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Editorial

Constructing Ocean and Polar Governance

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Abstract
The governance of ocean and polar regions is among the most relevant challenges in the combat against global environmental degradation and global inequalities. Ocean and polar regions are climate regulators and very much affected by climate change. They are an important source of nutrition for life in and above the sea. At the same time, they are subject to an increasing number of geopolitical and geo-economic conflicts. Due to the lasting virulence of many security issues, economic conflicts, legal disputes, new technological developments, and environmental crises in global marine areas as well as the intricate overlap of sovereign, semi-sovereign, and global commons territories, the relevance of ocean and polar governance is bound to rise. This thematic issue sketches important trends in research on these issues and identifies future avenues of inquiry. In this editorial, we first provide an overview of governance challenges for ocean and polar regions and their relevance for geopolitical and geo-economic conflicts. In a second step, we present the eight contributions that make up the thematic issue by clustering them around three themes: (a) challenges to norm-creation in ocean governance, (b) the impact of territorialisation on governance and the construction of authority, and (c) the effectiveness of regimes of ocean and polar governance.

Keywords
Arctic Council; climate change; ecosystems; global commons; maritime governance; polar governance; United Nations Convention on the Law of the Sea

Issue
This editorial is part of the issue “Constructing Ocean and Polar Governance” edited by Dorothea Wehrmann (German Institute of Development and Sustainability) and Hubert Zimmermann (Philipps University of Marburg).

1. Ocean and Polar Governance

In June 2022, the United Nations Conference on the Human Environment celebrated its 50th anniversary. In 1972, for the very first time, this conference brought together representatives from a majority of states to explicitly deal with the environment as an object of governance, as an entity that needed to be governed. The conference in Stockholm is often seen as the start of global environmental policy and it pushed the need for a global and holistic perspective to preserve the Earth’s environment, acknowledging the shift from the Holocene to the Anthropocene. The future of the oceans and the polar regions soon emerged as one of the most crucial areas on the agenda of global environmental policy. It was in particular the emergence of climate change as core challenge which underlined just how important and at the same time endangered the preservation of these areas was and still is. Containing vital resources for human survival (nutrition, raw materials, biological resources, etc.) they have also been spaces of contested authority. The overlap of sovereign, semi-sovereign, and global commons territories poses a particular challenge for governance. Numerous security issues and geopolitical rivalries complicate global cooperation, exemplified by the recent Russian blockade of Black Sea shipping lines which cuts off deliveries of vital food resources for many parts of the world

in desperate need. The global geopolitical turmoil resulting from the war in Ukraine also challenges established forms of cooperation: Various states ended their bilateral cooperation with the Russian Federation restraining also collaboration in multilateral settings to which the Russian Federation is a member. Given the dynamic situation, it is still too early to assess the long-term implications for the governance of the ocean and polar regions. However, the Arctic Council's decision to pause all official meetings of the Council and its subsidiary bodies implicates that in this setting it is unlikely to agree on shared strategies and to continue scientific cooperation with researchers from Russia in the near future, illustrating once more how political cooperation (and conflict) affects also the generation of knowledge(s).

1.1. Governance Challenges

International ocean and polar governance describes processes, rules, institutions, and norms which determine how humans use and manage the ocean and polar regions as well as their vital resources. In this thematic issue, we are interested in the "construction of ocean and polar governance" and in the geopolitical aims related to the territorialisation of the oceans and the polar regions. While rivalries regarding the exploitation of resources in the Eastern Mediterranean or the South China Sea exemplify how "classical" geopolitical interests encourage the proliferation of maritime security strategies, this thematic issue also considers "critical" geopolitical perspectives and how governance challenges are framed in spaces with contested authority and areas beyond national jurisdiction labelled "global commons." How do both classical and critical geopolitics shape the governance of the oceans and the polar regions? And is there a need to adapt maritime and polar governance to meet the environmental and geopolitical challenges of the 21st century?

1.2. Governance Regimes

The Antarctic Treaty System, the United Nations Convention on the Law of the Sea, the International Seabed Authority, and the Arctic Council all emerged since 1959 and are considered the main governance regimes for the oceans and polar regions. Under their auspices, additional agreements were negotiated and the number of members and signatories grew. At the time when global governance became a buzzword in political sciences in the 1990s, non-state actors already had a say in ocean and polar governance regimes and were included as permanent participants, observers, and experts in policy-making. Given the complexity of governance challenges and wide-ranging implications of climate change, the greater membership and inclusion of non-state actors strengthened the legitimacy of these governance regimes. At the same time, ocean and polar governance regimes have been subject to criticism and reform proposals calling into question their abilities to relate effectively to the environmental and geopolitical challenges and their implications for the planet.

1.3. Norm-Creation

Global agreements like the Paris Climate Agreement and the 2030 Agenda for Sustainable Development (both 2015) do not specifically address the governance regimes for the oceans and the polar regions mentioned. Instead, they call upon all countries, all levels of government, and various actors to act "in collaborative partnerships" (United Nations General Assembly, 2015, SDG 17). To integrate policies geared towards "just transitions," however, shared overarching norms matter. Norms regarding the oceans and polar regions are competing and contested although these are often (incorrectly) perceived as "empty places." While some envision these areas as "global commons," others consider them as their "homeland," as "source of nutrition," and denounce "climate imperialism" and "eco-colonialism'' (Dauvergne, 2016; Hornidge, 2020; Nuttall, 2019; United Nations Decade of Ocean Science for Sustainable Development, 2021).

2. The Contributions to the Thematic Issue

The contributions in this thematic issue are clustered around three themes. The first three articles illustrate how authority and norm-making is constructed in ocean and polar governance. The second cluster discusses a trend towards a territorialisation of the oceans because of security and economic pressure. The last section deals with the effectiveness of governance regimes in their management of persisting and emerging security issues. All contributions depart from different theoretical and regional perspectives, focusing on regions ranging from South Asia, the Southern Atlantic Ocean, to the polar regions.

2.1. Rule- and Norm-Creation in Polar and Ocean Governance

The contributions of the first part deal with the patterns and challenges of governance in the oceans and polar regions. Aletta Mondré and Annegret Kuhn provide an overview of the state of the art of political science research on ocean governance, which has only recently taken up the topic in a comprehensive way (Mondré & Kuhn, 2022). The article maps the multilevel structure and multitude of authorities regulating human activities in the ocean and shows that regulatory approaches are fundamentally different depending on whether they follow either a sectoral or a spatial logic. Ina Tessnow-von Wysocki and Alice Vadrot discuss how a scientific concept such as ecological connectivity can shape governance in areas beyond national jurisdiction (Tessnow-von Wysocki & Vadrot, 2022). Based on interviews with participants in

intergovernmental conferences on biodiversity in marine areas, they argue that in case they are employed strategically by diverse actors, such concepts can lead to epistemological change, transforming marine governance. However, they can also be used to dilute reforms, and their meaning can become so contested as to make them virtually meaningless. Michał Łuszczuk et al. scrutinize how the Barents Regional Council and Northern Periphery and Arctic Programme address the normative trap of the Arctic development paradox (Łuszczuk et al., 2022). By applying the scientific concept of governability, they show that both programs feature economic-driven solutions and frame sustainability only from an environmental perspective. The authors conclude that instead of addressing the Arctic development paradox by translating their different normative postulates into unambiguous guidelines or objectives, both programs have normatively entrapped themselves.

2.2. Impacts of Territorialisation on Governance

The polar regions and the oceans have long been subject to attempts at territorialisation. Often understood as "empty" places, with no states having authority over these areas, the tension between the functional needs of governance, potential conflicts of interest, and unclear governance arrangements presents a particular challenge. Daniel Lambach sheds light on the territorialisation of near shore areas and argues that territorializing episodes occur when a space is constructed as "empty," when there are impelling economic incentives, and when great powers are unable or unwilling to oppose territorialisation (Lambach, 2022). Frank Mattheis and Pedro Seabra investigate how regional security governance mechanisms seek to fill the maritime gaps of non-proliferation (Mattheis & Seabra, 2022). The norms generated by these mechanisms serve to impede the extension of spheres of influence of external powers, creating another variety of functional territorialisation.

2.3. Effectiveness of Regimes of Ocean and Polar Governance

Based on the literatures on regime complexity and regulatory regionalism, the contributions of the third part investigate the need of governance arrangements to adapt to environmental transformations, to (persisting) threats, and security challenges. Hannes Hansen-Magnusson sheds light on three governance arrangements that are often perceived as success stories: the Arctic Council, the Antarctic Treaty System, and the United Nations Convention on the Law of the Sea (Hansen-Magnusson, 2022). Given the fundamentally changing context of their existence and the interconnectedness of the oceans and the polar regions for living conditions elsewhere, he argues that, in order to be sustainable, these governance arrangements need to anchor the principles of responsibility. With a lack of local voices and the subject of responsibility being often contested, he suggests to consider the concept of "common concern" and a "broadened subject of responsibility" that includes remote localities and non-regional actors. Sarah A. Heck explores how ocean governance is based on disaggregated, regulatory forms of statehood, using the example of the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF; Heck, 2022). She argues that CTI-CFF stops short of being an effective supranational organization, but as a multi-level governance structure strengthens regulatory regionalism. Focusing on strategies to combat piracy in Asian waters, Anja Menzel shows how several international fora of cooperation are characterized by a division of labour (Menzel, 2022). Her empirical analysis challenges theoretical contributions on counter-piracy governance which argue that existing counter-piracy institutional frameworks are ineffective because of their fragmentation. Instead, she illustrates that regional cooperation mechanisms follow different objectives: While some focus on information sharing and capacity building, others offer a stronger operational role. Thus, even a fragmented regime complex might be effective in fulfilling its objectives.

As this thematic issue illustrates, the governance of the oceans and the polar regions is affected by similarly profound challenges. The key question is: How can research perspectives on ocean and polar governance be combined to better understand how ocean and polar governance is constructed and practiced towards the complex transformations they are experiencing? Bringing together perspectives from researchers focusing on the ocean and the polar regions does not only encourage the identification of shared governance challenges, but also of factors and analytical perspectives determining how vulnerable environments like the oceans and polar regions are governed in the Anthropocene.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Authority in Ocean Governance Architecture

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Abstract
In this article, we demonstrate that the ocean is a space of politics and explore the what, who, and how of ocean governance. We first sketch the governance architecture and examine challenges and shortcomings concerning political authority. Starting from a definition of "ocean governance," we highlight that two fundamentally different regulatory approaches are applied to the ocean: a spatial ordering on the one hand and a sectoral segmentation on the other. States are the central actors regulating the use and protection of marine areas, but state sovereignty is stratified, with diminishing degrees of authority farther from the shoreline. As vast marine spaces are beyond the exclusive control of any given territorial state, political authority beyond areas of national jurisdiction must first be created to enable collective decision-making. Consequently, a multitude of authorities regulate human activities in the ocean, producing overlaps, conflicting policies, and gaps. Based on recent contributions to the fast-growing ocean governance research field, we provide a thematic overview structured along the dimensions of maritime security, protection of the marine environment, and economics to unveil patterns of authority in ocean governance.

Keywords
authority; blue economy; coordination; marine environmental protection; maritime security; ocean governance

Issue
This article is part of the issue "Constructing Ocean and Polar Governance" edited by Dorothea Wehrmann (German Institute of Development and Sustainability) and Hubert Zimmermann (Philipps University of Marburg).

1. Introduction

The last decade has been marked by an increased interest in ocean governance—both in policymaking and academic scholarship. In 2017, the United Nations held its first-ever Ocean Conference, and the UN Decade of Ocean Science for Sustainable Development commenced in 2021. At its core, marine science studies the nature of marine systems grounded in natural sciences. Yet as humankind interacts extensively with the ocean, scholars from various backgrounds explore these interactions within their particular fields. There are maritime historians, economic experts, legal scholars, and many more. Surprisingly, political science has rarely engaged with ocean governance. In turn, many scientists with other backgrounds have explored aspects of ocean governance, stumbling upon regulatory gaps and policy incoherencies. As highly specialized journals, such as *Marine Policy*, *Ocean and Coastal Management,* and *Ocean Development & International Law*, lead the field, central questions on governance beyond the territorial state are debated elsewhere than in political science journals.

This article introduces ocean governance to a wider political science audience to reclaim a productive subject. We illustrate that the ocean is a space of politics and explore the what, who, and how of ocean governance. The ocean is an arena of great power competition as well as international cooperation on matters of security, environmental policy, and economics. While humanity has striven for most of its history to establish political authority over dry land, efforts to establish authority over maritime areas have intensified in recent decades. The United Nations Convention on the Law of the Sea (UNCLOS) provides a comprehensive legal framework

for ocean governance. Since the ocean both separates and connects all landmasses, ocean governance is inherently international. Although some oceanographic measurements (e.g., salinity, currents) warrant subdivisions, the world's ocean basins are interconnected. As a result, many local impacts also eventually affect distant areas. The obvious need for interstate cooperation to govern the ocean—which borders many nations—raises crucial questions at the heart of political science, like which actors can take binding decisions on human activities in the ocean, how conflicts on the use and protection of ocean space are addressed, and what effects the asymmetrical power structures of the international system create with regard to ocean justice. We first sketch the governance architecture and examine its crucial characteristics—including major shortcomings—concerning political authority. We structure our thematic illustrations in terms of the domains of security, environment, and economics.

2. What Is Ocean Governance About?

We define ocean governance as all rules, policies, laws, and institutions designed by governmental and/or non-governmental actors on all levels of decision-making, which regulate any human activities concerning the ocean. Our definition is similar in its comprehensiveness to that of marine governance as proposed by van Tatenhove (2011, p. 95). We strongly echo Bromley (2008, p. 8), who emphasized that ocean governance is about controlling the behavior of individuals that affects the ocean rather than about fish, benthic organisms, and hypoxia. We refer to the sum of all ocean governance arrangements as the architecture of ocean governance.

Thus, ocean governance is about claims to authority over ocean space. We denote authority as the legitimate exercise of power. We are particularly interested in who enjoys the legitimacy to make binding decisions on activities in ocean space. In the modern world, the exercise of power is firmly intertwined with the notion of governments holding the legitimacy to rule and the notion of state sovereignty. States enjoy the legitimate power to rule within their territory, thus authority is spatially bounded. Yet as a vast amount of ocean space lies outside any state's territory, no obvious entity enjoys authority over these areas beyond national jurisdiction. We emphasize that there is a fundamental difference between studying governance in spaces under state sovereignty and spaces beyond national jurisdiction. Since the high seas are outside the exclusive authority of territorial states, the legitimate right to rule these vast marine spaces first needs to be created and will necessarily have to be shared among all states. Thus issues of who enjoys the power to create rules, the legitimacy of decision-making procedures, and how regulations can be binding and enforced become magnified. Monitoring activities in oceanic space is difficult, making effective management particularly challenging (DeSombre, 2017, p. 99).

Commonly, states use international treaties to establish global cooperation. Treaties specify the area of cooperation and establish substantial rules as well as procedural rules. In terms of authority, states delegate decision-making power to an international governmental organization and/or assign responsibilities, rights, and obligations to the state parties or other specified bodies. Moreover, shared overarching norms may be internalized in the sense of "standards of appropriate behavior for actors with a given identity" (Katzenstein, 1996, p. 5), which stipulate international cooperation and may also further consolidate the political authority of international organizations, such as through norm convergence (see Biermann et al., 2009; Holzscheiter et al., 2016). States thus may enter into treaties and/or less formal governance arrangements to establish shared rules on the kinds of ocean-related activities to be regulated, as well as how and by whom this should be done. In this manner, states create, define, and limit authority to govern the ocean beyond their territory. However, states are also free to never commit to as well as to exit such arrangements.

Political efforts to tackle ocean governance have produced several international treaties and regional agreements. The current cornerstone is UNCLOS, which entered into force in 1994. As of early 2022, membership is near-universal with 168 parties. The treaty aims to regulate all uses of the ocean and its resources. Regarding authority, UNCLOS divides the ocean into different zones granting varying levels of state authority. The further seawards, the lesser the powers of coastal states. Coastal and island states enjoy full sovereignty over their territorial waters including the seabed underneath, giving them exclusive authority in these zones. Regarding their continental shelf, that is the submerged natural prolongation of their land masses up to 200 nautical miles (with a possible extension to 350 nm) depending on geological properties, coastal and island states have exclusive rights to natural resources in that part of the ocean floor. In the exclusive economic zone (EEZ), the water column adjacent to the territorial sea, coastal states also enjoy authority over the use of natural resources, the exclusive right to authorize any construction, and to set policies to protect the marine environment in that zone. All other parts of the ocean are the high seas, to which all claims of sovereignty are invalid. Moreover, all states enjoy the same rights on the high seas, turning approximately 60% of the ocean into a common pool. Hence, land-locked states enjoy the same rights as coastal states on the high seas but do not possess maritime zones that fall under their exclusive control. The ocean floor and its subsoil beyond national authority are designated into yet another zone called the Area. States cannot claim sovereignty over the Area; moreover, the mineral resources occurring in the Area belong to all of humankind. UNCLOS has created a new intergovernmental organization, the International Seabed Authority (ISA), to govern the exploitation of deep-sea minerals on behalf of humankind.

We use the examples of the ISA and International Maritime Organization (IMO) to assess the authority of highly specialized ocean governance institutions. What on the surface looks like a strong transfer of authority to an intergovernmental organization is however less strong when assessed using the framework of Hooghe and Marks (2015). This is due to minimal formal delegation of authority to the ISA, as the small secretariat has no executive functions and formally provides only secretarial support. Regarding the pooling of authority, the transfer of authority to take binding decisions to an international organization with individual states ceding their capacity to block decisions, this variable is above the median for the international organizations analyzed. In the ISA, the general voting rule is consensus, but should a matter come to a vote, Council member states take majority votes in four chambers. Adopted decisions are binding, thus diminishing the overall capacity of individual states to block ISA decisions. In the case of the IMO, Hooghe and Marks (2015) find very weak delegation of authority but extensive pooling of authority. Many IMO decisions are taken by majority voting, while IMO conventions are binding once ratified by two-thirds of its member states.

Two fundamentally different regulatory approaches are used simultaneously in governing the ocean. Parallel to the spatial logic previously discussed, a sectoral logic is also applied to human activities in the ocean. States and non-state actors set policies for specific sectors including fishery, transport, and tourism. Authority is divided among separate governance arrangements with mandates limited to the respective sectoral sphere. There is no actor or institution with the authority to design and implement ocean-related policies for all activities in every sector. Despite the inherent connectivity of ocean space, the mutual impacts of human activities in that space are systematically disregarded in a sectoral logic. The result is a striking fragmentation of ocean governance. On the global level, there is a "patchwork of, often, conflicting maritime activities, regulated by (fragmented) sectoral public policies operating at multiple levels with specific governance structures and regulations" (van Tatenhove, 2013, p. 298), while Bromley (2008, p. 17) shows evidence of "flawed and incoherent" policy solutions.

Moreover, there are multiple governance arrangements for the same activity, adding to the complexity of sectoral splits. The architecture of ocean governance is characterized by the concurrence of multiple political authorities, that is legitimate governance institutions. Regulations are made at multiple levels by many different authorities: They include governments at the level of territorial states as well as sub-state levels, and regional fora such as the Arctic Council and intergovernmental organizations including the Food and Agriculture Organization (FAO) of the United Nations on the international level. In addition to public authorities, there are different civil society actors involved in rule-making. Consequently, ocean governance is multi-level governance by many actors.

We briefly illustrate the fragmented authority using a fishing vessel. For instance, while the IMO is the global standard-setting authority for the safety of international shipping, there are exemptions for fishing vessels from its International Convention for the Safety of Life at Sea (SOLAS Convention), producing a gap regarding their safety and seaworthiness. This particular gap is addressed by several non-mandatory instruments, for which the IMO collaborates with other UN agencies. A different organization, the International Labour Organization (ILO), enjoys the authority to set labor standards. Thus, the ILO Work in Fishing Convention 2007 applies to workers on commercial fishing vessels, an international treaty that has outlined minimum requirements for working conditions. Authority to regulate the actual fishing largely depends on where the activity is taking place; authority may rest with either national governments or regional fishery bodies to set catch quotas, regulate fishing gear, etc.

We now turn to the domains of security, environment, and economy to illustrate the ocean governance architecture in light of spatial and sectoral ordering.

3. Maritime Security

Maritime security has been mainly addressed as a special case of international security and national defense with studies on naval strategies. Since the 2000s, the term maritime security has been in common use and refers to "a set of policies, regulations, measures and operations to secure the maritime domain" (Germond, 2015, p. 137). Bueger and Edmunds (2017) propose national security, the state of the marine environment, economic development, and human security as core dimensions of maritime security. Topics thus reach far beyond defense against seaborne invasions to also include securing international shipping routes, fighting piracy, maritime terrorism, countering drug trafficking, enforcing trade sanctions, illicit border-crossings, and search-and-rescue (SAR) operations.

Despite many conceptual similarities, maritime security differs from land-oriented security concepts in having to account for both actions in maritime zones exclusively controlled by coastal states and in zones beyond national sovereignty. The Westphalian system has established states' sovereignty within their borders, backed up by an international legal order that emphasizes territorial integrity and places all land under the de-jure sovereignty of a single state. This is not the case with ocean space. Yet the legal zoning of ocean space drives the territorialization of maritime space by granting states authority in territorial waters, the continental shelf, and EEZ. Consequently, the negotiation of UNCLOS and its entry into force in 1994 prompted coastal states to claim such zones. Overlapping claims produced maritime boundary disputes between states (Mondré, 2015, p. 54).

Unfortunately, UNCLOS lacks precise rules for delimitation, and in addition, some states evade its compulsory dispute settlement system. While the majority of these disputes were settled peacefully, some disputes turned into militarized conflicts. Examples include the delimitation of the EEZ between China and Japan in the East China Sea and the multiple overlapping claims in the South China Sea (Koo, 2017). The South China Sea disputes also highlight contestations of the legal order at sea. UNCLOS sets maximum limits to how far away from its coast a coastal state may legitimately claim authority over maritime areas. Contrary to these provisions, the People's Republic of China entertains farther-reaching claims with its nine-dash-line based on historic rights and has rejected the international arbitration award on its dispute with the Philippines as "null and void" (Government of the People's Republic of China, 2016). Selective acceptance and continuous contestation of UNCLOS norms by great powers endanger the normative framework of ocean governance. In contrast to China, the United States of America has not ratified UNCLOS but regularly conducts so-called freedom of navigation operations to demonstrate its opposition to what they consider to be excessive maritime claims. The latter is an example of a major power supporting central NCLOS principles without formally joining the treaty.

Yet not all maritime security issues stem from interstate competition. When piracy threatened major shipping routes in the mid-2000s, international cooperation emerged to protect the backbone of the globalized economy. To combat piracy off the coast of Somalia, the UN Security Council adopted Resolution 1816 in 2008, calling on states to deploy in the area. In this instance, states have made use of the standing high degree of delegation of authority to the Security Council to take binding decisions. This led to the European Union's Operation Atalanta, the US-led Combined Task Force 151, and NATO's Operation Ocean Shield. In addition to states operating at sea, African littoral states prosecuted captured pirates. Various actors entered into bilateral treaties that established transnational and international cooperation in prosecuting and combating piracy. The EU and individual UN bodies funded numerous capacity-building measures in this area. For example, the EU supported regional law enforcement in Somalia. New fora were established, such as the Contact Group for Piracy off the Coast of Somalia and Shared Awareness and De-Confliction, which provided a platform for regular and organized military exchanges. The latter is an important but informal governance arrangement without notable formal delegation and pooling of authority. The IMO played an important role in providing guidelines, management methods, and a voice for the shipping industry. The challenges in controlling maritime spaces were met by establishing risk and security zones. Maritime domain awareness initiatives collect information on a large scale to improve the planning and implementation of counter-measures (Bueger & Edmunds, 2017, p. 1303). Shipping companies employed private guards to protect their cargo ships against piracy. Due to a combination of military organizational cultures regarding commercial vessel protection as being outside their core mission and civilian decision-makers fearing diplomatic incidents due to the presence of military personnel on private vessels, flag states eventually supported the use of private security providers to protect cargo ships (Cusumano & Ruzza, 2018). We consider this development as another kind of delegation of authority. In line with a general trend of security privatization, states diffuse their legitimate monopoly on the use of force to private actors when delegating the provision of security to private companies.

Another area with significant involvement of non-state actors is the dimension of human security, especially assisting persons in distress at sea. While the obligation to rescue all persons in distress at sea is well-established in international law (SOLAS Convention) and widely accepted by seafarers, NGOs providing assistance have repeatedly clashed with states' security interests. The use of sea routes by migrants has raised coastal states' concerns over illicit border crossings. Heavy loss of life at sea, often due to ill-equipped vessels, has raised suspicions of premeditated distress situations intending to force civilian actors and/or coast guards to bring migrants on land enabling them to seek refugee status. In several Mediterranean states, and also in Australia, rescue operations have become strongly contested and their securitization has merged border control with SAR operations (Ghezelbash et al., 2018). Coastal states have considered humanitarian NGO operations as undermining their authority to police their borders.

4. Marine Environment

Turning to the marine environment, we see a notable expansion of programs and activities on international marine protection since the 1970s, not least induced by the first United Nations Conference on the Environment in Stockholm, 1972.

On the global level, issues of marine environmental protection and preservation are mainly addressed by UNCLOS, which contains a number of general principles obliging states to take measures to prevent and reduce harm to the marine environment (for further details see Mossop, 2018). As UNCLOS contains only weak provisions for addressing environmental conservation in areas beyond national jurisdiction, UN negotiations for a new legally binding agreement for marine biodiversity in these areas have been initiated, although these have proven lengthy and are as yet incomplete. Moreover, the IMO also issues binding regulations for the protection of the marine environment, although these concentrate on selective issues such as the prevention of pollution from ships (MARPOL) or the prevention of marine pollution by dumping of wastes (London Convention).

