frontiers | Frontiers in Marine Science

TYPE Policy and Practice Reviews
PUBLISHED 05 June 2024
DOI 10.3389/fmars.2024.1371511

OPEN ACCESS

EDITED BY
Letian Ma,
Ministry of Natural Resources, China

REVIEWED BY
Zhang Jiwei,
State Oceanic Administration, China
Timo M. Koivurova,
University of Lapland, Finland

*CORRESPONDENCE
Zhijun Zhang
lzuzhangzhijun@163.com

†These authors have contributed equally to this work and share first authorship

RECEIVED 16 January 2024
ACCEPTED 13 May 2024
PUBLISHED 05 June 2024

CITATION
Song Y, Mao Z and Zhang Z (2024) Strategic environmental assessment in areas beyond national jurisdiction: existing regimes, challenges, and prospects.
Front. Mar. Sci. 11:1371511.
doi: 10.3389/fmars.2024.1371511

COPYRIGHT
© 2024 Song, Mao and Zhang. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

Strategic environmental assessment in areas beyond national jurisdiction: existing regimes, challenges, and prospects

Yuanming Song[1†], Zhengkai Mao[2†] and Zhijun Zhang[3*]

[1]School of International Law, China University of Political Science and Law, Beijing, China, [2]School of Law, Ocean University of China, Qingdao, China, [3]Institute of Marine Development, Ocean University of China, Qingdao, China

As a system based on domestic law, strategic environmental assessment (SEA) can take environmental factors into consideration in the formulation of policies, plans, and programmes, and has received much attention in the field of environmental governance of areas beyond national jurisdiction (ABNJ). The recently adopted "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" (BBNJ Agreement) incorporates SEA into its text, but the BBNJ Agreement has not yet entered into force. Of other existing schemes governing ABNJ, some lack provisions on SEA, and some do not set SEA as a binding legal obligation. Conducting SEA in ABNJ faces several challenges, including fragmented rules and reluctance on the part of countries, which lead to unsatisfactory results. Therefore, this study suggests that the BBNJ Agreement should collaborate with regional treaties and international organizations in the future to complement and reinforce current systems and regulations, improving compatibility among them. At the same time, consideration should be given to identifying the protection of BBNJ as a common concern of humankind (CCH) to strengthen the implementation of future SEAs.

KEYWORDS

areas beyond national jurisdiction, environmental impact assessment, strategic environmental assessment, BBNJ Agreement, international cooperation

1 Introduction

Human activity is an important factor affecting the marine ecological environment and its biological resources. The assessment of different human activities and their potential for significant impacts on marine species, habitats, and ecosystems is an essential component of any ocean governance regime (Barnes and Long, 2021). Strategic environmental

assessment (SEA) has long been recognized as an important tool for integrating environmental and sustainability considerations into planning and decision-making processes (Craik and Gu, 2019).

On June 19, 2023, with the joint efforts of the whole international community, the 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 (BBNJ Agreement) was adopted (UNGA, 2023). The BBNJ Agreement reflects the latest measures on environmental governance of areas beyond national jurisdiction (ABNJ). Article 39 of the BBNJ Agreement provides relevant provisions for SEA, but the Agreement itself has not yet entered into force until recently. This has drawn much attention to the issue of conducting SEA in ABNJ. In the existing literature, research results for specific SEA procedures and best practice issues are mostly in the context of comparative or domestic law (Partidário, 2003; Clayton and Sadler, 2005; Tetlow and Hanusch, 2012). There is insufficient research on the specific provisions and implementation procedures for SEA in existing schemes in international law, especially in schemes governing ABNJ. Therefore, this study explores three main aspects of these issues:

(1) whether there already exists a robust framework for SEA in ABNJ in international law;
(2) what difficulties are currently faced in carrying out SEA in ABNJ; and
(3) how to address the aforementioned challenges and promote the implementation of SEA in ABNJ in the future.

This study first analyzes the definition of SEA, as well as the emergence and development of SEA in domestic law and its incorporation into international law. Through legal analysis and treaty interpretation, specific SEA provisions in international treaties currently applicable to ABNJ were also studied. The dilemma of countries in carrying out SEA in ABNJ was then analyzed with respect to: the fragmentation of SEA rules, the flaws in the existing SEA system, and the lack of motivation for countries to carry out SEA. Finally, the possibility of interaction and cooperation between different current governance frameworks and mechanisms was studied, and, from the perspective of the common interests of humankind (CIH), this paper proposes the protection of BBNJ as a common concern of humankind (CCH) to enhance the implementation of SEA.

2 Development and essential characteristics of SEA

SEA has emerged as a result of people's reflections on the limitations of the environmental impact assessment (EIA) system. Although various parties have different definitions of EIA (UNEP, 1987; International Association for Impact Assessment, 1999), its core characteristic lies in the assessment of the impacts of specific projects and activities on the environment. During the implementation of EIA, people realized that simply assessing specific projects and activities was no longer sufficient to meet the needs of comprehensive environmental protection and sustainable use of resources. When assessments are limited to specific projects or activities, it becomes challenging to manage the cumulative impact and therefore thoroughly explore alternatives (Sander, 2016). In the United States National Environmental Policy Act of 1969, SEA was introduced into law for the first time (US Congress, 1970). In the mid-1970s, several countries began expanding environmental assessment to the strategic level. Since the late 1980s, environmental assessments have been extensively utilized in numerous countries in decision-making processes, including policies, plans, and programmes (Zhang et al., 2019).

Unlike EIA, SEA considers the potential environmental impacts during the initial stages of decision-making. Peter Wathern proposed that, in principle, EIA could apply to all activities that are likely to have significant environmental impacts, irrespective of their type. Thus, the potential scope of a comprehensive EIA system could encompass the approval of policies, plans, programmes, and projects at all levels of government. This was a relatively early idea about SEA, but the term "SEA" had not yet been coined at that time, and was only referred to as "comprehensive EIA system" (Wathern, 1990). The term SEA reportedly was first used in a draft report to the Commission of the European Communities in 1989 (Tetlow and Hanusch, 2012). At present, there is no standardized definition of SEA, and variations exist in the definitions provided by different entities. A more representative one is given by the United Nations Environment Program (UNEP), that is, SEA refers to "a formal, systematic process to analyze and address the environmental effects of policies, plans and programmes and other strategic initiatives" (UNEP, 2004). This definition defines the scope of SEA as "policies, plans, programmes, and other strategic initiatives." From the standpoint of the object to be assessed, it generally encompasses all strategic levels except for specific activities. In terms of institutional function, it highlights the need to "analyze" and "address" environmental effects.

As the world pays greater attention to international environmental issues, countries realize the need to ensure that their activities outside their territory should not have adverse effects on the environment and resources that belong to all humanity. Therefore, EIA has gradually been introduced into the field of international law. Although the Stockholm Declaration of the United Nations Conference on the Human Environment of 1972 did not directly mention EIA, Principles 14 and 15 emphasize the coordinated development of the economy, society, and the environment through reasonable planning, which is usually interpreted as implicitly requiring the implementation of EIA (Deng, 2015). Beginning from this point, a sequence of international treaties incorporating EIA provisions have appeared in the field of international law (Craik, 2008). Compared with EIA, SEA is rarely stipulated in international treaties, and most treaties are regional ones. For example, the Framework Convention on the Protection and Sustainable Development of the Carpathians was adopted in 2003, and it mandated a SEA system (UN, 2003). But the convention only includes several member states from the Carpathian region. Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (Kiev Protocol) also

provides for SEA, but the current membership of this protocol remains confined to European countries, although it is open to all UN member states (UNECE, 2014, ECE, 2014). The international multilateral treaties that mandate the conduct of SEA in ABNJ only include: the Convention on Biological Diversity (CBD) of 1992, Draft Guidance on Biodiversity-inclusive Strategic Environmental Assessment of 2006 (2006 SEA Guidance), Draft Guidance on Biodiversity-inclusive Strategic Environmental Assessment in Marine and Coastal Areas of 2012 (2012 SEA Guidance), and the BBNJ Agreement, which is currently not in force.

3 Provisions on SEA for ABNJ in international treaties

3.1 Global treaties

3.1.1 CBD and related documents

Article 4 of the CBD stipulates that the provisions of this Convention apply to activities carried out by contracting parties in the ABNJ (UN, 1992). Section 1(b) of Article 14 of CBD requires parties to introduce appropriate arrangements to ensure that the environmental consequences of its programmes and policies that are likely to have significant adverse impacts on biological diversity are duly taken into account. This provision contains the basic elements of SEA.

