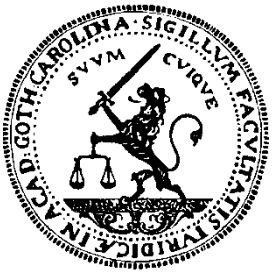

FACULTY OF LAW

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Deep-sea mining beyond national jurisdiction

Responsibility, liability and enforcement of the protection of the environment

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Contents

Abstract

Deep-seabed mining has been of interest ever since they found minerals at the bottom of the ocean at the end of the 19th century. There has been a technological and economic evolution in recent years, making it possible to commercially mine these minerals. At the same time, many worry about its negative environmental impacts. With today's technology, it is impossible to conduct deep-sea mining without affecting the marine environment. In the coming years, deep-sea mining will become commercially active, it is therefore important that the protection is effective enough to properly protect the marine environment.

The ISA is a UN organisation governed by LOSC which has the responsibility to govern activities related to the mineral resources of the Area. The mining activities can be conducted by, among others, the ISA through the Enterprise and private companies, contractors, who are sponsored by states.

The ISA receives an environmental responsibility through LOSC to ensure that these mining activities do not cause any harmful effects on the marine environment. The ISA has used this responsibility, or mandate, to adopt some regulations demanding that the operators gather Environmental Baseline Data and make an EIA in certain situations. They have also created an environmental management plan in a specific area where these activities cannot be conducted, to protect the environment.

This thesis shows that these regulations are not enough for the ISA to fulfil their environmental responsibility. However, there is not any way to hold them liable for these shortcomings, nor any direct way to force them to take full responsibility. Despite that, the ISA should still bear the biggest environmental responsibility since they are the only ones able to control all activities in The Area. To properly protect the environment moving forward, they should use their mandate to control the sponsoring states more in their work. This would make it easier to control the contracts and sanction them if they do not act in accordance with their responsibility.

Sammanfattning

Gruvdrift på havsbotten har länge varit ett intressant ämne. Första gången någon hittade mineraler på havsbotten var i slutet av 1800-talet. Under de senaste åren har det skett en teknisk och ekonomisk utveckling som har gjort det möjligt att kommersiellt utvinna dessa mineraler. Samtidigt finns det många som oroar sig för de negativa miljöeffekterna. Det är nämligen omöjligt att bedriva djuphavsbrytning med dagens teknik utan att påverka miljön på havsbotten. Under de kommande åren kommer djuphavsbrytning att bli kommersiellt aktiv, och det är därför viktigt att skyddet är tillräckligt effektivt för att skydda havsmiljön ordentligt.

ISA är ett FN-organ som styrs av LOSC och som har ansvaret för att reglera verksamheten som rör mineraltillgångar på havsbotten. Gruvdriftsverksamheten kan bland annat bedrivas av ISA genom The Enterprise och av privata företag, entreprenörer som sponsras av olika stater.

ISA har genom LOSC fått ett miljöansvar för att se till att gruvverksamheten inte orsakar några skadliga effekter på den marina miljön. ISA har använt detta ansvar, eller mandat, för att anta vissa bestämmelser som bland annat kräver att operatörerna samlar in grundläggande miljödata och gör en miljökonsekvensbedömning i vissa situationer. De har också upprättat en miljöledningsplan i ett specifikt område där dessa verksamheter inte får bedrivas alls för att kunna skydda känslig miljö.

Denna avhandling visar att dessa bestämmelser inte är tillräckliga för att ISA ska kunna uppfylla sitt miljöansvar. Det finns dock inget sätt att hålla dem ansvariga för dessa brister och inte heller något konkret sätt att tvinga dem att ta sitt fulla ansvar. Trots detta bör ISA fortfarande bära det största miljöansvaret eftersom de är de enda som kan kontrollera all verksamhet i området. För att kunna skydda miljön i enlighet med deras ansvar bör ISA i framtiden kontrollera de sponsrande staterna mer i deras arbete. Detta skulle göra det lättare att kontrollera de privata företagen och sanktionera dem om de inte agerar i enlighet med sitt ansvar.

Preface

The environment is one of the most, if not the most, important thing in the world. It gives us medicine, food, joy, and much else. However, we live in a turbulent and deciding time where we no longer can take the environment for granted. Climate change is destroying the environment we have lived with for so long. It is time we act to stop these changes and save our planet.

My own environment has constantly been filled with love and support. It hasn't mattered if it has been during my time in Lund or before, I've always had the luxury of having kind and loving people in my life. I am grateful for all the people I have had the opportunity to get to know.

To Olena, thank you for all the valuable advice and for showing so much commitment to both my work and my interests throughout this semester.

To Bella, thank you for taking the time to proof-read my thesis. You are the best English teacher I've ever had.

To my family, thank you for all the interest and joy you show for my life. Your support is exceptional.

To Elsa, thank you for all the endless and wonderful conversations I get to have with you. You always bring out the best sides of me.

To all friends and family, I want to thank each and every one of you. You have all made me into a very happy person.

Jacob Ohlsson
23rd of May, 2023.
Stockholm

Abbreviations

APEI	Areas of Particular Environmental Interest
BBNJ-Agreement	Draft agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction
CCZ	Clarion-Clipperton Zone
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMP-CCZ	Environmental Management Plan for the Clarion Clipperton Zone
Exploration regulations	Regulations on Prospecting and Exploration for Cobalt-rich Ferromanganese, Polymetallic Nodules and Polymetallic Sulphides.
FC	Financial Committee
ICJ	International Court of Justice
ISA	International Seabed Authority
ITLOS	International Tribunal for the Law of the Sea
LOSC	Law of the sea convention
LTC	Technical and Legal Commission
Part XI	Part XI of the United Nations Convention on the Law of the Sea
Part XII	Part XII of the United Nations Convention on the Law of the Sea
SDC	Seabed Disputes Chamber
The 1994 Agreement	Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea
UN	United Nations
UNCLOS	United Nations Law of the Sea Conference

1 Introduction

1.1 Background

The deep sea is a mysterious place where little so far is understood.[1] The ocean has been vital for the human race and the entire planet in many different ways. It serves as a source of food, jobs and relaxation for millions of people. It has also proved to be the world's biggest carbon sink, absorbing 90 per cent[2] of all the heat generated by climate change[3]. This has led to an increase in the sea temperature and for the sea levels to rise.[4] This is affecting the entire ecosystem of the sea, which eventually could cause species to go extinct.[5] To lower climate changes impact, many states try to radically decrease their greenhouse gas emissions.[6] States and companies are now looking for a solution to save our sea and our planet. And that solution might very well exist in the ocean too.

To lower the states' impact on the climate, the energy production and transportation modes need to be fossil free. For that to happen, there is, amongst other things, a need to build electric cars and wind turbines. To build these cars and turbines, it is crucial to have rare earth elements and minerals like aluminium, cobalt, copper, and manganese.[7] These minerals and rare earth elements can all be found in the deep-seabed.[8] According to estimations there are more than 500 billion tonnes worth of nodules containing these metals lying on the seabed floor.[9] In comparison, a newly found deposit containing

[1] Howell, *et al* (2021), p. 266.
[2] United Nations Framework Convention on Climate Change (2021), Para. 2.
[3] The National Aeronautics and Space Administration, *Ocean Warming*.
[4] UN, *How is Climate Change Impacting the World's Ocean*.
[5] Ibid.
[6] See for example the European Union's initiative to have net-zero greenhouse gas emissions by 2050, https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2050-long-term-strategy_en (accessed February 9th, 2023).
[7] Luossavaara-Kiirunavaara Aktiebolag, *Europe's largest deposit of rare earth metals located in the Kiruna area*.
[8] Rothwell and Stephens (2010) p. 123 – 124.
[9] ISA, *Polymetallic Nodules information*, p. 3.

rare earth elements and minerals which is expected to be Europe's biggest, holds only around 500 million tonnes.[10]

Deep-seabed mining has been an interesting subject for a long time. The first time someone found the minerals at the bottom of the ocean was at the end of the 19th century.[11] Entrepreneurs, mining companies and states have all been interested in trying to obtain the richness that has been hidden away in the deep since then. Nonetheless, it was first in 1967 that deep-sea mining in international waters was beginning to be discussed more seriously.[12]

In recent years, the discussion about deep-sea mining has been increasingly more about its eventual environmental impacts. This is because it is currently impossible to mine the seabed without affecting the natural environment below. There have been many scientific reports that show the potential impact deep-sea mining can have.[13] Some reports have analysed the effects simulated deep-sea mining has had on the flora and fauna of the deep-seabed.[14] One of the reports concluded that the impacts are severe short-term after the mining simulation, with both diversity and population being widely affected negatively.[15] Long term, the areas subjected to the simulation were able to partly naturally restore themselves, but the negative effects were still clear and significant, with both density and population being affected.[16] Further, neither report can determine when the areas will be fully recovered.[17] In other words, the full effects of deep-sea mining are unknown. The reports also state that the simulations analysed are small and the effects of commercial deep-sea mining will therefore probably have a much bigger impact.[18]

[10] Luossavaara-Kiirunavaara Aktiebolag, *Europe's largest deposit of rare earth metals located in the Kiruna area*.
[11] Polymetallic nodules information, p. 1.
[12] Post (1983) p. 70.
[13] For example Simon-Lledó *et al*. (2019) and Jones, *et al* (2017).
[14] See Simon-Lledó *et al*. (2019) and Jones, *et al* (2017).
[15] Jones, *et al* (2017), p. 15–17.
[16] Simon-Lledó *et al.* (2019) p. 9 and Jones, *et al* (2017), p. 18 .
[17] Simon-Lledó *et al.* (2019) p. 6 – 8 and Jones, *et al* (2017), p. 18.
[18] Simon-Lledó *et al*. (2019) p. 9 and Jones, *et al* (2017). p. 19

Mining of the deep-seabed will generate sediment plumes affecting areas larger than the specific mining site.[19] These plumes also have negative impacts on the marine environment.[20] However, the effects are dependent on how thick the plumes will be and where they are distributed.[21] How the plumes will vary and what the effects will be is difficult to predict, and therefore so is the extent and severity of each mining activity.[22] Another impact that the mining technique might have is noise pollution.[23] This could affect the whales' communication systems and navigation.[24] These reports shows yet again that the effects of deep-sea mining are unknown, and it is estimated that the scientific gap that exists concerning the marine environment and deep-sea mining might take several decades to fill.[25]

Based on the risk that deep-sea mining encompasses, many environmental organisations have therefore lobbied to ban deep-sea mining.[26] These organisations argue that there is not enough knowledge of how the seabed will be affected by the exploitation of the minerals, and if anything, that the operation will risk the extinction of thousands of species.[27] Further, they argue that the ocean is vital for carbon dioxide storage, the oxygen we breathe and other things, and even though we do not know the consequences, deep-sea mining risk affecting all those things negatively.[28]

Many states are increasingly in favour of a moratorium or ban on deep-sea mining. For example, the French parliament voted in favour of banning deep-sea mining within its national jurisdiction in January 2023.[29] Emanuel Macron also called for a ban on deep-sea mining at the 27th United Nations

[19] Midas, *Managing Impacts of Deep-sea Resource Exploitation Research Highlights*, p. 24.
[20] Ibid.
[21] Ibid.
[22] Ibid, p. 25.
[23] Thompson, K.F, *et al* (2023), p. 3 - 4
[24] Ibid, p. 4.
[25] Amon, *et al* (2022), p. 15.
[26] See among others, Greenpeace https://www.greenpeace.org/international/act/stop-deep-sea-mining/, Blue Planet Society https://www.blueplanetsociety.org/campaigning-for-the-ocean/, and The Pacific Blue Line https://www.pacificblueline.org/ (accessed February 10th 2023).
[27] The Pacific Blue Line, *Deep-sea mining issue brief*, p. 2.
[28] Ibid.
[29] Euronews, *France votes to ban deep-sea mining in its waters: why is this practice so controversial*.

Climate Change Conference (COP27).[30] Germany, Spain, New Zealand and many Pacific states has also argued for a ban or moratorium.[31] As well as the environmental organisations, they argue that the extension of the risks of deep-sea mining is unknown and that no exploitation of deep-sea minerals should be allowed until more is known.[32]

As mentioned above, one of the key arguments to why deep-sea mining should be conducted despite the environmental effects is the rare metals that exist in the seabed.[33] It is said that the seabed is also needed to be exploited to fulfil the future need of these batteries.[34] However, many environmental organisations challenge these arguments, saying that the minerals could be gained through recycling, investing in battery efficiency and new chemistries.[35] Some leading global companies have announced that they support a moratorium of deep-sea mining, that they will not use any metals that originate from the seabed and that they will not finance any deep-seabed mining activity.[36]

The uncertainty of the environmental impacts and the increasing political debate on whether deep-sea mining should be allowed or not means that an analysis of the existing, and future, legislation concerning the protection of the environment is necessary. Therefore this thesis is important and arrives in a timely fashion.

1.2 Purpose and Research Questions

The main purpose of this thesis is to examine the environmental responsibilities under the legislation that governs deep-sea mining beyond national jurisdiction. This will be achieved through an analysis of how the precautionary

[30] The Wall Street Journal, *Regulations Set to Be Issued This Year Will Determine Course of Deep-Sea Mining*.
[31] Ibid.
[32] For example, See United Nations, SPLOS/32/14, p. 2 and Greenpeace, *Key countries oppose deep-sea mining as regulations advance to open the industry*.
[33] Rothwell and Stephens (2010), p. 123 – 124.
[34]International Energy Agency, *The Role of Critical Minerals in Clean Energy Transition*.
[35] See Greenpeace *Key countries oppose deep-sea mining as regulations advance to open the industry* and Pacific Blue Line, *Statement*.
[36] No deep-seabed mining, *Call for a Moratorium*.

principle is embedded in the regime and what it, among other environmental obligations, will impose for obligations on the ISA, the Sponsoring states and the contractors. A discussion will be made regarding if the environmental responsibilities are fulfilled or not, and which party should bear the biggest environmental responsibility going forward.

The purpose can be concretized in three questions:

1. What are the environmental obligations imbedded in the regime that governs deep-seabed mining and how does the ISA try to fulfil it?

2. Are the environmental regulations enough to fulfil the precautionary principle when it comes into effect?

3. Who can most effectively enforce and fulfil the environmental obligations and therefore should bear the biggest environmental responsibility moving forward? The ISA or the sponsoring states?

1.3 Methodology and material

The method of choice for this thesis has been the legal dogmatic one. Both the name of the legal dogmatic method and what it entails have been widely discussed in the literature.[37] The method could be described in many different ways, depending on its purpose, function, material, and many other different factors.[38] However, in a summarized way, the method could be described as to establish normative law by analysing and interpreting authoritative legal sources.[39] The legal sources that will be used in this thesis include written acts, court decisions and advisory opinions as well as customary law.