Against this background of the limited political authority of global regimes, endorsement of the development of regional agreements for marine protection in UNCLOS can be considered a reasonable consequence. On the regional level, the UNEP Regional Seas Programme, initiated in 1974, is of particular importance. This consists of different conventions and action plans across 18 different marine regions, initiatives referred to as regional seas programmes (RSPs). While there are conventions directly administered by UNEP, such as the Convention for the Protection of the Mediterranean Sea, there are also four independent regional governance arrangements: HELCOM for the Baltic Sea region, the Antarctic Treaty, OSPAR for the North-East Atlantic Region, as well as the high-level intergovernmental forum of the Arctic Council. RSPs differ substantially with regard to the transfer of political authority—pooling and delegation.

Initially, all RSPs concentrated on marine pollution. However, most have extended their mandates to include further issues. HELCOM and OSPAR are, for example, highly dedicated to issues of marine biodiversity, marine protected areas, and sustainable marine development (Grip, 2017, p. 420), while the Abidjan Convention, as well as the Nairobi Conventions, are increasingly committed to advancing the ecosystem-based management approach to marine governance in Africa (Adewumi, 2021).

Moreover, there are growing initiatives for cross-regional coordination between RSPs. For example, there are regular meetings striving for alignment as well as an exchange of experiences (Mahon & Fanning, 2019). However, coordination efforts are often hampered by differing institutional settings, predominantly weak organizational bureaucracies, and by the high heterogeneity of different regions (Giannopoulos, 2021). Still, there are also examples of successful regional coordination: The cooperation between HELCOM, OSPAR, and EU-MSFD is said to work quite well (Grip, 2017, p. 419), also fostered by high compatibility of normative goals concerning marine environmental protection.

The level of cooperation and coordination between different sub-regional governance mechanisms also varies widely within the regions. Within the broader marine Arctic region, there are the Arctic Council, the Nordic Council, and the Barents Euro-Arctic Council, as well as OSPAR (regarding Denmark and Norway), all of which cover issues of marine environmental protection but propound partly differing norms (Humrich, 2017).

Considering cross-sectoral coordination, there are expanding initiatives to foster horizontal integration of marine environmental concerns within RSPs. HELCOM, for instance, has established an environment/fish forum as well as an environment/agriculture forum as platforms for communication and collaboration (Grip, 2017, p. 424). Nevertheless, states have delegated little authority to the environmental programs; the programs hold few regulatory competencies over economic sectors (Rochette et al., 2015, p. 14), and accordingly suffer from limitations of political authority. Consequently, regional cross-sectoral cooperation still depends to a large extent on personal relationships, while organizational bureaucracies are usually rather small and not of major executive importance (Grip, 2017, p. 421).

Considering spatial issues of authority within marine environmental governance, we also have to keep in mind that the majority of RSPs do not have a mandate for the high seas, nor have they given major consideration to neighboring areas beyond national jurisdiction (Johnson et al., 2021).

Marine environmental governance within the EU can be considered an exception to some degree, and their approach has been heralded as a role model for other marine regions. It is mainly since the adoption of the European Marine Strategy Framework Directive (MSFD) in 2008 that the EU has been labeled a "central player in marine policies" (van Tatenhove & van Leeuwen, 2015, p. 184). Within the EU, the ecosystem approach and marine spatial planning as guiding principles of the MSFD are important instruments to overcome sectoral fragmentation (Boyes et al., 2016). For instance, there is currently a single EU Commissioner for the Environment, Oceans and Fisheries leading both the Directorate-General Maritime Affairs and Fisheries and the DG Environment.

We also find a relatively high level of delegation of political authority in the case of EU marine environmental governance. While, for instance, neither HELCOM nor the Arctic Council enjoys political authority to adopt legally binding decisions, EU marine environmental governance provides for shared competencies between the European Commission Directorates and the member states (Maier, 2014).

Regarding implementation, the specific integrative capacity depends on various national and local contextual features, e.g., types of knowledge that are being incorporated in marine spatial planning processes (Said & Trouillet, 2020), the functioning of informational flows (Toonen & van Tatenhove, 2020), and the role of non-state actor participation (Karnad & St. Martin, 2020). Yet several issues have received too little attention, such as environmental challenges in land-sea interactions such as acidification (Mendenhall, 2019).

Different groups of non-state actors participate in marine environmental governance. Scientific committees have a particularly key role within most regional seas agreements (Mahon & Fanning, 2019). We consider the inclusion of scientific expertise, although usually limited to political advisory and agenda-setting, as a strategy to enhance the legitimacy of political decisions. In some cases, however, non-state actors fulfill a more comprehensive political function, such as indigenous representatives in the Arctic Council.

5. Maritime Economy

With its living and non-living resources, the ocean is also a space for economic activity. Again, both spatial

and sectoral orderings structure governance mechanisms. The marine economy encompasses the fishery sector and increasingly aquaculture, commercial shipping, offshore-energy, biotechnology, and the emerging field of deep-sea mining as well as sea-oriented tourism.

In the past, there has not been any coherent economic governance architecture but separate regimes and regulating institutions for different sectors of the marine economy. The debate has turned to the buzzword "blue economy," encompassing all economic activities in ocean space. Best known is the "Blue Growth" concept of the European Commission from 2012. Given its major—and still growing—economic relevance, the European Commission sees Blue Growth as a "long term strategy to support sustainable growth in the marine and maritime sectors as a whole" (European Commission, 2013), and in May 2021, modified this into a new approach for a sustainable blue economy. The strategy is based on marine spatial planning as basic ordering principle and attempts the integration of different sectors. We consider this an attempt to centralize authority by clustering several regulatory authorities across segments. The Blue Growth strategy can also be interpreted as a step toward the commodification of marine nature (Campbell et al., 2016; Voyer et al., 2018, p. 2). The private sector is keen on business opportunities, making public/private partnerships a key driver of success for the Blue Growth strategy (Voyer et al., 2018, p. 13). Due to its international nature, commercial shipping is globally regulated by the IMO, a specialized UN agency with the mandate to ensure the safety, security, and sustainability of international shipping. Only recently, especially due to the development of EU shipping policy, has there been a limited trend towards regional shipping governance in European waters (van Leeuwen, 2015). The central role of major shipping companies has placed them in a position to influence global regulations. As an example, industry proposals on environmental standards have been accepted by the IMO to increase buy-in and compliance (Alger et al., 2021, pp. 158–159). This is an instance of the rise of private authority in global governance supplementing the decision-making power of states.

In stark contrast, the global fisheries sector best illustrates the fragmentation of governance in shared ocean space. All in all, the industrialization of the sector resulted in overfishing and socio-economic conflicts. Global intergovernmental fishery regimes are manifold but rather poorly developed—either containing little specific regulations such as the UNCLOS or being composed of mostly non-binding guidelines such as the FAO Code of Conduct for Responsible Fisheries. Global fishery governance institutions are complemented by relatively strong fishery institutions at the regional level, by regional fishery bodies. Functionally, regional fishery bodies can be divided into regional fisheries management organizations mandated to establish legally binding agreements on one hand and regional fishery bodies with primarily advisory mandates on the other. Currently, there are about 50 regional fishery bodies worldwide, some of which are highly specialized in the management of a particular species of fish, such as the Commission for the Conservation of Southern Bluefin Tuna, or a specific region, such as the Pacific Islands Forum Fisheries Agency. In addition to intergovernmental organizations, there are also numerous non-governmental actors engaged in shaping fisheries governance, ranging from marine industries to NGOs, as well as local stakeholder groups such as local fishermen (Guggisberg, 2019, p. 319).

There are numerous regulatory overlaps between different regional fishery bodies, but at the same time, some marine regions remain largely unregulated by regional fishery bodies. The FAO is fostering interregional cooperation and coordination of regional fishery bodies, including through the Regional Fishery Body Secretariats Network (Rochette et al., 2015, p. 15). More recently, the same has also been true of cross-sectoral coordination, in particular initiatives to foster horizontal integration of fishery and marine environmental concerns. Effective implementation is still hampered by low cross-sectoral regulatory authority as well as partly incompatible norms across sectoral policies. Regarding the implementation of regional fishery agreements as well as monitoring of catch quotas, all international fishery bodies ultimately depend on effective national mechanisms. More recently, there has been growing cooperation between NGOs such as Global Fishing Watch and governmental institutions with a view to more effective monitoring (Guggisberg, 2019). The situation is different within the aquaculture activities, which are mainly regulated by national laws. We find high regional disparities: Many Asian states as well as Norway and Chile have actively promoted aquaculture expansion, whereas growth of the aquaculture sector has been constrained in other regions such as Europe and the United States of America (Naylor et al., 2021, p. 559).

Concerning non-living ocean resources, governance depends on their location. While coastal states enjoy the right to govern the exploitation of all resources in their territorial waters and EEZs, as well as their continental shelf, mineral resources in the high seas are the common heritage of humankind. Since no state may own the latter, states created the ISA to regulate their exploitation and share the benefits (Feichtner, 2019). Interest in deep-sea minerals containing valuable metals waxes and wanes with fluctuating market prices. International negotiations on the regulations have been ongoing for decades and are marked by diverging state interests, concerns over environmental harm, and calls for greater stakeholder inclusion (Mondré, 2021). A coalition of specialized industry and interested states is pushing for their finalization to allow deep-sea mining to commence in the near future.

6. Conclusion

We have illustrated the architecture of ocean governance in three dimensions of politics. The fundamental

questions of who gets what, when, and how also apply to the vast ocean. The legal order at sea establishes a spatial ordering. States are the central actors regulating the use and the protection of marine areas, but state sovereignty is stratified with diminishing degrees of authority farther out into the ocean. There is no central authority governing the high seas, here political authority first needs to be created to enable collective decision-making in a shared space. Specialized ocean governance institutions with little formal delegation of authority, such as ISA or IMO, demonstrate the hesitation of various states to transfer political authority to international organizations. Such specialization also reflects the strong sectoral segmentation that results in path dependencies and conflicting norms that impede more coherent ocean governance.

Highly disparate governmental positions on the scale and specific modalities of delegating authority to global organizations are also illustrated by the long-running negotiations for a legally binding instrument to protect marine biodiversity beyond national jurisdiction (De Santo et al., 2020). Different types of non-state actors enjoy varying but largely increasing degrees of access to ocean governance mechanisms. However, non-state actors do not possess the same means as states to participate in collective decision-making. While economic actors are at the center of many conflicts over uses of ocean space, they have direct access to only some of the agreements. Environmental NGOs are granted observer status in several international organizations and scientific advisory committees support some of the organizations, especially in the domain of environmental marine governance.

One implication of the spatial ordering is state competition over maritime areas to control larger zones for power projection and additional economic resources. This results in conflicts over maritime boundaries and creates struggles to define and maintain principles of international order. In matters of security, states are notoriously reluctant to cede decision-making powers to multilateral bodies. At best, they cooperate with like-minded partners with shared interests, for instance combating piracy to protect the shipping routes on which the global economy is built. In the other dimensions, implications are disparities in regulatory aims. A multitude of regional fishery governance arrangements seek to mitigate the tragedy of the commons and several multilateral agreements protect the marine environment, but low cross-sectoral regulatory competencies, diverging institutional designs, and partly contested norms on sustainable marine development hamper shared rules and effective enforcement. Regulation of economic activities in the ocean space is especially strongly separated into different segments. National economic interests fuel competition over ocean resources, but also foster multilateral governance arrangements, although mostly with very limited authority.

With its many small parts, the governance architecture contrasts sharply with the unitary nature and connectivity of the ocean. All human activities in maritime space interact and affect it cumulatively. Neither analytical nor regulatory silos correspond to the ocean's oneness. The ocean is a physically different space than land territory, yet practices of ocean governance construct marine spaces as quasi-territories by applying land-based models of governance to the fluidity of the sea, missing the opportunity for innovative governance of globally-shared spaces (e.g., Lambach, 2021; Peters, 2020; Ryan, 2019; Steinberg & Peters, 2015). A common response to the high fragmentation of ocean governance is to call for more coordination and greater policy coherence. Recalling that functional differentiation viewed through the lens of differentiation theory can also be considered "a rational response to the increasing complexity of society" (Zürn & Faude, 2013, p. 120), regionally bounded marine spatial planning may be the most promising tool for such integrated ocean management. Our analysis revealed some trends towards a form of regionalization. Despite a growing number of initiatives aimed at overcoming sectoral splits, we still see a limited degree of delegation and pooling of authority in most regional marine governance institutions. For further consolidation of this development, one avenue would be a further empowering of the role of bureaucracies of regional ocean governance organizations. In addition to institutional capacity, shared overarching norms matter. In this regard, at a minimum, the convergence of normative principles on how to govern is necessary to integrate policies across sectoral and spatial divides. The normative goals set by the Sustainable Development Goals may serve here as basic guiding principles.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Governing a Divided Ocean: The Transformative Power of Ecological Connectivity in the BBNJ Negotiations

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Abstract
Science plays an important role in the emergence, development, and implementation of new environmental regimes. However, there are opposing views regarding the type of knowledge that is considered policy-relevant to address global environmental problems. In intergovernmental negotiations, these tensions are visible in debates about the inclusion of scientific concepts in a negotiated text. This article analyses the case of "ecological connectivity" in the negotiations for an international legally-binding instrument (ILBI) for the conservation and sustainable use of marine biodiversity of areas beyond national jurisdiction (BBNJ). As a key scientific concept portraying the ocean as one, the term ecological connectivity challenges the status quo and has far-reaching implications for future ocean governance. Our study draws on ethnographic data collected during the BBNJ negotiations and analyses the actors and their different rationales for including the ecological connectivity concept in the treaty text. Our results demonstrate two things. First, state and non-state actors use the ecological connectivity concept to support their interests in the new ILBI, based on different types of rationales: ecologic, socio-economic, juridic, and epistemic. Second, our analysis demonstrates that several actors recognise the limitations of the existing legal order underpinning ocean governance in areas beyond national jurisdiction and are keen to embrace a new legal framework regarding the idea of an interconnected ocean. We conclude that while the ecological connectivity concept runs the risk of losing its meaning in an array of competing political interests, it does have the potential to achieve transformative change in global ocean governance and fundamentally alter the way humans use and protect BBNJ.

Keywords
biodiversity of areas beyond national jurisdiction; diplomacy; ecological connectivity; intergovernmental negotiations; marine biodiversity; ocean governance; United Nations

Issue
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1. Introduction

Science plays an important role in the emergence, development, and implementation of new environmental regimes (Andresen, 2014; Haas, 2016; Lidskog & Sundqvist, 2015; Litfin, 1994; Lubchenco & Grorud-Colvert, 2015; Miller & Edwards, 2001). However, the use of science can be contested and result in opposing views of policy-relevant knowledge to address global environmental problems (Peterson, 2019). In the context of text-based intergovernmental negotiations, these tensions are visible in debates about the inclusion or exclusion of scientific concepts (Hughes & Vadrot, 2019; Vadrot, 2014). These debates are particularly interesting research subjects because they reveal how actors maintain or contest global order by embracing scientific findings that imply transformative change.

This article takes a close look at the use of science in the negotiations for an international legally-binding instrument (ILBI) for the conservation and sustainable

use of marine biodiversity of areas beyond national jurisdiction (BBNJ). Under the 1982 United Nations Convention on the Law of the Sea (UNCLOS), areas beyond national jurisdiction are currently governed by a fragmented framework of global, regional, sub-regional, and sectoral bodies (Yadav & Gjerde, 2021; Tessnow-von Wysocki & Vadrot, 2020). Recognising the need for holistic marine biodiversity governance, ad hoc Open-Ended Informal Working Group (OEWG) and Preparatory Committee (PrepCom) meetings resulted in the recommendation that there be a new ILBI. In 2017, the United Nations General Assembly (UNGA) decided to convene an intergovernmental conference to formally negotiate and adopt the new ILBI in four conference sessions between 2018 and 2019. Due to the Covid-19 pandemic, what had been planned as the final conference was postponed (Vadrot et al., 2021) to March 2022, and another conference is being planned for August 2022.

This article analyses the use of the scientific concept of "ecological connectivity" in these negotiations. As a key scientific concept portraying the ocean as one, ecological connectivity challenges the status quo and has far-reaching implications for future ocean governance. We show how the ecological connectivity concept has made its way into the BBNJ negotiations through various actors. The scientific concept proves an interconnection of ocean processes that BBNJ actors consider relevant in different dimensions. The article analyses the actors who introduced the concept into the negotiations and their rationales for doing so. To what extent it will guide future ocean governance is currently under negotiation.

To date, academic literature has only sparsely studied the use of scientific concepts in intergovernmental negotiations (Gray et al., 2014; Kobayashi et al., 2020), focussing on contestations of specific terminology in the context of intergovernmental assessment bodies (Borie & Hulme, 2015; Hughes & Vadrot, 2019). Scholars have discussed conditions under which science influences policy-making (Lidskog & Sundqvist, 2015; Rietig, 2014) and the role of science in institutionalised bodies and assessments (Chasek, 2019; Haas, 2017; Kohler, 2019) rather than the use of scientific concepts in the bargaining process over legal texts in the early treaty-making stage. We aim to close this gap by tracing the ecological connectivity concept in the BBNJ negotiations and identifying the actors who introduced it into the diplomatic sphere and their rationales, drawing on ethnographic data collected at three intergovernmental conferences and different fora of intersessional work. The ecological connectivity concept in the BBNJ negotiations is an interesting case with far-reaching implications for ocean governance, as it inherently questions existing legal structures and—if embraced in the new legal text—has the potential to change the status quo of marine biodiversity governance fundamentally.

This article will firstly give a brief overview of existing research on the role of science within intergovernmental negotiations. Secondly, it introduces the ecological connectivity concept and its relevance to the BBNJ negotiations. Thirdly, it explains the methodology used for data collection and analysis, namely collaborative event ethnography. Fourthly, it identifies the actors that support the inclusion of the ecological connectivity concept in the ILBI and their different rationales for doing so. Lastly, the article discusses the main findings and points to opportunities for how the ecological connectivity concept could be operationalised in the treaty text to shape future BBNJ governance. The research adds to the academic literature on science–policy interfaces by analysing practices of individual BBNJ actors in linking science to policy and attracting interest in the ILBI. It shows that the concept continues to play a role in shaping the BBNJ negotiations and that actors use it to challenge the status quo of current global ocean governance with ecologic, socio-economic, juridic, and epistemic rationales.

2. The Use of Science in Intergovernmental Negotiations

Many scholars would agree that science plays a prevalent role in global environmental policy-making (Chasek, 2019; Haas, 2016; Johnston, 2019; O'Neill, 2017). When actors regard scientific information as "salient, credible, and legitimate," chances are high that it will be considered policy-relevant to support global sustainability agendas (Cash et al., 2003, p.2). Thus, scientific knowledge alone is not sufficient to influence global environmental governance but is rather conditioned by the perceived relevance for policy-making, which may cause controversies between different actors and knowledge forms (Peterson, 2019; Vadrot, 2014). Scholars point to the challenge that "contestations over knowledge are entwined with contestations over the potential political and societal implications of that knowledge…these controversies are not just about facts, but also simultaneously about values and interests" (Turnhout & Gieryn, 2019, p. 70). Therefore, even in cases where concepts are broadly agreed upon, there still might not be a political consensus in intergovernmental negotiations which has been captured by the notion of "boundary objects" (Gray et al., 2014). As Turnhout et al. (2016, p. 67) put it, "the construction of policy-relevant knowledge is a political act that involves choices about the preferred audiences of knowledge and the types of policy actions that may follow from this knowledge."

Negotiation settings are entry points to empirically study contestations among actors and their rationales for including scientific concepts in treaty texts (Vadrot, 2020). There are several ways in which actors use science in intergovernmental negotiations. NGOs, for instance, use science to alter governments' interests and, in this way, try to shift their positions in intergovernmental negotiations (Corell et al., 2007, p. 23). Through specialised knowledge and information, NGOs can increase their perceived legitimacy and influence in

the negotiations (Corell et al., 2007, p. 23). Science can, in this way, facilitate cooperation and push for a certain policy outcome, align state positions, and convince state actors that coming to the negotiation table is in their interest. To date, the use of scientific concepts within intergovernmental negotiations has only been touched upon by a handful of scholars, analysing how contestation has shaped final negotiated texts (Borie & Hulme, 2015; Gray et al., 2014; Hughes & Vadrot, 2019). This article goes a step further by studying the actors and their different rationales for including scientific concepts in a treaty text, arguing that scientific concepts, once they have entered the political sphere, can either lose their meaning in an array of political interests or alter the status quo and achieve transformative change.

3. Methods and Data

This article is based on collaborative event ethnography data, collected at three intergovernmental conferences of the BBNJ negotiations and during intersessional work. Collaborative event ethnography is increasingly used to make sense of international policy-making by studying the process of negotiations (Campbell et al., 2014; Hughes et al., 2021; Vadrot, 2020), opening up the "black box of how decisions are made" (Duffy, 2014). Event ethnography focuses on diving into the setting of an event, which includes engaging with stakeholders, understanding the procedures and structures, analysing participants' behaviour, the alliances they form, and their negotiation strategies. By following the negotiations closely, analyses are not limited to evaluating the final treaty text but can rather study modifications in government positions over time and detect negotiation trends. In the negotiations, contestations about including certain terms in the legal text can point to differences in actors' positions and political influence.

Collaborative event ethnography involves attending the formal conference sessions with a research team, conducting participant observation on-site during the plenary sessions and additional meetings (e.g., side events), and interviews with relevant stakeholders. The research team attended intergovernmental conference no. 2 and intergovernmental conference no. 3 in person for ethnographic fieldwork. Digital ethnographic data from intergovernmental conference no. 1 and the intersessional period after intergovernmental conference no. 3 complemented the database. A systematic matrix served for taking field notes (see methodology in Vadrot et al., 2022), covering the categories *actor*, *observation* (verbal and non-verbal), *comment* (content of observation), *date*, and *time* (moment when observation occurs).

The database of field notes covers all statements by state and non-state actors throughout intergovernmental conferences no. 1–3 in plenary discussions and selected side events. Through filtering for "connectivity," 46 statements served as a database for analysis. The statements were qualitatively analysed and coded for *actor*, *time of mentioning*, *type of connectivity*, and *rationale*. For an in-depth qualitative analysis of the rationales of different actors, seven interviews with BBNJ participants were conducted on-site, in person, and online after the negotiations. We interviewed BBNJ participants that (a) mentioned the ecological connectivity concept in the plenary or working group sessions, (b) published in ecological connectivity academic literature and policy and technical briefs, and (c) engaged in ecological connectivity side events. Moreover, key issues in each package element of the agreement were identified, where ecological connectivity was implied without being mentioned, based on a literature review on ecological connectivity in BBNJ (Tessnow-von Wysocki et al., 2021). Document analysis of legal draft texts served to pinpoint the emergence and disappearance of the use of the concept.

4. Ecological Connectivity as a Scientific Concept in the BBNJ Context

Ecological connectivity describes "a complex natural phenomenon linking various components of marine ecosystems in time and space" (Popova et al., 2019a, p. 92). The World Ocean Assessments recognise the concept and describe the ocean as "one single interconnected ocean system" (United Nations, 2015). As this section shows, the relevance of the ecological connectivity concept for the BBNJ agreement is mentioned in academic literature and policy and technical briefs, categorising different types of ecological connectivity and discussing implications for the ILBI (see Table 1 in the Supplementary File).

Scientists explain how the ocean is connected both actively through the migration of species (Dunn et al., 2019; Mossop & Schofield, 2021) and passively through ocean circulation (Popova et al., 2019a). Additionally, the ocean is horizontally and vertically connected, meaning that species migration and ocean circulation occur over different geographical areas, as well as through different ocean depths (O'Leary & Roberts, 2018). Genetic connectivity links marine species across the ocean genetically (United Nations Environment Programme World Conservation Monitoring Centre [UNEP-WCMC], 2018). Increasingly, there are publications on cultural connectivity, which consider the cultural and ceremonial importance of highly migratory species to coastal and island nations (Popova et al., 2019a) and the relevance of traditional knowledge of Indigenous Peoples and local communities (Endalew Lijalem et al., 2021; Harden-Davies et al., 2020; Mulalap et al., 2020; Vierros et al., 2020).

Authors warn that not considering connectivity in areas beyond national jurisdiction management would lead to "legal and practical issues in the future" (Mossop & Schofield, 2021, p. 286), including coastal zones being exposed to challenges arising from pollution, overfishing, mining, or geoengineering experiments in areas beyond

national jurisdiction (Popova et al., 2019a), and discuss the extended rights of coastal states for regional ocean governance in these areas (Molenaar, 2021). Concerns about anthropogenic impacts in the context of ocean connectivity point to invasive species, plastic pollution, and climate change (UNEP-WCMC, 2018). Recent findings concerning connections between the deep seabed and surface waters emphasise the importance of the twilight zone's unique function in the marine ecosystem, including its role in carbon sequestration and the food web (Woods Hole Oceanographic Institution, 2022).

Overall, ecological connectivity literature calls for more coherent ocean governance, pointing to shortcomings in the existing sectoral and regional approaches. As we will show in the following, the ecological connectivity concept travelled from science to the BBNJ negotiations, where it is used by state and non-state actors with different rationales.