The Conference of the Parties (COP) to the CBD subsequently adopted a resolution that defined SEA and adopted a series of guidelines. The resolution adopted by the COP-06 in 2002 defined SEA as “the formalized, systematic, and comprehensive process of identifying and evaluating the environmental consequences of proposed policies, plans, or programmes to ensure that they are fully included and appropriately addressed at the earliest possible stage of decision-making, on a par with economic and social considerations” (UNEP, 2002). Following the 2006 SEA Guidance adopted by COP-08 in 2006 (UNEP, 2006), the 2012 SEA Guidance was adopted by COP-11 in 2012 (UNEP, 2012a). The latter took particular account of the complexity of ABNJ and provided a useful reference for countries to conduct SEA. In the 2012 SEA Guidance, subjects responsible for conducting SEA are typically national authorities, but can also include regional authorities or international agencies. SEA objects encompass policies, plans, and programmes. SEA aims at better strategies, ranging from legislation and country-wide development policies to sectoral and spatial plans. The 2012 SEA Guidance sets the environmental assessment threshold as “potential biodiversity impacts” (UNEP, 2012b).

The 2006 and 2012 SEA Guidance drafts are not legally binding in nature, and the successful implementation of these agreements depends entirely on the voluntary cooperation of the countries involved. In the 2015 “Certain Activities Carried Out by Nicaragua in the Border Area” case, Article 14(1) of the CBD was invoked. Costa Rica believed that this provision was merely an “introduction of appropriate procedures.” The International Court of Justice (ICJ) also held that “the provision at issue does not create an obligation to carry out an environmental impact assessment” (ICJ, 2015a). The 2006 and 2012 SEA Guidance drafts also frequently use terms such as “where possible” and “voluntary,” indicating that the two documents are soft-law documents and do not have mandatory legal effect.

3.1.2 UNCLOS and the BBNJ Agreement

Part 12 of the United Nations Convention on the Law of the Sea (UNCLOS) stipulates the protection and preservation of the marine environment, and Article 206 stipulates the obligation of States parties to assess the potential effects of planned activities on the environment. It is generally believed that Article 206 refers only to EIA and does not include SEA. As early as in the meeting of the preparatory committee for the BBNJ Agreement, some countries pointed out that the “planned activities” referred to in Article 206 of UNCLOS meant specific activities under national jurisdiction or control, that is, project-level activities, excluding policies, plans, programmes (UN, 2016, 2017). Some researchers have also studied the interpretation of EIA rules in international judicial practices, including the 2010 Uruguay River Pulp Mill case (ICJ, 2010), the advisory opinion on the responsibilities and obligations of states with respect to activities within the international seabed area by the International Tribunal for the Law of the Sea (ITLOS) in 2011 (ITLOS, 2011), and the Costa Rica v. Nicaragua case of 2015 (ICJ, 2015b). As far as these judicial practices are concerned, activities pertain to specific proposed actions rather than policies, plans, and programmes. Hence, Article 206 of UNCLOS should refer to EIA instead of SEA (Shi and Chen, 2020).

The BBNJ Agreement clearly states that conducting SEA in ABNJ is an obligation for States parties, which exceeds the scope of Article 206 of UNCLOS. Before the intergovernmental meeting to draft the BBNJ Agreement, the United Nations General Assembly (UNGA) resolution 72/249 required that its work and results should be fully consistent with the provisions of UNCLOS (UNGA, 2018a). The provisions on SEA in the BBNJ Agreement further developed the relevant provisions in UNCLOS. Some researchers have also explained this and believe that, according to Articles 237 and 311 of UNCLOS, such inconsistencies within UNCLOS may be deemed acceptable as long as they align with the intent and goals of UNCLOS (Craik and Gu, 2022). Although the BBNJ Agreement has been adopted, it still needs sufficient levels of ratification by national governments to take effect.

The International Seabed Authority (ISA) is an international organization established in accordance with UNCLOS to organize and control activities within the international seabed area (Area) and manage the resources of the Area. The ISA has developed a set of regulations, which clearly state that entities should conduct EIA for mineral exploration and development activities within the Area. While the regulations of and recommendations by the ISA may not explicitly outline the requirements for conducting SEA, they do reflect relevant elements of SEA. For example, in Annex I paragraph 61 of the “Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area,” it is clearly stated that “Modelling studies should be undertaken collaboratively and linked closely to the field studies so as to assess extinction risks under various management strategies, including various options for

the design of protected areas. Overall conservation strategies need to take into account other natural and anthropogenic impacts on faunal communities" (ISA, 2019).

3.2 Regional treaties

3.2.1 Antarctic Treaty System

Some researchers believe that existing practices under the framework of the Antarctic Treaty already reflect relevant elements and principles of SEA (ASOC, 2001; ASOC, 2002). To determine if SEA is included in the Antarctic Treaty System, it is necessary to examine its provisions on objects of assessment. As per Articles 31 and 32 of the Vienna Convention on the Law of Treaties (VCLT), it is essential to thoroughly consider the terms, context, and objectives of the treaties within the Antarctic Treaty System, along with the subsequent practices of the states involved.

From the perspective of the treaty text, Article 8 of the Protocol on Environmental Protection to the Antarctic Treaty (the Madrid Protocol) specifies the objects that should be assessed. According to Article 8(1), States parties should assess the environmental impact of the activities mentioned in article 8(2), in accordance with the procedures specified in Annex I to the Madrid Protocol: Environmental Impact Assessment (Annex I). Such activities refer to any activities undertaken in the Antarctic Treaty area pursuant to scientific research programmes, tourism, and all other governmental and non-governmental activities in the Antarctic Treaty area. Article 8(3) also mentions that the assessment procedures set out in Annex I shall apply to any change in an activity. It can be seen that the procedures specified in Annex I assess mainly the environmental impact of specific activities rather than of policies, plans, and programmes. Therefore, the procedures specified in Annex I should rightly be classified as EIA rather than SEA.

From the perspective of its purpose, Article 2 defines the objective and designation of the Madrid Protocol and states that "the Parties commit themselves to the comprehensive protection of the Antarctic environment and dependent and associated ecosystems and hereby designate Antarctica as a natural reserve, devoted to peace and science." Article 3(2) states that "activities in the Antarctic Treaty area shall be planned and conducted so as to limit adverse impacts on the Antarctic environment and dependent and associated ecosystems; activities in the Antarctic Treaty area shall be planned and conducted on the basis of information sufficient to allow prior assessments of, and informed judgments about, their possible impacts on the Antarctic environment and dependent and associated ecosystems and on the value of Antarctica for the conduct of scientific research." Some researchers argue that the above provisions are prerequisites for carrying out activities in Antarctica and are also a reflection of the precautionary principle. Countries must conduct activities in Antarctica in a manner that aligns with objectives and environmental principles, and therefore they also have relevant assessment obligations for the planning and organization of such activities (Roura and Hemmings, 2011). This study believes that the provisions on "objective and designation" and "environmental principles" in the Madrid Protocol are only guidelines, advocating that countries take environmental factors into consideration when planning activities. It cannot be directly deduced that states have an obligation to assess policies, plans, and programmes.

In addition to the terms, context, and purpose of a treaty, subsequent practice can also serve as evidence of treaty interpretation. Subsequent practice specified in the VCLT is divided into two main categories: one category is the subsequent practice in Article 31, paragraph 3(b), which refers to the behavior of applying the treaty in which the parties interpret and accept the treaty based on common understanding (UNGA, 2018b); the other category is that of subsequent practice as a supplementary means of interpretation under Article 32, which does not require the unanimous consent of all contracting parties. Consequently, such subsequent practice has a lower weight in the interpretation of the treaty (UNGA, 2018c). Since the policies, plans, and programmes that are the objects of SEA are formulated and implemented under the leadership of the state, this study analyzed the assessment of national plans implemented in Antarctica by various countries under the National Antarctic Program category in the Antarctic Treaty Environmental Impact Assessment Database (Table 1).