As noted above, there has been much discussion on what uses the legal dogmatic method is limited to. Mathias Hjertstedt argues that the method could be used in three different ways. The first one, mapping legal dogmatic, which has been briefly mentioned above and the one on which most scholars agree, is to use the method to establish and analyse applicable law. The second way, called critical legal dogmatic to use the method is to criticize current law. The

[37] See for example, Sandgren (2005), p. 655 - 656, Westberg (1992) p. 421 - 446, Heuman (1992), p. 421 – 422, and Hjertstedt (2019) p. 165-173.
[38] See Sandgren (2005), p. 649 – 650.
[39] Hjertstedt (2019) p. 167.

method is then used to analyse what advantages and shortcomings exist within the applicable law. Lastly, constructive legal dogmatic can be used to add some constructive suggestions on how the applicable law can solve its shortcomings.[40]

The view of Hjertstedt is shared by some, and criticised by others. Alexander Peczenik shares the view of Hjertstedt and goes so far as to say that expressing values of applicable law is a cornerstone of the legal dogmatic method.[41] One of those who oppose Hjertstedt and Peczik's view is Claes Sandgren. He argues that the legal dogmatic method no longer should be called dogmatic, and instead that the term "analytical legal science" or "legal analytical research" should be used.[42]

However, the thesis will not try to choose which side of the legal dogmatic is correct. Instead, it can be stated that both the legal dogmatic and the one called critical legal dogmatic, or legal analytical research, method will be used. By using these methods, the paper will first establish the current regulations regarding deep-seabed mining. After applicable law has been established, the method legal dogmatic method can be used to analyse the provisions and their purposes. To do so, I will look at other legal regulations and literature to establish what the precautionary principle is, and why it is used. However, it will not be possible to satisfyingly analyse these provisions without being critical. Consequently, the second method will be used here together with the legal dogmatic one. To satisfyingly answer the third research question, both of these methods would have to be used here as well.

I got a recommendation to write my graduation thesis on this subject from a former colleague. He gave me an introduction to the subject together with another colleague, which was necessary to understand the context and problems. The basis on my legal reasoning has been international law, legislation, legal documents and guidelines from the ISA, case law and academic literature. To understand the marine environment and the potential impacts deep-

[40] Ibid.
[41] Peczenik (2005), p. 250.
[42] Sandgren (2005), p. 649 – 650.

sea mining might have, it has been necessary to examine academic literature with a more marine biological and technical focus.

The ISA has published little factual information about the research and deep-sea-related work of the contractors. This limits the knowledge of how the ISA's rules, regulations and procedures affect deep-sea mining activities in practice. It is therefore more difficult to make an overall evaluation of their work. Another limiting factor in the work is the lack of academic literature on deep-sea mining and environmental impacts. As the ISA is currently working continuously on the development of new rules and processes, this means that academic work quickly becomes outdated. At the same time, deep-sea mining has not yet reached the commercial stage, which affects the public's interest in it, and thus also the interest in researching the subject. There are therefore relatively many shorter texts, but only a few longer works that may be relevant to the thesis. Consequences of this could be that the authors of the shorter texts being less familiar with the area, and therefore not being able to draw as in-depth conclusions as an author conducting a longer work. On the other hand, the use of multiple texts is an advantage in that it is easier to judge which conclusions are correct and it increases the reliability of the information that is reproduced several times.

1.4 Delimitations

The Biodiversity Beyond National Jurisdiction Agreement came in the middle of the process while writing this thesis. Consequently, the possibility to include it in this paper has been limited. The agreement will be addressed and discussed in the thesis, but not as much as would have been possible if the agreement was concluded earlier. The Agreement is still only in an unedited version, meaning that the numbering of the Agreement might not align in its final version. This limitation is also applicable to the draft exploitation regulations. The regulations are used in the thesis as a tool to examine how the future legislation of deep-sea mining can be, but no conclusions are drawn from them.

This thesis does not cover any other international legislation than those adopted through the UN nor does it cover any national legislation on deep-sea mining or their control of contractors. This is due to a limited understanding of the countries' judicial structure and what the impacts of said legislation would be for the contractors.

1.5 Outline

This thesis is divided into five different Chapters: the first Chapter contains a background on the issue of deep-sea mining as well as explains the purpose and limits of the thesis.

The second Chapter contains the background on the regulation of deep-sea mining. The Chapter examines the relevant legislation in international law to set the parameters for deep-sea mining and the ISA. It also covers the protection that the marine environment is supposed to receive from the harm that mining activities might cause.

The third Chapter focuses on ISA, how it is organized and its legislation. The Chapter begins by exploring the different bodies of the ISA and their purposes. After that, the Chapter examines the regulations that the ISA has adopted regarding to how deep-sea mining should be conducted. Finally, the Chapter dissects the provisions governing environmental protection and analyses if they are enough to give the marine environment the protection that it should have.

The fourth Chapter examines the responsibility and liability of ISA, sponsoring states and contracts, and how this can be enforced. An analysis is made in the end of the Chapter to decide which party is best to ensure that the marine environment is properly protected when moving forward with deep-sea mining.

In the final Chapter, the findings of the thesis will be summarised and conclusions drawn from them. It is also discussed how the findings can be used moving forward.

2 International legal framework related to deep-sea mining

2.1 Historical background of UNCLOS

The United Nations Conference on the Law of the Sea (UNCLOS) was the meetings for which the United Nations Convention on Law of the Sea (LOSC) was created. To create LOSC, there were three different conventions, namely UNCLOS I, II and III. UNCLOS III had a big focus on the deep-seabed and its exploitation, and is also the one in focus for this thesis. It took place between 1973 and 1982[43], but the negotiations for it started many years before that[44].

The first nodules on the deep-seabed were found at the end of the 1860s.[45] Thanks to the advances in technology and economic growth, serious discussions on the exploitation of the deep-seabed started to occur in the 1960s.[46] Certain countries were afraid that the most developed countries would use their technological advantage to lay claim on big areas of the deep-seabed. There was therefore a big discussion on whether the deep-seabed and its resources were *res communis*, and therefore open to all and not able to be appropriated by any certain state, company or person, or *res nullius* which would allow the areas to be seized through use.[47] On that premise Maltese Ambassador Arvid Pardo held a speech in 1967 before the United Nations (UN) General Assembly where he proposed that the deep-seabed and its resources would be declared as the "common heritage of mankind".[48] The idea was that the seabed should only be used for peaceful purposes and the benefits

[43] IMO, LEG/MISC.8.
[44] Jaeckel (2017), p. 74 – 78.
[45] ISA, *Polymetallic nodules information*, p. 1.
[46] Ibid.
[47] Ibid.
[48] UNGA, A/C.1./PV.1516, Para. 13.

reaped from it to be shared with all of mankind.[49] For this to happen, Pardo wanted to establish an organisation, later called the International Seabed Authority (ISA, or the Authority), able to regulate commercial exploitation and govern the interests of mankind regarding the deep-seabed beyond national jurisdiction.[50]

Several developing countries that agreed with Pardo's proposal.[51] This was particularly because many developing countries wanted to introduce a new economic order to improve the international trading system which would favour developing countries more than the current one did.[52] Pardo's suggestion received enough support and the General Assembly adopted a Resolution in 1970, declaring that the deep-seabed beyond national jurisdiction and its resources was the common heritage of mankind would only be used for peaceful purposes and ruling out all claims of national sovereignty made from states.[53] The Resolution also imposed on the establishment of an international regime over the deep-seabed and its resources.[54] Through another Resolution the same year, the General Assembly decided that a third version of UNCLOS was to be held.[55] Even if the Resolution was widely supported, everyone did not have a shared understanding of what the intention of the Resolution was. Many of the developed states only viewed it as a declaration of intention, and not as anything binding.

It was against this backdrop that UNCLOS III officially started in 1973 and eventually resulted in LOSC.[56] But the differences of opinion from before continued into the third convention, with the developing and developed states standing on different sides of the matter.[57] The developing states argued that the ISA would conduct deep-seabed mining, control contractors and distribute their profits to fulfil the obligations under the common heritage of

[49] Ibid.
[50] Ibid, Para. 8–10.
[51] Jaeckel (2017), p. 75.
[52] Ibid, p. 75 - 76.
[53] UNGA, *A/Res/2749 (XXV)*, Para. 1, 2 and 5.
[54] Ibid, Para. 9.
[55] UN, *UNCLOS III*.
[56] UN, *UNCLOS III*.
[57] Jaeckel (2017), p. 78.

mankind principle.[58] The developed states, on the other hand, argued for a version of ISA that did not have any power more than was needed to administer different claims to mining sites of the deep-seabed.[59]

In the end, the different parties agreed and LOSC was adopted on the 30th of April 1982.[60] The convention is seen as a big achievement for the developing states since LOSC includes the common heritage of mankind principle and a strong international institution that governs the deep-seabed.[61] The regulation regarding the deep-seabed or 'The Area' as it became to be called in LOSC, was incorporated in part XI and annexes III and IV of LOSC. The legislation resulted in that the resources was *res communis* and that developed states, who had the technological and economic advantage, therefore could not claim sovereignty to any area of the deep-seabed. Instead, their plans to exploit it for minerals had to be accepted by the ISA who was responsible for its administration.

After LOSC was adopted, there was hesitancy from states to ratify it. This hesitancy was mainly due to the power that the ISA was supposed to have to conduct its mining operations. The states were also questioning how the ISA was to be financed and how far-reaching the common heritage of mankind principle would be. That resulted in the amount of countries who ratified LOSC after UNCLOS III were few and it was a slow process until the sixtieth country ratified the legislation making it enter into force. Of the states that had ratified it, few were developed ones. This was not an attractive outcome since it would not make the legislation as effective and the associated costs would be higher if it was only spread out over sixty countries. This led to many states wanting to continue negotiating, eventually resulting in The 1994 Agreement.[62]

[58] Ibid.
[59] Ibid.
[60] UN, *UNCLOS III*.
[61] Jaeckel (2017), p. 81.
[62] Rothwell and Stephens (2010), p. 133 – 134.

The 1994 Agreement changed vital parts on how the ISA would work.[63] The 1994 Agreement and LOSC should be seen as one instrument, but if they do intervene with each other The 1994 Agreement should apply.[64] An objective with The 1994 Agreement was to make sure that the United States of America was in favour of the agreement.[65] Unfortunately, a change in the composition of Congress meant that the United States never ratified LOSC or The 1994 Agreement.[66] Today, one hundred and sixty-eight countries have ratified LOSC, and one hundred and fifty-one countries have ratified The 1994 Agreement.[67]

2.2 Specific provisions related to deep-sea mining

LOSC is the legislation that governs the Law of the Sea. Rules relevant to deep-sea mining occur in four different parts of LOSC. Part XI in the regime regulates the ISA as well as general provisions. Annex III establishes the basic provisions for prospecting, exploration and exploitation of the Area and Annex IV constitutes the regime on which the ISA is based upon. The 1994 Agreement further regulates on how part XI of LOSC is supposed to be implemented.

2.2.1 Part XI of LOSC

Part XI contains general provisions as well as establishes the responsibility of the ISA and how they should ensure that the principle of the common heritage of mankind is applied regarding the Area. The first version of LOSC, before The 1994 Agreement, gave the ISA far-reaching authority to enforce the common heritage of mankind principle. The extensive authority given to the ISA is what caused a lot of controversy and lead to the need for The 1994 Agreement. Article 136 establishes that the Area and its resources are the common

[63] Jaeckel (2017), p. 4.
[64] The 1994 Agreement, Art. 2.1.
[65] Ibid, p. 134.
[66] Ibid.
[67] See UN, *Chronological list of ratifications of, accessions and successions to the convention and the related texts*.

heritage of mankind. However, it contains no further explanation of what the common heritage of mankind is, or how it should be implemented.

Articles 137 and 138 declare that no state can claim sovereignty over any part of the Area or its resources and that the general conduct of the states should be in accordance with the provisions of LOSC and other international legislations. Article 137 also declares that the resources from the Area should be vested in mankind as a whole and that ISA is responsible for implementing it.

Article 139 establishes the responsibility of states to ensure compliance and liability for damages if they fail to do so. This means that all state parties shall be responsible for assure that all activities in the Area, which are conducted by state parties or any party which the state has effective control over, should be carried out in accordance with the legislation. According to the same article, states who fail to ensure that the parties follow the provisions shall encompass joint and several liability. What obligations and responsibilities a state has when it sponsors a potential contractor has been clarified further in an advisory opinion by the International Tribunal by the Law of the Sea.[68] This is further discussed under Chapter 4.3.2. This is called sponsoring states, which is the term that will be used throughout the thesis.

Articles 140 and 141 embody the other key discussion points leading up to UNCLOS III, namely that any activity in the Area would be used for the benefit of mankind as a whole, particularly considering the interests of developing countries and that it would only be used for peaceful purposes. As noted above[69], these two principles led to much discussion before, and during, UNCLOS III. Article 140 states that the benefits shall be distributed through an appropriate mechanism, following article 160. This mechanism has still not been put in place and proves to be one of the harder things for the ISA to implement.[70]

[68] See SDC Advisory Opinion. The opinion is further discussed under Chapter 4.3.2.
[69] See Chapter 2.2.1.
[70] ISA, *Technical Study No. 31*.

Article 145 contains the protection of the marine environment and ISA's environmental mandate. The article states that

> "Necessary measures shall be taken in accordance with this Convention with respect to activities in the Area to ensure effective protection for the marine environment from harmful effects which may arise from such activities".

This Article includes a responsibility to prevent, reduce and control pollution and other hazards to the marine environment as well as prevent damage to the flora and fauna of the marine environment.[71] In other words, it is the ISA that has the main responsibility to protect the marine environment in the Area. As noted above, states also have responsibility for the damage that occurs to the Area, but only in situations where they are sponsoring a contractor. What responsibility a state will have is further discussed in Chapter 4.2.2. In order to be able to effectively protect the marine environment of the Area, ISA has a far-reaching authority which includes the ability to create laws binding for both states and contractors.[72]

Article 150 details what policies should be pursued when controlling and conducting activities in the Area. The Common Heritage of Mankind principle, the protection of developing countries and the transfer of technology is mentioned here.

Article 153 regulates who is allowed to conduct exploration or exploitation activities and how these activities should be carried out in the Area. The first paragraph states that all activities carried out in the Area are to be organized, controlled and carried out by the Authority. The second paragraph lists who is allowed to conduct the activities, mentioning the Enterprise[73], state parties in association with the Authority, or "state entities 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"[74]. Later, the Article refers back to article 139 and proclaims that States Parties will

[71] Ibid, Art. 145(a).
[72] LOSC, Art. 160.2(f)(ii) and Art. 162.2(o)(ii)
[73] See Chapter 3.1 for more information about the Enterprise.
[74] LOSC, Art. 153(2)(b)

assist the Authority by taking all measures necessary to ensure that the sponsored entity complies with the relevant provisions. Further, the Article gives the Authority the right to take any measures provided under part XI to ensure that the relevant provisions are followed, as well as revise, suspend and terminate contracts under certain conditions.

Articles 156 – 185 contain the regulation of ISA, which will administer the international management of the Area and The Enterprise, which is an organ of ISA that will carry out activities in the Area[75]. Articles 186 – 191 contain provisions on how disputes connected to the Area will be solved. For this, a special chamber at the International Tribunal for the Law of the Sea was established, which will solve disputes and give advisory opinions when requested by the ISA. The Seabed dispute chamber (Chamber or SDC) will be further discussed in Chapter 2.2.5.

2.2.2 Other provisions under LOSC that could be relevant for deep-sea mining.

Part XII of LOSC is the Chapter which governs the protection and preservation of the marine environment. This part contains a general obligation for states to protect and preserve the marine environment.[76] It also contains a provision which gives states the obligation to prevent, control and reduce pollution of the marine environment.[77] This entails that states need to take all necessary actions to ensure that pollution from activity under their control does not cause any harm to the marine environment.[78]

Annex III of LOSC imposes further regulation on the basic conditions of prospecting, exploration and exploitation. These conditions have been further developed and form a large part of the exploration regulations that the ISA has made. This is further discussed further in Chapter 3.2. Meanwhile, Annex IV

[75] See LOSC, Art. 170.
[76] Ibid, Art. 192.
[77] Ibid, Art. 194.
[78] Ibid, Art. 194(2).

of LOSC include the statute of the Enterprise, which will be further discussed in Chapter 3.1.