5. Tracing the Emergence and Use of Ecological Connectivity in the BBNJ Negotiations

The BBNJ process started in 2006 with the establishment of the ad hoc Open-Ended Informal Working Group to study issues relating to the conservation and sustainable use of BBNJ. In 2011, at its fourth meeting, the Package Deal agreed on the four pillars of the new ILBI: marine genetic resources (MGRs); area-based management tools (ABMTs), including marine protected areas (MPAs); environmental impact assessments (EIAs); and capacity building and the transfer of marine technology (CB&TT). The general idea of ocean connectivity was present in final documents of the pre-negotiations, namely of the OEWGs in 2010 and 2015 (UNGA, 2010, 2015), and PrepCom no. 3 in 2017 (UNGA, 2017). When the intergovernmental conferences started in 2018, the ecological connectivity concept was missing from the guidance document *President's Aid to Discussions* (UNGA, 2018). However, it was later re-introduced in the three UNGA documents that followed (UNGA, 2019a, 2019b, 2020; see also Table 2 in the Supplementary File). The *President's Aid to Negotiations* incorporated connectivity in relation to ABMTs, including MPAs (see "III. 4.3.1 Identification of areas (2) Option I (xiv)" in UNGA, 2019a) and EIAs (see "III. 1. (4) *[General principles and approaches raised in relation to environmental impact assessments]* (q)" in UNGA, 2019a). In the draft negotiating texts of intergovernmental conferences no. 3 and 4 (UNGA, 2019b, 2020), ecological connectivity was only integrated, respectively, as criteria for identifying areas requiring protection and in Annex I on ABMTs. There remain, however, passages that reflect the meaning of the concept without specifically naming it, such as paragraphs on networks of MPAs and impacts surpassing jurisdictions for EIAs. This section identifies the actors using the concept in the intergovernmental conferences (Table 1) and analyses their rationales (Table 2).

5.1. Actors Introducing the Ecological Connectivity Concept Into the BBNJ Negotiation Process

Throughout the intergovernmental conferences, actors from different sectors participated in the negotiations, including state and non-state actors (observers) from IGOs, NGOs, as well as representatives from academia and the private sector. Participants included 131 state and 67 non-state actors in intergovernmental conference no. 1, 128 state and 66 non-state actors in intergovernmental conference no. 2, and 137 state and 58 non-state actors in intergovernmental conference no. 3.

BBNJ actors used several strategies to introduce ecological connectivity into the discussions, including the publication and distribution of academic articles and briefs, as well as side events on-site and capacity-building workshops. Scientists, representing non-state actors at the negotiations provided scientific expertise (Scientist_150321_3):

> A lot of negotiators see…four different package elements…we need to establish these connections between them to make ocean conservation work….We've discussed the ecological connectivity concept in terms of making sure that everyone understands how the ocean, the atmosphere, the planet is connected…you can't keep looking at these things as different elements.

> We have close contact with the countries, and we help them understand the negotiations better through capacity building training, through different reports and publications…through participation in their national dialogues.

Authors of publications on the concept included representatives of UN institutions (UNEP-WCMC and the Food and Agriculture Organisation, financed by the Global Environmental Facility), NGOs, other non-state actors, including the International Institute for Environment and Development (IIED), the International Union for Conservation of Nature (IUCN), the Institute for Advanced Sustainability Studies, the Global Ocean Biodiversity Initiative, the Deep Ocean Stewardship Initiative (DOSI), a number of universities, research centres and laboratories, as well the representative of Eritrea. As interview data reveals, on the initiative of Eritrea, policy-makers and scientists also jointly produced policy-relevant information for the BBNJ negotiations, which underscores the importance of policy-makers' agency:

> I was contacted by one of the negotiators…and he asked me: "Would it be possible to convene an expert group to review if there is evidence for connectivity between the high seas in the coastal zones?" (Scientist_250221_2)

Another strategy by scientists to bring the ecological connectivity topic to the negotiations was to present research at side events. Three ecological connectivity side events took place: one in PrepCom no. 3, hosted by the Nippon Foundation, and two at intergovernmental conference no. 2, hosted by UNEP-WCMC, the Permanent Commission for the South Pacific (CPPS), and the Global Environmental Facility (see Table 3 in the Supplementary File). Discussions at side events dealt with different aspects of connectivity, including migratory connectivity (CPPS, intergovernmental conference no. 2 side event; Duke University, intergovernmental conference no. 2 side event), vertical connectivity between the high seas and coastal waters (University of British Columbia (UBC), intergovernmental conference no. 2 side event), as well as its implications (such as the need for interconnected MPA networks and integrated ocean management (UNEP-WCMC, intergovernmental conference no. 2 side event). The following are statements made by two scientists who took part in these side events:

> For us, prime relevance [of the side event] was exactly "let's go country by country and see how they are linked [to areas beyond national jurisdiction]." Just to give an example that it does matter for specific countries, it's not an abstract concept. (Scientist_250221_2)

> We had a side event on adjacency…at PrepCom [no. 3]. The issue had sort of just been raised at PrepCom [no. 2] and we were looking at connectivity and at ways in the discussions of how to make connectivity relevant to the discussions, and we picked up on adjacency. (Scientist_190403_14)

Capacity building workshops by non-state actors served as a strategy to bring the topic closer to state delegates prior to and in-between conference sessions:

> We were working with the Regional Seas Bodies…to help them understand how they could engage, what their issues might be, what management measures they could use….Those countries were saying to us: "We can't even manage our own waters. Why should we be interested in areas beyond national jurisdiction?" And the answer we gave them was because they are connected. (Scientist_210222_1)

> [We did] some work on physical connectivity…ecological connectivity, particularly around fish stocks…because that's of economic interest and how they flowed across the border of the EEZ [exclusive economic zone] into areas beyond national jurisdiction. And…also looked at conservation value. (Scientist_210222_1)

Interview material shows that information from side events and capacity building workshops familiarised policy-makers with the ecological connectivity concept and its relevance in the BBNJ context:

> It felt a little bit odd that it was our job to convince countries of the value of participating in the BBNJ process….So we had these reports…look[ing] at different types of connectivity between national waters and areas beyond national jurisdiction waters. And that seems to do the trick….Ultimately, the countries did engage in our projects, and they did engage in the debates. (Scientist_210222_1)

> One of the items I picked up [from side events] is the idea of…passive connectivity….And I thought that was a very useful, interesting idea. And it's definitely something that we've developed…traditional knowledge about, that I hadn't considered before. So that was useful. And I mentioned it to my mission, and it was mentioned repeatedly on the floor….Those elements we've incorporated into some of our talking points. (State delegate_190828_39)

As data shows, scientists from state and non-state actors strategically used capacity-building workshops and side events to communicate their findings and link them to the political BBNJ discussions. The success can be seen in delegates' increased interest in participating in the treaty-making process and the use of new information in interventions. State and non-state actors collaborated on ecological connectivity publications and policy briefs (Mulalap et al., 2020; Popova et al., 2019a, 2019b), NGOs and IGOs hosted side events, and non-state actors organised trainings to build capacity.

Nineteen states, twelve NGOs, and two IGOs referenced connectivity throughout the three intergovernmental conferences in plenary statements, side events, textual proposals after the intergovernmental conference no. 3, and the UNDOALOS intersessional work. The majority of actors using the concept in the BBNJ negotiations were developing countries, particularly small island developing states and developing coastal states, as well as scientific institutions and environmental NGOs. After intergovernmental conference no. 3, actors could submit textual proposals in which Indonesia emphasised the importance of the ecological connectivity concept for BBNJ in light of the "enormous impact of ecological connectivity to archipelagic states" (United Nations, 2020). Regarding protected area networks, South Africa suggested including the principle of connectivity, and IUCN referred to ecologic, oceanographic, and genetic connectivities (United Nations, 2020). DOSI criticised the fact that the ecological connectivity concept had not been embraced: "The draft text does not currently acknowledge…the interconnections between BBNJ and coastal and atmospheric processes" (United Nations, 2020). With the postponement of intergovernmental conference no. 4, the United Nations Division for Ocean Affairs and the Law of the Sea

Table 1. Support for ecological connectivity concept by BBNJ actors.

Actor	IGC1	IGC2	Side Event IGC2	Side Event IGC3	IGC3	Textual proposals after IGC3	UNDOALOS intersessional work
State/ Regional group	Eritrea Cameroon Mexico Nauru (PSIDS) Indonesia	Ecuador Eritrea Jamaica Maldives Micronesia Monaco Palau Papua New-Guinea	Micronesia	Belize (AOSIS) Ecuador Eritrea Micronesia Nauru (PSIDS) New Zealand Palestine Philippines Singapore		Indonesia South Africa	Fiji
IGO	Convention on Migratory Species		CPPS				
NGO	IUCN	IUCN KIOST OceanCare	Duke University IIED IUCN UBC		Global Ocean Forum	DOSI IUCN	DOSI High Seas Alliance IUCN SERR WECF WWF

Note: IGC stands for "intergovernmental conference"; UNDOALOS stands for United Nations Division for Ocean Affairs and the Law of the Sea; PSIDS and AOSIS stand for the Pacific Small Island Developing States and the Alliance of Small Island States respectively; KIOST stands for Korea Institute of Ocean Science and Technology; SERR stands for the NGO *Servicios Ecumenicos Para Reconciliacion Y Reconstruccion Y SIGLO XXIII* and WECF stands for the NGO Women Engage for a Common Future.

(UNDOALOS) created an online intersessional work platform. Publications (see High Seas Alliance, 2021), virtual capacity building workshops, and webinars during the intersessional period also contributed to the connectivity debate.

5.2. Rationales for Contesting the Status Quo With the Ecological Connectivity Concept

While the previous section identified the actors who introduced ecological connectivity into the negotiations, this section analyses their rationales. Analyses of plenary statements and interview material show that rationales to include the concept differ between ecologic, socio-economic, juridic, and epistemic.

5.2.1. Ecologic: Imperative of Protecting the Marine Environment

Several state actors, IGOs, and NGOs connected the ecological connectivity concept to marine conservation and ABMTs/MPAs and EIAs.

Palau (intergovernmental conference no. 2) agreed there was "much value" in including ecological connectivity for the establishment of ABMTs. On the basis of migratory connectivity, the Convention on Migratory Species (intergovernmental conference no. 1) argued for the need for ecologically coherent networks by mentioning that species "connect ecosystems, countries and cultures," recognising that "no one country or intergovernmental organisation by itself can ensure alone the conservation and sustainable use of migratory species." IUCN (intergovernmental conference no. 1) added that a representative and integrated network of MPAs would support connectivity, climate change resilience, and ecosystem conservation. OceanCare (intergovernmental conference no. 2) based their intervention on the concept of horizontal and migratory connectivity, calling for more flexible and highly adaptable "dynamic" ABMTs and "designation according to migratory routes rather than geographical borders," as "areas beyond national jurisdiction cannot fit under the same geographical ideas of borders as terrestrial tools." At intergovernmental conference no. 3, the Philippines, Singapore, and Eritrea supported the inclusion of ecological connectivity for the identification of areas (UNGA, 2020, Art. 16). There were suggestions to extend the ecological connectivity concept to cultural connectivity, put forward

Table 2. Rationales for the use of the ecological connectivity concept by BBNJ actors.

Rationale		Actor
Ecologic	Representative/integrated/ecologically coherent networks of MPAs	IUCN Convention on Migratory Species
	Pollution crosses jurisdictions; dynamic conservation tools	OceanCare
	Establishment of ABMTs	Palau High Seas Alliance
	Mandatory EIAs	Eritrea
	EIAs and strategic environmental assessments	Belize (AOSIS)
	Protection of Galapagos	Ecuador
Socio-economic	Impact on/vulnerability of coastal states	Eritrea Ecuador Maldives
	Common heritage of humankind	Eritrea
	Food security	Ecuador
Juridic	Key role of coastal states in areas beyond national jurisdiction governance	Micronesia
Epistemic	Traditional navigation	Micronesia
	Relevance of traditional knowledge for areas beyond national jurisdiction	Papua New-Guinea High Seas Alliance DOSI
	Cultural connectivity; cultural value as criteria (ABMTs/MPAs)	New Zealand
	Ecological connectivity is a fastly developing area of research	IIED
	Acknowledgement of changing ecological connectivity patterns	Eritrea

by New Zealand (intergovernmental conference no. 3), and to interconnectivity between climate change and health, mentioned by Nauru (intergovernmental conference no. 3).

The relevance of ecological connectivity for conservation was also linked to EIAs. Mexico (intergovernmental conference no. 1) referred to ecological connectivity regarding possible impacts from activity in areas beyond national jurisdiction on national waters, as visible in concerns of Ecuador (intergovernmental conferences no. 2 and 3) about plastic debris and other pollution reaching the Galapagos Islands. Eritrea argued with the ecological connectivity concept for mandatory EIAs "for any activity under the jurisdiction or control of a party to the instrument that has the potential to cause direct or indirect social or environmental impact to BBNJ or areas within the national jurisdiction of other states." Nauru (intergovernmental conference no. 1) emphasised the need to consider transboundary and cumulative impacts. In intergovernmental conference no. 3, Belize, on behalf of the AOSIS, supported the consideration of EIAs and strategic environmental assessments for BBNJ. In the intersessionals, WECF argued for an effects-based approach to EIAs and strategic environmental assessments respecting the "reciprocal connectivity of ocean areas." Moreover, Eritrea (intergovernmental conference no. 1) supported the establishment of "a contingency fund" to restore ecosystems and mitigate potential impacts of activities on biodiversity in areas within national jurisdiction and areas beyond national jurisdiction.

5.2.2. Socio-Economic: Vulnerability of Small Island States and Developing Coastal States

Apart from conservation rationales, the ecological connectivity concept was strongly linked to socio-economic concerns, particularly to the vulnerability of small island developing states and developing coastal states. Horizontal connectivity was used to show geographical interconnectedness between exclusive economic zones (EEZs) and areas beyond national jurisdiction regarding the socio-economic impacts of harmful activity in areas beyond national jurisdiction on coastal states' communities and economies.

Ecuador (intergovernmental conference no. 1) recognised that "small impacts might not be critical in some places, but maybe in others" and was concerned about the effects on coastal states (intergovernmental conferences no. 2 and 3). Papua New Guinea and the Maldives (intergovernmental conference no. 2) emphasised small

island developing states' special circumstances and ocean interconnectivity as a key issue. Indonesia (intergovernmental conference no. 1) pointed to the relevance of the ecological connectivity concept for BBNJ regarding their geographic condition and the national contexts of other countries. Micronesia (intergovernmental conference no. 2) reminded delegates that "some states are more dependent on the ocean and its resources economically and socially," pointing to a "direct impact of ocean pollution, sea-level rise, ocean acidification." Also, Belize, on behalf of AOSIS (intergovernmental conference no. 3), emphasised small island developing states' dependence on marine biodiversity. Interview material further shows how policy-makers increasingly see socio-economic relevance for their local communities:

> I first talked about socio-economic factors in PrepCom [no. 1]; people could not get the point. They were saying: "Why is he talking about socio-economic factors? This is about the High Seas; there are no people there." But now, a number of delegations…have expressed their support….Because what we are saying is, as remote as it may seem, it is so relevant and important for coastal communities as well. (State delegate_190328_6)

Eritrea (intergovernmental conference no. 1) drew the link to the migratory connectivity of economically important fish species for coastal states and whose feeding and spawning areas lay outside national jurisdiction. In this regard, the protection of such species in areas beyond national jurisdiction impacts their national fishing effort. As Eritrea put it at intergovernmental conference no. 2: "We advocated criteria for a long time, such as connectivity with regard to economic and social factors" when it comes to identifying areas, with the need to "ensure that conservation benefits are distributed through different areas." Migratory connectivity was also mentioned at side events (UBC, intergovernmental conference no. 2 side event) concerning the connectivity of fish stocks between EEZs and areas beyond national jurisdiction. Interview material additionally points to the benefits of non-exploitation of species for recovery with a direct economic benefit for fishing states and coastal communities:

> How much are they [communities] benefiting through the non-use of resources versus the exploitation of those resources. And that would be largely fisheries….If we're not having an impact on the benthic environment they could actually start to understand [that] conservation measures might be more in their interests, than even allowing some fisheries revenue. (Scientist_190826_45)

In a side event, the Global Ocean Forum (intergovernmental conference no. 3) emphasised the importance of considering the connection between coastal waters and areas beyond national jurisdiction concerning finance, arguing for a needs-based approach for countries' EEZs and connection to areas beyond national jurisdiction for CB&TT. In the intersessionals, WWF suggested, based on this connectivity, that the scope of CB&TT obligations in the agreement should be cross-jurisdictional, covering both areas within and beyond national jurisdiction.

5.2.3. Juridic: Expanding Roles and Rights of Coastal States

In the early stages of the BBNJ process, connectivity was mentioned together with the concept of adjacency. Academic literature documented statements of the Philippines in PrepCom no. 4 on the importance of "biophysical and genetic connectivities in the high seas and the application of connectivities in the adjacency principle, particularly in providing fair and equitable access and benefit-sharing to adjacent coastal states who contribute to the conservation of habitats for MGRs" (Su, 2021). A policy brief and related side event called for greater influence over the management of adjacent areas beyond national jurisdiction resources for coastal states and their "primary responsibility" for areas beyond national jurisdiction governance (see Dunn et al., 2017, pp. 2–3, 5, 9).

Regarding stakeholder consultation concerning a scientific and technical body, Nauru, on behalf of PSIDS (intergovernmental conference no. 1), argued for "mandatory and active consultation of adjacent or connected SIDS," and Eritrea (intergovernmental conference no. 2) stated that adjacency should include ecological connectivity and geographical proximity. Interview material points to a state delegate's view that ecological connectivity challenges the adjacency concept, as any remote areas can be connected even if they are not "adjacent" (State delegate_190328_6). As coastal states can be adversely impacted by activity on the high seas and their conservation management is connected to areas beyond national jurisdiction, there were demands for a stronger role for coastal and island states in areas beyond national jurisdiction governance (Micronesia, intergovernmental conference no. 2).

5.2.4. Epistemic: Extending the Knowledge Base

In intergovernmental conference no. 2, discussions concerned the need for increased ecological connectivity knowledge. At a side event, non-state actors stressed the importance of understanding connectivity (IUCN, side event), calling for a mandate for a scientific body, to be established under the ILBI, to assess such phenomena (Greenpeace, side event). Connectivity also implies the need for flexibility in a fast-changing environment (IIED) and acknowledgement of changing patterns of ecological connectivity (Eritrea). In the intersessionals, the High Seas Alliance emphasised the importance of genomic science and technology using environmental DNA to assess population composition and connectivity.

Various actors, including regional groups, linked the ecological connectivity discussion to the traditional knowledge of Indigenous Peoples and local communities. On behalf of PSIDS (intergovernmental conference no. 1), Nauru emphasised the need to account for regional and subregional characteristics in line with connectivity and the relevance of traditional knowledge. For the design of a scientific or expert body, Nauru, on behalf of PSIDS (intergovernmental conference no. 1), suggested considering traditional navigation alongside the best available science, e.g., IPCC criteria, to identify connectivity between ecosystems. Micronesia (intergovernmental conference no. 2) argued that traditional knowledge about connectivity regarding marine species that migrate between areas within and beyond national jurisdiction and best practices of Indigenous Peoples and local communities could complement science. On behalf of AOSIS (intergovernmental conference no. 3), Belize reiterated the relevance of traditional knowledge and the connection between coastal waters and areas beyond national jurisdiction. At an ecological connectivity side event (intergovernmental conference no. 2), the representative of Micronesia argued for the relevance of traditional knowledge for BBNJ, despite areas beyond national jurisdiction being 200 nautical miles away from shores, giving examples of traditional knowledge on migratory paths, seamounts, and wave patterns that interact with BBNJ and best practice examples for ocean management, including temporal closure systems.

Submissions to the online intersessional work platform increasingly called for the inclusion of traditional and Indigenous knowledge on ocean connectivity to inform the ILBI and the relevance of cultural connectivity (High Seas Alliance, DOSI). On behalf of the PSIDS, Fiji reminded delegates of "the reality of ocean connectivity" that MGRs can both be found in areas within and beyond national jurisdiction, and therefore relevant traditional knowledge for the ILBI could not be limited to being associated with MGRs in areas beyond national jurisdiction.

5.3. The Politics of Using Ecological Connectivity to Guide Future Ocean Governance

Despite named benefits to nature and humans, interview partners from both state and non-state actors were concerned about the perceived relevance of the concept for BBNJ, due to economic (exploitation of resources) and geopolitical (marine governance in areas within and beyond national jurisdiction) interests. Data from interviews with a state delegate and a scientist shows the difference between awareness of the scientific reality of ecological connectivity and political will to draft treaty text in a way that considers it:

> The science is there….They won't deny it. But the question becomes political because it means that we would have to look at the ocean from a global perspective; try to have different protected areas or any types of tools that are somehow related that might move around….States are very cautious and very scared of protected areas or any type of management tools. Because they're afraid that there are going to be no-takes, so that fisheries and anything else won't be able to take place. They don't want anything within their EEZs, or not much….They don't want any of their freedoms to be cut. (Scientist_150321_3)

> At some level, everyone acknowledges it [the ecological connectivity concept]. Whether or not it becomes relevant for them to our discussion and to the powers that we want to embed within this treaty, that's a different discussion entirely; then you will hear "well, you know, there are certain limitations, there are frameworks that are already in place" [or] "well, let's talk more about cooperation and let's not set out new rules"….I think at some level there is an agreement that that concept exists, and it is relevant, but how much it dictates what we do, that's where the line starts getting red—deep red. (State delegate_130421_4)

As interview material of Scientist_150321_3 shows, BBNJ actors embrace ecological connectivity when their direct interests are affected, particularly regarding illegal fishing, repercussions to the coast or warming and how it affects fisheries productivity; however, in conservation/protection topics, "people are less inclined to do anything about it".

> You can always put words on paper saying that we're committed to ensuring that we take a holistic or comprehensive ecosystem-based approach to things. But that's not enough. Ultimately, it's in the operational parts….There's definitely enough interest in maintaining status quo, which could jeopardise whether or not that concept is really fully respected. For me, the status quo right now is…all of those bodies continuing doing what they're doing. And ultimately, that does not lend support to ecological connectivity. (State delegate_130421_4)

Results show that state and non-state ecological connectivity supporters alike are concerned about the concept being left out of future ocean governance due to a preference for the status quo. At this stage, integration of the concept in the overall logic of the revised draft text (UNGA, 2020) has been criticised for lack of consideration of the three-dimensional ocean space, climate change, seasonality, and migration between ocean basins (Scientist_150321_2). Final negotiations will determine where the concept is placed in the legal text and how the ILBI will operationalise ecological connectivity.

6. Discussion and Conclusion

This research traced the ecological connectivity concept throughout the BBNJ negotiations by identifying the actors and their rationales. In line with previous studies, our research demonstrates that science plays an important but contested role in global environmental agreement-making (Gray et al., 2014; Hughes & Vadrot, 2019; Peterson, 2019). The BBNJ negotiations, as a site where "struggle over environmental knowledge" takes place (Vadrot, 2020), served for collaborative event ethnography data collection and allowed us to empirically study the use of science by analysing how actors employed the ecological connectivity concept within the political discussions. While there is almost no contestation over the concept and its policy relevance, actors opting for its inclusion in the treaty text invoke different rationales for perceiving it as relevant to marine biodiversity governance. Results demonstrate, first, that state and non-state actors used the ecological connectivity concept to support their interests in the new ILBI based on ecologic, socio-economic, juridic, and epistemic rationales. This confirms that policy-relevant science is actor- and context-dependent and shows that the same concept may be used strategically by various actors for different purposes. Second, several actors recognise the limitations of the existing legal order of ocean governance, embracing the need for regulations to govern an interconnected ocean. While the ecological connectivity concept risks losing its meaning in an array of competing political interests, it has the transformative power to challenge the status quo of global ocean governance and fundamentally alter the way humans govern the ocean.

6.1. The Transformative Power of Ecological Connectivity to Alter Marine Biodiversity Governance

The analysis shows that actors strategically used the same concept to underpin distinct interests: Some actors pointed to various types of connectivity to challenge the status quo by advocating for change regarding existing practices in conservation. Others highlighted the vulnerability of certain regions, or demanding increased rights for the involvement of certain states and the recognition of alternative forms of knowledge when considering and taking decisions in global governance. Non-state actors deliberately used the concept to convince state actors with low interest in the BBNJ negotiations to develop a stake in the new ILBI by connecting high seas governance to the domestic situation. This result ties well with previous studies wherein NGOs seek to influence negotiators' positions by providing information (Corell et al., 2007); in our case, this involved making the ecological connectivity concept more popular among governments before and during the negotiations, circulating scientific papers, and targeting political audiences during side events. However, results also show how the initiative of an individual state actor reaching out to scientists resulted in joint publications on the topic and contributed to ecological connectivity discussions within BBNJ.

The "making" and strategic use of policy-relevant knowledge in intergovernmental negotiations, and the fact that actors are worried that interests of sovereignty and resource exploitation might lead to a weak operationalisation of the ecological connectivity concept in the treaty text, confirm that knowledge is intertwined with political and societal factors (Turnhout & Gieryn, 2019). Controversies that may emerge in relation to specific knowledge—or, in our case, a specific scientific concept and its ontological and epistemological implications—"are not just about facts, but also simultaneously about values and interests" (Turnhout & Gieryn, 2019, p. 70). Nevertheless, results illustrate that controversies over environmental knowledge are not always explicit and are sometimes difficult to detect. Apparent agreement between actors on the policy-relevance of scientific concepts and their inclusion in policy-making, as the ecological connectivity case suggests, can still be implicitly controversial and become explicit conflicts at a later stage, complicating the effective implementation of agreements (Vadrot, 2014).

