apply to the overseas countries and territories of EU Member States (OCTs) to the extent that EU law applies, a matter that is considered in more detail below.

In the case of countries that are not members of the EU, EU law obviously does not apply.<sup>132</sup> Deep-sea mining on the continental shelf of such a country takes place in accordance with the national legislation of that country as guided or informed by international law. Put another way, national legislation on deep-sea mining should give effect to international law. Otherwise a coastal State is broadly free to regulate, authorise or prohibit deep-sea mining in accordance with its own development and environment policies.

As regards deep-sea mining in the Area, the basic regime is set out under international law in the form of Part XI of UNCLOS and the Part XI Implementation Agreement. However, as noted above, the primary subjects of international law are States and international organisations. While the regime for the Area imposes duties on States as a matter of international law, States must set up appropriate mechanisms to control or regulate activities undertaken in the Area in respect of which they are responsible as States. As observed by ITLOS in its advisory opinion, mentioned above, this implies the adoption of national legislation by States to regulate such activities.

To return to the question posed in the terms of reference concerning the law applicable in four different spatial and jurisdictional contexts, it is important to notice that multiple levels of law apply in each case.

In the case of maritime areas under the jurisdiction of EU Member States, deep-sea mining must be undertaken in accordance with national law, which must in turn give effect to the obligations of the Member States under EU law and international law.

In the case of the maritime areas under the jurisdiction of the OCTs of the Member States, in brief, deep-sea mining must be undertaken in accordance with the laws of those OCTs, which may or may not be the same as the laws applicable in the Member States with which those OCTs are connected. The applicable law should give effect to the requirements of international law even though the OCTs do not have the legal status of States recognised by international law. The relationship between EU law and the OCTs is a little more complex and is set out in Part IV of the Treaty on the Functioning of the European Union<sup>133</sup> (TFEU). Article 198 provides that 'the Member States agree to associate with the Union the non-European countries and territories which have special relations with Denmark, France, the Netherlands and the United Kingdom'. The OCTs

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<sup>132</sup> However certain Member States of the European Free Trade Association (namely Iceland, Liechtenstein and Norway) must apply elements of EU law in the context of the European Economic Area.

<sup>133</sup> OJ C 83, 30.3.2010 p. 47.



themselves are listed in Annex II of the TFEU. The EU *acquis*, in other words EU law, does not apply to the OCTs. Instead the detailed rules and procedures are set out in the Overseas Association Decision of the Council that was adopted on 25 November 2013.<sup>134</sup> The objectives of the Overseas Association Decision include the establishment of close economic relations between the EU and the OCTs through *inter alia* improved trade arrangements, the promotion of the EU's values, standards and interests, the enhancement of the competitiveness of the OCTs and strengthening the resilience of the OCTs and reducing their vulnerability. The decision also offers a modernized trade regime to the OCTs. In the case of Greenland a slightly different arrangement applies that is also based on a specific Council Decision<sup>135</sup> and the Fisheries Partnership Agreement of 30 July 2006. The key point to note here is that EU law relevant to deep-sea mining, in particular EU environmental law, does not apply in the OCTs although EU law may shape and influence the applicable laws of those OCTs either because the law of the relevant Member State applies there or because it has influenced the applicable law.

In the case of the maritime areas of third countries, EU law obviously does not apply. Instead deep-sea mining must be undertaken in accordance with the national laws of those countries, which should in turn give effect to the requirements of international law.

Finally there is the case of deep-sea mining undertaken in the Area. Obviously such activity falls to be governed by the specific regime for deep-sea mining set out in UNCLOS, the Part XI Implementation Agreement and the Mining Code. However, and this is a key point to emphasize, such activities must also take place in accordance with the applicable national legislation of the State that sponsors the person or entity engaged in deep-sea mining even if the vessel or structure used is registered in another country. In other words in all four scenarios the applicable legal framework for deep-sea mining derives from multiple levels of law.

Detailed descriptions of applicable national legislation are contained in the Appendix to this report. The overall findings are summarised in the following paragraphs. The focus of the analysis has been on legislation that directly regulates deep-sea mining although the case studies also describe relevant environmental legislation. In other words not every single item of legislation of potential relevance to deep-sea mining is considered. For the purpose of analysis, deep-sea mining has been understood to apply at a depth of more than 200 metres, meaning that this is not an analysis of the legislation that regulates aggregates extraction (although in some cases, as will be seen, the same legislation may apply to deep-sea mining).

At the outset a number of points should be noted. First of all, it is important to note that, as deep-sea mining has yet to take place anywhere in the world, either in the Area or in areas under national jurisdiction, none of the legislation described has yet to be tested in practice, at least as far as deep-sea mining is concerned. Second, simply because legislation of potential application exists on the statute books, this does not necessarily mean that deep-sea mining is feasible in the areas under the national jurisdiction of the country concerned. Moreover in the case of jurisdictions where deep-sea mining in the sense used in this Annex is simply not possible, due to the absence in the continental shelf or EEZ of a seabed that is deeper than 200 metres, legislation on the removal of minerals from the seabed is not described.

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<sup>134</sup> Council Decision 2013/755/EU of 25 November 2013 on the association of the overseas countries and territories with the European Union ( 'Overseas Association Decision' ) (OJ L 344, 19/12/2013, p. 1).

<sup>135</sup> Council Decision of 17 July 2006 on relations between the European Community on the one hand, and Greenland and the Kingdom of Denmark on the other (OJ L 208, 29/07/2006, p. 28).

## 4.1 EU Member States

The national legislation of the following Member States is briefly described in the following paragraphs: France, Germany, Greece, Italy, the Netherlands, Portugal, Spain, and the UK.

### 4.1.1 *Legislation on deep-sea mining in areas under national jurisdiction*

In **France** the legal framework regulating deep-sea mining is based on the Mining Code, Law No. 68-1181 of 30 December 1968 relating to the exploration of the continental shelf and the exploitation of its natural resources implemented by Decree No. 71-360 of 6 May 1971 and by Decree No. 2006-798 of 6 July 2006 relating to the prospecting, research and exploration of mineral and fossil substances in the seabed of the public domain and of the continental shelf of continental France<sup>136</sup>.