2.2.3 The 1994 Agreement

As noted above, there were concerns among some states participating in UNCLOS III. Therefore, to make more developed states ratify LOSC, states started to negotiate a new, complementary agreement which would change the provisions of part XI from LOSC to some extent. The 1994 Agreement downplays the more controversial provisions of Part XI of LOSC, primarily to make more developed states ratify it.[79] As noted above, whenever there are any inconsistencies between The 1994 Agreement and LOSC, The 1994 Agreement shall prevail.[80] All ratifications of LOSC after The 1994 Agreement entered into force, shall be seen as ratification of The 1994 Agreement as well.[81] The 1994 Agreement modifies some of the provisions in LOSC regarding the ISA to make it more cost-effective, commercial and market-oriented as well as more responsive.[82] The privileges of the Enterprise were removed and instead it received the same obligations as other corporations regarding operations in the Area.[83]

2.2.4 The Biodiversity Beyond National Jurisdiction Agreement

A draft agreement to the Biodiversity Beyond National Jurisdiction Agreement (BBNJ-Agreement or BBNJ) was concluded in March 2023.[84] Once the Agreement is implemented, it will apply to all areas beyond national jurisdiction, including The Area.[85] The Agreement aims to protect marine biodiversity through the implementation of regulations from the Convention, and the use of cooperation and coordination.[86] The new Agreement uses, among

[79] Rothwell and Stephens (2010), p. 133
[80] The 1994 Agreement, Art. 2.1.
[81] The 1994 Agreement, Art. 4.1.
[82] The 1994 Agreement, Annex, Sec. 1(2) and 6(1)(a).
[83] The 1994 Agreement, Annex, Sec. 2(4).
[84] BBNJ-Agreement, p. 1.
[85] BBNJ-Agreement, Para. 1 and 3.
[86] BBNJ-Agreement, Para. 2.

others, the precautionary principle to achieve the purpose of the agreement.[87] Its most relevant regulations for this thesis are the ones regarding the environmental impact assessments (EIA).[88] These are further discussed in Chapter 3.3.2.

2.2.5 The Seabed Dispute Chamber: settlement of disputes and advisory opinions under the ISA regime

The SDC is the organ that settles disputes related to deep-sea mining within the Area. The chamber was originally planned to be another organ of the ISA, but was later moved to be a subsidiary body to the International Tribunal for the Law of the Sea (ITLOS).[89] The tribunal has jurisdiction to decide over all disputes and matters regarding the interpretation and application of part XI and relevant annexes of the convention.[90] The SDC has jurisdiction over disputes between the ISA, member states, the enterprise and, contractors, including private entities in different situations.[91] In other words, it has jurisdiction to decide on all parts of LOSC that is relevant for deep-sea mining. If wished upon by the parties of a dispute, it is also possible for an *ad hoc* chamber to solve the dispute.[92] When the court handles the disputes, they are allowed to interpret the convention and its annexes, rules, regulations and procedures of the ISA as well as the mining contracts and other provisions of international law.[93]

When demanded by the assembly or the committee of ISA, the SDC can give advisory opinions on matters relevant to their activities.[94] For the SDC to be required to give an advisory opinion, at least a quarter of the assembly needs to approve of it.[95] A quarter of all member states in the assembly, in total 167,

[87] BBNJ-Agreement, Para. 5(d).
[88] BBNJ-Agreement, part IV.
[89] Judge Nelson, *The International Tribunal for the Law of the Sea*, p. 13.
[90] LOSC, Art. 187.
[91] Ibid and Annex VI, Art. 37.
[92] LOSC, Art. 188.
[93] LOSC, Art. 293 and Annex VI, Art. 38.
[94] Ibid, Art. 191
[95] Ibid, Art. 159.

is merely 42 states. That means that it is relatively easy for member states to gather enough support to demand an advisory opinion from the ISA. Until this date, the SDC has not rendered any rulings and has only given one advisory opinion[96], which will be further discussed in Chapter 4.3.2.

According to Article 189 in LOSC, the general rule is that the SDC is not allowed to declare any rules, regulations, or procedures of the ISA invalid or not to conform with the convention. However, there are two exceptions, if it is demanded by them through an advisory opinion[97] or if all member states of the ISA demand a ruling on a certain issue[98]. As revealed in the name, an advisory opinion is not binding for the ISA meaning that if the SDC would criticize any regulation from the ISA, they would not be forced to act upon it. Since it will be quite difficult for all member states to agree on demanding a ruling from the SDC on a specific issue, one begins to wonder if there is not any other way to determine if the rules, regulations and procedures of the ISA conform with LOSC since they otherwise could be considered to be above the law. But, there is not.[99] On the contrary, the ISA even holds immunity from legal processes, except those the ISA has expressly waived their immunity from, such as those mentioned in LOSC.[100] The purpose of article 189 also seems to be to prevent any judicial hindrance for the ISA to adopt regulations as they see fit.[101] According to James Harrison, the only controller of ISA's regulations' compatibility with LOSC is the political bodies of the ISA themselves. However, when the SDC are ruling on specific disputes, it will practically be unavoidable for the chamber to comment on ISA's rules, regulations and proceeding's compatibility with LOSC. This has been criticized by Lucius Caflisch who argues that it is contradictory.[102] But according to Judge Dolliver, the vagueness and eventual confusion was the price of receiving the approval of the negotiators of LOSC.[103]

[96] SDC Advisory Opinion.
[97] LOSC, Art. 189.
[98] Ibid, Annex III, Art. 22.
[99] Harrison (2011), p. 150.
[100] LOSC, Art. 178.
[101] See Rosenne, *et al* (2002), Para. 189.7.
[102] Caflish (1983), p. 315.
[103] Judge Nelson, *The International Tribunal for the Law of the Sea*, p. 15.

2.3 Conclusion

To summarize this Chapter, it can be stated that the purpose of regulating deep-sea mining through LOSC was to ensure that all states had an opportunity to partake in mining the resources of the deep sea. This Chapter also includes the answer to the first part of question one, *what are the environmental obligations imbedded in the regime that governs deep-seabed mining*? The answer to this question is that the environmental obligations embedded in LOSC give a responsibility to ISA to protect the marine environment from any harm that could come from these mining activities. The 1994 Agreement and the BBNJ-Agreement also regulate deep-sea mining. The SDC has been given the jurisdiction to govern eventual contract or compliance disputes as well as the possibility to give advisory opinions to the ISA.

3 International Seabed Authority: Legal status and legislation

3.1 Organisation

The ISA is a result of UNCLOS III and The 1994 Agreement. The organization is responsible for all activities related to the mineral resources of the Area. By ratifying UNCLOS III, the state also becomes a member of the ISA. In 2023, a total of 167 states as well as the European Union are members of ISA, and 30 states have the status of observers.[104] The ISA has a tripartite constitutional structure. The different principal bodies are The Secretariat, The Assembly, and, the Council. There are also two supplement bodies, the Legal and Technical Commission (LTC) and the Financial Committee (FC).

The Secretariat is located in Kingston, Jamaica, and has mainly administrative tasks.[105] The secretariat should also produce reports and information for the other organs to help them with their decision-making.[106]

The Assembly is the plenary and chief decision-making body of the ISA and consists of all Member States.[107] Following Article 160 of LOSC, it can adopt the general provisions, binding regulations, rules, and procedures regarding any matter that falls within the ISA's competence. It also holds the responsibility of electing members for the other bodies, examining its reports, and setting a two-year budget for the organisation. The Assembly also decides on the payments the Member States have to make to the ISA, with special consideration taken to developing states' needs and interests.[108] Once the exploitation phase begins, the Assembly will gain the power to make decisions on

[104] ISA, *Secretary General Annual Report 2022*.
[105] LOSC, Art. 167.
[106] ISA, *The Secretariat*.
[107] LOSC, Art. 160.
[108] Rothwell and Stephens (2010), p. 137.

more issues. For example, the equitable sharing of financial and other economic benefits resulting from the exploitation.[109]

The Council is the executive organ of the ISA and consists of 36 representatives which represents different geographical places and interests.[110] The representatives are elected for four years and are supposed to represent consumer, producer and investor states.[111] The composition of the council is unique in comparison to similar organizations to ensure that different kinds of interests are represented.[112] The council is generally supposed to reach its decisions in unanimity, but if unanimity cannot be reached it is often enough with a majority when two-thirds of the council are present.[113] The council decides on contracts, exercises control over activities in the area and conforms the implementation of the seabed provisions of LOSC.[114] It also provisionally adopts and applies regulations and methods of how ISA controls activities in the Area, which eventually are approved by the Assembly.[115] The provisions that exist today regulating prospecting and exploration of the deep-seabed, are in other words adopted by the Council. These provisions are discussed under Chapter 3.2. If an environmental emergency would occur, the Council also has the mandate to issue emergency orders in order to prevent further harm.[116]

The LTC is responsible for many practical parts regarding the activities relating to The Area. For example, examining the different applications for activities in the Area and overseeing already commenced exploration or mining activities. They also formulate and review rules and make suggestions for the council on all matters regarding the exploration and exploitation of the resources relating to The Area. Most importantly, in the context of this thesis,

[109] ISA, *The Assembly*.
[110] LOSC, Art. 161 and 162.
[111] Ibid, Art. 161.
[112] Anton (2013), p. 16.
[113] See LOSC, Art. 161.
[114] Ibid, Art. 160.
[115] Ibid, Art. 160(2)(f)(ii).
[116] Ibid, Art. 162 (w).

they evaluate the environmental effects the activities in The Area might have as well as develop environmental management plans.[117]

The financing of the ISA was a big issue when UNCLOS III initially was concluded and this eventually lead to the negotiations of The 1994 Agreement.[118] And to be in better control of the financing, The 1994 Agreement encompassed the creation of The FC.[119] The FC is responsible for supervising the financial section of the ISA, including financing and the budget distribution.[120]

The Enterprise is also an organ under the ISA[121] and will carry out ISA's deep-sea mining operations.[122] The Enterprise is an important component to fulfil the obligations under the common heritage of mankind principle.[123] It is through the Enterprise that developing states can be given access to reserved deep-sea mining areas, instead of having to go through a private company.[124] However, so far the Enterprise has still not been properly established and developed. Resulting in the fact that developing states cannot be given access to areas as planned, and instead have to use private companies, that often are homebound in a developed state. This could prove to be less beneficial for the developing states from an economic and geopolitical point of view. In March 2023, the council decided to create a position for an Interim Director General Council, but no one is appointed yet.[125] This is nonetheless seen as an important first step to getting the Enterprise operational and should be interpreted as a sign that the establishment of the Enterprise is near.[126]

Besides carrying out deep-seabed mining for the ISA, the Enterprise is also able to transport, process, and market the resources derived from the Area.[127]

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[117] ISA, *The Legal and Technical Commission*.
[118] See above under Chapter 2.1 and Rothwell and Stephens (2010), p. 133.
[119] Rothwell and Stephens (2010), p. 133.
[120] ISA, *The Financial Committee*.
[121] LOSC, Art. 170.
[122] Ibid, Art. 153 and 170.
[123] Willaert (2021), p. 1.
[124] Ibid, p. 2.
[125] ISA, *ISA Council closes part I of its 28th Session*.
[126] Willaert (2021), p. 3 - 4.
[127] LOSC, Art. 170.

This means that the Enterprise can work as freely as other commercial entities conducting activities in the Area.[128] The Enterprise must always follow the provisions outlined in LOSC, The 1994 Agreement and ISA regulations, and should apply sound commercial principles.[129]

3.2 The Mining Code

3.2.1 Background

There are three different phases connected to deep-sea mining: prospecting, exploration, and exploitation.[130] Even if LOSC and The 1994 Agreement are vast and regulate some fundamental parts of deep-sea mining, there needs to be more detailed legislation governing these phases. Therefore, the ISA has been given the mandate to create legislation regarding activities in the Area by these frameworks.[131] This mandate has resulted in the mining code. These provisions also become binding since anyone who wants to conduct deep-sea mining in the Area has to sign a contract with the ISA which includes a standard clause stating that any activity in the Area has to be carried out within the terms of the contract and international law related to deep-sea mining.[132]

So far, there only exists regulation on the prospecting and the exploration phase.[133] However, draft rules of the exploitation phase have been heavily discussed during part one of the 28th session of the Council.[134] It is important to note that a draft text was first introduced for the Council in 2019[135] and a decision on the regulations therefore might still be far away. In 2021, The state of Nauru activated something called the "two-year rule".[136] The two-year rule means that the Council is forced to adopt regulations on exploitation

[128] ISA, *Technical Study 1/2019*, p. 9.
[129] LOSC, Art. 170 and Annex IV Art. 1(2)-(3) and 2(1).
[130] See Ibid, Annex III.
[131] Ibid, Art. 160.2(f)(ii) and Art. 162.2(o)(ii)
[132] Karavias (2013), p. 124.
[133] Compare Exploration Regulations.
[134] See ISA, *Indicative Programme of Work/Rev.31 Twenty-eighth Session, Part 1 16-31 March 2023*.
[135] See ISA, Draft Exploitation Regulations, p. 1.
[136] ISA, *Nauru's request*.

within two years from the point of when the request was made.[137] If the Council fails to adopt any rules, the Council has to "consider and provisionally approve such plan of work" based on the already existing rules and legislation.[138] In part I of the 28th meeting of the Council, the body discussed whether they were free to disapprove of an application, or if the provision automatically meant that an application had to be approved.[139] This is further discussed and expanded upon under Chapter 3.2.3.

There are three different types of nodules that are deemed the most interesting ones to mine from an economic perspective[140], namely Polymetallic nodules, Polymetallic sulphides, and Cobalt-rich ferromanganese crusts. These three nodules have all been specifically regulated by the ISA. They have been regulated through the exploration regulations[141] and are for the most part identical.