The idea of an interconnected ocean blurs the boundaries between national waters, EEZs, and the high seas and challenges the legal division of the ocean into different maritime zones (Lambach, 2021). While enshrined in existing international law, managing the ocean in different maritime zones through various actors has been criticised as ineffective for the conservation and sustainable use of marine biodiversity (Maxwell et al., 2020). Increasingly, authors argue that the one ocean would need to be governed as such, calling for an "ecosystem-based approach rather than [one] based on geopolitical divides and prior agreements" (Popova et al., 2019a, p. 99). The BBNJ instrument, with its exclusive mandate for the conservation and sustainable use of marine biodiversity beyond national jurisdiction, cannot legally change the delineations of the maritime zones established under UNCLOS. Nevertheless, embracing the ecological connectivity concept and, in turn, questioning the effectiveness of current ocean governance can enhance cooperation and coordination among existing instruments, bodies, and frameworks that have tended to operate separately. In this way, a more holistic approach to marine biodiversity conservation and sustainable use might be achieved, which would improve current ocean governance. It demonstrates how scientific concepts have the power to question existing legal and administrative structures that might appear static and definite in international law today but do have the potential to adapt with time through future deliberations in international negotiations. Furthermore, the ecological connectivity concept is not only relevant to the ILBI but also to other marine biodiversity-related negotiations and agreements, such as the Convention on Migratory Species, the Convention on Biological Diversity, the Convention on International Trade in Endangered

Species, or regional governance organisations and knowledge bodies—it can exert power beyond the ILBI context. As argued by Hughes and Vadrot (2019), once a concept is "weighted," it might travel to other negotiation sites and enact similar dynamics. Thus, the power of ecological connectivity as a scientific concept in the BBNJ negotiations lies not only in its use as a negotiation tool but also in its capacity to question the maritime legal order and anticipate transformative change beyond the institutional and legal context within which it is mentioned. The fact that at least one government (UK Parliament, 2021) has started questioning whether UNCLOS is still "fit for purpose" in light of new emerging challenges and scientific findings might enable future ocean governance to respect ecological connectivity fully.

6.2. What This Means for BBNJ Governance

While previously established maritime zones under UNCLOS serve to divide governance tasks and delegate responsibilities, alignment of the fragmented ocean governance framework is needed for effective marine biodiversity governance. The ILBI has the potential to coordinate existing efforts and contribute a holistic solution to change the status quo of marine biodiversity governance (Yadav & Gjerde, 2020). As our results show, actors link the ecological connectivity concept to their national and regional context; thus, there seems to be a lack of recognition of the common interest in the agreement to embrace the ecological connectivity concept for current and future generations and planetary health.

While no actor directly opposed the concept in their interventions and textual proposals, their reluctance to put the concept into practice can be seen through its removal from the "general principles and approaches" provision and their indirect opposition to acknowledging the interconnectedness of the ocean in the operational parts of the revised draft text (UNGA, 2020). To prevent adverse transboundary and cumulative effects, conducting additional EIAs for activities in areas within national jurisdiction that have potential adverse effects on marine biodiversity in areas beyond national jurisdiction and establishing coherent networks of ABMTs (including MPAs in ocean space and depth) will be necessary if the ecological connectivity concept is to be put into practice—issues that, to date, remain subject to negotiation. The current BBNJ revised draft text does mention ecological connectivity; however, to fully embrace the concept, it will need to be operationalised in various parts of the treaty text. In the different package elements, this translates into the need for an ecosystem-based approach to marine biodiversity governance with a re-consideration of the static nature of ABMTs, including MPAs (Balbar & Metaxas, 2019; Ortuño Crespo et al., 2020; Steinberg & Peters, 2015). For the establishment of ABMTs, including MPAs, as well as the conduct of EIAs, the acknowledgement of marine species movement, oceanographic currents, and pollution (including noise, plastic, and chemical) that occur across maritime zones of UNCLOS and impact different jurisdictions is paramount (Yadav & Gjerde, 2020). Conservation and sustainable use of marine biodiversity, thus, requires cross-jurisdictional governance and coordination among different bodies responsible for certain regions or sectors in both areas within and beyond national jurisdiction. This implies the need for an effects-based approach to EIAs and strategic environmental assessments, which considers cumulative and transboundary impacts (Hassanali & Mahon, 2022). MGRs with the same genetic material can be found in areas within and beyond national jurisdiction, which calls for a coherent legal framework for the access to and sharing of benefits from MGRs. Regarding the CB&TT package, the protection of marine biodiversity in areas beyond national jurisdiction also depends on effective conservation management of national waters of coastal and island states (Harden-Davies et al., 2022).

Lastly, fully embracing the ecological connectivity concept would also entail a sense of global solidarity and shared responsibility to ensure that the aims of the ILBI are met. This implies a need for cross-jurisdictional data sharing and the inclusion of different types of knowledge when seeking to understand ecological connectivity through a future scientific and technical body. The ocean as a global commons requires different voices and types of knowledge to be embraced, including traditional knowledge, practitioners' experience, guarding a sensitivity to gender, cultural, and generational diversity. The ILBI needs to be drafted with regards to intra- and intergenerational justice, as well as with the overall aim for a harmonic human–nature relationship for the next decades and centuries, one which recognises the intrinsic value of nature in its own right. The ecological connectivity concept also invites one to consider how this ILBI is relevant for everyone and the life that will inhabit this planet centuries from now. Therefore, it is time to look beyond national and regional interests—and recognise the shared benefit of applying the concept for future biodiversity governance.

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Conflict of Interests

The authors declare no conflict of interest.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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Article

Governability of Regional Challenges: The Arctic Development Paradox

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Abstract
The advancement of governance architecture in the Arctic region and dealing with the "Arctic development paradox" have been among the most significant challenges of the circumpolar North for decades. The common denominator of both issues is the growing necessity to frame solutions that credibly and effectively support the Arctic's social and environmental systems in the face of climate change and globalisation. The current status quo seems deficient, which is why understanding the main impediments is subject to public and academic discussion. This article contributes to these debates by referring to the concept of governability to demonstrate how transregional activities advance the development of more coherent governance in the Arctic. The article explores approaches applied by transregional organisations and cooperation programmes that constitute the governance system in the European Arctic. Specifically, it scrutinises governing interactions developed by the Barents Regional Council and the Northern Periphery and Arctic Programme to overcome the normative trap of the Arctic development paradox. This research follows a semi-structured, exploratory approach, which facilitates identifying key elements of a structurally and conceptually led response that resounds in each case. Combined with a synoptic literature review, this article answers two questions: First, how do the transregional actors approach the Arctic development paradox in their cooperation strategies and programmes, and to what extent do these approaches differ? Second, what kind of recommendations do they provide to overcome the Arctic development paradox?

Keywords
Arctic development paradox; Arctic governability; European Arctic; transregional and regional cooperation

Issue
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1. Introduction

Are our world's current problems too immense to be governed? While global challenges such as climate change and the Covid-19 pandemic require concerted actions across regions and policy fields, they illustrate the difficulty of agreeing on joint approaches at political levels that win broad support within societies. This observation also applies to the Arctic development paradox (ADP) and how it is addressed in the Arctic, which is "a region of regions" (Gamble & Shadian, 2017, p. 143) consisting of three parts: the European Arctic, comprising Iceland, Greenland (Denmark), and the northern territories of Norway, Sweden, and Finland; the American Arctic, comprising Alaska (the United States) and the northern territories of Canada; and the Russian Arctic (Teräs et al., 2018).

After the Cold War, it was agreed in most regional Arctic governance settings to exclude security issues. This changed in 2022. As a reaction to the Russia–Ukraine war, regional governance fora such as the Arctic Council and the Barents Regional Council (BRC) decided to pause activities with Russia. Given the current dynamic situation, a

clear path forward for these fora with Russian involvement is lacking, but it is evident that different socio-economic and ecological circumstances will continue to pose many challenges for Arctic governance. One of them is described by the ADP, a phenomenon capturing the intertwined spheres of economic development and environmental protection in Arctic development. In general terms, the ADP illustrates the normative trap of prioritising access to resources and socio-economic development at the expense of the environment, or vice versa, protecting the environment by limiting economic prosperity. Framing the European Arctic as a region with shared governance challenges, our analysis is focused on two transregional actors—the BRC and the Northern Periphery and Arctic Programme (NPA)—to showcase how two exemplary cases of transregional governance address the ADP. It should be emphasised that both entities are open to cooperation with external partners—the BRC includes Russia and the NPA includes non-Arctic states.

Based on the assumption that transnational forms of transregional cooperation contribute to Arctic governance, this article addresses the following two questions: How do transregional actors approach the ADP in their cooperation strategies and programmes, and to what extent do these approaches differ? What kind of recommendations do they provide to overcome the ADP?

We first introduce the theoretical framework of governability that drives our case studies' analyses by addressing the "governance system," the "system-to-be-governed," and "governing interactions." The concept of governability considers all three as being essential for understanding how policy priorities are set. We use this concept to identify factors that enhance or limit the governance of the ADP. We then focus on the European Arctic as a region through the lens of the governability concept, which describes the European Arctic governance system (EAGS) and the European Arctic system-to-be-governed (EASG). Later, by analysing programmes developed by the BRC and the NPA, we shed light on European Arctic governing interactions (EAGIs). In conclusion, we discuss how the limited governability of the ADP at the level of governance systems in the Arctic broadens the conceptual debates.

2. Introducing the Governability Concept

Complex policy issues challenge geographical, societal, governmental, jurisdictional, and functional boundaries (Koppenjan & Klijn, 2004), creating new needs in the sphere of governance (Hale & Hale, 2011; Levi-Faur, 2014). The expanding field of governance studies (Ansell & Torfing, 2016; Morin & Orsini, 2021) has invoked many theoretical concepts that offer different analytical perspectives to develop suitable theoretical frameworks for addressing new research issues, including normative traps such as the ADP.

The concept of governability is based upon and follows up on the interactive governance theory (Kooiman, 2003). It has been developed and applied in recent studies, most often being dedicated to the governance of fisheries, aquaculture, and coastal zones (Bavinck et al., 2013; Jentoft, 2007; Kooiman, 2003, 2008, 2010; Kooiman et al., 2008; Kooiman & Chuenpagdee, 2005). As defined by Kooiman and Chuenpagdee (2005), the theory of interactive governance highlights an integrated, communicative, and politically informed approach to governance as a practice in which the involvement of various stakeholders is essential. Moreover, interactive governance "holds basic social values and ethical principles to be issues of consideration and decision-making, and is appreciative of contextual factors and local knowledge" (Jentoft, 2007, p. 360; cf. Torfing et al., 2012).

Governability pertains to the governance system, the system-to-be-governed, and the governing interactions between them (Kooiman, 2003). Interactive governance considers governability to be a function of the governance system and the system-to-be-governed as well as interactions between the two. The governance system consists of institutions, steering instruments, and mechanisms, and, as such, it is always a socially constructed system. In turn, the system-to-be-governed can be partly natural and partly social, mainly when it consists of two sub-systems: first, an ecosystem with its natural resources, and second, a system of users and stakeholders. In addition to these systems, attention is paid to the governing interactions between them, which form a system in their own right.

When considering the social and the natural systems, the social system may cause changes in the natural system, but it is also dependent on—and therefore vulnerable to—these changes since they may, to varying degrees, set limits on the users of natural resources. As Jentoft (2007, p. 361) points out, "this interaction is co-evolutionary but not necessarily linear." Instead, it is more likely that interactions are diverse, complex, dynamic, and vulnerable. The governance system, by definition, aims to influence the interactions between the social and the natural sub-systems that are to be governed. To protect the natural sub-system and prevent ecological degradation, for instance, the governance system must act with and through the social sub-system. According to interactive governance theory, the relationship between the governance system and the social sub-system of the system-to-be-governed demands structural adjustments within and between both systems to be effective. It means then that the systems must be compatible enough to be mutually responsive and efficient. As Jentoft (2007, p. 361) argues, "this is not a matter of natural mechanism, but of deliberate intervention, planning and institutional design by societal actors such as legislative bodies, planning agencies and civic organisations—alone or, according to governance theory, preferably in concert.''

Getting the social systems and their institutions to work successfully in such a configuration undoubtedly constitutes a challenge, partially due to the abundance of values, needs, and interests that must be considered.

Moreover, the developed measures should be effective and widely accepted, which means they also have to be embedded in particular social, cultural, and political contexts. At the same time, there are structural qualities or general attributes of the system-to-be-governed that have substantial implications for the whole design of the governance system. According to the concept (Jentoft, 2007; Kooiman & Bavinck, 2005), the natural and social sub-systems-to-be-governed comprise several properties, including:

1. diversity, as it relates to spatial variability in natural, social, and cultural conditions;
2. complexity, which refers to the fact that system elements are interactive, overlapping, interdependent, or even conflicting;
3. dynamics, which occur as a result of tensions within a system and/or between systems;
4. vulnerability, which refers to the fact that systems-to-be-governed are fragile.

The governance system has to consider all of the above-mentioned properties since they establish the conditions under which the governance system operates. Simultaneously, the governance system does not necessarily have to deal with these properties as a given—it may try to change them, which means that they may also be outcomes of governance system actions. Whereas the four properties of the system-to-be-governed mentioned above must be taken largely as they are, the governance system is a matter of institutional choice and planning.

Assessing governability thus provides insights into factors that enhance or limit governance. These insights help to streamline "expectations about what is achievable and to increase the inclusiveness and transparency of processes, and thereby enhancing the legitimacy of the resulting governance arrangements" (Chuenpagdee et al., 2008, p. 2). In our study, we apply it to the analysis of the ADP. In this context, the systems-to-be-governed are both parts of the paradox, namely environmental protection and economic development; the governance systems are transregional institutions involved in and responsible for regional development in the European Arctic, in this case, the BRC and the NPA. Both are embedded in a broader governance architecture in the Arctic. Through the lens of governability, the Arctic governance architecture is the governance system and the ADP constitutes the system-to-be-governed, which are presented in the following section.

3. Arctic Governance and the Arctic Development Paradox Through the Lens of Governability

3.1. Governance in the Changing Arctic

One of the features of the Arctic is the significant scale as well as the high pace of transformations occurring due to climate change, technological development, and globalisation. This dynamism presents many challenges and opportunities for governance (Young, 2016). While it is recognised that Arctic governance is a complex field—though its uniqueness might be disputable (Durfee & Johnstone, 2019; cf. Käpylä & Mikkola, 2019)—it is also justified to claim that the Arctic may tell a lot "about narratives of governance in an era of change" (Durfee & Johnstone, 2019, p. 20).

It has been noted that there is no universally accepted definition of "Arctic governance" (Loukacheva, 2010, p. 125). This term refers to the "evolving concept [that] has been given multiple interpretations by the various stakeholders interested in the subject" (Loukacheva, 2010, p. 125). One of the most established understandings is the one proposed by Young (2005), who coined the term "Arctic governance mosaic" to describe the Arctic governance regime complex (see also Pelaudeix, 2014). According to this idea, Arctic governance is characterised by a multitude of different governance arrangements, which together create a mosaic-like framework of (a) global agreements pertinent to the Arctic, (b) the Arctic Council, (c) regional management mechanisms, (d) public-private partnerships, (e) informal venues, and (f) all-hands gatherings (Young, 2016).

Governance in the Arctic has evolved gradually as a response to practical needs and opportunities. During the Cold War, the only multilateral arrangements in the Arctic were the 1920 Svalbard Treaty and the 1973 Polar Bear Convention. The ratification of the United Nations Convention on the Law of the Sea by most Arctic states in 1982 became a milestone for "the legal harmonisation of interests amongst the Arctic coastal states" (Wilson Rowe, 2018, p. 28). With the end of the 1980s, the impetus for pan-Arctic collaborations gained momentum. New pieces in the governance mosaic were brought in, including, inter alia, the International Arctic Science Committee (1990), the Arctic Environmental Protection Strategy (1991), the Northern Forum (1991–1993), the Barents Euro-Arctic Council and Barents Regional Council (1993), the Standing Committee of the Parliamentarians of the Arctic Region (1993), and, finally, the Arctic Council (1996). They all remain central elements of the Arctic governance system today (Young, 2016). Additionally, a few more bodies are also now engaged, such as the Nordic Council and the European Union (inter alia through the NPA). The Arctic has also attracted considerable global interest; there are many non-Arctic states as well as intergovernmental, inter-parliamentary, and non-governmental organisations to act as observers to the Arctic Council or that are aspiring for this status (Wehrmann, 2017).

These developments have created an Arctic governance that is "divided among federal, national, regional, international and global levels of regulation and is split into partly overlapping sectoral domains" (Humrich & Wolf, 2012). This multi-level governance environment is populated not only by national and intergovernmental organisations but also increasingly by new actors,

including transnational and non-governmental organisations, with the Arctic Indigenous Peoples' organisations at the forefront, in addition to supra-national governments and bodies as well as regional and local governments (Sergunin, 2019; Wilson, 2020). The Arctic governance system, which looks more like "a fragmented rather than a properly integrated multi-level system" (Humrich & Wolf, 2012, p. 2), or is even characterised by "bazaar-like features" (Depledge & Dodds, 2017), has repeatedly provoked debates about the need to create a comprehensive Arctic Treaty (Koivurova, 2008; Rahbek-Clemmensen, 2019). It has also inspired opinions about its advantages, such as relative inclusiveness and adaptive capacity (Young, 2016), as well as disadvantages, such as limited "reliability with regard to maintaining peace, its effectiveness in implementing sustainable development, and its contribution to the self-determination and freedom of Arctic indigenous peoples" (Humrich & Wolf, 2012, p. 2).

As Dodds and Woodward (2021) argue, the five most critical current drivers of the Arctic transformation are ongoing climate change, the return of geopolitical competition between great powers, the empowerment of Indigenous autonomy, the development and application of new technologies, and the growth of international trade. Although most of them are intertwined, they also follow different logics, refer to conflicting interests, or are driven by contrasting needs, which makes managing and governing such spheres a demanding task in many ways (Coates & Holroyd, 2020; Rottem, 2020). While searching for a successful way forward, it is advised, among other things, to "emphasise the importance of paying attention to the idea of stewardship in orchestrating efforts to maintain the integrity of the Arctic's biophysical, economic and cultural systems" (Young, 2019, p. 7). It is worth considering this proposal in the context of the possibility of dealing with the ADP, which is the subject of this study and is characterised in the following section with a particular focus on the European Arctic context and two relevant transregional governance actors, the BRC and the NPA.

3.2. The Arctic Development Paradox

Different circumstances define the socio-economic landscapes of the most northern regions of the Arctic states. At the same time, they all belong to one of the regions in the world that are most affected by climate and environmental change (IPCC, 2014). The temperature rises in the region lead, inter alia, to disappearing sea ice, which in turn makes the Arctic more accessible, and thus more attractive for resource extraction, shipping, and tourism (Meredith et al., 2019). Some of the changes and their impacts are more long-term and incremental, others are more immediate.

Therefore, economic activities also shift over time, with some becoming less profitable or more complicated due to changing environmental and climatic conditions. Simultaneously, the Arctic ecosystem is sensitive and vulnerable to externally induced changes. These conditions determine the everyday lives of the people who live there, with around 10 percent being Indigenous Peoples, who are recognised "to be the most vulnerable and at risk human communities in the world" (Morgan, 2016, p. 1). Most of the causes for the climate crisis in the Arctic can be identified outside the region (Meredith et al., 2019). Moreover, environmentally degrading resource extraction in the Arctic often leads to economic profits that are made outside the region. This context determines the framework for the actors of the governance system and also for the ADP itself (system-to-be-governed).

The ADP exemplifies the interconnectedness of economic and environmental issues in the Arctic (Lovecraft & Cost, 2021). It describes the complex, perplexing situation of an intertwining economic and environmental sphere, a situation in which the Arctic "is caught in the conflicting pressures of global climate change and resource exploitation" (Dodds & Woodward, 2021). On the one hand, a type of economic development is promoted that harms the climate and the environment, while on the other hand, governments seek to protect the climate and the environment from the negative impacts of these economic developments (Lovecraft & Cost, 2021).

With the green transition, the paradox reveals yet another dimension. The transition to a carbon-free economy needs certain resources, also from the Arctic—for example, critical raw materials that are essential for batteries used for e-mobility (Saami Council, 2021). Moreover, the demand for electricity from renewable energies will rise, which translates into more facilities on and offshore, such as wind parks and water dams (European Commission, 2019, pp. 14, 23). As a remote, rural, and only sparsely populated area, the Arctic shows particular potential for renewable energy facilities, which can generate new risks and conflicts as a result of other forms of land use. In this context, the centre and periphery lens is useful to understand these dynamics in a broader development context. In the Arctic, framed as a peripheral region, resources are extracted to enable more resource-intense lifestyles, particularly in the urban centres. With the green transition and the aim to build CO2-neutral economies, a narrative is being promoted about using technical solutions to tackle the climate crisis. Thus, the Arctic case "exemplif[ies] the multiple conflicts arising from resource-based development in sparsely populated areas" (Rizzo & Sordi, 2020, p. 2).

By looking at the actors involved in the Arctic governance system and how they interact with the paradox, varying political agendas and promoted activities (such as shipping, resource extraction, (eco-)tourism, etc.) are conceivable, but they often only indirectly reflect on the ADP and try to combine "both worlds" by using the political concept of sustainable development. By merging

environmental and development discourses (Pram Gad & Strandsbjerg, 2019), sustainable development is often utilised to bridge the two spheres of "economic development" and "environmental protection." In the Arctic context, sustainable development, as a political concept, has a tradition that started in the 1990s and has been shaping Arctic policies ever since (Wehrmann et al., in press). However, apart from serving as a bridge, it can also be applied to involve different interests by including diverse interpretations of what is sustainable. By doing that, it can also unveil the tensions captured by the ADP concept (Chuffart et al., 2021).

Against this background, the question arises as to what extent sustainable development is achievable, and if so, how can the process be governed. In other words, is the ADP governable? We argue that the governability lens helps to answer this complex question. To apply the governability concept to the European Arctic, the following section introduces the terminology developed by the theory to our specific case.

3.3. Applying the Governability Concept to the European Arctic

Although the Arctic governance system and the ADP pertain to the entire circumpolar region, any study of the approaches of governing institutions to the paradox between economic development and environmental protection requires a more focused perspective. In our case, such a position is justified, both in the context of ontology (the diversity and heterogeneity of the Arctic) and the applied analytical framework: The governability concept clearly emphasises the importance of the specificity of the scrutinised systems (Kooiman, 2008). In our study, we focus on Fennoscandia—consisting of northern Norway, northern Sweden, northern Finland, and North-West Russia—because of its well-developed transnational governance system (Biedermann, 2020). Furthermore, including North-West Russia is a result of the spatial dimensions established during the Barents region collaboration in the 1990s. In addition, the ADP plays an essential role in the socio-economic processes in this part of the Arctic.

Following the analytical model applied in the governability concept, we identify the EAGS and the EASG. The EAGS encompasses components of the "governance European Arctic mosaic" (Biedermann, 2020; cf. Vylegzhanin et al., 2018). It includes intergovernmental and transnational bodies such as, for example, the Barents Euro-Arctic Council (BEAC), the BRC, the "Northern Dimension," as well as other forms of transnational collaboration such as the NPA. The EASG covers a geographically defined ecosystem and the social sub-systems. These sub-systems comprise many users and stakeholders involved in or affected by the ADP and contain complex links between nature and the economy. These entities operate on a local, regional, and national level. Moreover, they are also involved in transnational collaborations, which are essential to handle cross-boundary challenges such as climate change adaptation and mitigation (Wehrmann, 2020). Figure 1 illustrates this framework for the governability of the ADP in the European Arctic.

To answer the research questions, our focus is on exploring EAGIs between these two systems, and particularly how the EAGS approaches the ADP, which is embedded in the EASG. Our study focuses mainly on how two selected components of the EAGS refer to the EASG, which is only one part of EAGIs.

In the following section, we present and discuss findings from a qualitative content analysis of primary documents from two case studies in the field

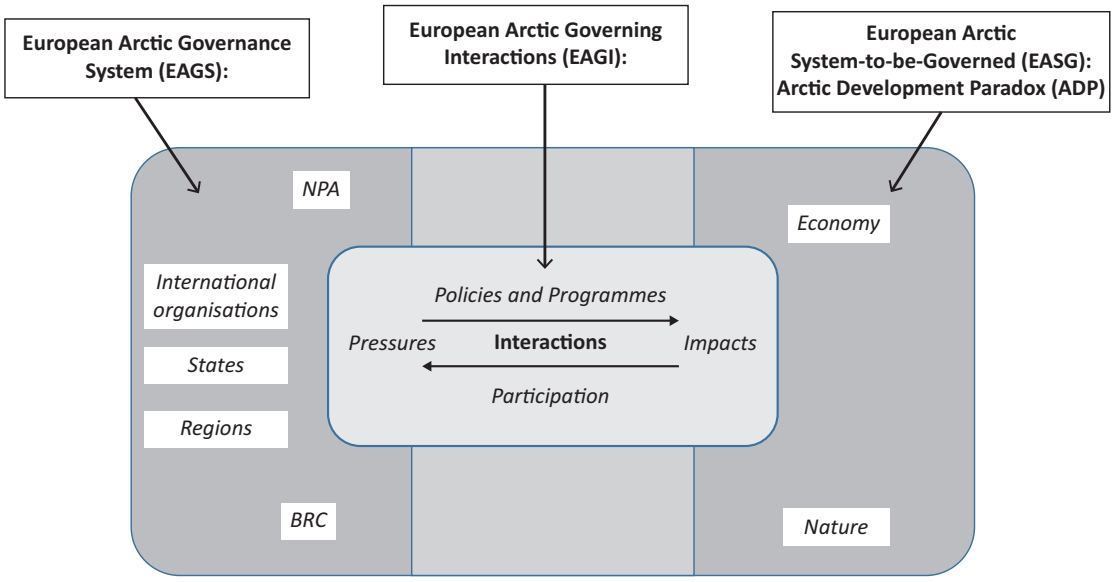

Figure 1. Integrated framework for governability in the European Arctic. Source: Authors' compilation based on Kooiman (2008, p. 174).

of European transnational governance, the BRC and the NPA. We applied a qualitative content analysis by coding the programs' documents using the software MAXQDA. The codes were developed inductively and deductively, with "ADP"—with the EASG as the main code and three different types of EAGIs as sub-codes. The first sub-code framed as one possible EAGI ("ADP recognised") describes a situation in which both economic development and environmental protection are mentioned and their interrelated, paradoxical relations are recognised. The second sub-code ("ADP not recognised") is applied when both economic development and environmental protection are mentioned but not linked. The third sub-code ("ADP neglected") is used when either economic development or environmental protection is clearly dominant. Moreover, "economic development" and "environmental protection" as the main dimensions of the ADP were developed as sub-codes as well (EASG). Additionally, the code "general information BRC/NPA" was generated to look for facts and figures on the BRC and the NPA Cooperation Programme, such as funding, the programme's scope, and partners (EAGS).