As of May 19, 2024, there are 2,152 records in the Antarctic Treaty EIA Database. Among them, 378 records are under the National Antarctic Program category, but most of them are EIA for specific activities such as scientific research, inspections, construction, and transportation carried out by states in accordance with relevant plans. Of all the records, there are only 31 items where the object of EIA is a plan or a program, of which there are only 29 items dated following the coming into effect of the Madrid Protocol on January 14, 1998. Although the environmental assessment topics of these 29 records are plans or programmes, it does not mean that they all meet the requirements of SEA. Some of the assessments are actually just EIA of large-scale activities, that is, following decisions made on plans or programmes, EIAs were carried out in a concentrated manner for multiple specific activities. From the perspective of the State parties that conducted the assessment, 33 signed and approved the Madrid Protocol, but only Sweden, New Zealand, and Finland submitted their national Antarctic programmes for assessment on a long-term basis. This means that it is difficult to believe that all States parties established consistent practices based on a common understanding of the treaty as to whether policies, plans, and programmes should be subject to SEA. Hence, by analyzing the subsequent practices of States parties, it cannot be determined that the EIA provisions in the Madrid Protocol encompass SEA.

3.2.2 Rules related to SEA in the Arctic region

The Arctic environment, and especially its ecosystems, seem to be more vulnerable to anthropogenic pollution than the ecosystems of more temperate regions (Koivurova, 2002), therefore it is crucial to figure out the impact of policies, plans, and programmes on the Arctic region. However, currently, there is a lack of unified international legal regulations for governing the SEA of different countries in the Arctic's ABNJ. Additionally, some documents concerning SEA lack legal binding force.

Firstly, there is a lack of unified international legal regulations for governing the SEA of different countries in the Arctic's ABNJ.

TABLE 1 Records of countries submitting National Antarctic Programs to EIA.

	Period	Party	EIA Category	Title
1	1991/1992	UNITED STATES	CEE	Final supplemental Environmental Impact Statement for the U.S. Antarctic Program
2	1996/1997	SWEDEN	IEE	Initial Environmental Evaluation: Scientific Programs at Wasa and Svea and surrounding area in Dronning Maud Land
3	1997/1998	SWEDEN	IEE	Initial Environmental Evaluation for SWEDARP 97/98 (Swedish Antarctic Research Program)
4	1997/1998	SWEDEN	IEE	Initial Environmental Evaluation for scientific program (SWEDARP 97/98) at Wasa, Svea and surrounding areas in Dronning Maud Land
5	1999/2000	NEW ZEALAND	IEE	National Science Programme
6	2006/2007	SWEDEN	IEE	Initial Environmental Evaluation for the SWEDARP 2006/07
7	2007/2008	NEW ZEALAND	IEE	Development, Management and Execution of the New Zealand Antarctic Programme 2007/08
8	2008/2009	NEW ZEALAND	IEE	Antarctica New Zealand Initial Environmental Evaluation, Development, Management and Execution of the New Zealand Antarctic Programme 2008/09
9	2009/2010	NEW ZEALAND	IEE	IEE. Antarctic NZ Annual Programme of Non-science events 2009/10 season
10	2010/2011	UNITED KINGDOM	IEE	Proposed Ice Sheet Stability Research Programme (iSTAR)
11	2010/2011	NEW ZEALAND	IEE	IEE Antarctica NZ Four-Year Non-Science programme of events 2010-2014
12	2010/2011	FINLAND	IEE	Initial Environmental Evaluation of the FINNARP 2010
13	2011/2012	SWEDEN	IEE	Dronning Maud Land 2011/ 12 (SWEDARP)
14	2012/2013	NEW ZEALAND	IEE	Initial Environmental Evaluation Development, Management and Execution of the New Zealand Antarctic Programme 2011 – 2015
15	2012/2013	FINLAND	IEE	Initial Environmental Evaluation of the FINNARP 2012
16	2012/2013	BRAZIL	IEE	Environmental Plan for the Deployment of the Emergency Antarctic Modules
17	2013/2014	UNITED KINGDOM	IEE	iSTAR -INITIAL ENVIRONMENTAL EVALUATION
18	2013/2014	NEW ZEALAND	IEE	Development, Management and Execution of the New Zealand Antarctic Programme 2011 – 2015

(Continued)

TABLE 1 Continued

	Period	Party	EIA Category	Title
19	2013/2014	FINLAND	IEE	Initial Environmental Evaluation of the FINNARP 2013
20	2014/2015	NEW ZEALAND	IEE	Development, Management and Execution of the New Zealand Antarctic Programme 2011 – 2015
21	2014/2015	FINLAND	IEE	Initial Environmental Evaluation of the FINNARP 2014
22	2015/2016	NEW ZEALAND	IEE	Management and Execution of the New Zealand Antarctic Programme 2015-2019
23	2015/2016	NEW ZEALAND	IEE	2015-2019 Antarctica New Zealand Management and Execution of the New Zealand Antarctic programme IEE
24	2015/2016	FINLAND	IEE	Initial Environment Evaluation of the FINNARP 2015
25	2017/2018	FINLAND	IEE	Initial Environment Evaluation of FINNARP 2016
26	2021/2022	FINLAND	IEE	Initial Environment Evaluation of the FINNARP 2021
27	2022/2023	FINLAND	IEE	Initial Environment Evaluation of the FINNARP 2022
28	2022/2023	COLOMBIA	IEE	Environmental feasibility report Antarctic Marine Mammal Research Programme
29	2023/2024	SWEDEN	IEE	Swedish Antarctic Research Program, SWEDARP, Field season 2023/24
30	2023/2024	FINLAND	IEE	Initial Environment Evaluation of the FINNARP 2023
31	2023/2024	COLOMBIA	IEE	Programa de Investigación en Mamíferos Marinos Antárticos (PIMMA)

Data source: https://www.ats.aq/devAS/EP/EIAList?lang=e.

The Kiev Protocol, as an international treaty, has played a significant role in urging Arctic nations to conduct SEA (Sander, 2016). However, not all Arctic countries are signatories to the Kiev Protocol. More importantly, the Kiev Protocol is restricted to national jurisdiction and cannot be applied to ABNJ.[1]The domestic laws of the eight Arctic countries all mandate SEA, but there are significant differences in the related SEA legislation and the specific practices of conducting SEA in the Arctic among these countries (Koivurova, 2008; Azcárate et al., 2013).In the absence of the BBNJ Agreement being in effect, it is impossible to establish a comprehensive SEA system in the Arctic based on the framework provisions of UNCLOS. Overall, the Arctic lacks international legal rules for SEA that can be applied to ABNJ.

Secondly, other documents requiring SEA for Arctic activities are predominantly soft law instruments, lacking legal binding force. In 1991, the eight member countries of the Arctic Council (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the USA) signed the Arctic Environmental Protection Strategy. This strategy states in Principle 2.2 that, for management, planning, and development activities that may have a significant impact on the Arctic ecosystem, the possible environmental impacts of these activities should be assessed, including cumulative impacts (American Society of International Law, 1991). This principle essentially expanded the scope of EIA to the management and planning level. However, the strategy only outlines an action framework for environmental protection in the Arctic and lacks specific provisions on EIA and SEA. The Guidelines for Environmental Impact Assessment in the Arctic of 1997 offered comprehensive regulations on conducting EIA in the Arctic, offering practical guidance for all stakeholders in the region.

1 The Kiev Protocol defines "transboundary impact" as "any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party". This excludes ABNJ, both as affected areas and as the origin of harm.

Regrettably, the Guidelines offer only a basic definition of SEA; its thresholds, and procedures are not specified in detail (Arctic Council, 1997). The above two instruments are earlier provisions, and both the Arctic Council and countries conducting activities in the Arctic continue to explore the applicability of SEA in the Arctic region. The revised 2009 "Arctic Offshore Oil and Gas Guidelines" advocate that SEA procedures should be used to determine the potential impacts of offshore oil and gas exploration (Arctic Council, 2009). In the Good Practices for Environmental Impact Assessment and Meaningful Engagement in the Arctic – Including Good Practice Recommendations, issued by the Arctic Council in 2019, it is suggested that indigenous peoples and governments can use the SEA approach to assess the environmental impacts of land-use planning, achieving co-management (Karvinen and Rantakallio, 2019). The European Union funded a project titled "Strategic Environmental Impact Assessment of development of the Arctic" during 2013–2014. The objective of the assessment was to assess the impacts of development in the Arctic and of EU policies affecting the Arctic region on the political, economic and environmental landscape of the EU and the Arctic region. Enhancing dialogue between Arctic actors, experts and EU policy-makers was a focus of this project (Stępień et al., 2014). Therefore, soft law documents play an important role in conducting SEA in the Arctic region, but these documents do not explicitly impose international legal obligations on countries to conduct SEA in the Arctic.