The polymetallic nodule mainly contains manganese, nickel, copper, cobalt, aluminium, and iron and has been identified in the north-central Pacific Ocean, the south-east Pacific Ocean and, north Indian Ocean.[142] So far, the most popular mining technique seems to be the hydraulic mining system, where a self-propelled vehicle rakes the top of the seafloor, crushes the nodules it finds and sends them through a tube to an above floating boat.[143] This method has been heavily critized from an environmental perspective, since the vehicle will drive over the seafloor flora and fauna as well as throw sediment into the water, making the water murky.[144] The polymetallic sulphides are hydrothermal deposits created in areas with volcanic activity. These exist in mid-ocean ridges[145], and often within states' exclusive economic zone (EEZ), for example within Peru's EEZ[146]. The sulphides often contain iron,

[137] The 1994 Agreement, Annex, Sec. 1, Para. 15 (b).
[138] Ibid, Annex, Sec. 1, Para. 15 (c).
[139] ISA, *ISA Council closes part I of its 28th Session*.
[140] Rothwell and Stephens (2010), p. 123 - 124.
[141] The Exploration regulations are *Polymetallic nodules regulation*, *Polymetallic sulphides regulation* and *Cobalt-rich Ferromanganese regulations*. When the exploration regulations are not identical, the specific regulation will be referenced.
[142] Rothwell and Stephens (2010), p. 123.
[143] Ibid.
[144] Ibid.
[145] Pandey (2013), p. 457.
[146] Mahmoudi (1987), p. 29.

pyrite chalcopyrite, sphalerite, and copper.[147] The Cobalt-rich ferromanganese crusts are accumulations of ferromanganese oxides on rock outcrops[148] and mostly exist in the Indian and Pacific Ocean[149]. The crusts contain cobalt, manganese, nickel, rare earth elements, tellurium, and platinum group elements.[150] The crusts and the sulphides are generally mined by being stripped, crushed by spiral rollers, and transferred to the support platform.[151]

3.2.2 Prospecting, exploration and standard contracts for conducting these activities in the Area.

The first phase of deep-seabed mining, the prospecting phase, consists of activities that are rather harmless for the marine environment. Prospecting is described by the ISA as searching for depositions of nodules in the Area, estimating their sizes, distribution, and economic value.[152] LOSC also declares that the prospector may recover a reasonable quantity of resources to test them, but should not otherwise have any rights to them.[153] The regulation for prospecting is included in the same rules regulating exploration, which is divided by which type of node is being mined. When an entity wants to start prospecting, they will send in a notion through a certain form, declaring that the prospecting will follow the relevant provisions.[154] The Secretary-General of ISA will then receive and review the notion.[155] If the notion includes everything it should, the Secretary-General will record the notion, and inform that the prospecting can begin.[156] During the prospecting, the prospector shall apply the best environmental practices and the precautionary principle to

[147] Pandey (2013), p. 457.
[148] Mahmoudi (1987), p. 29.
[149] Sha, *et al* (2023), p. 2.
[150] Zhao (2020), p. 1.
[151] Pandey (2013), p. 457.
[152] See Exploration Regulations, Reg. 1(3)(e).
[153] LOSC, Annex III Art. 2(2).
[154] Exploration Regulations, Reg. 3(2).
[155] Ibid, Reg. 4(2).
[156] Ibid, Reg. 2(1) and 4(2).

prevent, reduce and control pollution to the marine environment as far as reasonably possible.[157]

Once the prospection is finished, the entity is allowed to apply for exploration of a specific area. As mentioned above, the Enterprise, state parties, and entities that states are in control over and sponsoring can apply for activities in the Area.[158] Activity in the Area is only allowed to begin when the Authority has approved the application and it is in accordance with LOSC and relevant rules and regulations from the Authority.[159] Further, when a state is sponsoring a party's application it shall issue a certification of sponsorship accepting its responsibility under LOSC.[160] The applicant has to include sufficient information about the entity's technical and financial capability so that the Authority can decide if the entity is capable enough to carry out the activity following its obligations.[161] All applications also need to include a declared acceptance that the regulations issued by ISA and from LOSC are enforceable and that the Authority holds control over the activities in the Area.[162] And finally, the application needs to include information about the measures and assessments that will be made to protect the marine environment.[163] The contractor has to use the precautionary approach and the best environmental practices during the exploration phase as well, to prevent, reduce, and control pollution to the marine environment as much as possible.[164]

By signing contracts with the ISA, the parties accept the ISA's authority, and the enforceability of relevant regulations and therefore become bound by the ISA regulations.[165] This is seen as a rare example of an organisation being able to create binding international law.[166] However, the power of the ISA is still limited to the provisions and regulations that existed when the contract

[157] Ibid, Reg. 5(1).
[158] See Chapter 2.2.1.
[159] LOSC, Annex III, Art. 3(3).
[160] Exploration Regulations, Reg. 11.3(f).
[161] Ibid, Reg. 12.
[162] Ibid, Reg. 14.
[163] Ibid, Reg. 18.
[164] Exploration Regulations, Annex IV, Sec. 5.1.
[165] See Exploration Regulations, Annex III and IV.
[166] Anton (2013), p. 18.

was signed.[167] That means that when the ISA adopts new regulations, rules, or procedures, it is not guaranteed for them to become applicable to the already signed contracts. For new regulations, rules, or procedures to become binding for the contractor, the contract needs to be revised together by the contractor and ISA.[168] This means that the contractor has the right to refuse any changes to the existing contract. Considering the fact that many scientists warn that the existing knowledge of the deep-sea and the consequences of deep-sea mining is severely limited[169], there is a big risk that the regulations regarding the environmental protection of today are insufficient.[170] That means that the ISA might want to amend the environmental regulations in the future but that the existing contractors can refuse to do so. However, as discussed above, when an entity signs a contract, they become bound by the regulations issued by ISA. And through that, also the precautionary principle and the need to use the best environmental practices.[171] That means that the eventual changes to the provisions that ISA proposes could become binding to the entity if it is deemed to be a part of the precautionary principle.[172] The implications of this for sponsoring states are further discussed under Chapter 4.3.2.

It is the LTC that makes the first judgment if an application should get approved or not.[173] If an application for exploration fulfils all the requirements and is deemed to not risk monopolizing the resources from the Area[174], the application will get provisionally approved by the LTC and referred to the council for final approval[175]. Once the Council has approved the application, an adapted version of the plan of work and the standard clauses of the ISA will constitute the contract.[176] The contract gives the operator exclusive rights to a certain area and priority when submitting an application for exploitation

[167] Compare Polymetallic Nodules Regulations, Part X, Reg. 42, Polymetallic Sulphides and Ferromanganese Crust Regulations, Part X, Reg. 44.
[168] LOSC, Annex III, Sec. 24.
[169] See Amon, *et al* (2022), and Chapter 1.1.
[170] Washburn, *et al* (2019), p. 37.
[171] Exploration Regulations, Annex IV, Sec. 5.1.
[172] What measures that falls under the precautionary principle is further discussed under Chapter 3.3.
[173] Polymetallic Nodules Regulations, Part III, Sec. 4 Reg. 21, Polymetallic Sulphides and Ferromanganese Crust Regulations, Part III, Sec. 4, Reg. 23.
[174] Ibid, Part III, Sec. 4, Reg. 21(7), and Ibid, Part III, Sec. 4, Reg. 23.
[175] Ibid, Part III, Sec. 4, Reg. 22, and Ibid, Part III, Sec. 4, Reg. 24.
[176] Ibid, Sec. 4, Reg. 23, and Ibid, Part III, Sec. 4, Reg. 25.

of that area.[177] The duration of the contract is 15 years, and afterward, the operator will be allowed to apply for either an extension or if possible, the right of exploitation.[178]

Every fifth year, the Secretary-General and the contractor shall meet and review the contract. During the review, the contractor shall explain its plan for the next five years, and eventually make adjustments to comply with the contract. The Secretary-General shall send the review to the Council and LTC, also detailing if any reports have been received implying that the contractor does not fulfil its environmental obligations.[179]

Finally, both the contractor and the ISA shall bear the responsibility and liability in accordance with the Convention. If the contractor commits any wrongful acts that cause any damage, specifically to the marine environment, it shall bear responsibility.[180] However, it is important to note that this only applies to wrongful acts. This should mean that the contractor has fulfilled their responsibility if the act is in accordance with the contract, but nevertheless leads to damage of the environment. This is particularly interesting regarding the fact that the ISA does not have the opportunity to re-negotiate the environmental obligations in contracts once they have entered into force. If the ISA would have the right to change the environmental obligations for a contractor during these reviews, the ISA would be much more flexible and adaptable once more knowledge about how the flora and fauna of the deep-seabed works is discovered. This would ultimately make it easier for ISAs and contractors to fulfil the precautionary principle. As mentioned above, some changes to how the contractor work would be allowed since the contractor is obliged to fulfil the precautionary principle and use the best environmental practices.[181] Nevertheless, ISA can be more precise and efficient if they are free to impose environmental obligations on the contractor, without the need to do it under the cover of the precautionary principle.

[177] Ibid, Sec. 4, Reg. 24, and Ibid, Part III, Sec. 4, Reg. 26.
[178] Ibid, Sec. 4, Reg. 26(1), and Ibid, Part III, Sec. 4, Reg. 27(1).
[179] Ibid, Sec. 4, Reg. 28, and Ibid, Part III, Sec. 4, Reg. 30.
[180] Ibid, Sec. 4, Reg. 30, and Ibid, Part III, Sec. 4, Reg. 32.
[181] Exploration Regulations, Annex IV, section 5.1.

3.2.3 Draft regulations on exploitation of mineral resources in the Area

In 2019, the LTC presented draft regulations for the exploitation phase of deep-sea mining[182], a work that has been in process since 2011.[183] The draft regulations are meant to regulate the commercial phase of deep-sea mining once they come into force. As mentioned in Chapter 3.2.1. the state of Nauru has sped up the process of adopting the regulations through the activation of the two-year rule.[184] Both these draft regulations and the two-year rule were diligently discussed during the 28th session of the Council.[185] In these discussions, the Council concluded that it was not forced to accept any applications for exploitation within the Area, but instead only had to consider them.[186] Further, an acceptance before the exploitation regulations come into force is only a provisional acceptance and does not automatically lead to a final acceptance later on.[187] The Council will continue to discuss on what legal grounds it can postpone its consideration or acceptance of a provisional allowance for exploitation in Part II of the 28th session later in June.[188]

The decision that the Council only has to consider an application for exploitation is interesting since it could be seen as an attempt to bypass the provision. If the ISA only must consider an application, one could wonder on what grounds they can also disapprove of the application. According to The 1994 Agreement, the ISA has to "consider *and provisionally approve*" (own cursive added) a plan of work for exploitation based on the convention and any rules that the Council has already accepted.[189] But if the ISA has not accepted any rules or provisions regarding the exploitation phase, what grounds can

[182] See ISA, Draft Exploitation Regulations, p. 1.
[183] EMP-CCZ, Para. 20.
[184] ISA, *Nauru's request*.
[185] ISA, *ISA Council closes part I of its 28th Session*.
[186] Ibid.
[187] Ibid.
[188] Ibid.
[189] The 1994 Agreement, Annex, Sec. 1, Para. 15(c)

they then use to help make a decision? This issue has not been recorded as discussed during the 28th meeting of the council.[190]

The draft regulations are, of course, a work in progress, and will probably be discussed at many meetings yet. The draft regulations consist so far of over 100 provisions as well as ten annexes, including standard contract clauses.[191] Notable provisions are those about the environmental compensation fund, whose purpose is to cover expenses for damages arising from activities in the Area, but not attributable to a contractor or sponsoring state.[192] Further, the standard contract includes a clause stating that the contractor shall comply with

> "the regulations, as well as other rules from the Authority, as amended from time to time, and the decisions of the relevant organs of the Authority".[193]

This implies that the contractors could be forced to change their practices during the contract if the ISA changes any rules. This could solve a problem regarding environmental protection that exists under the exploration regulations.[194]

3.3 The environmental obligations in relation to the environmental responsibilities.

The provisions that are supposed to protect the marine environment during deep-seabed mining can be found under part V of the exploration regulations. For the purpose of fulfilling their environmental mandate, as stated in article 145 of LOSC[195], the ISA have adopted many different provisions in their

[190] See ISA, *28th session Part I Daily Bulletin – day 7*.
[191] See ISA, Draft Exploitation Regulations.
[192] ISA, Draft Exploitation Regulations, Part IV, Sec. 5, Reg. 54 and 55.
[193] Ibid, Annex X, Sec. 3.3.
[194] See discussion in Chapter 3.2.2.
[195] See Chapter 2.2.1.

deep-seabed mining regulations.[196] This Chapter will mention certain principles that are underlying the rest of the provisions, such as the precautionary principle, the best environmental practices[197], the duty to not cause environmental harm[198] and polluter pay principle[199]. The Chapter will also mention some more specific and technical provisions, such as environmental baselines, Environmental Impact Assessments (EIA) and Environmental Management Plans (EMP).

3.3.1 Precautionary principle

The precautionary principle is today seen by many as a certainty within international environmental law and is often described with the definition that exists in the Rio Declaration, namely:

> *'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.'*[200]

In other words, the precautionary principle calls for the need to take action early to prevent any threats of environmental damage, even if there is a lack of scientific certainty of the threat. The Precautionary principle has since then been mentioned in numerous international agreements.[201] However, there does not seem to be a general agreement that the principle is classified as customary international law.[202] LOSC does not mention the principle

[196] See Exploration Regulations, part V.
[197] Polymetallic Nodules Regulations, Part V, Reg. 31(5), Polymetallic Sulphides and Ferromanganese Crust Regulations, Part V, Reg. 33(5).
[198] Polymetallic Nodules Regulations, Part V, Reg. 34(2) and (34(4), Polymetallic Sulphides and Ferromanganese Crust Regulations, Part V, Reg. 36(2) and 36(4).
[199] Polymetallic Nodules Regulations, Part V, Reg. 30, Polymetallic Sulphides and Ferromanganese Crust Regulations, Part V, Reg. 32.
[200] Rio Declaration, Principle 15.
[201] See for example *Convention on Biological Diversity* (1992), preamble, *United Nations Framework Convention on Climate Change* (1992), Art. 3(3) and BBNJ-Agreement.
[202] ITLOS has refrained from mentioning the principle in their decision *Southern Bluefin Tuna.*

explicitly, but mentions many actions that are closely connected to precaution[203], such as the EIA[204], conducting scientific research[205] and the announcement of areas protected from deep-sea mining[206]. LOSC also allows for provisional measures to avoid serious harm to the marine environment.[207] The new agreement regarding biodiversity beyond national jurisdiction, which is yet to trade in force, also implements the precautionary principle, meaning that it will undoubtedly apply to the ISA and all the activities in the Area. For this study, the precautionary principle is therefore viewed as already in force for ISA and all the activities within the Area.

The exploration regulations expressly mention the need to apply a precautionary approach and references to the principle described in the Rio Declaration.[208] Further, the LTC shall make recommendations on how the principle shall be implemented in mining activities in the Area.[209] The ISA has also imbedded the precautionary principle in the exploration contracts, and thereby extending it to the contractors that otherwise would not be obliged to follow it.[210] The sponsoring states also have an obligation to ensure that the contractor follows the precautionary principle and best environmental practices.[211] So far the LTC has only commented the precautionary principle once, and that was concerning drafting EMP for the Clarion-Clipporton Zone (CCZ).[212] This is further discussed under Chapter 3.3.3. That means that the most authoritative guidance we can rely on is from other international agreements and judgement.

To properly investigate and analyse the use of the precautionary principle under the mining regulation, it is necessary to define the principle further.

[203] Jaeckel (2017), p. 132.
[204] LOSC, Art. 162(2)(d) and 206.
[205] Ibid, Art. 143 and 256.
[206] Ibid, Art. 162(2)(x) and 162(2)(l).
[207] Ibid, Art. 290(1).
[208] Polymetallic Nodules Regulations, Part V, Reg. 31(2),), Polymetallic Sulphides and Ferromanganese Crust Regulations, Part V, Reg. 33(2).
[209] Polymetallic Nodules Regulations, Part V, Reg. 31(3),), Polymetallic Sulphides and Ferromanganese Crust Regulations, Part V, Reg. 33(3).
[210] See Exploration Regulations, Annex IV, Sec. 5.1.
[211] SDC Advisory Opinion, Para. 133 and 136 - 137.
[212] ISA, *Summary report of the Chair of the Legal and Technical Commission on the work of the Commission at its seventeenth session*, Para. 28.