4. Case Study Analysis and Findings

4.1. The Barents Regional Council

This case study investigates how the BRC interacted with the ADP between 2014 and 2021. It looks at the interactions between these two systems (EAGIs) while particularly focussing on how the EAGS refers to the EASG, which only represents one element of EAGI.

The BRC is a cross-border platform that has developed since 1993 to support and promote cooperation and development in the Barents region, the core part of the European Arctic (Biedermann, 2020; Hasanat, 2010). This organisation gathers representatives of 13 participating regions and representatives of Indigenous Peoples—Saami, Nenets, and Vepsians—from the northernmost parts of Finland, Norway, Sweden, and North-West Russia (BRC, 2022). The BRC, as a forum for transregional cooperation, supplements the intergovernmental activities of the BEAC.

Although Barents cooperation does not have its own subsidies to finance the activities required to attain common objectives and priorities (BRC, 2014), there are various financial mechanisms available and recommended by the BRC to support multilateral project cooperation in the region. The most important sources are the national and regional budgets of the Barents countries, various EU programmes, and the Nordic Council of Ministers (BEAC, 2015). The BRC's works are guided by the four-year Barents Programmes and the two-year chairmanship programmes, thematic cooperation programmes, and detailed plans of action of 12 Barents working groups. We scrutinised the Barents Programmes and chairmanship programmes to identify priority areas of work for each period and to explore how the BRC approaches the ADP. Although the programmes do not refer directly to the ADP as such, they communicate and highlight the significance of the phenomenon when stating, for example:

> To be an attractive region, not only for economic investments, consideration needs to be taken regarding the living environment and natural resources. When developing the region, it must be made with concern to preserving the environment, mitigating and adapting to climate change, and fostering good and healthy living conditions for the people. (BRC, 2014, p. 6)

At the same time, in both Barents Programmes (2014–2018 and 2019–2023), the priority area and aims are oriented towards business development and economic cooperation. Environmental issues only come in second place. Moreover, most of the priority goals are not related to the ADP. Additionally, the goals that can be associated with the ADP sound very general. For instance, the programme proclaims "to lay the foundation for an environmentally sustainable economic and social development in the region with emphasis on an active and goal-oriented management of natural resources" (BRC, 2018, p. 5).

Interestingly, in the SWOT (strengths, weaknesses, opportunities, threats) analysis presented in the Barents Programme 2019–2023, the strengths that are stressed are a globally unique nature with boreal forests, clean oceans, lakes and rivers, northern lights, and four seasons, and rich natural resources and renewable energy sources (BRC, 2018, p. 16). As for weaknesses, environmental "hot spots" (regional major polluters or ecological risk issues) are identified. Moreover, there is mention of "different levels of environmental awareness and sustainable way of life" (BRC, 2018, p. 16). Under opportunities, the programme addresses "the potential to develop Barents region jointly as an attractive nature and cultural heritage tourism destination" (BRC, 2018, p. 16). Lastly, under threats, it identifies: (a) the economic and social regression of remote and sparsely populated areas, (b) competition for natural resources, and (c) the negative effects of climate change, the melting of permafrost, and loss of biodiversity (BRC, 2018, p. 16).

Looking at the chairmanship's priorities in the years 2013–2021, the ADP is only indirectly mentioned and often framed in terms of the coexistence of economic and ecological needs. For example, a "network of specially protected natural sites is the only way to provide sustainable industrial development of the Barents region, to preserve [a] favourable environment for present and future generations" (BRC, 2019, p. 2). There is an inclination towards economic development in some of the chairmanship's programmes. The Kainuu region (Finland) proposed to focus on "economic cooperation, labour mobility, project export as well as connections between enterprisers across borders" as well as on "mineral industry, forest sector, bio economy and tourism" (BRC, 2015, p. 5).

Strikingly, the same region declared that "protecting the environment, supporting sustainable development and controlling climate change are particular goals on the national level" (BRC, 2015, p. 9). Whereas Finnmark (Norway) suggested that challenges linked to transport connections and climate change remain high on the agenda, it did not explain these ideas in the context of the regional potential for green energy. Against this background, the proposals presented by Västerbotten (Sweden), though still general, seem to show a greater awareness of the fact that "the environment and climate know no boundaries or borders" and "challenges in these areas concern everyone in the Barents region and affect all fields of cooperation" (BRC, 2019, p. 5).

4.2. The Northern Periphery and Arctic Programme

The second case study analyses the NPA with a special focus on its Cooperation Programme (2014–2020) and how it interacts with the ADP. Like the BRC study, this case also looks at the interactions between these two systems (EAGIs) while particularly concentrating on how the EAGS refers to the EASG, which is, again, only one part of the broader field of EAGIs.

The NPA Cooperation Programme is the work plan of the NPA for the period from 2014 until 2020 and is framed for this analysis as the EAGS. The Cooperation Programme forms part of the European Territorial Cooperation Objective under the Cohesion Policy and is supported financially by the European Regional Development Fund. Around 56 million euros were available for projects, with a maximum project budget of 2 million euros (NPAP, 2016, p. 6). The programme area included nine partner countries: Finland, Ireland, Sweden, the United Kingdom, the Faroe Islands, Iceland, Greenland, and Norway. This geographical scope reflects diversity in representation as well as certain shared characteristics that also inform the ADP, such as "low population density, low accessibility, low economic diversity, abundant natural resources and high impact of climate change" (NPAP, 2016, p. 6).

The programme's rationale is that these joint challenges and opportunities "can be best overcome and realised by transnational cooperation" (NPAP, 2016, p. 6). The most important sections of the Cooperation Programme for analysing how the EAGS interacts with the EASG (meaning EAGIs) are the executive summary, the programme area (including the SWOT analysis), the programme strategy, and the priorities, which are dealt with in the following in more detail.

Although the Cooperation Programme does not mention the term ADP as such, it reflects on the challenges of the phenomenon indirectly by addressing the potential of new economic development on the one hand, and the need for environmental protection on the other. The ADP is expressed as a "combination of features [that result] in joint challenges and joint opportunities" (NPAP, 2016, p. 6), as issues being "interrelated" (p. 11), as climate change having "mixed effects," with "increasing environmental challenges, but also new opportunities for regional economies" (p. 11). In addition, the notion of the ADP can be identified in sections such as "tensions between economic, social and environmental interests" (p. 10), "globalisation processes and climate change, both will shape the area's development challenges and opportunities—both positively and negatively" (p. 16), and "complex development issues linked to the balanced utilisation of natural resources and climate change adaptation" (p. 17).

By conducting a SWOT analysis (NPAP, 2016, p. 11), the programme identifies the main elements of the ADP and their links and trade-offs with each other. Particularly striking in the SWOT analysis—with a view to the interactions with the ADP (EAGI)—is how it is developing the programme's thematic objectives and investment priorities based on an analysis of the region's strengths, weaknesses, opportunities, and threats as well as challenges and potentials. The thematic objectives and investment priorities "supporting the shift towards a low-carbon economy in all sectors" and "preserving and protecting the environment and promoting resource efficiency" (p. 21) showcase that the programme addresses the ADP and identifies green economic solutions to deal with the paradoxical dimensions of the phenomenon.

The priority axes of the programme—namely "innovation," "entrepreneurship," "renewables and energy efficiency," and "natural and cultural heritage" (NPAP, 2016, pp. 31–43)—also display certain links to the concept of the ADP. For instance, under "entrepreneurship," it is stated that:

> The Programme area's unique cultural and natural heritage is a basis for tourism and experience industries based on the area's unique natural environment, Indigenous lifestyles, and creative industries. This also includes environmentally sustainable business opportunities offered by the Green Economy and Blue Growth. (NPAP, 2016, p. 38)

Moreover, under "natural and cultural heritage," the Cooperation Programme mentions "balancing environmental, economic and social interests in remote and sparsely populated areas. In particular, this shall be seen in relation to exploitation of natural resources and large new investments, for example within the mineral and renewable energy sectors" (NPAP, 2016, p. 43). For achieving this so-called balancing, it is necessary to develop "new management processes and competence development activities within public authorities" (p. 43). In more detail, these processes shall enable "sustainable environmental management to address the economic, environmental and social tensions arising from major developments (often accessing natural resources) and to derive socioeconomic benefit from such developments'' (p. 43).

Although the programme identifies the ADP in certain sections, it also presents arguments that do not address its inherent complexities. As a path to overcoming the paradoxical situation of Arctic development, the programme often presents economic-driven approaches, for instance, green economy and blue growth. Moreover, the promotion of renewables is only seen in a positive light without reflecting on the negative impacts on other forms of land use, such as reindeer herding; moreover, sustainable ways of exploiting natural resources are assessed as being possible. Despite stressing the necessity of balancing different spheres of regional development—social, environmental, and economic—the economic dimension is the one that often dominates, particularly in the area of natural resources and assumptions about potentially sustainable ways to exploit them (opportunities outweigh challenges). Sustainability is very much framed as an environmental approach, and fewer projects are funded under the priorities of "energy efficiency" and "sustainability" than "entrepreneurship" and "innovation" (NPAP, 2021). By looking at the programme also with a quantitative lens and analysing which EAGI code appears the most, the "ADP neglected" code can be found 20 times, the "ADP recognised" 17 times, and the "ADP not recognised" three times. These numbers indicate a slight dominance of non-recognition and a neglect of the phenomenon.

The new Barents Programme (2021–2027) was presented during the NPA's annual meeting in 2021. The main difference concerning how the programme interacts with the ADP (EAGI) is its more integrated approach towards sustainability (Northern Periphery and Arctic Secretariat, 2021), namely by mainstreaming the former priority of "protection of natural and cultural heritage" into other priorities ("innovation capacity," "climate change and resource sufficiency," and "cooperation opportunities"). The funding shall be divided into 45 percent for "innovation capacity" and "climate change and resource sufficiency," respectively, and 10 percent for "cooperation opportunities." Following the logic of governability, the EAGS is applying a dynamic approach for interacting with the EASG by shifting its conceptualisation of sustainability into all priority areas, which potentially could improve interactions with the ADP.

4.3. Findings

Regarding our first research questions ("How do transregional actors approach the ADP in their cooperation strategies and programmes, and to what extent do these approaches differ?"), our case study indicates that the ADP phenomenon is recognised. However, the official documents of the examined institutions only indirectly reflect on its challenges, which are understood as a normative trap involving the co-occurrence of conflicting aspirations and interests based on inconsistent or even conflicting systems of values and norms. The scrutinised documents reveal that the ADP indeed embodies the interconnected trajectories of economic development and environmental protection in the Arctic, which is facing the growing impacts of climate change and globalisation.

Certain differences can be discerned between the institutions studied. These differences are conditioned by the degree of reference to more recognised international concepts of economic and social development that respect ecological needs and conditions. Through institutional links with the European Union, the NPA seems to be more open to recognising the ADP, and it has its pro-ecological and somewhat more clearly outlined preferences for solving the paradox. In the next programme phase of the NPA, for instance, they integrated the sustainability dimension to all priority areas, which could also favour a more integrated approach in dealing with the ADP (NPAP, 2021). On the other hand, the BRC documents show a more significant understanding of the regional and local needs of the population, their expectations, and their limited capacities.

Addressing the second question ("What kind of recommendations do they provide to overcome the ADP?"), we argue that the ways in which environmental protection and the use of natural resources are linked to advancing the economic development of the European Arctic are often superficial and sometimes even unclear. There are many different postulates of a normative nature, but they are not translated into unambiguous guidelines or objectives. The programmes mainly feature economic-driven solutions and often frame sustainability only from an environmental perspective. There are no clear solutions, or even proposals, for how these institutions might intend to combine economic development with environmental protection. Such an approach is undoubtedly a consequence of the severe difficulties in reconciling conflicting interests in order to secure comprehensive development without closing off either path. The ADP phenomenon is also evident in the SWOT analyses carried out in the studied cases, however, they do not lead to a clear statement of preferences on how this paradox might be overcome.

Next, we bundle our results to identify the overarching patterns by also reflecting on the theory of governability with a view to our cases and draw broader conclusions for further research.

5. Conclusion

Our observations indicate that the governability of the ADP is limited at the level of governance systems, which apparently have little ability to perceive, understand, or process signals from systems entangled with the ADP. The EAGIs are clearly impaired and frail for this reason. Furthermore, the analyses of the programmes clearly show that the EAGSs have only a very limited ability to formulate proposals and objectives that would respond to emerging challenges and prepare the EASG for upcoming challenges.

Following the governability concept in our research, we observed the critical elements concerning how the ADP is approached in EAGIs, which do not seem to be adequate for the urgency of the situation resulting from the climate crisis. We noted that the BRC and the NPA recommendations related to the ADP are insufficient; both institutions are rather normatively trapped themselves instead of offering clear guidelines and objectives. This situation is worrying because the documents examined are intended to be programme documents and not political declarations or statements. According to interactive governance theory, the relationship between the governance system and the social sub-system of the system-to-be-governed should include not only deliberate intervention by the system-to-be-governed but also responsive and efficient actions from the governance system. The governance system, by definition, is obliged to influence the interactions between the social and the natural sub-systems that are to be governed following specific political decisions. The lack of such decisions makes the systems even more vulnerable to further shocks or impacts from crises. Regarding the governability of the ADP, these dynamics are conceivable in the European Arctic. The question that arises in this context is: What is the reason for such a situation? Is it a question of the regional authorities' political perspectives, a communication style, a manifestation of broader trends, or perhaps a tendency to duplicate the style of declarations often issued by states in international fora? This issue is certainly worth additional inquiry, as transparent decision-making and communication are the main conditions for efficient management and governance, not only in the European Arctic.

Moreover, we identify a need to complement our research with studies focused on how the EASG influences the EAGS. Further research could also go beyond the regional scope of the European Arctic and investigate how the governance system interacts with a phenomenon such as the development paradox in other resource-intense peripheral world regions (cf. Rizzo & Sordi, 2020). Against the background of the green transition and its multidimensional consequences, such a research focus is needed due to the increasing relevance of economic developments in the Arctic and other regions with potential for renewable energies, unexploited critical minerals, and sparsely populated lands.

Finally, prospective research also needs to consider the impact of the Covid-19 pandemic. First, its impact on the scale of transnational cooperation and governance, as openly admitted in the BRC, revealed that the "pandemic significantly limited international cooperation at all levels in 2020–2021. Long period[s] of isolation will require additional actions and resources to re-establish contacts and develop sustainable forms of cooperation" (BRC, 2021, pp. 2–3). Secondly, on a more general level concerning public and political perceptions of existing threats and normative traps, there needs to be a reflection on the transformation of previously applied approaches and opportunities in order to improve the governance systems.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

The Territorialization of the Global Commons: Evidence From Ocean Governance

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Abstract
The international system of states displays an inherent drive to territorialize the global commons. But territorialization is not a continuous process—it occurs in episodes. In this article, I use one case from ocean governance, the expansion of territory into near-shore areas of the seas, to advance a twofold argument about the nature of these episodes. First, I argue that the root causes of this drive to territorialize "empty space" are located in global politics, norms, and economics. Second, a territorializing episode occurs when there are impelling economic incentives, and when great powers are unable or unwilling to oppose territorialization. However, this can lead to different outcomes: sovereign territories, functional territories, or internationalized territories. Oceanic space has seen a series of these territorializing episodes since the end of the Second World War and functional territorialization has become more prevalent over time.

Keywords
global commons; governance; ocean; territory

Issue
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1. Introduction

Global commons are shared resources in spaces beyond national jurisdiction: the oceans and seabed, the atmosphere, outer space, and the poles (Buck, 1998). This definition of the global commons is analytical, not practical, as the concept is a political construct without a clear legal definition, and the term is thus contested in its application and delimitation (Cumbers, 2015). In contrast to concepts of the commons that focus on the common use of shared resources (e.g., Wijkman, 1982), this article emphasizes the commons' spatial dimension. Analyses of the global commons are primarily concerned with the effectiveness of different forms of governance. In economics, the dominant position is that of the "tragedy of the commons," according to which the overuse of a commons can only be prevented by the enclosure of the commons either through privatization or nationalization. However, global commons research, building on insights from Ostrom's (1990) "Governing the Commons" project, shows that international regimes can also effectively manage shared resources.

However, these works of literature rarely address the more fundamental question of which regulatory models are chosen by the international community in the first place. For example, some parts of the global commons have been parceled into sovereign territories under the control of some states, e.g., national airspace. For other parts, their status as global commons was enshrined in international treaties. For example, the UN Convention on the Law of the Sea (UNCLOS) constructed the seabed outside state territorial waters as the "common heritage of humankind," and the Outer Space Treaty declared outer space to be "a matter for all humankind" (Feichtner, 2019; Mickelson, 2019). Some of these spaces have been placed under internationalized management, such as the deep seabed under the International Seabed Authority (ISA).

While sovereign territorialization and international regulation were long considered the only options (e.g.,

Wolfrum, 1984), a third option has evolved in the post-World War II era: *functional* territorialization, i.e., the creation of territories which do not endow states with fully sovereign claims over space but limited rights and obligations. Functional territorialization is usually done on the basis of international agreements. It is thus an intermediate form that blends elements of the two classical options, namely the creation of spatially delimited state control rights and the origin of these rights in international regimes. In fact, functional territorialization has replaced sovereign territorialization in state practice without getting much notice from scholars or the public.

This article develops a theoretical framework of territorialization dynamics in the global commons. The framework offers conjectures about the causes of a secular drive to territorialize spaces that are considered "empty" and gives an explanation of the timing of territorialization episodes and why some global commons have remained unterritorialized until today. Using evidence from ocean governance, I will chart the shift from sovereign to functional territorialization and the concurrent change of the maritime global commons, where this process is well documented empirically, as I discuss in another article (Lambach, 2021): "Since the middle of the 20th century, states have continually sought to push back frontiers at sea in order to exploit all available resources" (Houghton & Rochette, 2014, p. 81). A territorialization perspective represents the high seas not as a blank slate but as a complex patchwork of partly overlapping regulatory spaces. This article first reviews the literature on spatial arrangements within ocean governance regimes. It then presents the theoretical framework of territorialization episodes of the global commons. The final part discusses the case study of how near-shore areas of the seas were progressively territorialized. The focus here is on the Cod Wars as a paradigmatic case where the rules were contested by which these territories are assigned.

2. Review of the Literature

The past decades have seen a surge of interest in how spaces in the oceans are made. From early works outlining political geographies of the seas (Glassner, 1990; Steinberg, 2001), the literature has expanded and branched out to cover a great variety of phenomena, from the role of capitalism in the enclosure of the oceans (Campling & Colás, 2017; Mansfield, 2004), their legal geographies (Constantinou & Hadjimichael, 2020; Ntona & Schröder, 2020), zoning practices (Ryan, 2015) such as marine spatial planning and conservation territories (Gray, 2018), and spatial ontologies in ocean governance more generally (Lambach, 2021; Peters, 2020).

There are several works that discuss the "global commons" character of the oceans and the seabed. The majority of these focus either on effective resource management and institutional design (Hall, 1998; Mansfield, 2004), legal constructions and protections of the commons (Constantinou & Hadjimichael, 2020; Kopela, 2016), or the commons as arenas for great power competition (Freeman, 2016). This literature is, with few exceptions, most concerned with the output of the prevailing regimes of ocean governance, rather than with how these regimes emerge and change or how policy choices are made within them. However, the spatial arrangement of the oceans conditions and is conditioned by the regime complex governing the seas. Even though research on environmental regimes is helpful, it pays little attention to the spatial aspects of governance (e.g., Oberthür & Gehring, 2006). Regime research in general seems to have moved away from the global commons towards other concepts like the earth system (Biermann & Kim, 2020). Older works are more helpful in this regard. For example, Wolf (1991) highlights the importance of normative and institutional dynamics in regime formation, while Young (1994) emphasizes the importance of "institutional bargaining." An important conclusion of this work is that states do not necessarily act in an economically utility-maximizing manner in regime formation, but that their behavior is also influenced by social norms and institutions. However, few works explicitly discuss how the spatial governance of the global commons evolves over time.

The work by Rüdiger Wolfrum, an international lawyer, is particularly interesting in this regard. Against the background of legal developments especially in maritime and space law over the 1970s and 1980s, Wolfrum (1984, p. 2) expected a gradual "internationalization" of the global commons in the sense of an "order that is in the service of state equality and is characterized by a high degree of interstate institutionalized cooperation" (translated by the author). However, contrary to Wolfrum's expectations, cooperation regimes since then have not evolved towards genuine international authority. Instead, these regimes often rely on functional territories to delegate the implementation of international orders to states.

3. Theoretical Approach

This article proceeds from the assumption that international society views "ungoverned" or "empty" spaces as fundamentally incompatible with the territorial foundations of the international system (Taylor, 1995). This is particularly evident on land, where all *terra nullius* has long since been parcelized, enclosed, and governed, but the same process can also be witnessed, to varying degrees, in non-terrestrial environments like the oceans, the deep seabed, the poles, and outer space (for a comparative analysis, see Lambach & Diehl, 2021). In this section, I will first offer certain conjectures as to the causes of this territorialization drive. As I will argue in a second step, this drive is not continuous but occurs in episodes whose timing is conditioned by technological affordances, economic incentives, and great power politics.

3.1. Causes of Territorialization

This article treats territory as the product of social construction (Agnew & Corbridge, 1995; Sack, 1986). Territory refers to all bounded and controlled space, not just sovereign space. Territorialization, therefore, is the process by which (uncontrolled) space is transformed into (controlled) territory. This article distinguishes three different forms of territoriality: first, sovereign territory, which is the territory over which a state claims sovereignty; second, functional territory, where a state enjoys certain prerogatives short of full sovereignty, usually on the basis of some international agreement; and third, internationalized territory, which are spaces outside of state control by virtue of being *res communis* (owned by everyone), although this category is restricted to those cases where such a designation is formalized through an international regime, such as the deep seabed's designation as a common heritage of mankind (Mickelson, 2019). Internationalized territory is distinguished from unclaimed space (*res nullius*), which is legally owned by no one, e.g., the high seas. Territorialization involves a change in the territorial status of space and consists of the deterritorialization of existing spatialities and their reterritorialization in some other form as old territorial orders are dissolved and replaced by new arrangements (Popescu, 2010). This brings out the contested nature of territorialization that becomes visible when different territorial projects collide. Territorialization is rarely reversed (with only the Antarctic being a partial counterexample). Once territories are created, they stick around.

The causes of this territorialization dynamic are twofold. The first set of causes is based on the global economy's drive for the valorization of underutilized resources. Territorialization also implies propertization (Maier, 2016, p. 8). In practical terms, territorialization is undertaken by "economically nationalist" (Helleiner, 2002) states who remain key economic actors even in neoliberal capitalism. There is insufficient space to map out the interplay between states and non-state actors but in very brief terms, territorialization always involves non-state actors in some capacity, such as inventors, financiers, traders, intermediaries, etc. Non-state actors provide capital, technical expertise, and, in some cases, legitimacy to territorialization projects. But, despite the specific network of actors, the opening-up of new resources beyond the sovereign container incentivizes economic nationalists to seek access and make these resources available for capitalist exploitation that benefits their country through techniques of enclosure.

However, states are economic nationalists not purely for economic reasons but also due to status and security concerns (Vogler, 2012, p. 70). Access to and control over global commons is a marker of great power status. In discussions about the creation of exclusive economic zones (EEZs), developing countries argued for control over natural resources they considered rightfully theirs, not just with reference to economic benefits but also to sovereignty and recognition. As research on international status and prestige highlights, "the social value of given resources is neither immanent nor self-evident, but historically contingent and socially defined" (Pouliot, 2014, p. 195). This concern with status and recognition is the second set of causes of the territorialization drive. One of the most important mechanisms here is the mutual recognition of sovereignty in international society. That is why states form a "recognition regime" (Griffiths, 2016) that organizes relations of mutual recognition to safeguard states' ontological security. This is why international society views non-state spaces as anathema and has developed a norm of territorial statehood (Lambach, 2020). Taylor (1995, p. 3) describes this norm as "the presumption that every section of occupied land across the world is the sovereign territory of some state." This mechanism is clearly more evident on land, which has been completely parceled up among sovereign containers, but this territorial ontology of the world also applies to the seas and informs area-based ocean management tools, such as marine spatial planning which draws heavily on terrestrial models (Peters, 2020).