In summary of the whole part of provisions on SEA for ABNJ in international treaties, existing international treaties governing ABNJ have inadequate provisions for SEA or lack SEA inclusion at all, making it challenging to establish a strong and enforceable legal framework for SEA within the ABNJ.

4 Challenges to implementing SEA of ABNJ

4.1 SEA rules lack systematization

From the previous analysis, it can be concluded that rules about SEA in ABNJ are loose and unsystematic. The problem of fragmentation and lack of systematization of international law is not a new issue. In 2006, the 58th session of the ILC concluded a report titled "The Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law". Two primary manifestations of the fragmentation of international law can be identified from the report. One concerns the restricted geographical scope and regulatory issues covered by specialized laws, while the other relates to potential discrepancies in specific rules among various specialized laws, possibly leading to conflicts (UN, 2013a).

The fragmentation of SEA rules in international law is essentially similar to the two manifestations mentioned above. From the perspective of the geographical scope of application, the only global treaties that currently provide for SEA in ABNJ are UNCLOS and CBD. The BBNJ Agreement has been adopted but is not currently in force. Although the Kiev Protocol is now open for all United Nations member states to join, as previously mentioned, its application scope is still restricted to national jurisdiction. Other treaties, such as the Antarctic Treaty, restrict its application based on geographical scope. This often leads to SEA being implemented within the specific geographical areas defined by each treaty, which complicates the conduct of SEA in ABNJ. As far as the contents of specific SEA rules in various international treaties are concerned, they differ in both substantive and procedural aspects. At the substantive level, the most prominent issue is the different scope of SEA objects. In the CBD, the objects of SEA include policies, plans, and programmes (UNEP, 2002). These three objects are further explained in detail in the 2012 SEA Guidance (UNEP, 2012b). In the Kiev Protocol, however, the objects of SEA include only plans and programmes (UNECE, 2003). Regarding the procedures for SEA, the provisions in each treaty are also different. There is no consensus on the procedures of SEA at the international level. In practice, researchers and international organizations try to summarize the procedures of SEA based on current best practices as a guide for implementing SEA (Partidário, 2003; OECD, 2006; SPREP, 2020).

4.2 Flaws in existing SEA rules

4.2.1 SEA rules of ABNJ lack legal enforceability

Currently, documents stipulating the implementation of SEA in ABNJ are mostly soft-law, including the 2012 SEA Guidance and the 1997 Guidelines for Environmental Impact Assessment in the Arctic referred to earlier. Since the objects of SEA are policies, plans, and programmes, and SEA emphasizes public participation and consultation, the implementation of SEA will, to a certain extent, influence and perhaps restrict a country's freedom of national behavior. Hence, nations are reluctant to include SEA in legally binding documents. This is one of the main reasons why most SEA rules only function as norms or guidelines and depend on voluntary adoption by countries. Even legally binding international treaties tend to choose to exclude policies from the objects of SEA. This approach is adopted largely to prevent excessive interference in the policy formulation and legislative processes of States parties and to respect national sovereignty. Concerns about avoiding interference in a country's national sovereignty are also reflected in the development of other SEA rules. For example, when drafting the European Union (EU) SEA Directive Directive, it was already thought that the objects of SEA should focus solely on plans and programmes to prevent interfere of policy and legislative procedures (EU, 1996). The objects of SEA in the Kiev Protocol reflect the concerns of different countries regarding SEA. Article 39 of the BBNJ Agreement also defines the objects of SEA as "plans and programmes," that is, excluding policies.

4.2.2 The objects of SEA are not clearly defined

When defining SEA earlier, it was emphasized that its objects should encompass policies, plans, and programmes rather than just specific activities. Some researchers have tried to define the objects of SEA, arguing that a policy may be considered as the inspiration and guidance for action, a plan as a set of coordinated and timed objectives for implementing the policy, and a program as a set of projects in a particular area (Wood and Dejeddour, 1992). Plans and programmes are defined in the Kiev Protocol as follows: "Plans and

programmes" means plans and programmes and any modifications to them that are: (a) required by legislative, regulatory, or administrative provisions; and (b) subject to preparation and/or adoption by an authority, or prepared by an authority for adoption, through a formal procedure, by a parliament or government (UNECE, 2003). Given the variations in administrative systems, policies, and legal frameworks across countries, reaching a consensus on the objects of SEA proves challenging based on broad definitions and academic discourse. Article 39 of the BBNJ Agreement does not clearly define "plans and programmes," possibly because of challenges to reaching a consensus.

4.2.3 Duplication of assessment

The issue of duplication of assessment in SEA is also worthy of attention. During the intergovernmental conference phase of the BBNJ Agreement, countries contended that the SEA provisions in the Agreement should not duplicate existing EIA or SEA obligations in relevant legal instruments and frameworks and relevant global, regional, subregional, and sectoral bodies (IFBs) (UN, 2018a). The core of this matter lies in the relationship between the BBNJ Agreement and IFBs and this paper refers to it as the "duplication of assessment beyond the agreement." Article 29 of the BBNJ Agreement has basically addressed this issue.

Furthermore, if a treaty incorporates both EIA and SEA, like the BBNJ Agreement, there may be duplication issues within the treaty system regarding EIA and SEA. This study refers to this as the "duplication of assessment within the agreement." This problem derives from the unclear definition of SEA objects. Due to the ambiguity in the definition of plans and programmes in SEA, there may be an environmental assessment object that meets the criteria of projects or activities for EIA, while also fulfilling the criteria of plans or programmes for SEA (Sheate and Byron, 2005). In this scenario, this could result in the same object undergoing two different types of assessments, or it could lead to plans or programmes that are intended for SEA being instead transferred to EIA as projects or activities, thus circumventing SEA.

The key to solving the problem of duplication of assessment lies in "tiering," which refers to the organized transfer of information and issues across planning and assessment levels (Arts et al., 2005). Tiering can manage the relationship between EIA and SEA effectively, prevent redundancy, and enhance efficiency (González and Therivel, 2022). The duplication of EIA and SEA has been extensively debated in domestic legal practice, yet was largely overlooked by stakeholders in the BBNJ negotiations. The BBNJ Agreement does not specify the procedural link between SEA and EIA, nor how to achieve the transmission of environmental information in practice. There is no relevant principle stipulation either.

4.3 Countries lack the motivation to conduct SEA

4.3.1 Conducting SEA in ABNJ limits the interests of developed countries

SEA holds distinctive value in comparison to EIA, which is why countries integrate SEA into their domestic laws. SEA emphasizes the integration of environmental and socioeconomic goals, and coordinates environmental protection and socioeconomic development in the decision-making process and the formulation of policies, plans, and programmes (Wood and Dejeddour, 1992). Moreover, the implementation of SEA is conducive to controlling the cumulative impact of large-scale activities and to thoroughly exploring alternative strategies (Sander, 2016), and it encourages public participation and consultation.

At the international level, the institutional value of SEA does not align with the interests pursued by countries in ABNJ, particularly developed nations with pertinent technologies and access to resources in ABNJ. The ICJ stated in its judgment in the Uruguay River Pulp Mill case that it may now be considered a requirement under general international law to undertake EIA where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource. Moreover, due diligence, and the duty of vigilance and prevention that it implies, would not be considered to have been exercised if this requirement was not fulfilled (ICJ, 2010). Thus, the primary reason countries conduct EIA is to comply with international legal obligations and to avoid taking on legal responsibilities, rather than solely for environmental protection purposes. Countries' considerations for conducting SEA are similar to those described above. The ILC stated that the significant transboundary harm must have been caused by the "physical consequences" of such activities, and it should exclude transboundary harm that may be caused by state policies in monetary, socioeconomic, or similar fields (ILC, 2001). The implementation of SEA can indeed obtain information that may cause damage in a more proactive manner at the decision-making level, but the abstract nature of policies, plans, and programmes determines that a clear and direct causal relationship cannot be established between them and specific incidents of damage. Even if SEA is not implemented, developed countries will not face the risk of violating international obligations or assuming international responsibilities. In the BBNJ agreement, there are no provisions for liability or compensation (Mendenhall and Hassanali, 2023). In ABNJ, developed nations often prioritize resource acquisition and benefits over marine environmental protection. Additionally, the emphasis on seeking alternatives and encouraging public involvement in SEA could potentially threaten national sovereignty. As a result, developed countries lack the motivation to conduct SEA.