According to Arie Trouwborst, the precautionary principle contains three different elements, *threat of environmental harm*, *uncertainty*, and *action*.[213] The definition of the threat of environmental harm can be split into three steps that all need to be fulfilled for it to fall under the precautionary principle. First of all, there needs to be a threat of environmental harm.[214] Without any threat, there is no reason to protect the environment, and therefore, no need to use precaution. Secondly, one should ask oneself if the threat of harm is more than a minor or insignificant one.[215] This step is a minimum threshold and is created to limit what events that eventually could fall under the precautionary principle so that not all everyday human activities activate the principle. Finally, the potential harm also needs to be serious or irreversible[216], as constituted in principle 15 of the Rio Declaration. There is no general definition of what constitutes serious or irreversible harm, neither mentioned by Trouwborst nor by any national or international legislation.[217] Instead the activities should be judged on a case-to-case basis. According to Trouwborst's definition, a subspecies deemed to not have more than a minor impact on the ecosystem could be extinct, and therefore constitute as an irreversible harm, without actually activating the obligation to use the precautionary principle since it does not fulfil the second step of the definition.[218]

The second part of the precautionary principle, *uncertainty*, is related to the second phrase of principle 15 in the Rio Declaration, namely that the principle could be applicable even when there is a lack of full scientific certainty.[219] There are different types of uncertainty, for example, the uncertainty created by a lack of information gathered or due to variability and complexity.[220] The precautionary principle encompasses all types of uncertainties.[221] For the uncertainty factor to come into play, there is no limit on how little uncertainty

[213] Trouwborst (2006), p. 30.
[214] Ibid, p. 37.
[215] Ibid, p. 67.
[216] Ibid.
[217] Ibid.
[218] Ibid.
[219] Rio Declaration, Principle 15.
[220] Trouwborst (2006), p. 117
[221] Ibid.

that is allowed, but rather on how much uncertainty there is.[222] If it was necessary to factor in every little possibility of environmental harm when deciding if the precautionary principle would be necessary or not, it would become too broad to be effective. Instead, there needs to be "reasonable grounds for concern", a concrete hint that the environment might be harmed if the planned activity is executed for the precautionary principle to be applicable.[223] However, the uncertainty does not expand so far that any proof of probability is needed, because then it would demand too little uncertainty. Instead, it falls somewhere in between.[224]

The third element of the precautionary principle, *action*, includes the necessity to take preventive steps early once the threat of environmental harm has been established with enough certainty. The third part is the one that gives any practical meaning to the principle, and without it, the principle would be meaningless.[225] Trouwborst states three questions related to actions under the precautionary principle, *where*, in which situation such an action is necessary, *when* it should be executed and *how* that action should be performed.[226] A precautionary action should be taken wherever and whenever there is enough certainty that a threat of environmental harm exists.[227] But regarding the *how* the action needs to be both effective and proportionate.[228]

Efficiency is important since the action would otherwise not be enough for it to achieve its desired goal, to protect the environment and therefore fulfil the precautionary principle.[229] To know if an action would be efficient enough, the party has to go through different steps. There is a need to investigate and consider which action would be effective enough to protect the environment.[230] Regarding deep-sea mining, an example could be that a contractor has to limit the pollution in the water that they will generate, and therefore

[222] Ibid, p. 118.
[223] Ibid.
[224] Ibid, p. 119.
[225] Ibid, p. 121.
[226] Ibid, p. 156.
[227] Ibid, p. 157.
[228] Ibid, p. 157 – 158.
[229] Jaeckel (2017), p. 39.
[230] Ibid.

have two choices. They could either choose to gather the sediment once it gets stirred around in the water or alternate on which area, within their mining area, the contractor mines for the sediment to settle a bit before it gets thrown up again and causes turbid water. Which of these actions is the most effective one depends on what is the purpose of limiting water pollution, and what the desired level of protection from the pollution is.[231] For example, if the desired level of protection is to pollute the water with sediment as little as possible, then the first action would probably be the most effective one since it would gather the sediment and thus avoid the pollution altogether. If the desired level only is to avoid continuous pollution, then the latter example of alteration would probably be effective enough. However, the first action would be effective enough as well, but would it be proportionate?

Proportionality is needed for the precautionary principle to be effective in the long term. If the actions demanded are too extensive it will be hard to create compliance since the contractors might rather take the fine for causing environmental harm or mining illegally. What is proportionate or not is directly related to the threat of harm and gravity and should therefore be judged on a case-to-case basis.[232] The proportionality should also be based on short-term and long-term effects of the environmental harm and prevention, which includes everything from monthly effects to something that might affect future generations.[233] The proportionality and efficiency needed is also dependable on if the harm is reversible or not[234], and according to Jaeckel as well as scientific reports, deep-sea mining is probably both.[235]

The European Commission has commented on the proportionality of actions under the precautionary principle.[236] In these comments they stated that a) In some cases a total ban might be the only response to a potential risk, b) the party should in certain situation consider replacing certain procedures and

[231] Ibid, p. 40.
[232] Ibid, p. 41.
[233] Ibid.
[234] Ibid.
[235] See Ibid, p. 11 – 14 and Chapter 1.1.
[236] Commission of the European Communities, Communication from the Commission on the precautionary principle.

products to safer ones and c) that risks which will only be noticeable for future generations have to be stopped at the time of exposure, which would be immediate.[237] This approach could mean strong restrictions for all deep-sea mining actors if it was viewed as a customary part of the precautionary principle. This is because of the implications that deep-sea mining might have vastly negative effects on the environment. This approach could therefore ultimately lead to deep-sea mining being strongly limited, for example through limiting the amount of minerals that would be allowed to be mined, or even banned completely. Since the ISA determines how, and if, they fulfil the precautionary principle[238], it would require that they determine that deep-sea mining should be limited or banned. This is not a view that the ISA currently has.[239] Whatever the ISA choose to do, hopefully, they will do it with the same thought in mind as uttered by Gro Harlem Brundtland, namely that "If we err in our decisions affecting the future of our children, let us err on the side of caution".[240]

3.3.2 Environmental Baseline data and Environmental Impact Assessment

For the ISA to ensure effective environmental protection, it is necessary to establish demands on the parties bound by the provisions that are more specific and technical. That would also be helpful for the parties since they would have more realistic expectations of what is demanded by them instead of only having vague principles guiding them. The ISA therefore demands environmental baseline data and EIAs from the parties conducting activities in the Area.[241] The environmental baseline data contains fundamental information on what effects on biodiversity a test-mining operation might have[242], and is to be included in every application.[243] The LTC stated in their

[237] Ibid, p. 17 - 18.
[238] See Chapter 2.2.5.
[239] New York Times, *Leader of International Seabed Mining Agency Admonished by Diplomats*.
[240] As cited by Gullet (1997), p. 55.
[241] Polymetallic Nodules Regulations, Reg. 1(7).
[242] ISA, *ISA Technical Study No. 10*, p. 8.
[243] Polymetallic Nodules Regulations, Part V, Reg. 32, Polymetallic Sulphides and Ferromanganese Crust Regulations, Part V, Reg. 34.

recommendations regarding assessments of environmental impacts as a result of the exploration phase that the baseline environmental data should include

> "baseline conditions of physical, chemical, biological and other parameters that characterize the systems likely to be impacted by exploration and possible testmining activities."[244]

The data sent to the ISA shall include both the raw data and analyses of the data for the ISA to manage and assess the eventual cumulative effects on the regional environments.[245]

An EIA is, under customary international law, generally only required for activities that could result in significant harm to the environment[246] and is closely related to the precautionary principle.[247] In the new BBNJ-Agreement, which will apply to all activities in areas beyond national jurisdiction[248], an EIA is defined as "a process to identify and evaluate potential impacts of an activity to inform decision-making".[249] The BBNJ-Agreement is not yet in force, but could be seen as a sign on what an EIA is expected to include in the future. This definition does not offer much of a guide for sponsoring states and contractors on what is demanded from them when forming an EIA. This is instead clarified by the LTC, which will be expanded upon later on.

Nevertheless, the draft regulations include different thresholds and factors for when an EIA has to be conducted.[250] According to the agreement, an initial screening should be conducted when an activity could have more than a minor effect on the marine environment, or if the effects are poorly understood.[251] Both of these reasons should be seen as applicable for deep-seabed mining.[252] The screening should include information about the planned activity and

[244] ISA, *Recommendations for EIA*, Para. 14.
[245] Ibid, Para. 16.
[246] SDC Advisory Opinion, Para. 145, 147–149
[247] Jaeckel (2017), p. 159.
[248] See BBNJ, Art. 1 and Art. 3, and Chapter 2.2.4.
[249]BBNJ-Agreement, Art. 1(10).
[250] BBNJ-Agreement, Art. 24.
[251] Ibid.
[252] See Chapter 1.1.

potential impacts, including cumulative ones.[253] The screening should result in enough information for the conducting party to evaluate if the activity might cause substantial pollution or significant and harmful changes to the marine environment.[254]

If the party has reason to believe that substantial pollution or significant and harmful changes could occur, they should conduct a full EIA.[255] The first step in the EIA is called *scoping* and means that the parties shall ensure that key environmental impacts and other associated ones, including cumulative ones, are identified.[256] How the key impacts are to be determined is so not settled yet, but the party can use a panel of experts, the Scientific and Technical Body, for help and guidance.[257] The party should also analyse alternative actions to the planned activity.[258] Thereafter, the party shall commence *impact assessment and evaluation*.[259] This step means that the party shall ensure that the identified impacts are assessed and evaluated by using the best available science and scientific information.[260] The next step consists of *prevention, mitigation and management of potential adverse effects*.[261] This step means that the parties shall identify and analyse any actions that can prevent, mitigate or manage any damage to the environment in order to avoid significant adverse effects.[262] Finally, the party shall notify and consult with the public of adjacent states to the activity as well as prepare and publish a report on the EIA.[263]

When deciding whether the action shall be conducted or not, the party who holds control over the activity, in this case, a sponsoring state, is responsible for making that decision.[264] The decision should only be made when the sponsoring state considers that all reasonable actions to ensure that the activity can

[253] BBNJ-Agreement, Art. 24(1)(a)
[254] Ibid, Art. 24(1).
[255] Ibid, Art. 24(1)(b).
[256] Ibid, Art. 30(1)(b).
[257] Ibid, Art. 30(3).
[258] Ibid, Art. 30(1)(b).
[259] Ibid, Art. 30(1)(c).
[260] Ibid.
[261] Ibid, Art. 30(1)(d).
[262] Ibid.
[263] Ibid, Art. 30(1)(e–f)
[264] Ibid, Art. 38(1).

be conducted in a way compatible with the prevention of "significant adverse impacts on the marine environment" has been taken.[265] This should result in the fact that when a party considers an activity to cause significant harm to the marine environment, even though preventive actions have been taken, the activity should not be allowed to proceed. The party approving of an activity also has to give due consideration to any recommendations from the Scientific and Technical body.[266] If any harm to the marine environment occurs that was not foreseen or comes as a result of a breach of the approval, the party shall communicate with other parties and take any necessary action and/or halt the activity, whichever is the most appropriate one.[267]

The LTC has also provided some recommendations for the assessment of environmental impacts resulting from the exploration phase.[268] These will have to be adapted to match the BBNJ-Agreement regulations regarding EIA.[269] According to the recommendations, an EIA is only necessary before activities that could cause serious environmental harm[270] such as drilling activities, artificial disturbance of the seafloor and when collecting certain samples.[271] Even if it is in line with customary law to only demand EIA before activities that could cause significant environmental harm, one could question the categorisation by the LTC. For those specific activities that require EIA is it only necessary to conduct one a year before those activities commence.[272] The contractors are also required to supply the ISA with relevant environmental information both during and after the activity[273] to establish to which extent the disturbance caused harm and at which rate the environment recovers.[274]

Another issue about the EIA is the fact that it is demanded quite late in the process.[275] Many other activities related to the exploration phase have been

[265] Ibid, Art. 38(2).
[266] Ibid, Art. 41(4)(e).
[267] Ibid, Art. 41(2).
[268] ISA, ISBA/19/LTC/8.
[269] ISA, ISA *on the new BBNJ-Agreement.*
[270] ISA, *Recommendations for EIA*, Para. 18.
[271] Ibid, Para. 19 – 21.
[272] Ibid, Para. 20.
[273] Ibid, para 29 – 30.
[274] Jaeckel (2017), p. 162.
[275] Ibid, p. 241.

conducted for years already, and more importantly, the contract giving the contractor exclusive right to an area has already been signed.[276] This, in combination with the fact that the ISA lacks the flexibility to freely change the environmental obligations for contractors[277], raises the question of how much the ISA can do if an EIA shows that the activities will result in severe environmental harm.[278] At the current state, the ISA does not have any specific steps that they need to take once an EIA is submitted.[279] Meaning that the even if an EIA is submitted, and shows for potentially significant environmental harm, there is no plan to address it. This is a serious flaw in the ISAs' regulations, since they without structure on how to address it, might have a very hard time fulfilling their responsibility to prevent, reduce and control pollution and other hazards to the marine environment[280].

Neither is there any requirement to verify the EIA through a third party.[281] It is also difficult for the ISA themselves to ensure that all the information in the submitted EIA is correct, resulting in that an EIA could contain wrongful information and therefore that the wrong assessment and precautionary actions are taken. Even if the activities exempt from demanding an EIA will probably not cause any significant harm to the environment, the EIA has a high value for the ISA in their work on establishing new regulations, especially the one for the exploitation phase.[282] As of 2023, there has only been two EIAs submitted to the ISA[283], even though there are currently 31 active exploration contracts.[284] Due to the potentially harmful nature of deep-sea mining and its possible impacts on the marine environment, it is important to have as much information available as possible when creating environmental protective regulations.

[276] Ibid.
[277] See Chapter 3.2.2.
[278] Jaeckel (2017), p. 242.
[279] Ibid, p. 248.
[280] LOSC, Art. 145.
[281] Jaeckel (2017), p. 242.
[282] Ibid.
[283] ISA, *Environmental Impact Assessment*.
[284] ISA, *Exploration contracts*.

The regulations regarding EIA's in the BBNJ-Agreement include stronger protection for the environment than the regulations from the ISA does. Therefore, many of the flaws that the ISA regulations on EIA holds are hopefully remedied once the BBNJ-Agreement enters into force. For example, the BBNJ-Agreement demands that screening occurs once it could be suspected that the activity could have more than a minor effect on the environment. This could ultimately result in more examples than those mentioned by LTC being classified as seriously harmful to the environment. The BBNJ-Agreement also demands that a state approves of an activity first after ensuring that it is compatible with the prevention of any serious harm to the environment.[285] This implies that a contractor has to conduct more advanced preventive measures to get the approval of conducting the exploration activities since a state will hopefully not want to be responsible for any wrongdoing. However, this approval will only be needed for the activities possibly resulting in serious harm to the marine environment. Meaning that many of the activities that the LTC catalogued as not causing serious environmental harm will not demand approval.

The BBNJ-Agreement could mean that the applicant has to conduct an EIA before they are given a contract for exploration or exploitation. This is because the contract is for the applicant to conduct activities that could cause serious harm to the environment. This would entail a big change in the current process which would increase the amount of EIA's made, and therefore increase the understanding of the deep-sea environment. However, the BBNJ-Agreement could possibly also mean that the EIA will only be demanded before the specific activity that could cause serious harm to the environment. That would mean that the ISA could still approve an application of exploration before an EIA has been conducted. This would not result in any change to the current procedure and is the most probable interpretation of the BBNJ-Agreement.

[285] BBNJ-Agreement, Art. 38(2).

The BBNJ-Agreement states that it is the parties who have control over the activity who shall ensure that an eventual EIA is conducted.[286] This strengthens the theory that an EIA will be made first when an activity which could cause serious harm to the environment. This is because it is first then that a contractor has a sponsoring state, which holds effective control over the activity.

The BBNJ-Agreement will therefore prove to not solve all of the shortcomings in the ISA regulations related to EIA, but at least some.