The normative presumption of an international system centered around exclusive territoriality is enshrined in a variety of international norms. For example, multiple scholars have identified the emergence of territorial norms such as an anti-annexation norm, a norm of border fixity, and international legal norms such as *uti possidetis juris* as evidence of norms stabilizing and legitimizing the concept of the territorial state (Anstis & Zacher, 2010; Atzili, 2011). On the one hand, these norms are the basis upon which international institutions and regimes are constructed; on the other, institutions concretize and give shape to norms. For the oceans, UNCLOS is a case in point: It institutionalized sovereign territories (the territorial sea) and created new forms of functional territory (the EEZ) that then filtered into the normative superstructure.

Although the normative structure of international society thus predisposes states towards territorialization, great powers sometimes prevent or obstruct it, as in the case of Antarctica, where sovereign claims were frozen, or (for a very long time) the oceans, where leading maritime nations, Great Britain in particular, defended the freedom of the seas. This article takes an English School approach to great power behavior. The English School of international relations balances the power-seeking behavior of states with a respect for shared norms and accepts that global politics are structured by international institutions that regulate behavior. From this perspective, great powers are leaders among states and legitimize their exalted status "by accepting special responsibilities as well as claiming special rights" (Cui & Buzan, 2016, p. 182). Great powers may oppose territorialization for two reasons. First, great powers tend to be status quo oriented. Second, great powers profit most from unregulated situations. There is substantial

literature in strategic studies discussing how the "command of the commons" underpins US hegemony (Posen, 2003). This became visible during the negotiations leading to UNCLOS where superpowers prioritized access for their warships and submarines to EEZs and international straits (Vogler, 2012, p. 65; see also Freeman, 2016).

It is the combination of the capitalist drive to valorize unused spaces and the normative pressure not to tolerate non-state spaces, tempered by great power politics that drive the territorialization of space that is considered "ungoverned" or "empty." Today, territory is generally not created and acquired by force and flag-planting. These practices were more common in imperial times, although—as legal historians have pointed out (Fitzmaurice, 2014; Korman, 1996)—there were manifold modes of territorial acquisition even then. Nowadays, the norm complex against taking and annexing territory by force is quite robust. Hence, territorialization rarely manifests itself as a military conflict. Although territorial disputes are a major cause of international conflict (Owsiak et al., 2016), the vast majority of territorial disputes never escalate. As Østhagen (2021) demonstrates, almost 40% of maritime boundaries are disputed yet very few of these ever include a single act of violence, much less an outright war (see also Prescott & Schofield, 2005). Riddervold and Newsome (2021) argue that international relations in the global commons are generally more cooperative than in other contexts. In present international society, territorial claims over *res nullius* are typically expressed and resolved through negotiation, cartographic representation, legal developments, and administrative procedures.

3.2. Territorializing Episodes

I assume that the factors mentioned in the preceding step are more or less constant, absent any changes in the normative structure of international society. And yet, there are ample examples of global commons being left un-territorialized for centuries. National airspace was only formalized in the 1944 Chicago Agreement (Butler, 2001), and national claims for oceanic space beyond the territorial sea were only made possible through the creation of EEZs in UNCLOS. Based on the theoretical premises above, only great power obstruction could explain this timing, but this is insufficient by itself. The non-territorialization of outer space prior to the 1960s had little to do with great power obstruction but rather with the fact that nobody could access, use, or claim space beyond the Earth's atmosphere.

I argue that the timing of territorialization episodes is affected by situational possibilities and incentives, which are to a large degree shaped by technological affordances, i.e., technologies' facilitating or constraining impact on "the tasks that users can possibly perform with it" (Adler-Nissen & Drieschova, 2019, p. 534). Technology is understood broadly as consisting of artifacts as well as systems of management and structures of knowledge in which the use of these artifacts is embedded (Brooks, 1980). Among technologies, we might further distinguish "artifacts" (devices, tools, instruments) from "techniques," i.e., practices or ways of doing things (Elden, 2010; Peters, 2020). In this sense, science and law are techniques or, more accurately, sets of techniques. Actors assemble and utilize technological devices through techniques while techniques give purpose to artifacts. In economic terms, the availability of technology determines the cost-effectiveness of commercial exploitation. The same is true for other kinds of control which are likewise dependent on techniques of rule. Technology is not exogenous to social relations but emerges and develops within social settings. In short, when actors wish to territorialize space, they will support the development of appropriate technologies if these are not already available.

The state of available technology affects the calculus of actors and thereby the timing of territorializing episodes. But economic incentives and great-power interests are also not fixed. The economic prospects of a particular territorialization regime are determined by structures of global capitalism, most obviously through world market prices for resources to be extracted from a territory. Absent such prospects, states may have the capabilities but lack the motivation to territorialize a space, although as stated above, economic prospects are not only viewed as purely commercial assets but also in terms of international status and security benefits. Politically, great power motivations for or against territorialization may shift over time, as Butler (2001) demonstrates for negotiations over the global airspace regime. Great powers have substantial powers of area command or area denial, i.e., the capability to obstruct others' use of a space (Posen, 2003, p. 8). This is not simply about military power: Great powers can also offer competing representations of a space, ignore boundaries, and threaten retaliation or sanctions against states that put forward competing claims. Both of these conditions interact with technological affordances. Technology determines the costs of controlling and exploiting a space as well as possibilities for area control. Where states want to make a territorial claim they will stimulate the development of technologies that lower costs, e.g., by funding research. But all of these conditions are somewhat malleable since states exercise substantial agency in shaping them. For instance, what constitutes an impelling incentive is not just down to pure economics but a subjective assessment of likely future payoffs which will also change as circumstances evolve.

The two conditions of impelling economic prospects and an absence of great power obstruction are jointly necessary for a territorialization episode (see Figure 1). If either is missing, a space will remain unterritorialized for the time being. However, it is less clear why some governance solutions involve sovereign territorialization, whereas others employ functional or internationalized territorialization. As a preliminary assumption,

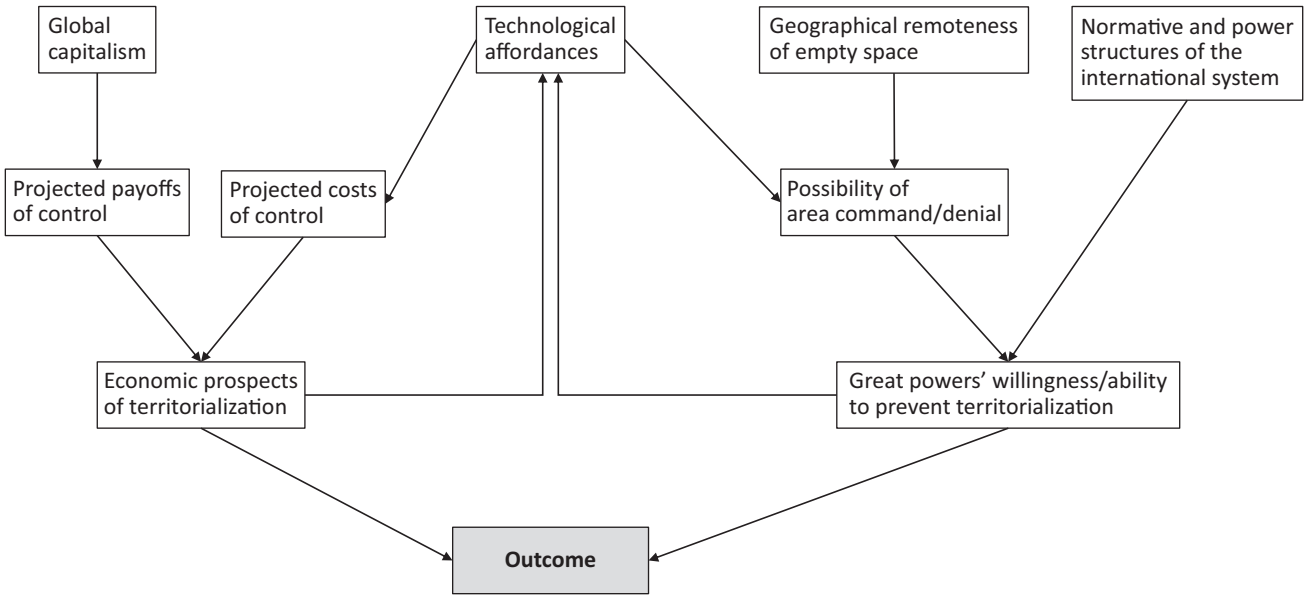

Figure 1. Conditions of territorializing episodes.

I argue that this is mostly determined by *when* a territorializing episode occurred as different eras are characterized by different normative environments and great power configurations, as I discuss elsewhere (Lambach & Diehl, 2021). While the sovereign territorialization of global commons was still the norm until the 20th century, no new examples of this can be found after the 1944 Chicago Agreement. A similar period also saw the cascades of territorial claims over parts of Antarctica (1908–1942) and comparable claims over the Arctic based on the now-disused sector theory (McKitterick, 1939). This was the final phase of sovereign territorialization. Territorialization episodes after this period were functional or internationalized, with the expansion of the territorial sea in the 1982 UNCLOS only being a partial exception (see next section).

4. Oceanic Territorialization

This section discusses an empirical illustration of the theoretical argument presented above. The material covers the creeping territorialization and the evolving governance regimes of near-shore oceanic space, especially the territorial sea and the EEZ (Section 4.1). This area was chosen because it provides ample evidence and can be considered a crucial case for theoretical claims about maritime territorialization due to its central importance for state activity in and on the oceans. Within this larger complex, the case of the Cod Wars will be analyzed as it provides a microcosm of wider developments (Section 4.2). The aim here is to specifically illustrate the framework of territorializing episodes (Section 3.2), not so much the general causes of territorialization (Section 3.1). The latter are more difficult to establish, mostly rest on ontological assumptions about international relations, and are therefore less amenable to empirical study. Hence, the focus will be on identifying the economic prospects and great power positions preceding territorialization episodes and how these are conditioned by technological change and shifts in global politics, norms, and economics.

4.1. The Territorialization of Near-Shore Areas

The oceans have traditionally been governed according to Hugo Grotius' principle of *mare liberum*, although this has always competed with other norms (Zacher & McConnell, 1990). The only historical exception to this was the traditional practice of states claiming sovereignty over their coastal waters (Fenn, 1926), the limits of which were settled at three nautical miles in the 18th century based on the (historiographically contested) "cannon-shot rule" (Kent, 1954). But in the 20th century, this practice, never properly codified, began to fray. First, states claimed rights over resources in the continental shelf extending beyond their territorial waters. Some also claimed special rights in the 12-mile area just beyond the territorial sea, e.g., for purposes of law enforcement. Starting in 1947, several Latin American states such as Chile, Ecuador, and Peru claimed 200-mile territorial waters (Stone, 1955). Other countries followed suit and during the period of 1950 to 1982, a wide variety of territorial waters claims, from two to 200 miles, could be found.

This expansion of claims was mainly a response to the industrialization of fishing, the intensification of distant-water fishing by trawler fleets from industrialized countries, and the resulting decline in fish stocks. In theoretical terms, technological change raised the economic stakes, especially for poorer countries dependent on marine resources. In addition, great powers were more amenable to a territorialization of the seas in the post-World War II period. Great Britain, long the

dominant seapower and a staunch defender of the *mare liberum* (Freeman, 2016, p. 20), had declined. The positions of the two new superpowers, the US and the Soviet Union, were rather mixed. The US also championed the freedom of the seas but President Truman, in a 1945 declaration, nonetheless claimed special rights over seabed resources and fisheries in coastal areas around the US (Watt, 1979), which inspired the 1947 Latin American claims. Similarly, the Soviet Union was one of the first states to claim a 12-mile zone in 1927 (Bar-Noi, 2015, p. 198), although its policy later shifted towards a more pro-*mare liberum* stance as Soviet naval capabilities and its fishing fleet expanded (Freeman, 2016, pp. 21–22; Österblom & Folke, 2015). In addition, both great powers were vying for support from developing countries in the unfolding Cold War, so their opposition to maritime territorial claims, which were popular in Third World countries, was muted.

Many states that claimed larger territorial waters did not necessarily want *sovereign* authority over them, especially since these huge areas were almost impossible to control anyway. While new technologies made distant-water fishing possible, comparable technologies to actually *control* areas far from shore were lacking. Rather, states were looking for exclusive rights over marine resources, especially fish stocks. However, at that time there was no instrument of international law through which such a claim could have been institutionalized. In 1956, the UN International Law Commission advised that claims beyond 12 miles were not in accordance with the law of the sea. The First UN Conference on the Law of the Sea (UNCLS) in 1958 produced a series of agreements but failed to agree on the limits of territorial waters. The Second UNCLS (1960) also narrowly failed to reach an agreement on a six-mile limit. Territorial disputes, pollution and conflicts over seabed resources kept the discussion about ocean governance going which eventually led to the Third UNCLS, starting in 1973, kick-starting a nine-year negotiation process culminating in UNCLOS (1982).

Territorial waters are defined in UNCLOS as the coastal waters of a state stretching 12 nautical miles (22.2 km) from the coastal baseline. The territorial sea is treated as an extension of the sovereign territory of the state, giving it near-absolute control over this space, with the exception of certain navigational rights for foreign ships. This represents the last case of sovereign territorialization in the global commons (Lambach & Diehl, 2021). However, it is, for several reasons, a special case that is not a counterexample to the general trend towards functional or internationalized territorialization. First and foremost, it is an institutionalization of the long-standing norm that states have a right to sovereignty over their coastal waters (Kent, 1954). In this respect, UNCLOS did not create new sovereign territory, but merely institutionalized a proven concept, albeit with a greater spatial extent than in previous practice. The expansion from three to 12 nautical miles ended a 45-year long phase of norm contestation that had already begun in 1927 when the Soviet Union became the first state to claim a 12-mile zone (Bar-Noi, 2015, p. 198).

In addition to the expansion of the territorial sea, UNCLOS also created a functional territory in the form of the EEZ to accommodate the resource claims of coastal states. The EEZ directly adjoins the territorial sea and extends up to 200 nautical miles from the coast. There, states enjoy "sovereign rights for the purpose of exploring and exploiting, conserving and managing the living and non-living natural resources of the waters above the seabed, the seabed and its subsoil" (Article 56 of the UNCLOS) and for further economic exploitation. The EEZ is a prime example of a functional territory, where an international regime assigns and guarantees certain rights and obligations short of sovereignty to particular states. The great powers did not object to this legal innovation. While the US did not ratify UNCLOS, it mainly objected to the internationalized territorialization of the deep seabed and its governance through the ISA and US President Reagan still unilaterally declared a US EEZ in March 1983.

4.2. The Cod Wars

The Cod Wars between Iceland and the UK provide an interesting microcosm of this larger territorializing episode (Hellmann & Herborth, 2008; Steinsson, 2016, 2017). British vessels had long fished in the waters close to the Icelandic coast. Icelandic attempts to claim fishing grounds beyond their three-mile territorial sea had been rebuffed in the 19th century but after independence from Denmark in 1944 and following the precedents set by other countries (Jóhannesson, 2004, p. 545), Iceland extended its territorial claims. Iceland was initially bound by the Anglo-Danish Territorial Waters Treaty of 1901, which stipulated a three-mile limit. However, once the 50-year timeframe of the treaty was over, Iceland unilaterally expanded its territorial waters, first to four miles and using a more favorable baseline calculation (1952) and then to 12 miles (1958). After the first expansion had already led to a tense conflict between Iceland and the UK, the second set off the First Cod War. British naval vessels accompanied their fishing fleet into disputed areas and there were several standoffs at sea, with shots fired between Icelandic patrol boats and British trawlers and navy vessels. The first Cod War was settled in 1961 with an agreement that was very favorable for Iceland. Two further Cod Wars (1972–1973 and 1975–1976) occurred over Icelandic claims for fishing rights in what was to become its EEZ, again with Icelandic victories (Steinsson, 2017). However, while the Cod Wars are best known for ships from ostensibly allied nations taking potshots at each other, the majority of the conflict played out through treaties, diplomacy, and international law, while the maritime showdown only represented the tip of the iceberg. The First Cod War in particular was deeply entangled with the debates surrounding the First UNCLS.

To explain the timing of this territorialization episode beyond the legal obstacle of the Anglo-Danish Treaty, to which Iceland was bound until 1951, we need to look at prevailing economic incentives, the development and availability of technological artefacts and techniques, and how this dispute was embedded in great power politics, all of which contributed to making an expansion of territorial claims possible and attractive to Iceland. The economic incentives are most easily understood. Fishing has always been a vital sector of the Icelandic economy and was the country's most important export industry in the 1950s (Ingimundarson, 2003; Tomasson, 1976). Given the growing concerns about overfishing, a collapse of fish stocks would have endangered the national economy (Jóhannesson, 2004, p. 547). But the territorial claims had additional significance for Iceland beyond purely economic concerns, "such as the nation's cultural and economic survival" (Mitchell, 1976, p. 134).

Various technological developments made control over the expanded territorial waters feasible. The first was the development of patrolling capability through the Icelandic Coast Guard (whose Icelandic name, Landhelgisgæsla Íslands, directly translates to "Territorial Waters Guard"). The Coast Guard had only been founded in 1926, although single vessels had been used for coastal protection since the 1900s. By the time of the First Cod War, the Coast Guard had grown to six patrol vessels and one flying boat. This might still seem a small number for such a large oceanic area. Furthermore, only the flagship was powerful enough to arrest and tow an infringing trawler: "The head of the coast guard, Pétur Sigurdsson, quietly admitted that his vessels were 'utterly incapable' of providing credible law enforcement inside the new line" (Jóhannesson, 2004, p. 559). However, these boats provided affordances beyond their immediate material capabilities. Usually, fishing interdiction did not depend on the ability to project force:

> In normal circumstances an Icelandic gunboat which caught a vessel inside the fishing limit would order it to stop and fire a blank shot across its bows if the demand was ignored. This almost always worked because the trawler skippers knew that they could not get supplies and service in Icelandic ports if they tried to escape the authorities. (Jóhannesson, 2004, p. 560)

New techniques also provided important affordances to the Icelandic government beyond the direct control over maritime space. For one, scientific data on fish stocks was an important instrument in the dispute, with Iceland and the UK producing different estimates about overfishing risks (Mitchell, 1976, p. 137). For another, international legal opinion and methods of boundary delimitation were employed to legitimize the extension of territorial waters. Iceland used a more favorable method of establishing the baseline laid out in the International Court of Justice decision in the "Fisheries Case" (*United Kingdom v. Norway*, 1951) to justify its 1952 expansion to a four-mile area (Jóhannesson, 2004, p. 546). The deliberations at the 1958 and 1960 UNCLSs bolstered Iceland's position further. As Brown (1973, p. 69) notes, Iceland fought a "consistent and intensive campaign" in the two UNCLSs conferences for a 12-mile limit. After the failure of the conferences to agree on this limit, the Icelandic government was able to justify unilateral action without endangering its reputation in the international community (Mitchell, 1976, p. 138; Tomasson, 1976).

Iceland's relations with the great powers were another crucial facilitating condition. With Iceland being a founding member of NATO, Iceland's territorial claims could have been effectively precluded by a veto from Washington, which never came. In large parts, this was due to the precarity of Iceland's commitment to the Western alliance, and the large strategic importance in the North Atlantic the country represented. NATO accession and the maintenance of the US airbase at Keflavik were "highly contentious in Icelandic politics" (Steinsson, 2017, p. 604). Several Icelandic governments, especially those consisting of left-wing parties, were not shy about questioning NATO membership and the future of Keflavik if the perceived hostilities by the UK were to continue. When the UK, Iceland's second-largest trading partner after the US, boycotted Icelandic fish exports after the 1952 expansion, Iceland quickly signed a bilateral trade agreement with the USSR, which made the Soviet Union "the largest single importer of Icelandic fish" (Mitchell, 1976, p. 128) by 1955. The Soviet Union exploited this split in the Western Alliance as much as it could, cozying up to Iceland's government, which caused the US to increase fish imports from Iceland as well (Jóhannesson, 2004, pp. 548–549).

There is little evidence that the US saw Icelandic crisis behavior particularly favorably—quite the opposite: The US agreed with the British position in principle. However, it was reluctant to pressure Iceland: "The USA tried to not involve itself in any way due to fears that its direct involvement would inevitably link the US base or Iceland's NATO membership to the outcomes of the disputes" (Steinsson, 2016, p. 265). And when the Icelandic government threatened to withdraw from NATO and close the Keflavik airbase during the Second Cod War, the US pressured the UK rather than Iceland to seek a compromise (Mitchell, 1976). In short, with Iceland engaging in brinksmanship and leveraging its position well, it managed to get both superpowers to support, or at least not oppose its territorial claims.

5. Conclusion

This article has argued that in the current international society, the global commons are subject to infrequent episodes of territorialization. These episodes occur when (a) there are impelling economic prospects of territorialization, and (b) great powers are unable or unwilling to prevent territorialization. All of these factors are influenced by the availability of technology that makes

cost-efficient modes of control feasible as well as the underlying economic, normative, and power structures of the international system. The case study lends support to the framework explaining the timing of territorialization episodes. It is less capable of assessing the causal assumptions outlined in Section 3.1 which are hard to test. Due to their systemic nature and multidimensional character, causes do not translate easily into observable implications at the case level. A more thorough operationalization and detailed process tracing would be necessary to better substantiate these claims. Nonetheless, the article adds a more detailed treatment of spatial governance dynamics to the literature on global commons.

Regarding the literature on ocean governance, the article offers additional support to theories of a "zoning" (Ryan, 2015) of the seas. The oceans display a trajectory towards more functional territorialization. Elsewhere I have identified 15 different kinds of functional territory that cover parts of the high seas and the deep seabed. Most of these territories are for conservation purposes (e.g., whale sanctuaries, vulnerable marine ecosystems, areas of particular environmental interest), others are created for the sustainable use of marine resources (regional fishery bodies, regional seas) or for improving safety at sea (NAVAREAs and METAREAs, and search and rescue regions; Lambach, 2021). Given the irreversibility of territorialization, further episodes of oceanic space being parceled up into functional or internationalized territories are to be expected, for instance as a result of the still ongoing negotiations for a Biodiversity Beyond National Jurisdiction Treaty which is expected to create a mechanism for designating marine protected areas on the high seas (Tiller et al., 2019). Whether this represents a cause for celebration or alarm depends on how one assesses the legitimacy and effectiveness of territorialized modes of governance compared to other forms that are less reliant on spatialized instruments, and what impact is expected from the economic valorization of oceanic space on environmental protection and sustainability (Peters, 2020).

The theoretical framework outlined in this article should also be applicable to other global commons beyond the high seas (Lambach & Diehl, 2021). The deep seabed offers an intriguing example of internationalized territorialization in the form of the ISA, the timing of which can be explained through the brief explosion of interest in seabed mining in the 1970s and the development of new submarine technology (Traavik, 1974). The airspace regime emerged in the early 20th century in response to the massive expansion of commercial and military aviation and opted for sovereign territorialization, although other options more akin to the freedom of the seas were also discussed as potential solutions (Butler, 2001). Outer space followed a similar trajectory of technologically enabled use leading to the emergence of an internationalized governance regime, mostly because there were (and still are) no technologies for cost-efficient control over segments of outer space (Paliouras, 2014). Antarctica is an interesting case of sovereign claims that could not be put into practice due to the prohibitive costs of control, which were later superseded by an international regime principally driven by superpowers who wished to avoid a territorial scramble—or at least, a territorial scramble in which they started from behind (Yao, 2021). In each case, we can see that technologically created accessibility and usability of a global commons went hand-in-hand with demands for commercial exploitation and great power interest in the military uses of this space. Great powers, whether through action or inaction, were instrumental in shaping regime outcomes. We can also see that sovereign territorialization was commonplace in the first part of the 20th century while functional and internationalized forms are more common in the latter half. I attribute these to a normative shift in the international system that emphasizes multilateral cooperation over earlier ideas that international problems are best solved through sovereign prerogatives and independent action of states. However, these propositions require more detailed empirical work to substantiate. In particular, I expect that the materiality of these spaces affects how they can be interacted with, territorialized, exploited, and governed (Peters et al., 2018).

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Article

An Ocean Free of Nuclear Weapons? Regional Security Governance in the South Atlantic

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Abstract
Even though oceans are pivotal for the non-proliferation of nuclear weapons, they constitute a blind spot in the global non-proliferation regime. This article analyses how regional security governance mechanisms may fill such gaps by bringing a maritime focus to non-proliferation studies. With three nuclear-weapons-free zones and one zone of peace surrounding or covering its maritime space, the South Atlantic serves as an illustrative case to understand the provision of security governance for the seas. The article identifies a range of legal, political, and practical challenges that can impede regional initiatives from achieving security sovereignty over maritime spaces. However, while non-proliferation might remain precarious, these mechanisms are not without success, as they serve to establish the opposition to nuclear weapons as a recognised norm, both at the UN level and among the Global South. The narrative of non-proliferation also allows regional states to justify the pursuit of security objectives. The article concludes by outlining the conditions for regional maritime governance to become more effective in terms of non-proliferation.

Keywords
maritime governance; maritime regionalism; non-proliferation; nuclear-weapons-free zones; ocean governance; regional security; South Atlantic; zone of peace

Issue
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1. Introduction

Oceans are pivotal to the non-proliferation of nuclear weapons. Islands and the high seas have repeatedly been used as testing sites and the transport of nuclear weapons has frequently occurred by boat. Yet, maritime spaces constitute an important blind spot in the global non-proliferation regime. It has been notoriously difficult to establish maritime governance mechanisms that are able to curb the spread of nuclear weapons at sea. The Seabed Arms Control Treaty, for example, only covers the ocean floor. Existing international norms limit the scope for ocean governance, such as the principle of “freedom of the seas” that complicates banning the maritime transport of nuclear weapons. A key question, therefore, surfaces in terms of how to best keep oceans free of nuclear weapons and which kind of governance mechanisms are suitable for such an endgame.