4.3.2 Developing countries have insufficient capacity to conduct SEA

For governments or competent authorities in the process of carrying out SEA, preparing reports, consulting over and reviewing reports, public participation, follow-up monitoring, and measures to mitigate environmental impacts, require significant financial outlay (Therivel and González, 2020). Imposing global obligations for SEA would overly burden developing countries financially. For some low- and middle-income countries, the implementation of SEA relies heavily on financial support from international organizations such as the Organization for Economic Co-operation and Development (OECD) and the World Bank (Shi

and Chen, 2020). Using Peru as an example, without financial support from key international organizations, it lacks a secure national funding mechanism to guarantee the implementation of SEA (Biehl et al., 2019). Moreover, the domestic legislation regarding SEA in certain developing nations is inadequate, with some only making initial attempts to implement SEA (Gutierrez et al., 2023). These developing nations lack expertise in SEA, and their domestic environmental agencies have limited capacity to conduct SEA. Consequently, they will be unable to implement SEA in ABNJ in the near future. Given this reality, SEA has significantly increased the requirements for certain developing nations to engage in ABNJ-related endeavors. This has inevitably raised suspicions of creating "environmental barriers" to access ABNJ resources through SEA, resulting in developing countries lacking the motivation to conduct SEA.

In summary, the existing rules for conducting SEA in ABNJ lack systematization, the rules themselves are flawed, and nations lack the initiative to implement SEA. These issues have resulted in challenges when implementing SEA in ABNJ.

5 Prospects for SEA in ABNJ

The adoption of the BBNJ Agreement and the promotion of its entry into force are vital for implementing SEA in ABNJ. Simultaneously, addressing fragmented SEA rules and their implementation challenges are equally essential. The international community should utilize the provisions of the BBNJ Agreement as a framework for enhancing the safeguarding of the public domain environment.

5.1 Cooperation with regional treaties and international organizations

To tackle the fragmentation problem in the existing SEA system, the BBNJ Agreement should assume a central role globally, supported by regional treaties and international organizations to boost coordination and collaboration in SEA on a global scale.

At the global level, the coordinating role of the BBNJ Agreement should be fully utilized. The BBNJ Agreement is a worldwide framework, applying to the high seas and the Area, crucial for implementing SEA in ABNJ. The BBNJ Agreement can play the role of "general law" and coordinate and cooperate with regional treaties and institutions. The ILC once elucidated the relationship between special laws and general laws and identified this as an essential aspect in coordinating and resolving the issue of the fragmentation of international law. Special laws generally take precedence over general laws. General laws offer direction for how to interpret and implement relevant special laws. In cases where special laws do not address a particular matter, or if the provisions of the special laws are deemed invalid, the corresponding general laws can be applied (UN, 2013b). When considering its relationship with other pertinent legal instruments, frameworks, and institutions, the BBNJ Agreement aligns with the spirit outlined by the ILC. Article 5(2) of the BBNJ Agreement provides that it shall be interpreted and applied in a manner that does not undermine IFBs and that promotes coherence and coordination with those instruments, frameworks, and bodies. Article 8 also provides for promoting cooperation among IFBs (UNGA, 2023). The COP, the Scientific and Technical Body and the Clearing-House Mechanism to be established after the BBNJ Agreement entering into force will also help promote the establishment of a unified coordination and communication platform (Guo and Song, 2023).

At the regional level, leveraging existing practical experience is essential for enhancing the implementation of SEA. Despite the current absence of SEA in ABNJ, EIA practices at the regional level can still offer valuable experience and serve as a point of reference for SEA. For example, certain existing EIA regulations mirror the nuances of distinct sectors, such as regulations for assessing the ecological consequences of maritime transport (Moldanová et al., 2022). There are also EIA rules that align with the unique natural conditions of certain areas. For example, Annex I of the Madrid Protocol establishes a strict threshold for EIAs as a "minor or transitory impact" to safeguard Antarctica's delicate ecological environment (Secretariat of the Antarctic Treaty, 1991). Valuable experiences are not confined to the realm of international law; they can also encompass the application of SEA within domestic law. They provide valuable reference for implementing SEA under the BBNJ Agreement and have been taken seriously during its early negotiations (Warner, 2021).

5.2 Enhance and fortify current SEA via the BBNJ Agreement

First, the BBNJ Agreement can fill the gaps in SEA rules currently applicable to ABNJ. Regarding the development of resources in ABNJ, all parties have increasingly recognized the importance of integrating environmental protection into planning and decision-making processes, yet there remains a lack of specific regulations and established mechanisms. With regard to high-seas fisheries, the Food and Agriculture Organization of the United Nations (FAO) formulated the Code of Conduct for Responsible Fisheries in 1995 and the International Guidelines for the Management of Deep-sea Fisheries in the High Seas in 2009. These documents, especially the latter, include EIA but not SEA. The FAO also stated that international and regional instruments containing provisions on impact assessment are important for deep-sea fisheries (FAO, 2016). Regarding the environmental risks caused by mining in the Area, some countries and scientists have called for an environmental management strategy, and some researchers believe that SEA needs to be implemented (Jaeckel, 2020). For those areas suitable for SEA but which have not yet established a SEA system, the provisions on SEA in the BBNJ Agreement can adequately fill the gaps in the current governance rules.

Second, the BBNJ Agreement could improve existing SEA systems and regulations. As previously stated, numerous current SEA documents are soft law and lack legal enforceability. Once the BBNJ Agreement comes into effect, this situation will be somewhat enhanced. On the one hand, Article 39 of the BBNJ Agreement establishes SEA as a treaty obligation, while Article 29 delineates the relationship between the BBNJ Agreement and EIA processes under IFBs. This fosters positive interaction among different regional systems within the BBNJ

framework and encourages SEA implementation in diverse regions. On the other hand, Article 38 of the BBNJ Agreement states that scientific and technical bodies will create standards for or guidelines on SEA, which is of great help in building a worldwide consensus. However, this consensus still needs to be achieved through consultation, involving thorough study of the administrative systems and legal frameworks of each participating country, as well as ongoing enhancement based on best practices.

Finally, the BBNJ Agreement needs to improve and refine its own provisions. In addition to Article 27 outlining EIA objectives, SEA is only mentioned in Article 39 of the BBNJ Agreement. The content of Article 39 is quite basic, comprising mainly general provisions and lacking practicality. There are still several issues that need to be addressed during the implementation phase of SEA in ABNJ, such as the ambiguous definition of SEA objects mentioned earlier and the lack of tiering between EIA and SEA. It is hoped that the standards or guidelines on SEA developed by the scientific and technical bodies specified in Article 38 of the BBNJ Agreement can address these specific issues in SEA implementation.

5.3 Advocating the protection of BBNJ as a common concern of humankind

Advocating for the protection of BBNJ as a CCH is crucial because it is linked to the CIH, yet lacks adequate recognition and commitment from the international community. CIH is a highly abstract concept, and each party has different interpretations of this term (Fastenrath et al., 2011; Benvenisti and Nolte, 2018). Currently, it is challenging for the notion of common interests to produce precise legal effects in international law, but various norms and international legal systems reflect the safeguarding of common interests, including *jus cogens*, obligations *erga omnes*, common heritage of humankind (CHH), CCH, among others (Brunnée and Hey, 2007; Bogdandy and Wolfrum, 2011). Environmental protection, which includes safeguarding the environment of the global commons, is linked to the CIH (Simma, 1994). As one of the key issues in global marine environmental protection, BBNJ is crucial for sustainable development worldwide. From the very first intergovernmental meeting, countries have highlighted that safeguarding BBNJ is linked to the CIH (UN, 2018b). However, the BBNJ Agreement only vaguely mentioned the CHH as a principle and was accompanied by numerous disputes (Abegón-Novella, 2023). The affirmation of the CIH involved in protecting BBNJ is still inadequate.

BBNJ protection should be acknowledged as a CCH. Based on established practices and scholarly research summaries, CCH includes at least the following legal implications:

(1) Considering the nature of the issue, its negative impact is global. Once the issues are addressed, all members of the international community, or at least the majority of members, will benefit.

(2) In terms of responsibilities or obligations, this issue cannot be resolved by one country alone. Nations worldwide have the duty to collaborate and address the issue, considering the North–South disparities and equitably sharing the burden of finding a solution (Brunnée and Hey, 2007; Murillo, 2008; Feyter, 2013; Birnie et al., 2009).