3.3.3 Environmental management plans in the Clarion-Clipperton Zone

The CCZ is an area of the Eastern Central Pacific and has a similar size as Europe.[287] The area is especially interesting due to its high concentration of easily accessible polymetallic nodules.[288] Today, there are 17 exploration contracts in this area[289], proving what a commercially attractive area it is. Due to the high amount of contractors, the environment in the area could be greatly affected by deep-sea mining and the ISA has therefore decided to create an EMP for it (EMP-CCZ).[290] The EMP-CCZ was established in 2012 and was the first and, to this day, the only one of its kind.[291] The EMP-CCZ establishes nine areas of particular environmental interest (APEI), which are open for scientific research but closed for mining activities.[292] These areas protect a total of 25% of the CCZ.[293] The APEIs are temporary and are to be reviewed every fifth year to see if the protection should be extended or not.[294] In 2021,

[286] Ibid, Art. 22(1).
[287] Lodge, *et al* (2014), page 72.
[288] Ibid, p. 66.
[289] ISA, *exploration contracts*.
[290] See EMP-CCZ.
[291] Ibid.
[292] *Decision on EMP-CCZ*, Para. 6, 7 – 9 and Annex.
[293] ISA, *Rationale and Recommendations for the Establishment of Preservation Reference Areas for Nodule Mining in the Clarion-Clipperton Zone*, Para. 19.
[294] *Decision on EMP-CCZ*, Para. 1, 6.

the council decided to add four new APEIs as well as extend the previous 9 for another five year period.[295]

The overall goal of the EMP-CCZ is to promote deep-sea mining in an "environmentally responsible manner" [296] and to give effect to the precautionary principle.[297] The vision is that the environment should be affected as little as practically possible by deep-sea mining.[298] They also mention the importance of preserving and protecting the biodiversity and ecosystem function and structure within the CCZ.[299] By creating APEIs, the ISA are creating small sanctuaries where the biodiversity and ecosystem will at least not be directly affected, even if some noise and general pollution might spill over from the mining sites.[300] The fact that these APEIs are open for scientific research will increase the knowledge of the deep-sea, which will be helpful for all parties active in the Area, especially when it comes to effective environmental protection.

The APEIs are valuable for the preservation and protection of the biodiversity and ecosystem that exists on the deep seafloor. However, the question arises if the protection of 25% of the area is enough to ensure that the biodiversity and ecosystem will be affected as little as possible. As noted in Chapter 1.1, the marine environment takes a long amount of time to restore itself after mining has taken place in that area. Even if 25% of the area will be protected, and hopefully continue to function as usual, the potential damage of the other 75% will undoubtedly have a huge impact. Another important factor was that the EMP-CCZ was adopted first after many of the contracts within the CCZ had been given.[301] This forced the APEIs to be moved from their original planned areas, and instead be established in the outskirts of the CCZ. This is against one of the core elements of the precautionary principle, namely that

[295] *Decision on review on EMP-CCZ*. Para. 5.
[296] EMP-CCZ, Art. 35(a).
[297] ISA, *Summary report of the Chair of the Legal and Technical Commission on the work of the Commission at its seventeenth session*, Para. 28
[298] Ibid, Art. 33.
[299] Ibid.
[300] See Chapter 1.1.
[301] Jaeckel (2017), p. 207.

the actions should be preventative and come at an early stage.[302] It should therefore not be seen as actually giving effect to the precautionary principle, but it is nonetheless a step in the right direction.

3.3.4 Other environmental principles and regulations relevant for deep-sea mining.

The principle to use the best environmental practices is not explicitly mentioned in LOSC but exists in the exploration regulations. The principle applies to the ISA, sponsoring states, and contractors, and should be understood as the use of widely accepted norms and practices of environmental and risk management.[303] The seabed dispute chamber has clarified in their advisory opinion that sponsoring states are bound, not only by the regulations but by their due diligence obligation to use the best environmental practices to ensure that their contractors comply with their obligations.[304] This will be further discussed under Chapter 4.3.2. The duty to not cause environmental harm and polluter pay principle is ensuring protection for, especially, coastal states that are highly vulnerable for eventual damages arising from deep-seabed mining. By embedding these principles, the coastal states can demand help and compensation if damage does occur from the ISA, sponsoring states, and contractors.[305]

[302] See Chapter 3.3.1.
[303] ISA, *ISA Technical Study No. 10*, p. 33.
[304] SDC Advisory Opinion, Para. 136.
[305] Polymetallic Nodules Regulations, Part V, Reg. 30 and 33, Polymetallic Sulphides and Ferromanganese Crust Regulations, Part V, Reg. 32 and 36.

3.4 The environmental protection regulations by the ISA in relation to their responsibility under the precautionary principle.

As stated in the Rio Declaration, the purpose of the precautionary principle is to prevent environmental degradation by using cost-effective measures. The ISA is bound to the precautionary principle through LOSC. The ISA has implemented and performed some regulations and actions to fulfil the precautionary principle, such as demanding EIAs and the best environmental practices from the contractors.[306] They have also implemented an EMP for the CCZ, whose purpose is to give effect to the precautionary principle.[307] These measures are highly necessary to fulfil the environmental responsibility that follows with the precautionary principle.[308] However, the taken measures as well as other parts of ISA's work to protect the marine environment, contain many shortcomings.

It is important to keep in mind that the regulations do not need to stop all environmental impacts to fulfil the principle. Instead, the precautionary principle only demands that cost-effective measures are used according to the party's capability. However, the ISA can despite that still not be considered as fulfilling the precautionary principle. As established in Chapter 3.3.1, the precautionary principle is only active when there is enough certainty that the planned activity could cause significant harm to the environment. However, there is a general lack of knowledge about the deep-seabed.[309] This lack of knowledge is shared by the ISA, which is also reflected by the lack of submitted EIAs.[310] This affects the understanding of when there is a threat of significant harm to the environment. However, the ISA does not necessarily

[306] Polymetallic Nodules Regulations, Part V, Reg. 31(5), Polymetallic Sulphides and Ferromanganese Crust Regulations, Part V, Reg. 33(5).
[307] ISA, *Summary report of the Chair of the Legal and Technical Commission on the work of the Commission at its seventeenth session*, Para. 28
[308] See discussion in Chapter 3.3.1.
[309] See Chapter 1.1.
[310] See Chapter 3.3.2.

fail their responsibility due to lack of knowledge, but instead due to their lack of *action*.

Taking action is the most important step in the precautionary principle because without taking action there is nothing precautionary about it. Without it, the principle solely becomes a principle of observation. ISA failure to act is reflected in the absence of measures to be taken when an EIA determines that the activity will cause significant harm to the environment.[311] This also greatly affects the sponsoring states since they neither will know what to do when an EIA establishes that the activity will significantly harm the environment.

Thankfully the states will receive some guidance through the BBNJ-Agreement once that has entered into force, but it is the responsibility of the ISA to protect the marine environment from harm from activities in the Area. These regulations and procedures should therefore come from the ISA, not another legal instrument. The procedure of how to act when it has been established that an activity will cause significant environmental harm is also a crucial component of fulfilling the precautionary principle. Without such procedures, it will be difficult to effectively protect the marine environment. The failure to act is shown again in how the EMP-CCZ procedure was handled, as well as the absence of other established EMPs.[312] Due to this, the conclusion made is that the ISA does not fulfil the precautionary principle, and consequently their environmental responsibility.

However, it is not demanded by the ISA to fulfil their environmental responsibility from the day they were established. This is supported by article 145, where it says that actions need to be taken to protect the marine environment from harm coming from mining activities. The only indication of time available therefore seems to suggest that the protective measures only need to be in place before any harm actually can occur. The harm cannot come before any activities have begun, meaning that the ISA only have to have regulations

[311] See Chapter 3.3.2.
[312] See Chapter 3.3.3.

ensuring protection from the current activities allowed. Consequently, the ISA needs to implement their full environmental protective measures at the same time the exploitation phase begins. Because once the exploitation phase begins then all the activities related to deep-sea mining will be allowed.

Since the ISA can deter from the two-year rule, the exploitation phase continues to be far away in time. Though, as shown during the creation of the EMP-CCZ, the environmental rules must be put into place as early as possible for them to be as effective as possible.[313]A promising sign that the ISA are moving in the right direction is the current environmental protection of the draft exploitation regulations, containing environmental standards, an environmental management system as well as an environmental management and monitoring plan.[314] These regulations are not guaranteed to still be in the regulation once they enter into force, nor is it guaranteed what effect they might have, but it is a promising sign that the ISA will be able to fulfil their environmental responsibility before it is too late.

3.5 Conclusion

The ISA have so far adopted regulations governing prospecting and exploration of the resources in the deep sea. These govern what the contractor needs to submit in their application and what their responsibilities will be once the application gets accepted. In this Chapter, question number one, *what are the environmental obligations imbedded in the regime that governs deep-seabed mining and how does the ISA try to fulfil it?*, and two, *are the environmental regulations enough to fulfil the precautionary principle when it comes into effect?*, has been fully answered. Chapter Two established that the ISA had an environmental responsibility to adopt rules, regulations and procedures to protect the marine environment from harmful impacts that might arise from activities in The Area. The ISA has used this mandate, or responsibility, to adopt some regulations demanding that the contractors gather Environmental Baseline Data and make an EIA in certain situations. They have also created

[313] See Chapter 3.3.3.
[314] Draft exploitation Regulations, Reg. 45, 46 and 48.

an environmental management plan in the CCZ. Unfortunately, these parts have many shortcomings and the ISA has therefore not done enough to fulfil its responsibilities. Either the ISA needs to improve their protection of the marine environment, or another party should take a bigger responsibility to ensure it. This is discussed in Chapter 4.

4 Enforcement of the environmental responsibilities and liability for ISA, states, and contractors

4.1 Introduction

In the Chapters above we have found that the ISA currently does not fulfil the precautionary principle and therefore neither its environmental obligations. This raises the question of whether there should be a change in who should bear the greatest environmental responsibility or not. This Chapter will therefore aim to answer question number three of the thesis. To answer this question, it is important to establish certain things, such as the current responsibilities of all parties to mining activities, the liabilities of the parties if they fail to fulfil their responsibilities and how these responsibilities can be enforced.

The Chapter will begin by establishing the current environmental responsibilities of all parties concerning deep-sea mining activities. After that, the liability of the parties will be established and analysed, as well as how the responsibility and liability can be enforced. Once that is determined, a discussion on who between the ISA and sponsoring states should bear the biggest environmental responsibility moving forward.

4.2 The environmental responsibility of all parties in regards to deep-sea mining.

Before beginning any discussion on responsibility and liability, it is important to note that these two things are not the same. Mr Kearney, a member of the International Law Commission, claimed the difference to be that:

> "[T]he term 'responsibility' should be used only in connection with internationally wrongful acts and that, with reference to the possible injurious consequences arising out of the performance of certain lawful activities, the more suitable term 'liability' should be used."[315]

This is echoed by Sompong Sucharitkul, stating that state responsibility is referring to their responsibility in general under international law.[316] And liability refers to the state's obligation to pay compensation, or make reparations for the harm the activities under their jurisdiction or control has caused. In other words, one cannot be liable for an action he or she is not responsible for. In the scope of this thesis is it more relevant to discuss enforcement and liability together than responsibility and liability since it is important that if any harm comes to the marine environment, that harm can be remedied as soon as possible. The Chapters have therefore been divided into first establishing the environmental responsibility each party have. After that, there will be Chapters discussing the liability of when these responsibilities are not fulfilled, and how that liability can be enforced.

4.2.1 Environmental responsibility of the ISA

ISA is the body that has jurisdiction over deep-sea mining and creates the rules, regulations and procedures governing it. They get their mandate and their responsibility from LOSC. As noted above in Chapter 2.2.1, the ISA has the responsibility to take

> "Necessary measures […] in accordance with this convention with respect to activities in the Area to ensure effective protection for the marine environment from harmful effects which may arise from such activities".[317]

This Article includes a responsibility to prevent, reduce and control pollution and other hazards to the marine environment as well as prevent damage to the

[315] Yearbook of the International Law Commission 1973, p. 211.
[316] Sucharitkul (1996), p. 822.
[317] LOSC, Art. 145.

flora and fauna of the marine environment.[318] Expanding upon this, LOSC also notes that the ISA shall create

> ”Rules, regulations and procedures […] in order to secure effective protection of the marine environment from harmful effects directly resulting from activities in the Area or from shipboard processing immediately above a mine site of minerals derived from that mine site, taking into account the extent to which such harmful effects may directly result from drilling, dredging, coring and excavation and from disposal, dumping and discharge into the marine environment of sediment, wastes or other effluents.”[319]

Included in this is of course the reasonability to follow the precautionary principle.[320] The ISA are through this responsibility given a broad mandate to govern all of the activities in the Area. There is no other party who has this possibility. Instead, the other parties are only able to control the activities in a case-to-case situation. This allows the ISA to protect the environment on a level that neither the sponsoring states nor the contractors can.

According to article 153(4) of LOSC, the ISA “shall exercise such control over activities in the Area as is necessary for the purpose of securing compliance” through rules, regulations and procedures. The ISA even has the freedom to take any measures provided for in part XI of LOSC to ensure compliance as well as inspect all installations used for activities in the Area.[321] This gives the ISA the right to enforce the responsibility and liability of both sponsoring states and contractors. These provisions also allow the ISA to decide how this can be enforced.

The ISA has been given a wide responsibility, and opportunity, to ensure that the contractor complies with these obligations.[322] The ISA are, for example, given the opportunity to inspect all installations in the Area used for mining

[318] Ibid, Art. 145(a).
[319] Ibid, Annex III, Art. 17(2)(f).
[320] See Chapter 3.3.1.
[321] LOSC, Art. 153(5).
[322] LOSC, Art. 153(4).

activities as a tool to ensure such compliance.[323] This is a far-reaching compliance mechanism which could prove to be a very useful and effective tool to ensure compliance. However, so far there has not been a single inspection, nor a proper inspection mechanism established.[324] The only current tool for ensuring compliance, is the annual report contractors have to submit to the ISA.[325] Which is not a very effective and secure tool to ensure compliance, since it is based on self-reporting.

However, the ISA are planning on creating an inspection mechanism together with the new Exploitation Regulations. [326] From the current suggestion, the inspectors shall have the power to demand to see any document the inspector requires[327], question any person engaged by the contractor, as well as give instructions to the contractor if the inspectors suspects that the activities that the contractor conducts risk endangering a person's safety or causing harm to the environment in order to resolve the situation.[328] The instructions could mean that the contractor has to perform an activity in a specific way or temporarily suspend some or all of their activities.[329] If there are reasonable grounds to believe that the contractor is breaching, or in risk of breaching, their contract, the ISA are allowed to warn and demand that the contractor takes certain actions.[330] If the contractor fails to correct their activities, ISA are allowed to place financial penalties on the contractor in relation to the seriousness of their violation, suspend or terminate their contract.[331] The LTC has stated that it is important that the compliance mechanisms also establish cooperation with sponsoring roles in order to avoid duplication of administrative jobs and to more effectively achieve compliance.[332]

[323] Ibid, Art. 153(5).
[324] Jaeckel (2017), p. 107.
[325] The exploration Regulations, Annex IV Sec. 10.
[326] Draft Exploitation Regulations*, Part XI*, Art. 96 – 99.
[327] Ibid, Art. 98.
[328] Ibid, Art. 99(1) .
[329] Ibid.
[330] Ibid, Art. 103(1).
[331] Ibid, Art. 103(5)
[332] ISA, Implementing an Inspectorate: Inspection, compliance and enforcement under Part XI of UNCLOS, Para. 1.5.

The establishment of an inspectorate mechanism is needed and welcomed to properly ensure compliance from the contractors. The inspectors are also given vast and far-reaching power to fulfil their objectives. However, how effective the inspectorate mechanism will be will depend on how much it will be used. There are currently 31 active exploration contracts[333], and more can be expected in the future once the exploitation phase begins. Inspecting all these companies regularly will be very costly for the ISA. Hopefully, the inspections will not result in any errors being detected, meaning that the mechanism will only represent a cost to the ISA. That cost is, of course, worth paying to limit as much harm to the marine environment as possible, but it might be hard to convince the states bearing the cost for the ISA of that.[334] There is, therefore, a risk that the inspection mechanism gets underfunded, resulting in it being significantly more toothless than planned. For the ISA to fulfil their environmental mandate there must be effective mechanisms to ensure compliance. The ISA also sets an example for the sponsoring states through their lack of compliance mechanisms which could affect what can be reasonably demanded by them.