A new Mining Code was adopted by Ordinance No. 2011-91 of 20 January 2011 and entered into force on 1<sup>st</sup> March 2011. It abrogated (except for a few provisions) the previous Mining Code adopted by Decree No. 56-538 of 16 August 1956. The reform of the Mining Code in 2011 was partial as it extended only to the legislative part of the Code. The next step of the reform is to review the regulatory part of the Code. It is important to note that the provisions of Law No. 68-1181 of 30 December 1968 on the exploration of the continental shelf and the exploitation of its resources have not been integrated in the new Mining Code. The new Mining Code has introduced specific provisions for the research and exploitation of mineral and fossil substances at sea on the continental shelf and in the exclusive economic zone (EEZ)<sup>137</sup>.

**Germany** has claimed an EEZ and has legislation in place that would apply to the extraction of minerals from the EEZ and continental shelf. However the waters of the Baltic Sea and North Sea are relatively shallow and the depth of the seabed does not extend below 200 metres.

As regards **Greece**, the scope of Decree No. 142 of 13 March 1969, 'On exploration and exploitation of submarine and shallow water minerals', (Government Gazette 48 A 1969) was originally adopted sufficiently broad to include deep-sea mining. According to Article 1 of the decree, only the (Greek) State has the exclusive right of exploration for and exploitation of minerals, including hydrocarbons in any form, whether solid, liquid or gaseous, as well as clay which are located:

- a) on the seabed, or the subsoil of the Greek coastal zone;
- b) on the seabed and subsoil of the submarine areas that extend beyond the Greek national territorial sea (outside the Greek coastal zone), comprising the submerged prolongation of the land mass of Greece, including elevations, that are natural components of the continental margin and islands, in a depth of 200 m beneath the sea surface, or more where the depth allows for the exploration of the continental shelf, as defined in existing international conventions.

However, Decree 142 of 1969 was amended in 1973 by Article 191 of Decree 210/1975 'On the Mining Code'. More specifically, according to Article 191 of Decree 142 of 1969, the provisions of Decree 142/1969 on exploration and exploitation of submarine and shallow water minerals remain in force for clay and clay aggregate extraction only. Consequently Greece does not have specific legislation in place regarding deep-sea mining within areas under national jurisdiction.

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<sup>136</sup> This Decree implements Law No. 76-646 of 16 July 1976 relating to the prospecting, research and exploitation of mineral resources not included in article 2 of the Mining Code and contained in the seabed of the public domain of continental France. The latter was, for the most part, abrogated by the new Mining Code.

<sup>137</sup> See articles L. 123-1 to L.123-15 (research at sea) and articles L.133-1 to L.133-13 (exploitation at sea).

As regards **Italy** deep-sea mining is subject to Law No. 613 of 21 July 1967 on the exploration for and exploitation of liquid and gaseous hydrocarbons in the territorial sea and the continental shelf.

In the **Netherlands** two acts apply to mining activities at sea. If the minerals are located at the surface or not lower than 100 metres under the surface the *Ontgrondingenwet* (Act on earth removal) applies<sup>138</sup>. If the minerals are located at a depth of more than 100 metres below the surface the *Mijnbouwwet* (Mining Act) will apply<sup>139</sup>.

The legislative situation in **Portugal** is probably the most interesting case study, not least because Portugal appears to be the EU Member State with the greatest potential for deep-sea mining in its European waters. Moreover Portugal is the only EU Member State in which specific legislation on deep-sea mining in areas under national jurisdiction has been adopted, albeit not at national level. The starting point is the Portuguese Constitution,<sup>140</sup> which establishes that the mineral deposits belong to the public domain. The Portuguese legal regime for research and exploitation of geological resources was entirely reviewed in 1990 with the entry into force of Law Decree 90/90 from 16 March of that year<sup>141</sup>, which applies to the State and privately owned geological resources (Article 1(2)). It is regulated by six other Acts, published on the same date, specific to different types of geological resources including Law Decree 88/90<sup>142</sup> which is concerned with ore deposits.

A specific legal regime applying to deep-sea mining was adopted in the autonomous region of the Azores in 2012 in the form of Regional Legislative Decree 21/2012/A of 9 May 2012<sup>143</sup> which provides for the economic regulation of the geological resources in the adjacent seabed to the archipelago of the Azores. It applies without prejudice to the legal regime of exploitation of mining resources in the Azores approved by Regional Legislative Decree 12/2007/A of 5 June<sup>144</sup> (Article 2 (2) a), DLR 21/2012/A). The rationale for this regime was that the 'ore deposits known to date concentrate on the adjacent seabed of Azores and the high economic potential of investment in the economic exploitation of the ocean floor which will pave the way for structural and strategic investments (...) on the geological resources located on the maritime territory of the Autonomous Region of the Azores, in particular those located beyond the territorial sea' (Preamble, DLR 21/2012/A).

DLR 21/2012/A contains a set of rules aligned with the scope and definitions of DL 90/90 (Article 1, 2 (1) and 3). It adapts the legal regime to the organic structure of the autonomous region establishing a correspondence between agencies, services and acts of the central government to the autonomous regional administration (Articles 4, 14, 15, 16 and 19) and the remaining provisions regulate the procedures for prospecting, exploring, exploiting, research and allocation of rights as well as occupation and expropriation of land.

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<sup>138</sup> Article 4b *Ontgrondingenwet*.

<sup>139</sup> Article 2.2 *Mijnbouwwet*.

<sup>140</sup> Constitutional Law 1/2005 of 12 August (7th Amendment) English version:

[http://app.parlamento.pt/site\\_antigo/ingles/cons\\_leg/Constitution\\_VII\\_revisao\\_definitive.pdf](http://app.parlamento.pt/site_antigo/ingles/cons_leg/Constitution_VII_revisao_definitive.pdf)

<sup>141</sup> Law Decree 90/90 of 16 March 1990 on research and exploitation of geological resources

<http://dre.pt/pdf1sdip/1990/03/06300/12961304.pdf>

<sup>142</sup> Law Decree 88/90 of 16 March 1990 on ore deposits

<http://dre.pt/pdf1sdip/1990/03/06300/12731286.pdf>

<sup>143</sup> Regional Legislative Decree 21/2012/A of 9 May 2012 on the exploitation of mineral resources in the continental crust, known as geological resources, integrated or not in the public domain, of the terrestrial and marine territory of the Azores

<http://dre.pt/pdf1sdip/2012/05/09000/0244402450.pdf>

<sup>144</sup> Regional Legislative Decree 12/2007/A of 5 June 2007 on mining resources in the Azores