Biodiversity and climate change issues have already been identified as CCHs. Given that BBNJ is a subset of biodiversity issues (Chelsea et al., 2016) and is closely related to climate change issues, its importance is clear. Individual actions taken by any single country are insufficient to safeguard the global marine environment, and global cooperation is essential to create a cohesive management system (Harrison, 2017). The same is true for the protection of BBNJ. Furthermore, within the framework of the BBNJ Agreement, CCH does not revolve around determining ownership or distribution of benefits from particular areas or resources. This can help avoid disputes related to CHH and instead underscore that all nations are accountable for addressing specific challenges.

More importantly, recognizing the protection of BBNJ as a CCH will enhance the enforcement of obligations under the BBNJ Agreement, including SEA obligations.

First, it is conducive to enhancing the supervision of nations' implementation of SEA. According to the BBNJ Agreement, other States parties and scientific and technological institutions can supervise and make suggestions on EIA-related issues to the states conducting EIA in public notification and consultation, EIA reports, and reporting on the impacts of authorized activities. Theoretically speaking, identifying the protection of BBNJ as a CCH means that fulfilling obligations under the BBNJ Agreement is linked to the CIH. Therefore, SEA targeting national plans or programmes is no longer an area completely sheltered by national sovereignty, but a legitimate object of international regulation and supervision (Birnie et al., 2009). Thus, States parties to the BBNJ Agreement should have the right to conduct supervision directly, or through scientific and technological institutions and other mechanisms in the agreement, to ensure individual countries adhere to their obligations. The supervisory mechanism for SEA may be stipulated in SEA-related standards or guidelines to be developed by the Scientific and Technical Body (UNGA, 2023).

Second, it is conducive to equitably sharing the burdens of cooperation and problem-solving in relation to SEA. Although EIA is explicitly mentioned in Part V of capacity-building and the transfer of marine technology (CB&TT) in the BBNJ Agreement and is included as a type of CB&TT in Annex II, there is no provision for CB&TT in SEA. Based on the need for the fair sharing of responsibilities as required by CCH, it is essential to include SEA as a component under the scope of CB&TT to address the economic and technical challenges faced in the development of SEA in developing countries. Specifically, the list of CB&TT types in Appendix II can be expanded by the COP based on the recommendations of the CB&TT Committee, according to Article 40(3) of the BBNJ agreement.

Finally, CCH involves the CIH and is closely related to obligations *erga omnes*. In 2011, the Seabed Disputes Chamber of ITLOS confirmed in the Advisory Opinion of Responsibilities and Obligations of States with respect to activities in the Area that the obligations relating to the preservation of the high-seas and Area environments as *erga omnes* in character (ITLOS, 2011). In relation to the BBNJ Agreement, it is likely that the provisions designed to protect the marine environment will also, by extension, become

erga omnes norms. In academic theory, the question of whether any international community member is qualified to bring proceedings against a country violating obligations *erga omnes* on behalf of the international community is controversial (Birnie et al., 2009; Feyter, 2013). Different approaches exist in international judicial practice as well (ICJ, 1966; ITLOS, 2011; ICJ, 2020). However, this could be a potential method for guaranteeing the fulfillment of responsibilities outlined in the BBNJ Agreement.

6 Conclusion

Among current global and regional international treaties, while some mention SEA or embody its concept, they are limited in legal effectiveness and feasibility and face significant fragmentation issues. Even in the BBNJ Agreement, the provisions on SEA are incomplete and need further guidance and technical standards to improve feasibility. Given these facts, it is important to acknowledge that there are significant challenges to carrying out SEA in ABNJ, and the entry into force and implementation of the BBNJ Agreement must not be postponed any longer.

After the BBNJ Agreement enters into force, it remains essential to enhance collaboration with regional treaties and institutions and strengthen the feasibility of SEA rules. Certain aspects such as the subjects, thresholds, and assessment procedures of SEA still need greater clarification, which necessitates consensus among countries under the BBNJ Agreement framework. This research is mainly focused on the macro-institutional level. Further exploration and practice are needed to determine how to collaborate between the BBNJ Agreement and IFBs, as well as how to establish technical standards for SEA in the BBNJ Agreement in the future.

As an environmental governance tool, SEA is still a novel attempt to regard it as an international legally binding obligation that nations should undertake when carrying out activities in the ABNJ. The challenge with this endeavor is that without a robust accountability mechanism in place, it is hard to anticipate nations to diligently uphold their responsibilities in safeguarding the environment of the global commons. Concerning ABNJ and its resources, our attitudes must shift from political games based on competing interests to cooperative protection based on CIH. For a series of international treaties, including the BBNJ Agreement, the obligation to enhance protection of the environment of the global commons must be further reinforced. As it is essential to avoid a new round of the "tragedy of the commons" caused by the international community's indifference to the protection of the environment of the global commons.

Author contributions

YS: Conceptualization, Writing – original draft. ZM: Conceptualization, Writing – original draft. ZZ: Supervision, Writing – review & editing.

Funding

The author(s) declare financial support was received for the research, authorship, and/or publication of this article. This work was supported by the China Postdoctoral Science Foundation General Funding Project (Project Number: 2023M733352).

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

Abegón-Novella, M. (2023). Making sense of the agreement on biodiversity beyond national jurisdiction: the road ahead. *Environ. Policy Law.* 53, 439–458. doi: 10.3233/EPL-239012

American Society of International Law. (1991). Canada-Denmark-Finland-Iceland-Norway-Sweden-union of soviet socialist republics-United States: arctic environmental protection strategy. *Int. Legal Materials.* 30, 1624–1669. doi: 10.1017/S0020782900017447

Arctic Council. (1997). Guidelines for environmental impact assessment in the arctic, Appendix III. Available online at: https://oaarchive.arctic-council.org/items/74ad62a9–732f-4c4d-bde9–65fc6946a2d2 (Accessed 3 March 2024).

Arctic Council. (2009). Arctic Offshore Oil and Gas Guidelines. Available online at: https://pame.is/document-library/arctic-offshore-oil-and-gas-documents (Accessed 3 April 2024).

Arts, J., Tomlinson, P., and Voogd, H. (2005). EIA and SEA tiering: The missing link? Prague Position Paper Conference on "International experience and perspectives in SEA" (International Association of Impact Assessment). Available online at: http://henkvoogd.nl/pdf/tiering.pdf (Accessed 3 March 2024).

ASOC. (2001). Strategic Needs and Decision-Making in Antarctica, ATCM, XXIV. Available online at: https://documents.ats.aq/ATCM24/ip/ATCM24_ip054_e.pdf (Accessed 3 March 2024).

ASOC. (2002). Strategic Environmental Assessment in Antarctica: A "Stepping Stone" to Madrid Protocol Objectives, ATCM, XXV. Available online at: https://documents.ats.aq/ATCM25/ip/ATCM25_ip082_e.pdf (Accessed 5 March 2024).

Azcárate, J., Balfors, B., Bring, A., and Destouni., G. (2013). Strategic environmental assessment and monitoring: Arctic key gaps and bridging pathways. *Environ. Res. Lett.* 8, 44033. doi: 10.1088/1748-9326/8/4/044033

Barnes, R., and Long, R. (2021). *Frontiers in International Environmental Law: Oceans and Climate Challenges* (Leiden, Netherlands: Brill Nijhoff Press), 430–431. doi: 10.1163/9789004372887

Benvenisti, E., and Nolte, G. (2018). *Community Interests Across International Law* (Oxford, United Kindom: Oxford University Press), 38. doi: 10.1093/oso/9780198825210.001.0001

Biehl, J., Köppel, J., Rodorff, V., Huesca Pérez, M. E., Zimmermann, A., Geißler, G., et al. (2019). Implementing strategic environmental assessment in countries of the global South – An analysis within the Peruvian context. *Environ. Impact Assess. Rev.* 77, 23–39. doi: 10.1016/j.eiar.2019.02.009

Birnie, P., Boyle, A., and Redgwell, C. (2009). *International Law and the Environment. 3rd ed.* (Oxford, United Kindom: Oxford University Press).

Bogdandy, A. V., and Wolfrum, R. (2011). *Max Planck Yearbook U.N. Law*. (Leiden, Netherlands: Brill Nijhoff), Vol. 15. 332.

Brunnée, U., and Hey, E. (2007). *The Oxford Handbook of International Environmental Law. 1st ed.* (Oxford, United Kindom: Oxford University Press), 552–554. doi: 10.1093/law/9780199552153.001.0001

Chelsea, B., Pierson, E., and Ratté, S. (2016). The common concern of humankind: A potential framework for a new international legally binding instrument on the conservation and sustainable use of marine biological diversity in the high seas. Available online at: https://www.un.org/depts/los/biodiversity/prepcom_files/BowlingPiersonandRatte_Common_Concern.pdf (Accessed 3 March 2024).