The ISA has a clear responsibility when it comes to environmental protection, but it comes with very loose guidelines on how it should fulfil that responsibility. So far they have created rules, regulations and recommendations concerning the prospecting and exploration phase of deep-sea mining. They also have some vague mechanisms to ensure compliance. Unfortunately, none of these measures is currently enough to fulfil the precautionary principle nor their other environmental responsibility.[335]

4.2.2 Environmental responsibility of the Sponsoring state

Article 139 of LOSC establishes that states are responsible for ensuring that the actions of contractors, whom they are in control of, conform with the

[333] ISA, *Exploration contracts.*
[334] See LOSC, Art. 171(a).
[335] See Chapter 3.4.

legislation governing the Area and deep-sea mining activities. They also have a general obligation under LOSC to protect and preserve the marine environment.[336] States have a direct responsibility concerning activities in the deep-seabed to minimize

> 'pollution from installations and devices used in exploration or exploitation of the natural resources of the seabed and subsoil, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices;'

This Article only regulates the state's responsibility concerning the pollution that deep-sea mining activities might cause. The state responsibility of minimizing pollution is reflected again in Article 209, stating that states shall adopt provisions that are "no less effective" than other international rules, regulations and procedures that aim to reduce and control pollution of the marine environment from activities in the Area. In other words, states shall adopt the same rules as the ISA creates concerning marine pollution from deep-sea mining. However, as is discussed in Chapter 4.3.2.1, the SDC has established that sponsoring states have the obligation to adopt measures that ensure the same level of environmental protection as the ISA.

The ISA puts responsibility on the sponsoring states as well through their regulations. As discussed in Chapter 3.3.1, the sponsoring states must apply a precautionary approach and use the best environmental practices regarding activities in the Area.[337] This has been further developed by the SDC in their advisory opinion[338], confirming that this responsibility also extends to ensuring that the contractor follows a precautionary approach.[339]

The new draft exploitation regulations echo the responsibility sponsoring states has to ensure that the contractors follow the relevant regulations, as

[336] LOSC, Art. 192.
[337] Polymetallic Nodules Regulations, Part V, Reg. 31(2), Polymetallic Sulphides and Ferromanganese Crust Regulations, Part V, Reg. 33(2).
[338] The Advisory Opinion is discussed in Chapter 4.3.2.1.
[339] SDC Advisory Opinion, Para. 133.

stated in article 139 of LOSC.[340] This includes the precautionary principle and the use of the best environmental practices. However, there is no talk about the reprimands that sponsoring states might face if they fail to ensure that. Under the new BBNJ-Agreement, sponsoring states also have obligations concerning specific harmful activities that deep-sea mining entails through the EIA. How this will affect the mining activities is still unclear since the agreement is yet to enter into force.

As we can see, sponsoring states' environmental responsibility mostly comes into play regarding the sponsored contractor. They are responsible for ensuring that the contractor reduces and controls their pollution and follows the precautionary principle. This is supposedly best made through national legislation under which they can exert control over the contractor, as seen exemplified in Article 209.

4.2.3 Environmental responsibility of the contractor

The contractors are the one who mainly carries out the activities in the Area. It is therefore important that they have the responsibility and are given the opportunities to carry them out with as little harm to the environment as possible. As discussed in Chapter 3.2.2, the contractors have an overall responsibility to carry out their mining activities in conformity with the ISA regulations and LOSC, which they have committed themselves to through the mining contract.[341] This responsibility entails an environmental one which contains many different environmental obligations, such as the need to gather environmental baseline data, carry out an EIA and the general obligation to follow the precautionary principle and use the best environmental practices.[342] Much of the responsibility for the contractor is also placed on monitoring the potential effects of the exploration activities.[343] The contractors are

[340] Draft Exploitation Regulations*, Part XI*, Art. 105.
[341] Polymetallic Nodules Regulations, Part V, Reg. 13, Polymetallic Sulphides and Ferromanganese Crust Regulations, Part V, Reg. 14.
[342] See Ibid, Annex IV, Sec. 5., and Chapter 3.3.
[343] Ibid, Annex IV, Sec. 5.3 – 5.5.

also responsible to notify the ISA if an incident occurs that could cause serious harm to the marine environment.[344]

The responsibilities placed on the contractors can be summarized in three words, *follow*, the rules, regulations and procedures when conducting the mining activities, *monitor*, the environment and the impacts that the mining activities might have on the environment, and *inform*, the ISA of the impacts and any potential significant environmental harm that the activities might cause.

The responsibility of the contractors might seem little and a bit light. It is, however, of the highest importance that all the contractors fulfil their responsibility because they are the ones who have a direct impact on the environment. If they do not fulfil their responsibility to follow, monitor and inform, then the ISA cannot properly do their part in creating rules, regulations and procedures that effectively protect the marine environment. As discussed in Chapter 3.3.2, it would be beneficial if there were more obligations for the contractors to inform the ISA of the marine environment and the impacts of the mining activities. Creating these obligations however falls on the ISA's responsibility, and until they are put into place, there is not much the contractors can do.

4.3 Liability and enforcement

4.3.1 Liability and enforcement of the ISA's environmental responsibility

As established, the ISA has the largest and the most comprehensive responsibility to protect the environment. However, as we have seen in Chapter 2.2.5, there is currently no direct way to hold the ISA liable if they decide to not fulfil their responsibility. The SDC are not able to make a direct judgement on any ISA rules, regulation or procedures.[345] Instead they have to rely

[344] Ibid, Annex IV, Sec. 6.
[345] See LOSC, Art. 189.

on cases being presented before them regarding contractual disputes or wrongdoings.[346] Thus far, there has not been any case lifted to the SDC.

That there is no possibility to ensure that the rules, regulations and procedures the ISA establishes to protect the marine environment are in accordance with their environmental responsibility is problematic since their eventual shortcomings will affect all of us. Instead, if the SDC had more tools to verify that the rules, regulations and procedures adopted by the ISA are consistent with their environmental responsibility, the precautionary principle and other environmental responsibilities would be more likely to be met. On the other hand, the fact that the ISA does not risk any repercussions is understandable, since all the parties who are a member of LOSC, which governs the responsibility of the ISA, is also a represented member of the ISA. The ISA is, in other words, a prolonged arm of the negotiators who created LOSC. The rules, regulations and procedures issued by the ISA are only interpretations of what the negotiators for LOSC established. At the same time, the precautionary principle, as well as the other environmental obligations that the ISA must fulfil, hold some concrete elements that the ISA are expected to fulfil. By enabling the SDC to verify that rules, regulations and procedures are consistent with these concrete elements and environmental obligations, the activities in the area are more likely to be conducted in a manner consistent with the environmental mandate given to the ISA.

That the ISA does not take their full environmental responsibility at the moment does not mean that it is too late. As noted above, there have so far only been two EIA's conducted, meaning that there are only two actors that could carry out activities that the LTC judges as potentially causing serious harm to the marine environment.[347] There are in other words still time to adopt new rules, regulations and procedures that ensure that ISA's environmental mandate is being fulfilled. Though, as we have seen regarding the EMP-CCZ, it is important that the measures are being taken before it is too late. If the ISA approve too many contracts before they establish enough environmental

[346] See Chapter 2.2.5.
[347] See Chapter 3.3.2.

protection, it will be the commercial decisions that control the environmental regulation, instead of the other way around, as advocated by the precautionary principle.

Even if the ISA has the responsibility to govern the Area and deep-sea mining, they are not the ones who are primarily using it. However, to ensure the best protection of the environment possible, they must start fulfilling their responsibility as soon as possible. Giving the SDC a broader mandate to control that the rules, regulations and procedures adopted are following the responsibility would potentially ensure better protection.

4.3.2 Liability and enforcement of the sponsoring state's environmental responsibility

4.3.2.1 Liability

As stated in article 139, the sponsoring states are liable when they fail to ensure that the contractors carry out their activities in conformity with LOSC and the ISA rules, regulations and procedures.[348] This is unless the sponsoring states have taken all necessary and appropriate measures to ensure effective compliance, and the contractor still does not follow. Then the sponsoring state will not be held liable.[349] Many of the state parties thought that their responsibility and liability as described in LOSC was unclear. They, therefore, demanded an advisory opinion from the SDC. [350] The question asked to the SDC was regarding the possibility to mitigate liability costs. Nauru meant that if a developing state failed in their responsibility, and therefore were to be held liable, it would be a bigger financial impact for them than it would a developed state. This would potentially discourage developing states from participating in deep-sea mining, thus going against the purpose of the deep-sea resources being a part of the common heritage of mankind. [351] The ISA council

[348] LOSC, Art. 139(2).
[349] Ibid.
[350] ISA, *Proposal to seek advisory opinion*.
[351] ISA, *Proposal to seek advisory opinion*, Para. 5.

took the liberty to re-phrase the questions, and instead asked the chamber the following questions:

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?"*[352]

On the first question, The SDC answered that sponsoring states have the responsibility to ensure, within the limits of their national legal systems, that contractors carry out their activities following its contract and the convention.[353] They noted that to avoid liability if damage occurs, necessary actions would be for the sponsoring state to adopt laws and regulations and take administrative measures that are reasonably appropriate to secure compliance by persons under its jurisdiction.[354] By stating that, they established that sponsoring states have due diligence to ensure that activities in the Area, are carried out in conformity of part XI, LOSC.[355] Through their advisory opinion, the SDC recognizes that the "responsibility to ensure" is far-reaching, but not strict.[356] They also declare that compliance from the sponsored contractor

[352] SDC Advisory Opinion, p. 15.
[353] Ibid, Para. 118.
[354] Ibid, Para. 119.
[355] Ibid, Para. 120.
[356] Ibid, Para. 110.

does not have to be achieved in every situation to not trigger liability for the state.[357] This means that there is a focus on what measure are taken, instead of what result is achieved through it. But the state has to use adequate means, to use its best possible efforts and to do the utmost to achieve compliance.[358] This responsibility is equally for all sponsoring states[359], thus preventing the risk of 'states of convenience'. The court also stated that there is no hindrance for the ISA to introduce a strict liability for sponsoring states later through the exploitation regulations.[360]

Having a strict responsibility would make it impossible for the sponsoring states to be without liability if any contractor commits any wrongdoing. That would either lead to states having to put down enormous amounts of time and resources to ensure compliance, or not bothering to sponsor contractors at all. Neither of those two scenarios is a result of effective legislation.

Further, The Chamber noted that the duty of due diligence may vary as to what "appropriate and necessary steps" would be depending on the level of risk of the planned activity.[361] This means that the standard of due diligence would be stricter for activities within the exploitation phase than the prospecting once since it would entail more activities that could be harmful to the environment.[362] The due diligence obligation might also change over time as technical and scientific advances were made.[363] A sponsoring state, therefore, needs to be progressive and follow the adopted rules, regulations, and procedures by the ISA. This strengthens the possibility for the ISA to adopt newer and stricter regulations to ensure better protection of the marine environment.

The chamber also placed some direct, more concrete, obligations on the states, such as the precautionary principle[364], the need to use the best

[357] Ibid, Para. 109 – 110.
[358] Ibid.
[359] Ibid, Para. 159.
[360] Ibid, Para. 209.
[361] Ibid, Para. 117.
[362] Ibid.
[363] Rayfuse (2011), p. 478.
[364] SDC Advisory Opinion, Para. 127.

environmental practices, and to conduct EIAs.[365] They noted that a sponsoring State's compliance with the direct obligations can be seen as a relevant factor in determining whether they satisfy due diligence obligation, and thus should not be held liable for any damages, or not.[366]

Continuing, the chamber noted that both the ISA and sponsoring states have the obligation to use the precautionary principle "to ensure effective protection for the marine environment from harmful effects which may arise from activities in the Area". as it is stated in both the Polymetallic Nodule and Sulphides Regulation, articles 31 and 33 respectively.[367] The chamber concludes that the precautionary principle becomes binding through these articles.[368] As is stated above, the precautionary principle shall only be applied by states "according to their abilities".[369] However, the court disregards this wording, declaring that this would open up the possibility for "states of convenience" where some countries would enforce lower standards on the sponsored contractors than others, which ultimately would risk harming the marine environment.[370]

Regarding question two, concerning the extent of liability, the SDC declared that a state will only be liable when the state has failed their responsibility, as described under question one, and that there has been actual damage.[371] It is important that there is a causal connection between the damage and the failed responsibility for a state to become liable.[372] The damage that a sponsoring state might be held liable for includes any damage to the Area, the resources classified as the common heritage of mankind, or the marine environment.[373] The liability of the sponsoring state would only be for the actual amount of damage caused.[374] The liable state could then have to pay remedies to "the

[365] Ibid, Para. 122.
[366] Ibid, Para. 123.
[367]Ibid, Para. 125.
[368] Ibid, Para. 127.
[369] See Chapter 3.3.1.
[370] SDC Advisory Opinion, Para. 158 - 159.
[371] Ibid, Para. 181 – 182.
[372] Ibid, Para. 184.
[373] Ibid, Para. 179.
[374] Ibid, Para. 195.

Authority, entities engaged in deep-seabed mining, other users of the sea and coastal states".[375] If the Authority receives remedies then they could be responsible to use it on behalf of mankind to address the damage.[376]

This creates three scenarios where no one is held liable for the damage that occurred 1) where damage occurs even if the sponsoring state and the contractor have fulfilled their responsibilities, 2) where the sponsoring state has fulfilled their responsibility, the contractor has not, but their assets are unattainable or not enough, and 3) where the sponsoring state has failed their responsibility, but it has no causal connection with the damage occurred.[377] This means that there are scenarios where there is no one who must pay remedies for the damage, which could finance a project to restore the damage. To fix these gaps, the SDC suggested that the ISA established a trust fund[378], which is what the ISA tries to establish through the exploration regulations.[379] It is important that these liability gaps are filled since it otherwise might be scenarios where massive areas of the deep-seabed are significantly harmed, but no one has the financial means to control and restore it.