<http://dre.pt/pdf1sdip/2007/06/10800/37043724.pdf>

However in a recent decision, the Constitutional Court <sup>145</sup> ruled that DLR 21/2012/A is unconstitutional with regard to the marine mineral resources existent in the Portuguese maritime zone as its provisions violate paragraph 3 of Article 8 of the Statute of the Autonomous Region of the Azores <sup>146</sup>. Article 8 of the Azores Statute defines the competences of the region over the Portuguese maritime zones and specifically attributes to the region, under its paragraph 2, the power of issuing licences for the private use of resources belonging to the public domain, namely the activity of mining. Paragraph 3 of Article 8 establishes that the remaining powers of the Portuguese State over the maritime zones under national sovereignty or jurisdiction adjacent to the Azores shall be shared with the region in accordance with national and international law except when the integrity or sovereignty of the State is at stake. The Constitutional Court held that Article 8 of the Statute attributes some powers of management over the maritime zones to the autonomous region of the Azores but that it does not determine rights over the maritime public domain. The court therefore concluded that, with the exception of issuing licences for activities to be undertaken in the maritime zones, the autonomous region has to share the exercise of the remaining competences with the Central Government. The scope of DLR 21/2012/A was therefore beyond the competence of the autonomous region of the Azores, which rendered it unconstitutional.

As regards **Spain** which may have potential for deep-sea mining in areas under national jurisdiction, Law 22/1973, of 21 July, on Mines (*Ley 22/1973, de 21 de julio, de Minas*<sup>147</sup>) provides the legal regime for the exploration, investigation and exploitation of mineral deposits and of any other geological resource irrespective of its origin and physical state (Art. 1.1) in Spain. This Law establishes that all mineral deposits of a natural origin and other existing geological resources found in the Spanish territory, including the territorial sea and the continental shelf are public domain goods whose exploration, investigation and exploitation can be done directly by the Spanish State or can be transferred following the procedures and conditions provided in this Law and other applicable provisions in force (Art. 2.1). Among those applicable provisions are *Real Decreto 2857/1978, de 25 de agosto, por el que se aprueba el Reglamento General para el régimen de la minería* (Royal Decree 2857/1978, of 25 August, approving the General Regulation for the Mining Regime<sup>148</sup>).

In the case of the **UK**, unlike the case of the other Member States deep-sea mining is potentially subject to regulation not on the basis of a general mining act, as such does not exist under UK law, but rather on the basis of the Marine and Coastal Access Act 2009, which created a new and comprehensive system of marine management for the UK 'marine area' that *inter alia* includes a marine spatial planning system, a comprehensive licensing system for marine activities and the designation of conservation zones.

Finally it is worth noting that the wording of the EIA legislation of certain Member States, namely France,<sup>149</sup> Italy<sup>150</sup> and in the case of Portugal, the regional legislation adopted by the Azores,<sup>151</sup> is sufficiently broad so as to include deep-sea mining.

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<sup>145</sup> Case law 315/2014 of 1 April 2014:

<http://www.tribunalconstitucional.pt/tc/acordaos/20140315.html>

<sup>146</sup> Law 39/80 of 5 August 1980, approving the Political and Administrative Statute of the Azores Autonomous Region, as last amended and republished by Law 2/2009 of 12 January 2009, Consolidated Version  
<http://dre.pt/pdf1sdipl/2009/01/00700/0017200220.pdf>

<sup>147</sup> This Law has been subject to various amendments, the last in 2010.

<sup>148</sup> Like the Law, the Regulation has been also subject to a series of amendments, the last also in 2010.

<sup>149</sup> On the basis of the Environment Code as updated by updated by Decree No. 2011-2019 of 29 December 2011 modifying impact assessment for works, constructions and management.

<sup>150</sup> Art. 6 of Legislative Decree 3 April 2006, n. 152.

<sup>151</sup> Regional Legislative Decree 30/2010/A of 15 November 2010, establishes the legal regime for environmental impact assessment and licensing to the autonomous region of the Azores  
<http://dre.pt/pdf1sdipl/2010/11/22100/0511805183.pdf>

#### 4.1.2 *Legislation/legal framework on deep-sea mining in the Area*

As regards legislation on deep-sea mining in the Area, of the EU Member States considered, France, Greece, Italy, the Netherlands, Portugal and Spain do not have such legislation in place, even though certain of these countries are relatively active in ISA. France has, however, formally notified ISA that appropriate legislation is under preparation.

Otherwise only Germany and the UK have specific legislation in place on deep-sea mining in the Area (although among EU Member States in general Belgium and the Czech Republic also have such legislation in place). The German legislation is the Seabed Mining Act, 1995 while as regards the UK the relevant text is the Deep Sea Mining Act 2001. In the case of both countries the current legislation either replaces earlier legislation (in the case of Germany the 1995 Act replaced and updated the earlier Interim Regulation of Deep Seabed Mining 1980) or has been updated by subsequent legislation (the Deep Sea Mining Act 2001 was substantially amended (and renamed) by the Deep Sea Mining Act). In both cases the earlier legislation was adopted in the early 1980s before the adoption of UNCLOS and the new texts reflect the current legal framework for deep-sea mining in the Area under international law.

## 4.2 OCTs

As noted above the OCTs are linked to certain specified Member States as follows:

Denmark: Greenland;

France: New Caledonia and Dependencies, French Polynesia, French Southern and Antarctic Territories, Wallis and Futuna Islands, Mayotte, Saint Pierre and Miquelon;

The Netherlands: Aruba, Bonaire, Curaçao, Saba, Sint Eustatius, Sint Maarten;

UK: Anguilla, Bermuda, British Antarctic Territory, British Indian Ocean Territory, British Virgin Islands Cayman Islands, Falkland Islands, Montserrat, Pitcairn, Saint Helena and Dependencies, South Georgia and the South Sandwich Islands, and the Turks and Caicos Islands.

For the purpose of discussion it is appropriate to describe the OCTs by reference to the relevant EU Member State. A fuller description of the relevant legislation is set out in the Appendix but in summary the situation can be understood as follows.

#### 4.2.1 *Legislation on deep-sea mining in areas under national jurisdiction*

In the case of **Greenland** the scope of Act No. 7 of December 7, 2009, on mineral resources and mineral resource activities (the 'Mineral Resources Act') of the Greenland Parliament, which was adopted and entered into force on 1 January 2010, extends to the territorial sea, continental shelf and EEZ of Greenland.<sup>152</sup>

As regards the OCTs linked to **France**, France has claimed an EEZ for these territories and made submissions to the CLCS in respect of a number of them. The legislation applicable in Metropolitan France to deep-sea mining in areas under national jurisdiction also applies to the OCTs.