Clayton, B. D., and Sadler, B. (2005). Strategic Environmental Assessment: A sourcebook and reference guide to international experience. Available online at: https://www.iied.org/sites/default/files/pdfs/migrate/G02193.pdf (Accessed 5 March 2024).

Craik, N. (2008). *The International Law of Environmental Impact Assessment. Process, Substance and Integration* (Cambridge, United Kindom: Cambridge University Press), 50. doi: 10.1017/CBO9780511494611

Craik, A. N., and Gu, K. (2019). Implementation of strategic environmental assessment in marine areas beyond national jurisdiction. *S.S.R.N. Electron. J.*, 8. doi: 10.2139/ssrn.3421525

Craik, N., and Gu, K. (2022). Strategic environmental assessment in marine areas beyond national jurisdiction: Implementing integration. *Int. J. Mar. Coast. Law.* 37, 189–216. doi: 10.1163/15718085-bja10091

Deng, H. (2015). Evolution and implementation of environmental impact assessment system in international law. *Sun Yatsen Univ. Law Review.* 13, 129–148.

ECE. (2014). Decisions and the Declaration adopted jointly by the Meeting of the Parties to the Convention and the Meeting of the Parties to the Convention serving as the Meeting of the Parties to the Protocol, ECE/MP.EIA/20/Add.3. Available online at: https://documents.un.org/api/symbol/access?j=G1408490&t=pdf (Accessed 10 April 2024).

EU. (1996). Commission of the European Communities, Proposal for a COUNCIL DIRECTIVE on the Assessment of the Effects of Certain Plans and Programmes on the Environment, COM/96/0511 Final – SYN, 96/0304. Available online at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:51996PC0511&qid=1694950749043 (Accessed 5 March 2024).

FAO. (2016). Fisheries management in the Areas beyond National Jurisdiction. Available online at: https://www.fao.org/3/i5565e/i5565e.pdf (Accessed 5 March 2024).

Fastenrath, U., Geiger, R., Khan, D. E., Paulus, A., Schorlemer, S., and Vedder, C. (2011). *From Bilateralism to Community Interest: Essays in Honour of Bruno Simma* (Oxford, United Kindom: Oxford University Press), 406. doi: 10.1093/acprof:oso/9780199588817.001.0001

Feyter, K. D. (2013). *Globalization and Common Responsibilities of States* Vol. 2013 (London, United Kingdom: Routledge), 34–35. doi: 10.4324/9781315254135

González, A., and Therivel, R. (2022). Raising the game in environmental assessment: Insights from tiering practice. *Environ. Impact Assess. Rev.* 92, 1–2. doi: 10.1016/j.eiar.2021.106695

Guo, H. Y., and Song, Y. (2023). A study of the meaning of "not undermine" in BBNJ negotiations. *J. Ocean Univ. China (Soc. Sci. Ed.)* 5, 12–23. doi: 10.16497/j.cnki.1672–335X.202305002

Gutierrez, M., Hernandez-Santin, C., Bekessy, S. A., and Gordon, A. (2023). Contextual challenges for implementing strategic environmental assessment in the Global South: Insights from a case study in Mexico. *Impact Assess. Proj. Appraisal* 41, 139–153. doi: 10.1080/14615517.2022.2157111

Harrison, J. (2017). *Saving the Oceans Through Law: The International Legal Framework for the Protection of the Marine Environment* (Oxford, United Kingdom: Oxford University Press), 2–3. doi: 10.1093/law/9780198707325.001.0001

ICJ. (1966). South West Africa, second phase, Judgment, I.C.J. Reports 1966. Available online at: https://www.icj-cij.org/sites/default/files/case-related/47/047–19660718-JUD-01–00-EN.pdf (Accessed 5 March 2024).

ICJ. (2010). Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports. 2010. Available online at: https://www.icj-cij.org/sites/default/files/case-related/135/135–20100420-JUD-01–00-EN.pdf (Accessed 5 March 2024).

ICJ. (2015a). Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua) and Construction of a Road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica), Judgment, I.C.J. Reports. 2015. Available online at: https://www.icj-cij.org/sites/default/files/case-related/150/150–20151216-JUD-01–00-EN.pdf (Accessed 5 March 2024).

ICJ. (2015b). Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua) and Construction of a Road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica), Judgment, I.C.J. Reports. 2015. Available online at: https://www.icj-cij.org/sites/default/files/case-related/150/150–20151216-JUD-01–00-EN.pdf (Accessed 5 March 2024).

ICJ. (2020). Application of the Convention on the Prevention and Punishment of the Crime of Genocide (The Gambia v. Myanmar), Provisional Measures. I.C.J. Reports 2020. Available online at: https://www.icj-cij.org/sites/default/files/case-related/178/178–20200123-ORD-01–00-EN.pdf (Accessed 5 March 2024).

ILC. (2001). Report of the Commission to the General Assembly on the work of its fifty-third session. Available online at: https://legal.un.org/ilc/documentation/english/reports/a_56_10.pdf (Accessed 5 March 2024).

International Association for Impact Assessment. (1999). Principles of Environment Impact Assessment Best Practice. Available online at: http://www.jsia.net/6_assessment/fastips/Principles%20of%20IA.pdf (Accessed 5 March 2024).

ISA. (2019). Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area, ISBA/25/LTC/6/Rev.3. *Annex I Explanatory commentary, para. 61.* Available online at: https://www.isa.org.jm/wp-content/uploads/2023/08/2315256E.pdf (Accessed 24 May 2024).

ITLOS. (2011). Responsibilities and obligations of States with respect to activities in the Area, Advisory Opinion, ITLOS Reports 2011. Available online at: https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_17/17_adv_op_010211_en.pdf (Accessed 5 March 2024).

Jaeckel, A. (2020). Strategic environmental planning for deep seabed mining in the area. *Mar. Policy* 114, 2. doi: 10.1016/j.marpol.2019.01.012

Karvinen, P. A., and Rantakallio, S. (2019). Good Practices for Environmental Impact Assessment and Meaningful Engagement in the Arctic – Including Good Practice Recommendations. Available online at: https://oaarchive.arctic-council.org/server/api/core/bitstreams/a5b2257f-6f8b-4251-a04c-50562c991fca/content (Accessed 3 April 2024).

Koivurova, T. (2002). *Environmental Impact Assessment (EIA) in the Arctic. 1st ed* (London, United Kingdom: Routledge). doi: 10.4324/9781315188379

Koivurova, T. (2008). Transboundary environmental assessment in the arctic. *Impact Assess. Project Appraisal* 26, 265–275. doi: 10.3152/146155108X366031

Mendenhall, E., and Hassanali, K. (2023). The BBNJ agreement and liability. *Mar. Policy* 150, 2–6. doi: 10.1016/j.marpol.2023.105549

Moldanová, J., Hassellöv, I. M., Matthias, V., Fridell, E., Jalkanen, J. P., Ytreberg, E., et al. (2022). Framework for the environmental impact assessment of operational shipping. *Ambio* 51, 754–769. doi: 10.1007/s13280-021-01597-9

Murillo, J. (2008). Common concern of humankind and its implications in international environmental law. *Macquarie J. Int. Comp. Environ. Law* 5, 138–141. doi: 10.1089/scc.2023.0035

OECD. (2006). Applying strategic environmental assessment: Good practice guidance for development co-operation, DAC guidelines and reference series. Available online at: http://www.oecd.org/environment/environment-development/37353858.pdf (Accessed 5 March 2024).

Partidário, M. R. (2003). Strategic Environmental Assessment: Current practices, future demands and capacity-building needs. Available online at: https://iaia.org/pdf/UNEP/SEA/SEAManual.pdf (Accessed 5 March 2024).

Roura, R. M., and Hemmings, A. D. (2011). Realising strategic environmental assessment in Antarctica. *J. Environ. Assess. Policy Manage.* 13, 483–514. doi: 10.1142/S1464333211003973

Sander, G. (2016). International legal obligations for environmental impact assessment and strategic environmental assessment in the Arctic Ocean. *Int. J. Mar. Coast. Law* 31, 88–119. doi: 10.1163/15718085-12341385

Secretariat of the Antarctic Treaty. (1991). The protocol on environmental protection to the Antarctic Treaty. Available online at: https://www.ats.aq/e/protocol.html (Accessed 5 March 2024).