Despite the substantial intricacy that the maritime dimension of non-proliferation entails, this topic has received little attention in both the scholarships of non-proliferation and regional security governance. In our article, we put it at the centre of attention and study how global and regional forms of maritime security governance seek to overcome obstacles to non-proliferation and turn oceans free of nuclear weapons. In doing so, we also seek to explain the limitations and failures of such governance initiatives in achieving maritime non-proliferation while highlighting the direct or indirect implications that such attempts

to fill the maritime gaps of non-proliferation have on regional security configurations.

After an initial discussion on the interlinkages between regional security, maritime spaces and non-proliferation, we turn to the South Atlantic Ocean as an illustrative case to understand core issues in the provision of security governance for the seas. The South Atlantic offers a particularly high density of regional security governance mechanisms in the area of denuclearisation, namely nuclear-weapons-free zones (NWFZs) and zones of peace, which go beyond just the shores of their member states. Following a case study approach, we review existing literature on non-proliferation and ocean governance concerning the Atlantic to identify a range of legal, political, and practical challenges that impede regional initiatives from achieving security sovereignty over maritime spaces. Primary sources of relevance mainly consist of the major regional non-proliferation treaties and their protocols, as well as UN resolutions and domestic policy documentation in this area. Despite the challenges we identify, we also uncover that these initiatives are not without effectiveness. Regional maritime nuclear governance serves to establish the opposition to nuclear weapons as a recognised norm, both at the level of the UN and among the Global South. While actual non-proliferation might still be precarious, the ensuing narrative can be instrumentalised as a veneer for regional states to pursue other security-related objectives, such as keeping external powers at bay and expanding their own sphere of influence. We conclude by outlining the conditions that would be required for regional maritime governance to become more effective in terms of non-proliferation.

2. Regional Security and Maritime Spaces

Although maritime spaces have long been conceptualised as regions by historians (Braudel, 1972; Gilroy, 1993), scholarship on regionalism is characterised by a terra-centric focus. Regions are predominantly defined as an amalgamation of national territories, thus implying that maritime spaces constitute the margins of a region rather than a centre. Although geographers have advocated for a shift toward the ocean to capture social processes (Lambert et al., 2006; Steinberg, 2001), in the dominant reading of international relations and regionalism studies, oceans are essentially dividing lines of regions. This is closely related to the persistence of continental compartmentalisations. The bulk of regionalism studies, whether comparative or not, thinks in categories of African regionalism, Latin American regionalism, etc. (Mattheis, 2017). It is a frequent underlying assumption that regionalisms within one continent share similar traits, thus warranting a corresponding arrangement. As a consequence, regional organisations that span over two or more continents often fall through the cracks or are shoehorned into one existing category. This practice particularly concerns maritime regionalism, i.e., region-building projects that delineate their territorialisation around shared waters and are therefore likely to be constituted by riparian states that belong to different continents.

In the field of security, studies on regionalism also remain heavily influenced by the concepts that seek to delineate regions in terra-centric manners, such as regional security communities, regional security complexes, or regional security governance systems (cf. Deutsch, 1957; see also Adler & Barnett, 1998; Buzan & Wæver, 2003; Ceccorulli & Lucarelli, 2014). Although these attempts to compartmentalise the world allow for some overlaps and gradations, their borders are usually congruent with coastlines. However, this is primarily owed to bias in the empirical application of the three concepts, as the underlying theoretical criteria do not exclude oceans per se. Regional security communities are based on pronounced interdependence and the ensuing cooperation—or even integration—to jointly solve security concerns (Schoeman & Muller, 2009). Regional security complexes rest on a similar conceptualisation of the impossibility of a state being unaffected by security changes within a specific regional surrounding (Lake, 1997). This concept of interdependence accounts for both negative and positive effects, implying that a complex can both be characterised by a high or low prevalence of conflict. The concept of regional security governance is more concerned with questions of institutionalisation and thus focuses on regions as cooperative spaces where states have deliberately created arrangements to curb conflict (Breslin & Croft, 2012). Regional governance is therefore closely related to the dominant perceptions and conceptions of security within the region, from human to regime security, and therefore reflects existing power constellations and ideologies. For all intended purposes, regional governance serves to legitimise specific security practices and delineations (Ciută, 2008; Lopez-Lucia, 2020).

In sum, the scholarship on regional security concepts might contain diverse branches and premises, but nothing a priori precludes security communities, complexes, and governance systems to develop around a maritime space. Threats can be shared across seas and some threats even relate to the actual waters. A growing perception of such threats, in turn, pushes riparian states to actively cooperate or at least adapt their policies and activities to what is happening within the wider maritime region. This also applies to transversal concepts that are determinant for regional security spaces, such as the notion of regional powers. A regional security space is accordingly defined as the geographic area within which a state holds a sizable power share and within which its capabilities are recognised (Mattheis, 2021). Especially in historic perspectives of imperialism, regional powers would be closely associated with maritime projections.

While a theoretical openness does therefore exist, the terra-centrism typically unfolds in the operational-

isation of regional security concepts. The scholarship's delineation of security communities, complexes and governance systems is essentially exclusive to maritime spaces. This omission can be understood as a manifestation of a more general challenge to acknowledge spaces with a relative absence of statehood. In other words, the study of maritime regionalism has been hampered by an excessive focus on treaty-based regional intergovernmental organisations. The majority of these regional organisations is indeed not designed around a maritime space. The North Atlantic Treaty Organisation (NATO), for one, is not primarily a community focused on the ocean, despite the maritime connotation in its name. In some instances, the terra-centrism of regional organisations even undermines governance in a maritime space. This is particularly striking in the case of the European Union's approach to the Mediterranean, where the securitisation of migration highlights a shift from a maritime space as a shared region to a maritime space as a border. This shift turns movements within a maritime Mediterranean region into threats that are externalisable from a terra-centric European region.

Highlighting the terra-centric and state-centric biases does not entail delineating maritime spaces as regions that are detached from nation-states on the continent (Lobo-Guerrero, 2012). On the contrary, the concept of maritime regionalism encompasses practices and imaginations that transcend these divisions, be it commercial exchanges or popular identities. In this perspective, the sea is not merely an interstitial space that serves as a background to connections between terrestrial places. It can be a central reference point for a region that harbours singular political, economic and security interactions across, on, in, and under the ocean. Accordingly, nation-states play a key role in setting up maritime governance mechanisms. But given the limited jurisdiction outside their territories, they also depend on multilateral cooperation, both with state and non-state actors. Maritime regions are thus not voids. Like the tides, their governance might usually be fluid and ephemeral. However, there are also institutionalised examples of explicit maritime regionalisms, such as the Arctic Council and the Indian Ocean Rim Association, which run counter-current and do not fit into continental categories. Such forms of cooperation indicate the applicability of theoretical concepts related to regional security, as groups of countries that not only share similar perceptions of threats but also a set of security-related norms and a sense of interdependence.

The study of multilateral security governance is therefore caught in what can be described as a "dry geography" (Peters, 2018, p. 505). It has great difficulties to address maritime spaces. At best, they are treated ambiguously and at worst they remain stuck in a blind spot. These hurdles are best illustrated in the next section by turning to an eminently fundamental object of multilateral security governance: the global non-proliferation regime.

3. Non-Proliferation and Maritime Spaces

The Non-Proliferation Treaty (NPT) constitutes the global framework to curb nuclear threats, covering numerous policy areas, such as arms control, disarmament, and deterrence. Due to the constraints of international law, its signatories are nation-states that have limited jurisdiction over maritime spaces. As a consequence, oceans only play a minor role in the nuclear order and particularly in governance efforts towards non-proliferation. Moreover, in the nuclear context, the maritime dimension is particularly relevant because non-proliferation is even more difficult to implement and enforce outside of state boundaries than within. Yet, the need for multilateralism is notably justified because oceans matter in three very practical regards: (a) nuclear bases have been erected on remote islands; (b) the high seas have served as nuclear testing sites and nuclear waste dumps (Clary & Panda, 2017; Moody-O'Grady, 1995); and (c) nuclear weapons have been transported by boat (Melocowsky, 2016).

Given the general difficulties of implementing non-proliferation in non-populated areas outside the remit of national sovereignties, specific governance agreements have emerged in the form of regionally delineated NWFZs, first targeting the Antarctic (1959), then the outer space (1967) and afterwards the seabed (1971). These regional security arrangements provided the opportunity to fill some of the maritime gaps, especially in the case of the Antarctic Treaty, which also covers the surrounding waters. By banning nuclear weapons and peaceful nuclear explosions for scientific and industrial purposes, Antarctica became the world's first denuclearised zone (Musto, 2019). The Seabed Treaty put the ocean at the centre of attention but it only concerns the implanting or placing of nuclear weapons on the seabed or ocean floor. While this treaty has important implications, it does not resolve the crucial issues of transport, waste, and testing on and in the oceans.

Six more NWFZs have been established since then, with most of the world's terrestrial surface now covered by specific regional forms of nuclear governance. However, none has fully addressed the maritime gaps left by the NPT. Oceans are very ambiguously treated, even though early NWFZs were very expansive in range. The Treaty of Tlatelolco (1969), for example, applies to the Caribbean Sea as well as to substantial parts of the Southeast Pacific and the Southwest Atlantic. The Treaty of Rarotonga (1986) also refers to a vast maritime space in the South Pacific and even purposed to encompass the full Pacific Ocean area (Mogami, 1988). By contrast, later NWFZs did not establish the high seas surrounding their member states as nuclear weapons-free. The Treaty of Bangkok (1997) only includes the continental shelves of Southeast Asian states and the Treaty of Pelindaba (2009) is curbed even further by merely including the territorial waters of African states (Adeniji, 2002).

This overall trend of retracting from maritime spaces is chiefly related to the resistance exhibited by nuclear-weapons states (NWSs). Disputes have repeatedly emerged around the tension between a delineation that would forbid any state to deploy or hold nuclear weapons within maritime spaces surrounding the zone on one hand, and the freedom of the seas, which would prevent such restrictions for third parties to, for instance, pass through the zone with warships holding nuclear weapons on the other hand. NWSs have thus been confronted with potential restrictions imposed by regional agreements of which they are not part, and have worked over the years to steadily constrain the maritime extension of NWFZs, for instance by not signing treaty protocols drafted to that effect (Müller et al., 2016). In a geopolitical context fixated on territorial nation-states, it is not surprising that attempts by NWFZs to materialise as regionalisms with a maritime dimension have been subject to contention with respect to expanding their respective geographic areas beyond the original landmasses targeted by denuclearisation. The transit of nuclear weapons through territorial waters was bracketed from the Treaty of Tlatelolco, as not all Latin American states agreed on its importance (Rodriguez & Mendenhall, 2022). Even offshore territories explicitly included in the Pelindaba Treaty, like the Chagos Archipelago, have been argued to be exempted by NWSs (Sand, 2019). Likewise, the Treaty of Rarotonga has been limited by de facto only applying within the 12-mile territorial sea of its signatory parts, in particular excluding US trust territories (Mogami, 1988). To put it differently, maritime spaces have proven to be lightning rods of contention that impede the expected application of the NWFZ ethos.

On top of this multilevel supply of regional security governance in the shape of NWFZs, zones of peace provide yet another—though far less institutionalised—layer to achieve disarmament in more general terms within a geographic area. Maritime regions have also, on occasion, been central but contested elements of such zones of peace. This can be discerned in the understanding of those zones encompassing the "entire ocean space, from the subsoil of the seabed to the surface of the high seas. A zone of peace is a practice, in short, of disarmament along that entire space" (Lopez-Reyes, 1998, p. 401). However, they face the same difficulties as NWFZs associated with the geographical delimitation of maritime zones of peace (Subedi, 1998). Their implication for the principle of freedom of the seas, and the non-definition of the obligations that each state—both zonal and external—should uphold, have been recurrent counter-arguments to their effective application in the international context.

In sum, the non-proliferation regime and maritime regionalisms are intertwined in several ways. NWFZs stand as the primary legal and institutional regional manifestation of the NPT regime, while zones of peace pursue similar objects in a less institutionalised form. They both reinforce each other's norms and rules. The non-proliferation aspirations of NWFZs and zones of peace lead them to acquire traits of maritime regionalisms, thus setting them apart from the bulk of international governance mechanisms that marginalise maritime spaces. As such, they represent fitting cases to examine the conceptual and practical challenges to maritime security regionalism as well as the consequences of such institutionalisation processes. To assess how these entanglements manifest themselves in practice, we turn to our main empirical case. The South Atlantic exhibits a comparatively high density of regional security governance, with three NWFZs and one zone of peace reaching into this maritime space.

4. The Entanglements of the South Atlantic

Given the continuous institutional expansion of regionalism and multilateralism, most parts of the world are crowded by multiple, overlapping governance mechanisms (Engel et al., 2016). In that regard, the South Atlantic stands as no exception in the broader global canvas. Still, even though some single-purpose regional organisations, such as regional fisheries management organisations or the security-focused Gulf of Guinea Commission, may focus on maritime spaces for functional reasons, larger existing regional organisations on each shore have not been able to escape their land-based original focus. This applies to all major adjacent multi-purpose organisations. The Economic Community of Central African States (ECCAS), the Economic Community of West African States (ECOWAS), the Southern African Development Community (SADC), the Common Market of the South (MERCOSUR), and the Union of South American Nations (UNASUR) have lacked an explicit Atlantic purview since their respective foundations. Either a maritime strategy is absent altogether or it constitutes vague intentions with a low priority for implementation. But despite a prevalent terra-centrism, the South Atlantic also offers a recurrent functional thread based on non-proliferation concerns. In fact, the maritime dimension has been consistently used as a springboard to foment regional trust and promote further concertation in other security-related areas.

Previous attempts to bridge both sides of the South Atlantic during the height of the Cold War, or at least instil substantial regional security governance, failed to gain much traction due to bipolar frictions and political divisions. The stillborn case for a South Atlantic Treaty Organisation became paradigmatic in this regard (cf. Wall, 1977; see also Hurrell, 1983). Sufficient common ground was only found in terms of the implications that the existence of nuclear weapons latu sensu withheld for all countries alike. The Antarctica Treaty had set the standard internationally in this regard, particularly in terms of requiring binding commitments by the international community at large, and more importantly, by the NWSs, over what not to do in such an area. However, the

precedent of this treaty was not necessarily followed to the letter in subsequent experiments of the kind, with its main contribution residing in setting concrete geographic boundaries for Southern waters, which could then inspire more delimited neighbourly spaces.

This inspiration was put to good use by the second component of the South Atlantic equation, namely the Treaty of Tlatelolco, which focused specifically on Latin America and the Caribbean region. Signed on 14 February 1967, it emerged with a few specificities of its own. On the one hand, even though its dispositions covered the mainland, territorial sea and airspace of all Latin American and Caribbean signatory states, the treaty left many issues, such as peaceful nuclear explosions, rather ambiguous. On the other hand, it also foresaw an umbilical incorporation of its verification system into the International Atomic Energy Agency (IAEA). Meanwhile, a corresponding effort was explored on the opposite side of the ocean. The Treaty of Pelindaba, which created the African NWFZ, essentially stemmed from efforts undertaken by the Organisation of African Unity (OAU), as a response to French nuclear testing in the Saharan desert in the 1960s (Mpofu-Walsh, 2022)—even though its signature only took place in 1996. Among other items, it prohibited the research, development, manufacture, stockpiling, acquisition, testing, possession, control, or stationing of nuclear explosive devices in the territory of member states as well as the dumping of radioactive wastes in Africa. In comparison, the three NWFZs evidence key differences over how to best support and enforce a shared non-proliferation ethos, but they also highlight considerable room for manoeuvre in terms of how to actually achieve such a goal and where to invest the bulk of official efforts.

However, amidst this ambivalent supply of multilateral governance solutions, one peculiar initiative manages to cross the South Atlantic spectrum while remaining shy of becoming a fully-fledged regional organisation. Indeed, the Zone of Peace and Cooperation in the South Atlantic (ZOPACAS) has stood out over the years for donning the regional mantle of a specifically maritime-tailored forum, with a self-ascribed mandate over security issues, including non-proliferation. Created in 1986 by the UN General Assembly, ZOPACAS placed an early premium on formally declaring this particular maritime space free of nuclear weapons so as to transfer the onus of violating such dispositions onto the NWSs themselves. At the same time, it abhorred any verification measures of its own goals. The adoption of a "naming-and-shaming'' strategy helped to mask its lack of institutionalisation as well as its reliance on the goodwill and resources of key regional players, namely Brazil, interested in pushing it to the forefront of international visibility (Abdenur et al., 2016). Regardless, non-proliferation remained the core leitmotiv that succeeded in bringing all parties to the table. A different question is whether or not it succeeded in its envisioned endgame for the South Atlantic.

4.1. Challenges to Regional Security Governance

Despite the abovementioned supply of regional structures in the South Atlantic, the odds of effective non-proliferation in the region did not automatically increase once each was set into place. This multifaceted ecosystem has faced a series of shared challenges that have prevented the effective accomplishment of their original designs, thus leading to questions over their actual contribution to fomenting cross-oceanic regional security governance.

The first challenge concerns a dispersion effect. Created at different moments throughout contemporary history, both the three NWFZs and ZOPACAS served a key instrumental purpose at the moment they were conceptualised and proposed to the rest of the region. While this would imply that they were particularly useful at each constitutive moment, it also meant all leading actors and participating countries within the South Atlantic were asked to continue supporting them in equal measure. The overlap invariably raises questions of how to prioritise the allocation of scarce resources and attention. It also diminished claims by any of the instruments to overall regional representation. Dynamics of forum shopping (Hofmann, 2019) are not evident in this context, as no initiative allowed non-proliferation to be undermined. Yet, overlapping mandates and fleeting references to each other, with no formal mechanisms in charge of bridging or bringing together the work of existing non-proliferation structures, have also kept them away from collaboration more often than not.

A second challenge concerned the fact that non-regional powers remained very much central to the governance of this region. Indeed, even though external countries with territories in Latin America and the Caribbean (France, the Netherlands, the UK, and the US) adhered to the additional protocols of the Treaty of Tlatelolco, most NWSs have also pointed out, through multiple interpretive statements issued afterwards, that they would not accept any kind of restrictions on their freedom at sea (Goldblat, 1997, p. 21). The UK even deployed warships with nuclear weapons in the South Atlantic during the Falklands War, even if it did not consider the factual undermining of non-proliferation to be a breach of this treaty, as they did not enter territorial waters (Norton-Taylor, 2022). This incident illustrates a tendency of NWSs to maintain a veneer of adherence to agreed non-proliferation treaties but to operate in secrecy in order to violate the spirit of such treaties in practice. Likewise, much of the original discussions over the geographic application of Pelindaba concerned only externally-controlled islands closer to the continent, most palpably in the case of the British Indian Ocean Territory. This meant that the inclusion of Atlantic islands, such as Ascension, Tristan da Cunha, or Bouvet, was never properly taken into account, thus leaving them outside of both treaties' denuclearisation purview. The aftermath of these decisions led to a mutual recognition:

Aspirations of regionalizing in full the debate over the contours of Southern non-proliferation could not be achieved without the input, or at least tacit participation, of NWSs, especially those with overseas territories.

A third challenge concerns the general issue of verifiability. Despite recurrent public pledges, whether in the form of formal treaties such as the Tlatelolco and Pelindaba treaties or in the form of discursive rhetoric through ZOPACAS ministerial meetings, any intent to stop the transit of ships or aircraft carrying nuclear weapons in the region remained, for all intended purposes, unverifiable (Melocowsky, 2016). As a consequence, any intended wider maritime reach has been significantly curtailed from the start. This state of affairs became particularly evident in the case of ZOPACAS, as the lack of robust institutional structures to back its stated goals up quickly became a liability when faced with periods of disinvestment from its main sponsors and the corresponding inactivity that followed. Hence, an overreliance on informal commitments or legal dispositions difficult to attest made a dent in the South Atlantic's non-proliferation credentials as an effective regional driver on its own.

A fourth and last challenge regards resources. The fact that there is a measure of functional overlap between each of the existing mechanisms has equally exposed the extent of necessary means that are invariably required to accomplish every stated goal in this domain. For all intended purposes, the reliance on discursive strategies that seek to socially construct a maritime space of common interest only masks the limited capabilities available to South Atlantic countries to dedicate to regional governance mechanisms (Espach, 2019). In this regard, the limits of maritime regionalism are constantly brought into evidence whenever they fail to attract sufficient support and resources amidst the members that they are intended to serve in the first place.

4.2. Regional Achievements

For all the obstacles that have emerged along the way, a notion of maritime regionalism has endured nonetheless in the South Atlantic. That is chiefly owed to a number of small, yet significant achievements that made this particular case a testament to resilience in attempting to carve a regional community based on maritime traits.

First, even though verifiability remained weak and dependent on external input, progress has still been achieved through a degree of sizeable regional institutionalisation to ensure a credible verification system on each side of the Atlantic. For the Tlatelolco case, close cooperation with the IAEA led to the creation of the Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL), based in Mexico City, specifically created to ensure that treaty obligations were met. Likewise, the Treaty of Pelindaba led to the creation of the African Commission on Nuclear Energy (AFCONE), based in Pretoria, as the chief enforcer of legal dispositions. Both developments have provided concrete steps underlining a shared South Atlantic non-proliferation core.

Second, the lack of additional institutionalisation that has been highlighted as a peculiarity of the region has not prevented South Atlantic routines and rituals to emerge. In the case of ZOPACAS, for instance, member states have tried to make up for the absence of headquarters by having their permanent representatives to the UN fulfil secretarial functions (Abdenur et al., 2018). Likewise, even though it lacks international legal stand as other traditional regional organisations or even as its neighbourly NWFZs, ZOPACAS still attracts regular support through consecutive UN General Assembly resolutions, in what has come to amount to a unique level of international validation. Despite their evident shortcomings, the recurrent practices established around ZOPACAS allow for social reproduction and correspond to what has been best defined as an informal organisation with a decentralised consensual structure (Vabulas & Snidal, 2013). Taken together, ZOPACAS and the NWFZs can reinforce the normative ground to delegitimise nuclear weapons in the South Atlantic and even at a global level.

Finally, the combination of a loose patchwork of NWFZs and zones of peace has unmistakably helped to foster a regional narrative that provides a semblance of collective, if fleeting unity in the face of regional threats. For all purposes, the NWFZs and ZOPACAS share a modus operandi that is mutually reinforcing in the sense that they all place a negative behavioural onus on outsiders. They all also partake in a common ethos given how "the opposition to nuclear weapons is very much part of the political identity of the southern hemisphere" (Dhanapala, 2011, p. 8). For most of the countries in the region, non-proliferation is part of how they project themselves into the international sphere and it constitutes a pillar of the global governance they seek to achieve. Shortly after its creation in 1963, the OAU adopted a resolution on the denuclearisation of Africa, tying it firmly with the rationale of decolonisation. By contrast, the civil use of nuclear energy has often been tied to the economic development and industrialisation ambitions of African countries, especially since the continent has an abundance of uranium but only a few nuclear development programmes. The strong normative commitment against nuclear weapons on the regional level is also reflected in the Treaty of Pelindaba, even if ten African countries have not ratified it. However, the lack of ratification is less a contestation of the non-proliferation norm than a reflection of domestic governance failures, or a perception of low urgency (Van Wyk & Turianskyi, 2021). On the Latin American side of the Atlantic, Argentina and Brazil jointly adopted a non-proliferation normative in the early 1990s. This marked a drastic change after having pursued nuclear programmes and consolidated the Treaty of Tlatelolco (Simpson & Howlett, 1995). Non-proliferation was, in this context, not just an end in itself but also a part of a broader rapprochement between the two

countries, who surpassed their previous rivalries while they both transitioned to democracy and embarked on a joint economic integration project (Carasales, 1995; Mattheis, 2010). In that sense, South Atlantic countries from both shores can claim to have succeeded in self-constructing and promoting an idea of a region based on normative convergence and thematic specificity, even if denuclearisation has not been fully substantiated or accomplished in practice. While this might not outlaw norm-breaking to non-proliferation, it does facilitate the notion of an emerging regional maritime governance architecture (de Buitrago & Schneider, 2020).

4.3. Unintended Consequences

Regardless of some successes in ensuring the South Atlantic remained a minor concern amidst the broader non-proliferation agenda, this odd mix of regional governance mechanisms also generated additional outcomes, that were not intended or anticipated in their original mandates or goals (Burlyuk, 2017). Unintended consequences can be conceptualised as a set of effects that does not correspond to the intended objectives of the originating action (Lopez-Lucia & Mattheis, 2020). In the case of South Atlantic non-proliferation, we can discern two such sets: The first is an effect on the broader regional system and the second is an effect on the actors carrying out the action.

First, delineating the South Atlantic as a region created new constellations of leadership. It quickly became evident that the provision of regional non-proliferation can easily be co-opted as means to ulterior ends, more specifically by the regional power ambitions in key countries. In particular, Brazil and South Africa found fertile ground in the flexibility of NWFZs and zones of peace to stake claims of even more increased prominence, hoping to enlist further supporters for their own views of what the South Atlantic should be and how it should be organised. In turn, this created divisions that would have gone unnoticed in a non-maritime delineation—particularly in terms of how to best put regional governance into place, with Brazil pushing for a more sovereigntist view, backed by a security-centric rationale, while South Africa advocates for the governance of oceans as global commons (Duarte & Kenkel, 2019). In other words, closer association of key regional players around common objectives has created new rifts regarding the implementation of each of the multilateral solutions present in the region. Meanwhile, other states in the region, in particular smaller countries, have been supportive of being included in formal initiatives, as it strengthens their agency in non-proliferation issues but also in global affairs more generally.