<sup>152</sup> See: <http://govmin.gl/index.php/about-bmp/legal-foundation>; <http://govmin.gl/index.php/about-bmp/legal-foundation>.

With regard to the OCTs linked to the **Netherlands** the situation is somewhat complex. The mining legislation of Aruba, Sint Maarten and Curaçao originate from the *Curaçaosche Mijnwet* (Mining Act of Curaçao). However Bonaire, Sint Eustatius and Saba have become part of the Netherlands and at present it is unclear whether their existing legislation will be replaced by the legislation applicable in the Netherlands or if their existing legislation will instead become part of Dutch legislation. In this connection it can be noted that the Dutch legislation creates a specific regime for the extraction of minerals from the seabed below 100 metres in depth.

As regards the overseas territories (OTs) linked to the UK none have legislation in place that directly addresses the issue of deep-sea mining. Moreover many of the OTs have yet to claim an EEZ or to put in place legislation on the continental shelf. Instead Exclusive Fisheries Zones have been established as fisheries is the only power that many of the OTs have implemented domestically.

#### 4.2.2 *Legislation on deep-sea mining in the Area*

None of the OCTs have legislation in place on deep-sea mining in the Area. However as regards the UK a ministerial commitment was given in the course of debates in the UK Parliament on the Deep Sea Mining Bill 2014 to consult with the OTs with a view to possibly extending the (then) Bill to them.

### 4.3 **Third countries**

The national legislation relating to deep-sea mining of the following third countries is described in the Appendix: Canada, China, Fiji, Japan, Papua New Guinea and the United States of America

#### 4.3.1 *Legislation on deep-sea mining in areas under national jurisdiction*

In the case of **Canada** the 1996 *Oceans Act*, SC 1995 c 31, consolidated Canada's claims to its marine jurisdictional zones, including internal waters, the territorial sea, the contiguous zone, the EEZ and the continental shelf, all in terms consistent with UNCLOS. However Canada has not adopted specific legislation for deep-sea mining within areas under its national jurisdiction. Moreover, while jurisdiction in offshore areas lies with the Federal Government, onshore mining generally falls within the competences of the provinces. While on the basis of jurisdiction-sharing agreements Newfoundland and Labrador and Nova Scotia are involved in the management of offshore oil and gas exploration through their participation in two offshore boards, the scope of these arrangements does not extend to deep-sea mining. Nevertheless it is clear that the *Oceans Act* vests any rights and interests of Canada in the seabed and subsoil of the continental shelf/EEZ in the federal Crown.

**China**, which adopted the Law on the Exclusive Economic Zone and Continental Shelf following ratification of UNCLOS in 1996, also has no specific legislation in place to regulate deep-sea mining within areas of national jurisdiction. Instead such activities fall to be regulated on the basis of legislation governing land-based mining in accordance with the Mineral Resources Law of the People's Republic of China (amended in 1996). In 1994, the State Council passed the Administrative Regulations for the Implementation of the Mineral Resources Law. Article 4 of the Regulations provides that the exploration and exploitation of the mineral resources within the territory of the People's Republic of China and other sea areas under its jurisdiction must comply

with the Mineral Resources Law of the People's Republic of China and these Regulations. Moreover the Law of the People's Republic of China on the Administration of the Use of Sea Areas contains detailed provisions on the administration of the use of sea areas including the procedures on how to apply for use, the period of use and the approval process. Article 25 of that Law provides the various lengths of period for the use of sea areas and the maximum period for salt production and mineral exploitation is 30 years.

Articles 13 and 16 of the Mineral Resources Law provide that the competent agencies who are responsible for authorizing deep-sea mining: the department in charge of examination and approval of mineral reserves under the State Council or departments in charge of examination and approval of mineral reserves of provinces, autonomous regions and municipalities directly under the Central Government shall be responsible for the examination and approval of the prospecting reports to be used for mining construction design and shall, within the prescribed time limit, give official replies to the units that submitted the reports. Unless it is approved, a prospecting report may not be used as the basis for mining construction design.

In 2012 and 2013, the State Council published two important documents: the National Marine Economy Development during the "12th Five-Year Plan" Period and the National Marine Programmes Development during the "12th Five-Year Plan" Period, in which a goal has been set forth to improve the marine legal system including the promulgation of implementing regulations for the Law on the Administration of the Use of Sea Areas, the Marine Environment Protection Law, Mineral Resources Law, Island Protection Law, Fisheries Law, and Marine Traffic Safety Law.

In **Fiji** the Marine Spaces Act 1978 is the principal legislative instrument governing Fiji's marine spaces. Fiji has drawn archipelagic baselines around the main group of islands and the Rotuma archipelago to the North West of the main group of islands. Moreover pursuant to the Continental Shelf Act, Fiji claims sovereign rights over the natural resources, which include the mineral and other natural non-living resources of the seabed and subsoil on the continental shelf.

Mining in Fiji is governed by the Mining Act Cap. 146 enacted in 1965.<sup>153</sup> Given the interests at the time of enactment, the legislation is focused on the prospecting and mining of terrestrial minerals and aggregates. However, the amendment to the Mining Act in 2010 provides specific legislative provisions for the regulation of mining in the seabed and subsoil within Fiji's marine zones, in particular, the internal waters, archipelagic waters, territorial sea and exclusive economic zone. The amendment enables the granting of special prospecting licences over the seabed and the graticulation of the earth's surface or the delineation of a grid system to delineate blocks on the seabed. The amendment first broadens the definition of "land" to include water and land covered by water, and *inter alia* 'the seabed and deep seabed and subsoil of the area between the mean low water spring level of the sea and the outer boundary or boundaries of the exclusive economic zone within the meaning of the Marine Spaces Act'. However this extended definition of "land" only applies to special prospecting licences.<sup>154</sup> Notwithstanding these changes, however, it appears that the rudimentary framework for the regulation of prospecting and mining may not be adequate to address seabed exploration and exploitation activities. Contemporary provisions including in regulations are required to supplement this framework.

**Japan's** EEZ was established on the basis of the Act on the Exclusive Economic Zone and Continental Shelf that was enacted in conjunction with the ratification of UNCLOS by Japan. Deep-sea mining in the EEZ and on the continental shelf of Japan is regulated by the Mining Act, which

<sup>153</sup> Ordinance No. 25 of 1965 and amendments have been made by Ordinances Nos 7 and 37 of 1966, Order of 7th October, 1970, Act No. 14 of 1975, Act No. 13 of 1977, and the Mining (Amendment) Decree 2010.