Sheate, W., and Byron, H. J. (2005). The relationship between the EIA and the SEA directives - Final Report to the European Commission. Available online at: https://www.researchgate.net/publication/256115820_The_relationship_between_the_EIA_and_SEA_Directives–final_report_to_the_European_Commission (Accessed 5 March 2024).

Shi, Y. B., and Chen, S. (2020). On the applicability of strategic environmental assessment in BBNJ international agreement. *China Oceans Law Rev.* 16, 29–32.

Simma, B. (1994). From bilateralism to community interest in international law. *Recl. Cours Acad. Droit Int.* 250, 235. doi: 10.1163/1875–8096_pplrdc_A9789041104199_02

SPREP. (2020). Strategic Environmental Assessment: Guidelines for Pacific Island Countries and Territories 2020. Available online at: https://www.sprep.org/sites/default/files/documents/publications/SEA-Guidelines.pdf (Accessed 8 March 2024).

Stępień, A., Koivurova, T., and Kankaanpää, P. (2014). Strategic Assessment of Development of the Arctic: Assessment conducted for the European Union (Arctic Centre, University of Lapland). Available online at: https://lauda.ulapland.fi/bitstream/handle/10024/61852/Strategic_Assessment_of_Development_of_the_Arctic_pdfA.pdf?sequence=2 (Accessed 3 April 2024).

Tetlow, M. F., and Hanusch, M. (2012). Strategic environmental assessment: The state of the art. Impact Assess. *Proj. Appraisal.* 30, 15–24. doi: 10.1080/14615517.2012.666400

Therivel, R., and González, A. (2020). Is SEA worth it? Short-term costs v. long-term benefits of strategic environmental assessment. *Environ. Impact Assess. Rev.* 83, 3–4. doi: 10.1016/j.eiar.2020.106411

UN. (1992). Convention on Biological Diversity. Available online at: https://treaties.un.org/doc/Publication/UNTS/Volume%201760/v1760.pdf (Accessed 8 March 2024).

UN. (2003). Framework Convention on the Protection and Sustainable Development of the Carpathians. Article 12. Available online at: https://treaties.un.org/doc/

Publication/UNTS/No%20Volume/56390/Part/I-56390–080000028058569c.pdf (Accessed 10 March 2024).

UN. (2013a). United Nations, yearbook of the International Law Commission 2006, UN Doc. A/CN.4/SER.A/2006/Add.1 (Part 2). Available online at: https://legal.un.org/ilc/publications/yearbooks/english/ilc_2006_v2_p2.pdf (Accessed 8 March 2024).

UN. (2013b). United Nations, yearbook of the International Law Commission 2006, UN Doc. A/CN.4/SER.A/2006/Add.1 (Part 2). Available online at: https://legal.un.org/ilc/publications/yearbooks/english/ilc_2006_v2_p2.pdf (Accessed 8 March 2024).

UN. (2016). Views expressed by the United States delegation related to certain key issues under discussion at the second session of the preparatory committee on the development of an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity. Available online at: https://www.un.org/depts/los/biodiversity/prepcom_files/USA_Submission_of_Views_Expressed.pdf (Accessed 8 March 2024).

UN. (2017). Written submission of the Chinese government on elements of a draft text of an international legally binding instrument 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. Available online at: https://www.un.org/depts/los/biodiversity/prepcom_files/rolling_comp/China.pdf (Accessed 8 March 2024).

UN. (2018a). Intergovernmental Conference on an international legally binding instrument 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, 4–17 September 2018, Informal working group on environmental impact assessments, Oral report of the Facilitator to the plenary. Available online at: https://www.un.org/bbnj/sites/www.un.org.bbnj/files/facilitators_summary_-_eias_-_for_facilitator_-_final_002.pdf (Accessed 10 March 2024).

UN. (2018b). First session of the Intergovernmental Conference on the negotiation of an international instrument on BBNJ: Item 6. Available online at: http://statements.unmeetings.org/media2/19408115/201894-item-6-chinese-statement-english-revised-3-.pdf (Accessed 10 March 2024).

UNECE. (2003). Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context. Available online at: https://treaties.un.org/doc/Publication/UNTS/Volume%202685/volume-2685-A-34028.pdf (Accessed 8 March 2024).

UNECE. (2014). The UNECE Protocol on Strategic Environmental Assessment now a global instrument. Available online at: https://unece.org/environment/press/unece-protocol-strategic-environmental-assessment-now-global-instrument (Accessed 10 March 2024).

UNEP. (1987). Goals and Principles of Environmental Impact Assessment. Available online at: https://elaw.org/wp-content/uploads/archive/unep.EIA_.guidelines.and_.principles.pdf (Accessed 10 March 2024).

UNEP. (2002). Conference of the Parties to the Convention on Biological Diversity, Decisions adopted by the Conference of the Parties to the Convention on Biological Diversity at its Sixth Meeting, UNEP/CBD/COP/6/20. Available online at: https://www.cbd.int/doc/meetings/cop/cop-06/official/cop-06–20-en.pdf (Accessed 10 March 2024).

UNEP. (2004). Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach. Available online at: https://wedocs.unep.org/xmlui/handle/20.500.11822/8753 (Accessed 12 March 2024).

UNEP. (2006). Conference of the Parties to the Convention on Biological Diversity, Decisions adopted by the Conference of the Parties to the Convention on Biological Diversity at its Eight Meeting. Available online at: https://www.cbd.int/doc/decisions/cop-08/full/cop-08-dec-en.pdf (Accessed 10 March 2024).

UNEP. (2012a). Conference of the Parties to the Convention on Biological Diversity, Decisions adopted by the Conference of the Parties to the Convention on Biological Diversity at its Eleventh Meeting, UNEP/CBD/COP/11/35. Available online at: https://www.cbd.int/doc/meetings/cop/cop-11/official/cop-11–35-en.pdf (Accessed 10 March 2024).

UNEP. (2012b). Conference of the Parties to the Convention on Biological Diversity, Marine and coastal biodiversity: Revised Voluntary Guidelines for the Consideration of biodiversity in Environmental Impact Assessments and Strategic Environmental Assessments annotated specifically for biodiversity in Marine and Coastal Areas, UNEP/CBD/COP/11/23. Available online at: https://www.cbd.int/doc/meetings/cop/cop-11/official/cop-11–23-en.pdf (Accessed 10 March 2024).

UNGA. (2018a). Resolution adopted by the General Assembly on 24 December 2017. Available online at: https://documents.un.org/api/symbol/access?j=N1746877&t=pdf (Accessed 12 March 2024).

UNGA. (2018b). Report of the International Law Commission Seventieth session, UN Doc. A/73/10. Available online at: https://documents.un.org/api/symbol/access?j=G1825267&t=pdf (Accessed 7 March 2024).

UNGA. (2018c). Report of the International Law Commission Seventieth session, UN Doc. A/73/10. Available online at: https://documents.un.org/api/symbol/access?j=G1825267&t=pdf (Accessed 7 March 2024).

UNGA. (2023). 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, UN Doc. A/CONF.232/2023/4. Available online at: https://documents.un.org/api/symbol/access?j=N2317728&t=pdf (Accessed 7 March 2024).

US Congress. (1970). National Environmental Policy Act of 1969. SEC. 102. Available online at: https://www.congress.gov/91/statute/STATUTE-83/STATUTE-83-Pg852.pdf (Accessed 12 March 2024).

Warner, R. (2021). Strategic environmental assessment (SEA) and its application to marine areas beyond national jurisdiction (ABNJ). Available online at: https://www.un.org/depts/los/biodiversity/prepcom_files/Warner_Strategic_Environmental_Assessment_PrepCom2.pdf (Accessed 12 March 2024).

Wathern, P. (1990). *Environmental impact assessment: theory and practice* (London, United Kingdom: Unwin Hyman Ltd Press), 98. doi: 10.4324/9780203409978

Wood, C., and Dejeddour, M. (1992). Strategic environmental assessment: EA of polices plans and programmes. *Impact Assess.* 10, 3–22. doi: 10.1080/07349165.1992.9725728

Zhang, J. W., Jiang, Y. H., and Chen, X. J. (2019). *Study on Environmental Impact Assessment Mechanism in Areas Beyond National Jurisdiction* (Beijing, China: China Ocean Press), 192.