Finally, the SDC discussed the third question regarding what the appropriate and necessary actions a sponsoring state had to take to not be held liable. Nauru argued that it should suffice with a contract between the sponsored contractor and sponsoring state. This was shut down by the SDC, which instead reaffirmed that a legislative framework was required.[380] This framework would depend on the legal system used by the sponsoring state, but it should include enforcement mechanisms to actively supervise the activities and coordinate the supervision between the sponsored state and the ISA.[381] There should also be some obligations for the contractor after the exploration phase was done.[382] The SDC does not want to comment on if any specific regulations are needed, but declares that a sponsoring state has to at least have the

[375] Ibid, Para. 179.
[376] Rayfuse (2011), p. 482.
[377] Ibid, p. 484.
[378] SDC Advisory Opinion, Para. 205.
[379] Draft Exploitation Regulations, Sec. 5.
[380] SDC Advisory Opinion, Para. 224.
[381] Ibid, Para. 218.
[382] Ibid, Para. 221.

same minimum protection of the marine environment as adopted by the ISA.[383] The sponsored state are free to have more rigorous protection than that, but the legislation adopted by the ISA works as a minimum requirement. It is also required by the sponsored state to make all the obligations on the contractor enforceable.[384] These above-mentioned actions are not needed to sponsor a contractor, nor sign a contract with the ISA, but it is necessary if the sponsoring state wants to avoid liability.[385]

A state's liability for environmental damage has been tested by the International Court of Justice (ICJ) in a case between Costa Rica and Nicaragua.[386] This was the first time the ICJ awarded compensation for damage to the environment. The case revolved around a situation where Nicaragua had been occupying and using territory in Costa Rica, and through that breached treaty obligations.[387] The court judged that Nicaragua was to pay compensation to Costa Rica for the damage to the environment and that the parties were to settle the value of the compensation between themselves.[388] And if they could not settle for a sum within 12 months, the parties should return to the ICJ.[389] A sum was never agreed upon and the case was therefore taken up by the ICJ again. ICJ pointed out two important factors in this case. First, that the compensation for the damaged environment would include compensation both for the actual damage and the costs and expenses occurred for Costa Rica.[390] Second, that there has to be a direct connection between the damage caused by Nicaragua and the costs they had to compensate Costa Rica for.[391] This led to the court denying Costa Rica compensation for certain things, such as the insurance of the aircraft used for the restoration and the regular wages of the

[383] Ibid, Para. 240.
[384] Ibid, Para. 239.
[385] Ibid, Art. 219.
[386] *Costa Rica v. Nicaragua.*
[387] *Costa Rica v. Nicaragua.*
[388] Ibid, Para. 142.
[389] Ibid.
[390] Ibid, Para. 42.
[391] See Ibid, Para. 72, 115, and 129.

government employees working on issues connected to the damaged area due to lack of direct connection to the damage.[392]

The Advisory Opinion and the case from the ICJ prove that there is a real possibility for sponsoring states to be liable for any damage occurring to the marine environment. The SDC puts a far-reaching liability on the sponsoring state which demands due diligence in their legislation against the sponsored contractors. However, the SDC are clear with the fact that the liability does not demand more than due diligence and that they only have to keep the same level of environmental protection as the ISA demands. The responsibility to adopt progressive and effective environmental protection regulations, therefore, falls yet again on the ISA, which is led by states who are affected by the regulations. Without the possibility for another entity to hold the ISA liable when the regulations governing the protection of the marine environment are not enough, the states who want to sponsor contractors have little incentive to work for securing a level of environmental protection that fulfils ISA's environmental mandate. The SDC also opens up the possibility for the ISA to adopt stricter rules regarding environmental protection which would be included in the sponsoring states' due diligence.[393] This is seemingly something that the ISA has acted upon, due to the change of wording in the draft exploitation regulations.[394]

The ICJ through their decision implements a narrow compensational liability, demanding that all the costs compensated need to have a direct connection with the unlawful act or restoration of the damaged area. This, together with the situations of liability gaps, risks creating situations where there are expenses in connection with restoring the marine environment which is not compensated. This might be positive for many of the sponsoring states since it might lower the amount of money they must pay, but it is directly negative for the environment. The ISA, therefore, needs to address these issues. This can either be done by explicitly including more costs that the sponsoring state

[392] Ibid.
[393] Rayfuse (2011), p. 478.
[394] Draft Exploitation Regulations, Annex X, Sec. 3.3.

should compensate, or by establishing a fund which covers these situations, as is included in the draft exploitation regulations[395]. If the ISA continues with the plans of establishing an environmental fund, it must contain enough money to cover all types of costs. Otherwise, the problem where the damage caused to the environment is not restored will still exist. This might lead to the damage spreading, causing even more harm to the environment, which would mean a tremendous failure from the ISA on their environmental mandate.

4.3.2.2 Enforcement

To effectively implement liability on the sponsoring states, it must also be possible to enforce it. When the ISA, or another member state, believes that a sponsored state has failed their responsibility or not fulfilled its liability, they can take that sponsoring state to the SDC.[396] The SDC's decisions will be enforceable in the territories of the state parties in the same way as judgements made from the state parties highest court.[397] If the SDC finds that the sponsoring states have "grossly and persistently violated" their responsibility stated in Part XI of LOSC, the Assembly can suspend the rights and privileges of that state.[398] This could be an effective last resort if the sponsoring state does not implement other decisions by the ISA or judgements from the SDC, since it will affect the state as well as its sponsored contractors.

But to have something to enforce, the SDC first needs to decide that the sponsoring state has failed their responsibility, or in other words, not acted with due diligence. How this judgement will be made is still unclear since there still have not been any cases at the SDC. Even if the SDC mentions that there are no absolute provisions that need to exist on a national level, the ISA should adopt recommendations and guidelines for the sponsoring states to help them in their national legislative work. Even if the liability of sponsoring states can be enforced, it is still better if the damage is avoided altogether through effective and proper national legislation. This would also help the

[395] Ibid, Sec. 5, Para. 54.
[396] LOSC, Art. 187(b), (c) and (e).
[397] Ibid, Annex VI, Sec. 4, Art. 39.
[398] Ibid, Art. 162(2)(t) and Art. 185.

SDC decide what is necessary from the sponsoring states to fulfil their due diligence. Otherwise, there is a risk that the bar for due diligence is too low or too high, which might result in more situations where no, or too much, compensation for damage is paid.

4.3.3 Liability and enforcement of the contractors environmental responsibility

As shown in Chapters 3.3 and 4.1.3, the contractor has many environmental obligations they are responsible to fulfil. If the contractor has failed their responsibilities, then it shall be liable for the actual amount of any damage occurring due to its wrongful acts or omissions.[399] This also includes the costs of any reasonable measures taken to prevent or limit the damage suffered to the marine environment.[400] The ISA, or other parties, can hold the contractor liable through the SDC.[401] As discussed under Chapter 4.2.2 and 4.3.2, the sponsoring shall also be able to hold the sponsored contractor liable through their national legislation. Contrary to the liability legislation under ISA, the liability at a national level does not only have to be remedied economically but could be through criminal and other civil sanctions as well.[402] This is in line with SDC's advisory opinion, opening up the possibility for rules and regulations to be more stringent than the ones ISA have adopted.[403]

4.4 Who between the ISA and sponsoring states should bear the responsibility to ensure that the environmental protection is made

Previously in the Chapter, we have established the environmental responsibility and liability of all parties as well as how it can be enforced. To answer

[399] Ibid, Annex III, Sec. 16.1.
[400] Ibid.
[401] LOSC, Art. 187(c) – (e).
[402] ISA, *Comparative Study of National Legislation*, Para. 94.
[403] SDC Advisory Opinion (2011), Para. 240.

the third question of the thesis regarding who should bear the biggest environmental responsibility moving forward, an analysis of the different responsibility, liability and enforceability have to be made. This Chapter will however not discuss and analyse the responsibilities and liabilities of the contractors since they have very limited self-governing possibilities. Instead, we will look at the responsibilities and liabilities, or lack thereof, and the enforceability of such for ISA and sponsoring states. Drawing from that analysis, a conclusion will be made regarding which party should bear the biggest environmental responsibility to fulfil the environmental obligations connected to deep-sea mining, and what that might look like.

The ISA has a wide and general obligation to ensure the protection of the marine environment from harmful effects deep-sea mining activities might cause.[404] The ISA tries to fulfil this obligation by adopting rules, regulations and procedures related to mining activities and the marine environment. However, so far, the ISA has not succeeded in fulfilling their environmental responsibility, most notably by failing to satisfy the precautionary principle.[405] However, as mentioned in Chapter 3.4, it is not necessary for the ISA to fulfil their environmental mandate at this point. Nonetheless, the failure is serious and alarming since that protection is needed once commercial mining is allowed. Even if the ISA continue to fail in their environmental responsibility, they cannot effectively be held liable.[406] ISA, in their current form, are therefore not especially reliable when it comes to protecting the environment. They have been given a large mandate and opportunity to act differently, but so far they have not used it.

The sponsoring state on the other hand has one vast environmental obligation under Article 192, as well as one more concrete concerning their obligations to ensure compliance by the contractors[407]. There is also a liability regime[408] and an enforcement mechanism[409] for when the sponsoring states have failed

[404] LOSC, Art. 145.
[405] See Chapter 3.4.
[406] See Chapter 4.2.1.
[407] LOSC, Art. 139(1).
[408] See Chapter 4.3.2.1.
[409] See Chapter 4.3.2.2.

their responsibility and damage has occurred. However, there are many liability gaps imbedded in that regime, and due to the nature of states being sovereign, there is no absolute way to force a state to pay their remedies for when damage has occurred. Consequently, putting a bigger environmental responsibility on the sponsoring states is also connected with some risks.

The most important thing in regard to protecting the environment is the possibility to create international regulations that are enforceable equally to all. The only party that has that competence is ISA. They are also the only ones able to account for cumulative impacts on the marine environment coming from many different mining sites. To be able to have an overview of all the mining sites, and adopting regulations that affect all parties involved is a massively important tool to efficiently protect the marine environment. Even if they are currently failing in their responsibility, they are still the ones who should bear the biggest responsibility in regard to protecting the environment moving forward.

For the ISA to fulfil their responsibility, they could adopt some of the changes suggested in Chapter 3.3. These changes would entail stricter and bigger obligations on the contractors. To be sure that the obligations are followed by the contractors, it is necessary with a proper compliance system. As discussed in Chapter 4.2.1, this is something that is missing from the rules, regulations and procedures adopted by the ISA. This is, therefore, also something that needs to change.

This thesis suggests that the ISA use the sponsoring states to achieve compliance more than they do today. By focusing more on guiding sponsoring states in their responsibilities and adopting regulations to ensure compliance from the sponsoring states in their efforts concerning the contractors, the ISA can more efficiently ensure that the contractors follow their obligations and fulfil their responsibilities. That would result in more effective compliance from the contractors since the sponsoring states are allowed to use both criminal and civil sanctions on the contractors. It is not necessary to implement a strict liability for the sponsoring states, but they should, nonetheless, have better ways to ensure compliance via the sponsoring states, than the ISA does

themselves. This could be accomplished by creating better guidelines for the sponsoring states and establishing a panel of experts to help the sponsoring states, as well as creating more ways to enforce liability and changes when needed. The ISA should also lower the threshold of when they can suspend a state member's rights and privileges, making it a more useful sanction to ensure compliance.

For this to work effectively, the ISA must have far-reaching powers to investigate a sponsoring state's efforts in ensuring that the sponsored contractor is doing the right thing. The ISA will also have to double-check documents and some specific cases to ensure that the sponsoring state is not violating their responsibility. This would help in ensuring that companies comply with the rules in place, which is very important since they are the ones committing activities that could cause serious harm to the marine environment.

To ensure that the sponsoring states do their job, they must have a judicial body that regulates their responsibility and guides them in how they should act. That is ISA's responsibility. The only problem is that ISA has not done it properly enough so far.[410] Therefore, there needs to be a way to control that the ISA fulfils their environmental responsibility. That could be through asking for more advisory opinions from the SDC and obliging themselves to thoroughly consider those advised changes. Another solution would be to expand the influence that the LTC have on creating environmental protective regulations. Implementing a way for the LTC to control that the ISA fulfils their environmental mandate is important to establish effective environmental protection. This could prove to be an especially important tool now since the Council is currently debating the draft exploitation regulations that the LTC put forth back in 2019. These discussions would be good to include the LTC to ensure that the discussions don't lower the environmental protection that the provisions first entailed.

Once the draft regulations are completed, the ISA could also ask for an advisory opinion from the SDC on the articles to yet again ensure that the

[410] See Chapter 3.4.

regulations result in ISA fulfilling their environmental obligation. Because once the draft exploitation regulations are adopted and have entered into force, the possibility to change anything will be greatly limited for the ISA. The time and place to act is now.

4.5 Conclusion

Chapter four has examined the environmental responsibilities and liabilities of all parties as well as how they can be enforced. The ISA has the overall responsibility to create rules, regulations and procedures for the other parties to follow. There is however no direct way for the ISA to be held liable or to enforce their responsibility. The sponsoring states have the overall responsibility to overview the contractors and ensure that they follow the framework that the ISA has created. They can be held liable through the SDC if they do not fulfil their responsibility. The contractors have the responsibility to follow these rules, regulations and procedures to create as little harm to the marine environment as possible. They can also be held liable if they fail to fulfil their responsibility. This Chapter also answers question number three, *Who can most effectively enforce and fulfil the environmental obligations and therefore should bear the biggest environmental responsibility moving forward? The ISA or the sponsoring states?* The chapter concludes that even if the ISA cannot be held liable, they should still be the party which bears the biggest responsibility to protect the marine environment since they are the only ones able to control all activities in The Area. To properly protect the environment moving forward, they should use their mandate to control the sponsoring states more in their work. As always with international organisations, it is difficult to get states to limit their own sovereignty. It is therefore unlikely that the proposed development regarding sponsoring states will materialise, even if it would result in a better protection for the environment.

5 Conclusion

The possibilities promised by the resources within the Area are vast and enticing. The developing states see them as proof of new economic order and a possibility for economic growth for their country, the companies involved see them as a way to expand their market shares and earn more revenue, and the world sees it as a possibility to ensure enough resources for an environmental transition. However, there are also many environmental risks connected with these possibilities. With little knowledge of how the deep-seabed works, and worrisome signs of its regeneration of it, it is important to tread lightly to not cause any permanent damage.

This thesis has addressed some potential issues of deep-sea mining and concretized the environmental responsibilities connected to it. These responsibilities are placed on the ISA and sponsoring states through LOSC. The ISA has an obligation to adopt regulations to ensure effective protection of the marine environment as well as fulfil the precautionary principle. from the damage that the activities in the Area might cause. This responsibility has been uttered by placing further obligations, such as the precautionary principle, on sponsoring states and, especially, contractors who are the ones who will conduct the mining activities. The work that the ISA has done so far to protect the marine environment has, however, not been enough.

The ISA are not forced, and cannot be expected, to satisfy their environmental responsibility immediately after being established. It is not especially important to fulfil their responsibility even now since there is only a limited amount of activities that can be expected to cause harm to the marine environment. Instead, that fulfilment should be made once the exploitation phase begins. It is important to note that the earlier these regulations to protect the environment are made, the easier it will be going into the future. Because once the exploitation phase begins, the opportunity for the ISA to implement changes and establish new progressive environmental obligations will be greatly reduced. The best time to act is now.

Going into the future, the ISA are still the ones who should bear the greatest environmental responsibility. ISA are the only ones that can govern the work of all the sponsoring states and contractors concerning environmental protection. They should however place a bigger burden on the sponsoring states to carry out the environmental responsibility. The sponsoring states have a bigger opportunity to ensure compliance from the contractor. So when protecting the environment the ISA needs to adopt regulations that give them more power to ensure compliance from the sponsoring states. It is also important that there can be someone to ensure that the ISA does enough in this regard to ensure effective environmental protection. This thesis, therefore, calls for more involvement from the SDC and the LTC when creating the environmental obligations affecting deep-sea mining activities.

The findings of this thesis are most relevant for the ISA in their future work. As noted throughout the thesis, there are many issues that they need to address to ensure effective environmental protection. However, the ISA are not the only ones who can use these findings. It is also relevant for states that need to adopt national legislation regarding seabed mining within their national jurisdiction. It is hoped that states can use this thesis to reflect on what needs to be included in national legislation to provide effective protection of the marine environment. The finding that the protection that the ISA has given the marine environment is not enough can hopefully be a lesson for the states who are adopting, or have adopted, legislation governing seabed mining within their national jurisdiction.

The ISA has implemented many good regulations and procedures which offer good protection of the marine environment. Nevertheless, the bar of protection from LOSC is high, and rightly so. If the ISA fails with their responsibility, that could have an immense negative impact on the marine environment, and possibly an impact that will be hard to reverse. It is therefore important that they step up for the task and fulfil their responsibility. Because as the resources of the deep sea are viewed as the common heritage of mankind, so should the future of our world. The ISA needs to yearn for that as much as they do the development of deep-sea mining.

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