<sup>154</sup> Section 17A(2), Mining Act.

applies to any type of mining (i.e., land-based mining, mining in shallower waters and deep-sea mining) and which regulates mining activities both in terrestrial areas and in marine areas under the national jurisdiction of Japan. The act was, however, primarily drafted with terrestrial mining in mind. However, some of the important points in its recent amendments relate specifically to the regulation of sea-based mining and, indeed, concerns about the effective exercise of sovereign rights in the EEZ and on the continental shelf underlie these amendments. These amendments took place in 2011.<sup>155</sup> In addition to the Mining Act, deep-sea mining activities within areas under national jurisdiction of Japan are subject to various acts relating to maritime safety and marine environmental protection, including those addressing dumping and the setting of safety zones.<sup>156</sup>

Under the Mining Act as amended in 2011, two types of permission systems exist: a new system for the mining of specified minerals in specified areas<sup>157</sup> was added to the existing system for the mining of other minerals.<sup>158</sup> "Specified minerals" are oil and combustible natural gas as well as other minerals important for the national economy and specified under Cabinet Order as minerals particularly requiring reasonable development. In the Cabinet Order, the latter category is defined as (1) minerals in the sea-bed and its sub-soil which form hydrothermal deposits, (2) those in the sea-bed and its sub-soil which form sedimentary deposits and (3) asphalt. Regarding the mining of specified minerals in specified areas, the Minister of Economy, Trade and Industry (METI) designates an area where an ore deposit of a specified mineral occurs or is likely to occur as a specified area and invites applicants through the establishment of an implementation guideline for inviting applicants for the position of a specified developer.<sup>159</sup> Although the Mining Act does not contain specific provisions concerning the protection of marine ecosystems and marine biodiversity, several provisions relate to marine environmental protection.

The Government of Japan is in the process of drafting a new act on the management of the EEZ and the continental shelf. In addition, the draft for the revised Plan for the Development of Marine Energy and Mineral Resources submitted in December 2013 by the METI suggests the need for legislative action on several issues. It notes the need to review the current legal scheme in order to address environmental impacts caused by the reintroduction of sea water involved in lifting up seabed minerals, a comprehensive review of the legal scheme concerning marine mineral resource development with a view to realizing commercial development and the need to examine legal issues entailed in the development of deep-sea mud containing rare-earth elements.

The legal framework for deep-sea mining in areas under the jurisdiction of **Papua New Guinea (PNG)** is of particular interest given that the first commercial deep-sea mining exploitation activities are expected to be undertaken there. It is in particular important to note that is envisaged that deep-sea mining will take place within PNG's territorial sea meaning that there is potential scope for negative socio-economic and environmental impacts on inshore and coastal areas.

In terms of PNG's maritime zone legislation it is proposed to replace the existing National Seas Act 1977, which is not considered to be compliant with UNCLOS, with new legislation in the form of the

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<sup>155</sup> The amendments in 2011 are aimed at addressing three kinds of concerns: acquisition of mining rights by inappropriate entities, inappropriate use (or non-use) of mining rights, and lack of control over exploration activities. The main points of the amendments are three-fold: introduction of new requirements for the application such as technical capacity, the review of the "first-to-file" system for the granting of mining rights in respect of specified minerals and the establishment of the permission system for exploratory activities. As fully explained in the following paragraphs, the amendments relate particularly to mining in the EEZ and the continental shelf.

<sup>156</sup> See, e.g., Act on Prevention of Marine Pollution and Maritime Disaster; Act on Establishment of Safety Zone Pertaining to Structures at Sea, etc.

<sup>157</sup> Ibid. Articles 38-42.

<sup>158</sup> Ibid. Article 21 et seq.

<sup>159</sup> Ibid. Article 38.



proposed Maritime Zones Bill 2014 which is currently going through the various internal government processes before it is tabled in Parliament. In terms of deep-sea mining the Mining Act 1992 regulates minerals and mining but is modelled for land based operations arising from the definition of *land* comprising:

- the surface and any ground beneath the surface of the land; and
- water; and
- the foreshore, being that area between the mean high water springs level of the sea and the mean low water springs level of the sea; and
- the offshore area being the seabed underlying the territorial sea from the mean low water springs level of the sea to such depth as admits of exploration for or mining of minerals; and
- the bed of any river, stream, estuary, lake or swamp; and
- any interest in land.

The reference to the foreshore being the seabed up to 12 nm from the mean low water springs level of the seas to such depths as admits of exploration for mining of minerals was relied on by the previous Mining Department to issue an exploration licence. Even then there was no specific category of offshore licences under the Mining Act to issue offshore exploration licences. Consequently land based licences were applied instead for exploration in the Bismarck Sea. Different mining tenements can be referred to<sup>160</sup> for an appreciation of what is currently available under the Mining Act in Papua New Guinea. The previous Mining Department was firmly of the opinion that whatever power is exercisable on land can be exercised offshore up to 12 nm and that the Mining Act had such an effect. However, the application of the Mining Act up to 12 nm offshore with no substantive provisions regulating deep-sea mining provides an obvious legal gap for areas further offshore.

Other legal issues that remain unclear include: (a) a lack of clarity over benefit sharing with local communities, the local level governments and provincial governments; (b) a lack of clarity over the relationship with customary law; (c) questions with regard to mine closure and remediation; (d) the lack of waste management legislation and major question marks as to how mining waste under deep-sea mining would be dealt with; (e) the lack of appropriate legislation on mine safety issues; (f) the rights of communities affected by deep-sea mining; (g) no clear guidance in the legislation with regard to royalty payments including as to how they are to be calculated or applied. In order to seek to provide answers to these questions draft offshore mining legislation is currently in the early stages of preparation.

Although the **USA** is not party to UNCLOS, the Outer Continental Shelf Lands Act of 1953 (OCSLA) authorizes the U.S. Secretary of the Interior to approve leases for the exploration, development and production of seabed minerals in areas under U.S. jurisdiction. The Secretary is authorized to

grant to qualified persons offering the highest cash bonuses on a basis of competitive bid leases of any mineral other than oil, gas, and sulphur in any area of the outer Continental Shelf not then under lease for such mineral upon such royalty, rental, and other terms and conditions as [he] may prescribe at the time of offering the area for lease.<sup>161</sup>

Operations involving seabed mining for hard minerals (any subsea minerals other than oil, gas, or sulphur) on the U.S. continental shelf are regulated under the OCSLA in three distinct parts: prospecting, leasing, and operations, including royalties. An initial hard mineral lease lasts at least 20 years, and a lease may remain in effect as long as mineral production continues. A typical lease for minerals includes rights to all minerals within the leased area (except oil, gas, and sulphur).<sup>162</sup> A

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<sup>160</sup> [www.mineralresourcesauthority.com](http://www.mineralresourcesauthority.com) under Licensing.

<sup>161</sup> 43 U.S.C. § 1337(k)(1).

<sup>162</sup> 30 C.F.R. § 581.8.

mineral lease, however, may not unreasonably interfere with or endanger operations under an existing oil and gas lease.<sup>163</sup> The Department of the Interior identifies areas offered for offshore mineral lease, and it determines the size of the lease tracts. The sizes of the tracts offered are designed to be large enough to include potentially minable ore bodies, meaning that lease tracts may be quite expansive.

The royalty due to the U.S. government for mining offshore minerals under a lease on the U.S. continental shelf varies, and will be specified in the government's leasing notice.<sup>164</sup> The royalty may be based on a percentage of the value or amount of the minerals produced, a sum assessed per unit of product, or different method if included in the leasing notice. In the event that the regulations do not address the specific minerals to be produced, the method of royalty calculation will be specified in the leasing notice and subsequently issued lease.<sup>165</sup> Royalties also may be waived, suspended, or reduced in cases in which such preference promotes the national interest, economic development, or the mine cannot successfully be operated under existing conditions. The provisions of the royalty management regulations regarding methods of valuation do not apply to all potential commodities produced by hard mineral mining operations on the outer continental shelf.

#### 4.3.2 *Legislation on deep-sea mining in the Area*

**Canada** does not currently have any legislation that regulates deep-sea mining in the Area. The only reference in Canadian legislation to deep-sea mining in areas beyond national jurisdiction is the Antarctic Environmental Protection Act which implements Canada's obligations under the Antarctic Treaty System.

Currently, there is no legislation in **China** governing deep-sea mining in the Area, but the Chinese Government has begun focusing on legislation in this field, and a programme of legislation has been put on the agenda of the Chinese legislature. In 2014, the draft Law on Exploring and Exploiting Resources in Deep Seabed Area, drafted by the National People's Congress (NPC) Environmental and Resources Protection Committee, has been included in the Legislative Plan of the 12<sup>th</sup> NPC Standing Committee. During the first session of the 12<sup>th</sup> NPC held in March 2013, 31 people's representatives (equivalent to Members of Parliament) proposed a motion on the legislation of ocean resources exploration and exploitation. Delegates proposed in the motion that, since the deep ocean resources in the international seabed area has strategic significance to states, but China has no relevant domestic legislation, an ocean resources exploration and exploitation law be developed, not only actively fulfilling China's treaty obligations, but also safeguarding national interests.

In 2013, the President of **Fiji** enacted the *International Seabed Mineral Management Decree* (see Annex D).<sup>166</sup> The ISMM Decree governs Fiji's engagement in seabed mineral activities in the Area and also establishes the institutional framework in support of such engagement. The objectives of the ISMM Decree are to:

- a) enable Fiji to act as a Sponsoring State for the purposes of engaging in Seabed Mineral Activities;
- b) empower Fiji to engage in Seabed Mineral Activities through either a body corporate established under this Decree or by way of sponsorship of a Sponsored Party
- c) establish a clear and stable legal operating environment for Sponsored Parties or parties engaged by the Authority to undertake Seabed Mineral Activities in the Area;

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<sup>163</sup> 30 C.F.R. § 581.8(c).

<sup>164</sup> 30 C.F.R. § 281.28.

<sup>165</sup> 30 C.F.R. § 581.29.

<sup>166</sup> Decree No. 21 of 2013, hereafter "ISMM Decree".

- d) ensure that Seabed Mineral Activities are carried out under Fiji's effective control and in a manner that is consistent with the Rules of the ISA and Fiji's responsibilities under the UN Convention on the Law of the Sea and other applicable requirements of international law; and
- e) implement measures to maximise the benefits of Seabed Mineral Activities for present and future generations.<sup>167</sup>

There are four key institutions identified: the Fiji International Seabed Authority (FISA), the Fiji International Seabed Minerals Working Group (FISMWG), the Fiji Seabed Mineral Resources Corporation (FSMRC) and the High Court of Fiji. While the FISA, FISMWG and FSMRC are new creations, the jurisdiction of Fiji's existing High Court is widened to include the judicial review of administrative decisions, determinations and actions under the ISMM Decree, and the conduct of proceedings to establish liability and to provide recourse for prompt and adequate compensation in the event of unlawful damage caused by Seabed Mineral Activities.<sup>168</sup> In light of its objectives and functions, the FISA's powers include the processing of applications for exploration and exploitation in the Area, the prevention, reduction and control of pollution and other hazards, and the formulation of rules, regulations and procedures for (i) the conduct of exploration and exploitation in the Area, and (ii) the protection and preservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment.<sup>169</sup> The decree is a detailed item of legislation.

As regards **Japan**, the Act on Interim Measures for Deep Seabed Mining provides for the regulation of mining activities by Japanese persons in the Area.<sup>170</sup> The Act was enacted in 1982 and the most recent amendments of 2011 entered into force in 2012. The Act, however, has never been substantively amended. The Act, as the title suggests, was intended to be an interim measure pending entry into force of UNCLOS for Japan. It was drafted in an expeditious manner so as not to fail the protection of prior investment as a pioneer investor; indeed, there was no substantial debate at the Diet during the legislative process. The Act is implemented by the Ordinance for Enforcement, which was enacted also in 1982 and last amended in 2013.

Japan was among the so-called "Reciprocating States". This Act was enacted in this context and based on the assumption that deep seabed mining may be conducted freely by individual states and there is no reference to UNCLOS or to the International Seabed Authority ("ISA"). Although no substantial amendment has been made to accommodate the new circumstance created by the entry into force of UNCLOS and Part XI Implementation Agreement for Japan in 1996, some impacts arising out of the recent activities of the ISA are found in the provisions of the Ordinance for Enforcement.

The Act establishes interim measures necessary for regulating business activity in deep seabed mining. It does not purport to place the deep seabed under the sovereignty or jurisdiction of Japan and nothing infringes upon the interests of other states in the exercise of the freedom of the high seas. In the Act, deep seabed mining means exploration and mining activities and their subsidiary activities in the deep seabed where mineral resources exist or have the possibility of existing, as specified in an Ordinance of the METI. Exploration does not include prospecting.

A person who desires to engage in deep seabed mining shall designate areas for exploration or mining and obtain permission from METI. Criteria for granting permission include: absence of

<sup>167</sup> Section 3(1), *ISMM Decree 2013*.

<sup>168</sup> Section 20, *ISMM Decree 2013*.

<sup>169</sup> Section 10, *ISMM Decree 2013*.

<sup>170</sup> The Act does not apply to Japanese nationals or juridical persons in partnership with foreign nationals or juridical persons permitted to develop mineral resources by Deep Seabed Mining States when they conduct deep seabed mining under the latter's permission: Act on Interim Measures for Deep Seabed Mining, Article 40. The term "Deep Seabed Mining States" is used to mean other states that regulate deep seabed mining in a manner not significantly different from this Act as designated under Article 29 of the Act.

overlapping claims recognised by the Minister or by Deep Seabed Mining States, size and duration of exploration and mining claims and the date of commencement of mining, financial basis and technological capability and other criteria relating to rational and smooth development. Reporting and inspection is provided for in Article 35. Environmental and other damage incurred in Japan in connection with deep seabed mining shall be compensated by the person engaged in deep seabed mining under the Act. In respect of ensuring safety in deep seabed mining, the provisions of the Act on Mine Safety apply *mutatis mutandis*.<sup>171</sup> To this end, the Central Mine Safety Council is given certain competence.

The Ordinance for Enforcement provides for, *inter alia*, areas designated as being subject to the Act (Article 4), methods of exploration (Article 5), details of permission application, criteria for permission (Article 11) and the definition of “partnership” in Article 40 of the Act (Article 23). Article 4 specifies three areas by virtue of coordinates (roughly corresponding to (i) the Clarion-Clipperton Fracture Zone, (ii) the South East Pacific and (iii) south east of Minamitorishima Island) exclusive of areas under national jurisdiction. Area (i) includes an area where the Deep Ocean Resource Development Co. Ltd. (“DORD”; a company sponsored by Japan) holds an exploratory contract with the ISA for manganese nodules. Area (iii) corresponds to areas subject to the exploratory contract for cobalt-rich crusts held by the Japan Oil, Gas and Metals National Corporation (“JOGMEC”). Article 11 provides a table that specifies the size of exploration and mining areas, the duration of exploration and exploitation and the date of commencement of mining referred to in Article 12(2) of the Act.

The table is divided into two parts: one for manganese nodules and the other one for cobalt-rich crusts. For the size and duration, the Ordinance generally follows the ISA Mining Code. For the commencement date, they specify 1 January 1988 or later for manganese nodules and 1 January 2014 or later for cobalt-rich crusts, respectively, to be notified by the Minister.<sup>172</sup>

The Act only applies to deep seabed mining in areas specified by the Ordinance of the METI. Theoretically, exploration and exploitation of mineral resources in the Area outside these areas may escape regulation by Japan. Nevertheless, the fact that a new area (primarily aimed for the exploration of cobalt-rich crusts) was quickly inserted to the specified areas after the approval of a plan of work by the ISA and subjected to its regulation demonstrates that it can adequately address new circumstances such as new exploration/exploitation applications by entities sponsored by Japan.

As noted earlier, there has been no substantial amendment of the Act since its enactment in 1982. Although the Basic Plan on Ocean Policy, under the Basic Act on Ocean Policy, as revised in 2013 refers to ISA exploration regulations to be taken into account, there is no indication to amend the Act or Ordinance for Enforcement with a view to harmonizing them with UNCLOS and the Part XI Implementation Agreement, including in respect of levy or other payment to the ISA. Lack of legislative action relating to deep seabed mining following the ratification of UNCLOS was briefly discussed in the Diet in 2006, though. In practice, however, discrepancy from the mining regime developed by the ISA will be limited. First, the Act provides that, if matters provided for in the Act are otherwise regulated by other treaties, the latter apply. Second, exploration and exploitation conducted or sponsored by Japan is expected to follow the approval of the plan of work by the ISA and to subsequently involve the conclusion of contracts with the ISA; then, the contracts will govern

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<sup>171</sup> Ibid., Article 39.

<sup>172</sup> Note that the certificate of registration as a pioneer investor was issued on 16 May 1988 following the decision of the General Committee of the PrepCom on 17 December 1987 to register DORD as a pioneer investor and the contract between the ISA and JOGMEC for the exploration of cobalt-rich crusts was concluded on 27 January 2014 following the approval of the plan of work by the ISA Council on 19 July 2013.

the activities in question. Nevertheless, provisions of the Act relating to violations have not been amended since 1982 and seem insufficient to deter non-compliance.

**PNG** does not have specific legislation in place on deep-sea mining in the Area.

Finally in the case of the **USA**, the Deep Seabed Hard Minerals Resources Act (DSHMRA) governs deep seabed mining in areas beyond national jurisdiction.<sup>173</sup> The law was designed to apply in the aftermath of the U.S. decision not to sign UNCLOS, and only until such time as the nation became party to a comprehensive international treaty governing the oceans. Although UNCLOS was revised by the Part XI Implementation Agreement, the USA still has not acceded to the Convention. Consequently, the DSHMRA continues to govern U.S. nationals (citizens, vessels, and others subject to U.S. jurisdiction) that engage in exploration for, and commercial recovery of, hard mineral resources on the deep seabed outside of areas of U.S. jurisdiction.

The United States has rather limited practice in the application of the National Oceanic & Atmospheric Administration regulations that give effect to the DSHMRA.<sup>174</sup> In 1984, the US issued four exploration licences under the DSHMRA, which were processed and approved by NOAA.<sup>175</sup> These exploration licences were for seabed areas in the Clarion-Clipperton zone of the North Pacific Ocean. The licences did not confer any security of title internationally, and only carry security of title as against U.S. citizens and companies. No commercial U.S. deep seabed mining is currently conducted, nor is such activity anticipated in the near future. Two of the licences have expired, although NOAA recently renewed the other two.

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<sup>173</sup> Title 30 United States Code (U.S.C.) sections §§ 1401-1473 (2012), Public Law 96-283, June 28, 1980, 94 Statute 553, as amended, (Deep Seabed Hard Mineral Resources Act), 30 U.S.C. § 1401 et. seq., and Public Law 99-507, § 1, October 21, 1986, 100 Statute 1847, and Deep Seabed Hard Mineral Resources Reauthorization Act of 1986, as amended, 30 U.S.C. § 1470.

<sup>174</sup> The Assistant Attorney General, Antitrust Division has oversight over Department of Justice reports and recommendations relating to the issuance of licences for exploration or permits for recovery of deep seabed hard minerals. 30 U.S.C. § 1413(d) and 28 C.F.R. § 0.40.

<sup>175</sup> The companies involved were Ocean Management, Inc., Ocean Mining Associates, and Ocean Minerals Company for five-year extensions of their exploration licences.

## 5 Conclusions

As described in this report, the basic legal framework for deep-sea mining, including the issue as to which actor under international law (in other words the relevant coastal State or ISA) has jurisdiction for the purpose of regulating such activities, is set out in UNCLOS as modified by the Part XI Implementation Agreement.

In the case of the legal regime for deep-sea mining in the Area, however, the Mining Code has yet to be completed. In particular regulations on exploitation have yet to be adopted and the complex issues, such as the basis on which royalties should be levied, remain to be resolved. Environmental considerations are clearly to the forefront of ISA's work in this respect.

The Advisory Opinion of the ITLOS Seabed Disputes Chamber has shed important light on the notion of 'sponsorship'. In particular the Chamber clarified that the obligation of a State to ensure compliance by a sponsored contractor is an obligation of 'due diligence'. However, States also have their own direct obligations including the obligation to assist ISA. As to the issue of liability, the Chamber held that the liability of the sponsoring State arises only from its failure to fulfil its own obligations under the relevant legal framework and does not automatically arise from the failure of the contractor to comply with its own obligations. In other words the notion of sponsorship under the deep-sea mining regime does not envisage a system of strict or 'no-fault' liability on the part of sponsoring States. Finally the Chamber held that UNCLOS requires a sponsoring State to adopt within its legal system laws, regulations and administrative measures that have two distinct functions, namely to ensure compliance by the contractors with its obligations and to exempt the sponsoring State from liability: a contractual arrangement between a sponsoring State and a contractor is not sufficient.

As regards deep-sea mining in areas under national jurisdiction the coastal State clearly has regulatory jurisdiction in terms of international law and can design and adopt its own legislation accordingly. There are no international standards for deep-sea mining as such. However provisions in UNCLOS on EIA potentially appear to apply to deep-sea mining in areas under national jurisdiction although the obligation imposed on coastal States to undertake an EIA is qualified. What is less clear is the extent to which environmental standards adopted by ISA in the future as regards exploitation of mineral resources in the Area will also be binding on coastal States. In other words there is a risk of different standards being applied: stricter standards in the Area applied by ISA and less strict standards in areas under the national jurisdiction of, for example, developing countries.

While coastal States are subject to a number of obligations in terms of international agreements of global or regional application these tend to be of a rather general nature and the extent to which they may affect deep-sea mining is not entirely clear. However in due course there may be a need for the establishment of specific standards for vessels or platforms engaged in deep-sea mining as the existing navigational standards were developed primarily for merchant vessels.

To summarise the position, the legal framework for deep-sea mining under international law is relatively developed yet at the same time not yet complete.

As regards EU law the position is as follows. The EU and all of the Member States are party to UNCLOS which forms an integral part of the EU legal order. Moreover, EU law applies to maritime areas over which the Member States have jurisdiction. However, unlike marine hydrocarbon

extraction, which is subject to an established regulatory framework that includes specific safety standards, the topic of deep-sea mining is not yet directly addressed in EU law. This is not really surprising given that deep-sea mining does not yet take place in EU waters and its prospects in this respect are not entirely clear. The instruments of EU law that are potentially of most relevance to deep-sea mining, should it take place in areas under the jurisdiction of the Member States, are concerned with environmental protection.

Again, presumably because deep-sea mining has yet to take place, it is to be noted that deep-sea mining does not appear to be subject to the EIA Directive. On the other hand, the scope of the Environmental Information Directive is such that it applies to environmental data relating to deep-sea mining, subject to the rather narrow set of exclusions set out in the directive itself. Moreover, while existing general EU waste legislation would apply to deep-sea mining, the specific directive on mining waste does not. This may be problematic in the future in that the overall approach of the general waste legislation in terms of the waste hierarchy is not entirely appropriate for waste generated by deep-sea mining. While EU environmental liability legislation is potentially applicable to deep-sea mining its effectiveness might be reduced due to the need to prove fault on the part of an operator before liability can be established. Other environmental legislation may impact on how deep-sea mining is undertaken in European waters but will not prevent it taking place. Finally European companies engaged in deep-sea mining both in European waters and elsewhere in the world are subject to the specific reporting requirements of extractive industries under the Accounting Directive.

As regards national legislation, turning first to legislation that governs deep-sea mining in the Area, what is striking is that notwithstanding the content of the Advisory Opinion of the ITLOS Seabed Chamber, many States have yet to adopt the necessary laws, including States that are active in ISA in particular or deep-sea mining in general. Out of the eight Member States considered in this Study, only two, Germany and the UK, have legislation in place. Indeed looking at the broader picture it is noticeable that of the countries that have adopted such legislation, in many cases these were States that were party to the interim agreements described in section 2.2.1. Most, but not all of these States have updated their laws following the entry into force of UNCLOS. One exception in this respect is the USA which is not party to UNCLOS but which has retained its original deep-sea mining regulatory regime.

As regards national legislation to regulate deep-sea mining in areas under national jurisdiction, in most of the countries considered in the preparation of this Study, the situation is less often that of specific deep-sea mining legislation and more often that terrestrial mining legislation applies to the continental shelf or EEZ on the basis of specific wording in the relevant maritime zone legislation. In a number of cases, terrestrial mining legislation has been modified so as to include specific reference to deep-sea mining. However, although deep-sea mining and terrestrial mining are both concerned with the extraction of mineral ores from the ground, the extent to which terrestrial mining legislation is really suitable for application to the sea is surely questionable. The practical questions raised by the case of PNG are surely instructive in this respect as well as pertinent given that it is anticipated that PNG will be the first State to actually experience deep-sea mining within its waters. Also noteworthy, given that the nearby seabed appears to offer some of the most promising possibilities for deep-sea mining in European waters, is the fact that the Administration of the Azores took the decision to develop specific legislation for deep-sea mining, even though this was subsequently ruled unconstitutional.



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