Second, an original design centred on non-proliferation has not excluded other geopolitical topics from crossing the threshold of regional debate, under the framework of these different regional mechanisms. The case of Argentina and the Falklands/Malvinas has proven a stark example, with the issue being consistently placed front and centre in any multilateral attempt to discuss and construct the South Atlantic as a maritime space of its own. Likewise, during the policy impetus evidenced between 2006 and 2016, Brazil saw fit to use the justification of ZOPACAS as a potential counterweight to NATO's intent to look South (Edwards & de Carvalho, 2020). A premium on non-proliferation has therefore not inoculated a maritime region from potentially tackling other associated topics of interest, even though it remains far from clear if those topics have proven more successful in holding the region together or if they have been, in fact, the ones responsible for keeping it apart.

5. Conclusion

Maritime regionalisms display a more difficult path in manifesting themselves as fully-fledged composites of state-level units, when in comparison with terra-centric endeavours. Nevertheless, this does not mean their emergence is stalled or precluded from the offset. Regional maritime security governance can be conducive to advancing collaboration, not only by expanding the reach of pre-existing continental regionalisms but also by addressing blind spots, such as the issue of maritime non-proliferation.

The experience evidenced by the South Atlantic in terms of multi-level mechanisms grounded by a shared non-proliferation agenda points to four elements that warrant more careful observation both for scholars and policy-makers. These elements are not limited to the South Atlantic and also point to comparative possibilities with other maritime spaces, especially where nuclear proliferation is on the rise, such as the Indo-Pacific or the Arctic Sea. First, regional maritime security arrangements do not only depend on support by member states, they also require at least tacit agreement by all seafaring parties. Second, regional maritime security arrangements require disinvestment or rescinding sovereignty by great powers and former colonial powers with overseas territories. Third, thematic overreach beyond the original focus can present challenges and opportunities on equal measure, and benefits from an existing degree of institutionalisation. Last, more regional security governance structures encompassing the same region do not necessarily translate into a more cohesive regional space. They can, however, complement one another and reinforce their respective mandates despite a predisposition for competition over resources and mandates.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Making Polar and Ocean Governance Future-Proof

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Abstract
Governance institutions of the polar regions, as well as global oceans, may hold room for improvement in terms of effectiveness but, on the whole, their existence can be regarded as a success story. The arrangements managed to pool responsibility for regional resources amid Cold War geopolitics, mostly by delegating discussions to science committees. Changing global climate, however, provides considerable challenges to these governance arrangements. It begs the question of how the success story can be continued into the future. After sketching the emergence of polar and ocean governance and their core organizational principles during the 20th century, this article identifies some of the challenges linked to global warming that have been altering the context of governance fundamentally. The article discusses emerging issues that warrant attention, but which may be difficult to accommodate in present governance networks. Ultimately, the article argues that anchoring principles of "responsibility" that take into account the relational quality of polar and ocean spaces is key to any institutional design that seeks to take governance arrangements into the 21st century and beyond.

Keywords
Antarctic Treaty System; arctic governance; law of the sea; oceans; responsibility

Issue
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1. Introduction

Is polar and ocean governance fit for purpose in the 21st century? Over the course of the 20th century, governance regimes for oceans and the polar regions have ascribed a number of responsibilities to states, mostly intending to defuse geopolitical tensions. Yet, the question is whether these arrangements are sufficiently flexible to adapt to different circumstances. This article aims to show that new challenges lie ahead, for which polar and ocean governance might not be sufficiently equipped because the context of their existence is fundamentally changing—and not because of a fault in institutional design and functionality.

The three empirical foci of this contribution share a number of commonalities. Antarctica, as land surrounded by oceans, global oceans, and the Arctic, which is an ocean surrounded by land, are all subject to environmental governance regimes that are associated with global commons. They have been selected for this contribution because the study of global politics has traditionally neglected oceans and polar regions while focusing on land-based interaction between states and because they occupy a pivotal role in the global climate system. In this regard, this contribution is an attempt to raise awareness of the significance of these regions for policy purposes and shift the vantage point from which analysts and policy-makers alike view and act toward them.

Historically, oceans and the polar regions have been associated with open and untamed wilderness, even with pristine beauty, untouched by humans (Bloomfield, 1981). While that view is untrue for the Arctic, which had been settled for millennia, this perspective is revealing of a colonialist mindset with which (mostly European) explorers approached the Polar regions as well as oceans, often as part of national identity projects (Bailey, 2018; Bruun, 2020; Dodds & Nuttall, 2015; Wehrmann, 2019; Wood-Donnelly, 2019). These discoveries resulted in competing claims to ownership over space and resources. These competitions have been

gradually disentangled, or prevented from further entanglement, in a series of conventions and treaties during the latter half of the 20th century. Viewed from the perspective of states, it is thus possible to trace a development from competition towards cooperation within a system of rules over the course of seven decades. What were once considered the final frontiers of humanity are increasingly considered part of the "global commons"—and this despite the tensions between the United States and the Soviet Union that developed post-WWII.

The frameworks and governance arrangements created a system of responsibilities for the Polar regions and global oceans that fit its time. The system institutionalized which organization or individual states possess which competencies to somehow act on the respective spaces (Nuttal et al., 2018), focusing on scientific exploration and administered resource exploitation intending to reduce the great power competition of the Cold War era. In most instances, the system of responsibilities alludes to questions of sovereignty and its limits, but also to the shared management of potential resources in order to create a stable geopolitical environment. In that respect, institutional developments have been crucial to the provision of a number of global public goods (Zürn, 2018), such as peace and environmental conservation.

But is this set-up suitable in the long run? In the meantime, contextual developments—most notably in the form of environmental change—have begun to put pressure on the viability of these arrangements (Bronselaer et al., 2018; Keskitalo, 2008; Schloesser et al., 2019). It has been argued that most assumptions about political institutions entail an expectation of stability regarding the main parameter of human existence, which is the global climate. Yet, after almost 12 millennia of the geochronological epoch referred to as the Holocene, marked by a rise in temperatures since the last ice age and a relatively steady climate for the last four thousand years, arguments are being raised that humanity has entered a new epoch—the Anthropocene—in which humans have become the main source of influence on biological, geological, and atmospheric processes on Earth (Dryzek, 2014; Steffen et al., 2007). These processes are fundamental to the wellbeing of all life on the planet. The question is whether human institutions are capable of adapting to changing circumstances. After all, "the Holocene epoch is the only state of the ES [Earth climate system] that we know for certain can support contemporary human societies" (Steffen et al., 2015, p. 736).

In the next section, the article discusses the role of responsibility in global governance. It sketches its emergence as both an analytical and a governance concept closely linked to the institutionalisation and spread of human rights and human security during the second part of the 20th century. Analytically, responsibility enables us to identify criteria for normative analyses, such as who is in charge and what their competencies are towards a particular object. This analysis paves the way to assess institutions in terms of the normative expectations from which they arise. After creating these parameters for comparison, the conceptual discussion then leads to a closer look at the three empirical sites, which are the Antarctic Treaty System (ATS), global oceans, and the Arctic region. In each instance, the article sketches the historical development of governance arrangements, discusses the assignment of responsibility, and outlines how the status quo is under pressure as a result of global warming. Each section closes with a brief outline of how a focus on responsibility can enable a debate over the extent to which particular governance arrangements are future-proof.

2. Responsibility in Governance

The analysis and theoretical discussion of responsibility is a relatively recent phenomenon. While responsibilities of states have been discussed by English School scholars, the debate was considerably widened during the last couple of decades by pondering how an abstract community without a clear mandate or hierarchy should allocate specific tasks related to the provision of global public goods, such as human security or the protection of global commons (Bull, 1980; Erskine, 2003). These considerations paved the way for analysing the empirical phenomenon that responsibility had become a point of reference in global politics across different governance fields, which are structured around the "responsibility to protect," "common but differentiated responsibility," or "corporate social responsibility" (Bukovansky et al., 2012; Gholiagha, 2015; Hansen-Magnusson & Vetterlein, 2020; Heupel, 2013; Lang, 1999). It is possible to attribute this development to a changing understanding of sovereignty in world politics since the middle of the 20th century, which resulted from a series of compromises in international negotiations between states but also under the involvement of non-state actors, such as multinational corporations (Vetterlein & Hansen-Magnusson, 2020). The change in sovereignty is reflected in the proliferation of human rights during the last seven decades, which arguably elevated the wellbeing of people relative to that of states, gradually introduced differentiated responsibility of states for protecting the environment, and sought to eliminate negative externalities from economic activities (Falkner, 2021).

These developments are significant for how global governance works. Arguably the most important factor is the rebalancing of the Hobbesian rights of states vis-à-vis the Kantian rights of individuals (de Carvalho, 2020) through a widening of the group of stakeholders that can influence global politics. While the broadening of voices does not necessarily signal the end of power differentials and hierarchies and doesn't ensure that the interests of individuals or vulnerable groups are taken into account, it does, however, pave the way for more equitable access to global politics. It is on this basis that we can start engaging with responsibility from an analytical

perspective as well as from the vantage point of political theory, particularly regarding questions of institutional design.

Analytically, we can begin to outline a conceptual perspective of how responsibility structures global relations (Hansen-Magnusson, 2019b; Hansen-Magnusson & Vetterlein, 2022). In its most basic understanding, responsibility shapes the normative structure of global politics by positioning so-called subjects and objects of responsibility as well as the normative foundations on which their link rests. Subjects of responsibility are those state or non-state actors of global politics who either claim or are somehow assigned responsibility for an object. The object may come in different guises and may be immaterial and abstract, such as notions of wellbeing or safety, or relate to material entities and artefacts, including people and physical spaces.

The process through which this coupling of subject and object occurs provides us with a set of criteria to assess the concept's significance for contemporary global governance. While this is not about measuring effectiveness, a parameter that is often referred to in governance analyses, analysing who is responsible, what for, and based on which set of criteria sheds light on the normative foundations of politics, particularly the perennial questions of legitimacy and authority. After all, any political order requires justification with reference to principles of justice (Lebow, 2018): Being the subject of responsibility comes with normative baggage, such as expectations about how to appropriately fill the role. Assigning or taking the role is a discursive positioning. As a result, what counts as legitimate occupancy of the subject of responsibility is often fiercely contested. Arguments have included historical connections, such as past emissions (Barral, 2020; Bernstein, 2022); geographical proximity, as in calls for the African Union to take care of matters on the continent in an attempt to reverse colonial dependency (Burai, 2022); or material capabilities, given that multinational corporations, might be in a better position than some states to take care of tasks that are often reserved for states, such as access to health provision, clean water, education, or housing (Karp, 2022).

Based on this analytical delineation of responsibility, we can address questions of institutional design and establish a set of criteria which can be used to assess whether institutions are likely to adapt to changing circumstances. Regarding the subject of responsibility, one can inquire into the principles and mechanisms through which an actor comes into their position. Political theory offers numerous concepts to this end, most prominently those derived from democratic theory, holding that those affected by a decision should have a voice (Bäckstrand, 2006; Eckersley, 2017; Wiener, 2018). In addition, arguments have been made that emphasise the capabilities of actors (O'Neill, 2005) as well as their willingness (Erskine, 2020). Which of these, individually or in combination, should be used as benchmark for assessment, though, is subject to continuous debate. Different to cosmopolitan approaches (Held, 1995), authors like Karin Bäckstrand focus on the level at which governance is negotiated and who is involved in the process. To her, the quality of deliberation matters, especially where this ensures that a multiplicity of voices is heard. The situation is complicated further when we consider that the object of responsibility may evolve. For instance, nature preserves may be a solution to ensure biodiversity but the arrival of new species or the degradation of the environment may alter the usefulness of the space for its original purpose. Institutional path dependencies may then prevent an adaptation to circumstances.

In sum, responsibility is not just a governance concept but also paves a way to engage with global politics analytically. Distinguishing between subject and object of responsibility allows us to specify who is in charge of what. We can also describe the quality of this relation and assess the normative foundations upon which it rests. In most circumstances, alternative subjects of responsibility are thinkable, which means that we can start talking about hierarchies and questions of power and access. Political theory lends a helping hand in this regard as it specifies some parameters such as the quality of deliberations and multiplicity of voices. Overall, this set of criteria will be applied to the cases in the next three sections of this article.

3. Antarctic Treaty System

The ATS developed over the course of six decades. It comprises a series of international agreements and institutional forms, which have been linked to Cold War geopolitics as well as the legacy of global colonialism. The Antarctic Treaty that came into effect in June 1961 stemmed from cross-national cooperation during the international geophysical year of 1957–1958, secret working group meetings in 1958–1959, and six weeks of negotiations in Washington in 1959 (Beck, 2010). The treaty established a demilitarized and denuclearized zone (South of 60°) while also suspending historic as well as future claims to sovereignty over parts of the continent. Subsequently, meetings of the parties intensified scientific cooperation by agreeing on measures for the Conservation of Antarctic Fauna and Flora (1964), the 1972 Convention on the Conservation for Antarctic Seals, and the 1976 Biological Investigations of Marine Antarctic Systems and Stocks, which resulted in the 1982 Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). The CCAMLR has been described as the first ecosystem-based management approach globally (Scully, 2011). As the treaties and conventions had omitted the discussion of mineral resources, states drew up the 1988 Convention on the Regulation of Antarctic Mineral Resource Activities, which was, however, not ratified and soon superseded by the 1991 Protocol on Environmental Protection (the Madrid Protocol).

These frameworks are filled with life across a web of institutions (Dey Nuttal, 2018). Perhaps most important is the annual Antarctic Treaty consultation meetings (ATCM), during which 29 of the 54 parties can make decisions. The meetings also structure the calendar of the Committee on Environmental Protection, which was established through the Madrid Protocol and meets at the same time. Additional (administrative) initiatives emanate from the CCAMLR's secretariat in Hobart, which organizes the work of the commission on conservation measures relating to marine living resources in the Antarctic region. Scientific research is initiated, developed and coordinated through the Scientific Committee on Antarctic Research based in Cambridge, which feeds into ATCMs, but also the Intergovernmental Panel on Climate Change and the UN Framework Convention on Climate Change.

The assessment of this arrangement has received a range of comments. On the one hand, it has been lauded as an effective way to diffuse tensions of the Cold War by establishing science as the primary mode of operation in the region (Beck, 2010; Rothwell, 2010; Scully, 2011). The aim to protect flora and fauna has been bolstered, for instance, by using the Convention on Migratory Species to reach the Agreement on the Conservation of Albatrosses and Petrels (Haward, 2017). Scientific cooperation even continued during the UK–Argentina war over the Malvinas or Falkland Islands, which is regarded as indicative of the extent to which it has become the normal modus operandi (Dodds, 2010). Furthermore, it has helped absorb geopolitical pressures of the early Cold War period. On the other hand, though, science has been identified as a significant barrier to entry for states with fewer resources (Yao, 2021). The ATS thereby perpetuates practices and a form of global order that can be traced back to European-led globalization and colonialism since the 16th century (Dodds, 2010). It has also been accused of expanding the United States' hegemonic role in world politics by restricting sovereignty claims of other states on the continent (Scott, 2011).

This ambivalent commentary on the merits and disadvantages of Antarctic governance is mirrored in the assessment of future challenges. They arise from global warming in general as well as increased human activity in the region, including the application, compliance, and enforcement of international law (Haward, 2017; McGee & Haward, 2019; Roberts, 2020). Increased accessibility is encouraging "last-chance" or "doomsday tourism" (Denley et al., 2020; Eijgelaar et al., 2010) and there is a danger that ships will not only bring considerable numbers of people but also non-native species that have the potential to upset the ecosystem balance. Suspended sovereignty means there is a lack of search and rescue infrastructure, which is further exploited by illegal, unregulated, and unlawful (IUU) fishing, which is doing considerable damage to fish stocks and perpetuating labour arrangements that have been described as modern-day slavery (Urbina, 2019). In addition, bioprospecting—the attempt to discover in living organisms biochemicals or genetic sequences that have medical, agricultural, or industrial value—raises questions over the role of science and links the potential commercial exploitation to legal questions over intellectual property (Haward, 2017).

With a view to the 21st century, states have set up a governance system around resource management as well as environmental monitoring and protection. But as scientists find it hard to obtain a voice globally (Roberts, 2020), a lack of a local population that would claim responsibility to maintain the status quo for the benefit of global climate systems makes raising awareness of the region's fate difficult. This lack of stewardship also means that policing responsibilities regarding IUU fishing are taken on by non-state actors, such as Sea Sheppard (Urbina, 2019). In terms of the dimensions of responsibility identified earlier, the absence of local voices makes taking or assigning responsibility for climate-related matters difficult. That is to say that a shift in the "object of responsibility" away from resource protection towards acknowledging the global embeddedness of the region is problematic. It has been suggested that sub-state actors, particularly the five gateway cities to Antarctica—Punta Arenas (Chile), Ushuaia (Argentina), Cape Town (South Africa), Hobart (Australia), and Christchurch (New Zealand)—might take on a more prominent role in this regard (Frame et al., 2021). Such a move would shift power away from states and potentially include more localized voices. However, given the global climatic significance of the continent, the subject of responsibility would need to be broadened further. Informal governance arrangements, which are strongly present concerning the Arctic, could help overcome the current lack of local voices and serve as an additional venue for researchers to make themselves heard.

4. Global Oceans

During the course of the 20th century, repeated attempts to codify customary practices did little to shift the balance between "open" and "closed" seas, which had mired the law of the sea for centuries. Yet, eventually, a number of rulings by the International Court of Justice as well as the nine years of negotiations that resulted in the UN Convention on the Law of the Sea (UNCLOS) allowed states to clarify the terms of how sovereignty extended from land towards the ocean while safeguarding the principle of freedom of navigation (Hansen-Magnusson, 2020a; Sanger, 1986). Following UNCLOS, the "constitution of the oceans" (Koh, 1983), institutionalization of the law of the sea occurred in form of three major organizational settings: the International Seabed Authority holds responsibility for claims to exploration and exploitation of resources on the ocean floor outside realms of national jurisdiction; the Commission on the Limits of the Continental Shelf (CLCS) assesses geophysical data submitted by

states about the continental shelf to delimit an extended exclusive economic zone beyond 200 nautical miles; and the International Tribunal on the Law of the Sea (ITLOS), which adjudicates disputes in relation to UNCLOS. Additionally, oceans are governed through the work of the International Maritime Organization, which deals more narrowly with shipping, as well as several regional fisheries management organizations (RFMOs), which make science-based recommendations for sustainable catch with regard to particular types of fish in particular areas. These institutions assign responsibilities mostly for resource management on the basis that this would help create a "new international economic order" (Soltau, 2016; Wolf, 1981), which was at the heart of negotiating UNCLOS.

While work in the CLCS and ITLOS, respectively, seems to signal an entrenchment of "mare clausum" vs. "mare liberum" principles, questions remain over the organizations' effectiveness as well as their ability to adapt to new circumstances. Procedural rules for formal change to UNCLOS have yet to be triggered (Buga, 2015) and while there is widespread sympathy for the workings of the organizations, there is also a concern over their adaptability in the long run. Already, the negotiations on the Convention on Biodiversity in Areas Beyond National Jurisdiction (BBNJ) signal a move away from a governance approach based on management and distribution of resources towards one focused on conservation, which results in the designation of marine protected areas around the globe (Tiller & Nyman, 2018). Yet, warming oceans are likely to increase pressure on RFMOs as fish stock migrate towards the cooler waters closer to the poles and will simultaneously burden marine protected areas. Warmer oceans will—metaphorically—shrink the oceans because less amount of habitable water is available. In addition, the arguably biggest impact might result from changes in ocean currents (Caesar et al., 2021). For instance, if, as modelled, the Gulf Stream loses strength as a conveyor of warmth toward Europe, this will significantly alter the climate in the region.

Looking ahead, UNCLOS and other ocean institutions are based on an assumption of stability of ecosystems that does not assign responsibility to specific actors to ensure the conservation of the status quo. Different to Antarctica, oceans are being governed mostly through a managerial framework to assign responsibility for living and non-living resources—such as fish or polymetallic nodules—while less emphasis is put on environmental research and conservation. Yet, governance frameworks are often under pressure because of a changing habitat. This observation is important not only from the perspective of sustainable availability of resources but also more broadly in terms of the repercussions of changing ocean currents for human livelihoods on land. So far, most advocacy is coming from representatives of Pacific island states who are faced with the prospect of drowning as a consequence of rising ocean levels (Freestone & Schofield, 2021; Simangan, 2021) but there seems to be less urgency elsewhere to reflect on causes and consequences of changing ocean currents. There are no regional governance organizations comparable to the ATS that would be able to lobby effectively for the conservation of the oceanic environment as a whole. What appears to be missing regarding responsibility for global oceans is an awareness of who the subject should be beyond those nations whose livelihood is immediately threatened by rising sea levels.

5. Arctic

The Arctic is home to a network of organizational fora which have blossomed over the past thirty years (Hansen-Magnusson, 2020b; Wilson Rowe, 2021). Arguably the most important of these is the Arctic Council, which is unique in global governance due to the inclusion of representatives of Arctic Indigenous peoples. They negotiate issues of sustainability and human security with the eight Arctic states as well as with further thirteen states and twenty-five non-government and intergovernmental organizations that have observer status. The Council can be traced back to Finnish and Canadian initiatives in the early 1990s, which responded, in part, to Mikhail Gorbachev's invitation in 1989 for a science-based cross-border cooperation, following the Chernobyl nuclear catastrophe (Bloom, 1999; Nord, 2016). The Council centres on scientific cooperation in six working groups that produce reports and assessments—often in conjunction with the International Arctic Science Committee (established in 1990). The Council's work, which explicitly excludes matters of military security, is further complemented by and at times overlaps with other fora, such as the Barents Euro-Arctic Council, which is a cornerstone of the EU's Arctic presence and its cooperation with Russian civil society through the "Northern Dimension," the Council of the Baltic Sea States, regional assemblies, such as the Saami Parliament, or the work of the International Maritime Organization. State and non-state actors have repeatedly expressed their adherence to international law, for instance in the Ilulisaat Declaration, which rebuffed calls for an Arctic treaty similar to the ATS, or with reference to the UN Declaration of the Rights of Indigenous Peoples (Shadian, 2017), or by pointing towards UNCLOS. Informal fora, such as the Arctic Circle Assembly or Arctic Frontiers, which take place annually in Reykjavik and Tromsø, respectively, have been characterized as enabling a form of "Bazaar governance" (Depledge & Dodds, 2017), bringing together politicians, scientists, business leaders, civil society, and non-governmental organizations (Steinveg, 2021).

Arctic governance is remarkable on a global scale for its inclusion of Indigenous voices across a range of issues and its generally cooperative spirit in the Council's working groups. Surprisingly, the forum continued to function well even after Russia annexed Crimea in 2014, which has been linked to trust established between individual

delegates as well as the comparatively low salience of policy issues (although, at the time of writing, the future of the Council is open as a consequence of Russia's invasion of Ukraine in February 2022). For decades, the region has been marked by long-term national identity projects (Burke, 2017; Hansen-Magnusson, 2019a; Wood-Donnelly, 2019), albeit not at the level of intensity that is often portrayed by news outlets which like to evoke the headline-grabbing spectre of a heating "cold" war confrontation (Wehrmann, 2019): While the economic viability of resource exploitation is not a given (Keil, 2014), even disputes over the status of maritime zones around the archipelago of Svalbard and ensuing rights to issue fishing licences (Østhagen & Raspotnik, 2018) are mostly of interest for regional experts. Yet the security community is uncomfortable with Russia's refurbishment of some of the military infrastructure situated along the Northeast Passage (or Northern Sea Route), and the presence of China in the region, which has declared itself to be a near-Arctic state and is increasingly importing liquified natural gas from Russia while increasing its engagement in Arctic governance more generally (Kraska, 2011; Pelaudeix, 2018; Wilson, 2016). The country's Arctic strategy underscores the importance of international law, which was demonstrated by joining the moratorium on fisheries in the Arctic ocean, which was signed by nine countries and the EU.

The moratorium itself is a forebearer of the challenges to come with climate change. As the region is warming at three times the rate of the planet, Arctic waters will become increasingly navigable throughout the year in the coming decades. As a source of protein, fishing grounds in the Arctic ocean appear increasingly lucrative but shipping activity is increasing through other commercial interests as well, including to transport cargo between Asia and Europe but also tourists. States are cooperating well on search and rescue infrastructure and the prevention of oil spills, which have been outlined in agreements signed under the auspices of the Arctic Council (Nord, 2016). Given the interest of the United States, Russia, China, and the EU in Arctic affairs, how the increased level of human activity in the area is conducted might have an impact on global order as a whole. Inevitably, this will bear down on local and Indigenous populations in the region, who are most immediately affected by climate change: Warming affects the availability of fish stock while thawing permafrost soil forces changes to economic activities on land, such as reindeer herding. While the Arctic Council is actively pushing a human security agenda in its Sustainable Development Working Group (Larsen & Fondahl, 2014), questions remain over power asymmetries between Indigenous groups and states across all Arctic fora. Questions also remain over whether the fora are adequate, especially given that the causes of warming are hardly located in the region (Albert & Knecht, 2022).

Against this background, responsibility can help assess to what extent the existing organizational network of governance fora is adequate for future challenges. One major advantage is their inclusiveness and the generally cooperative spirit among state and non-state participants. The Council and its working groups have demonstrated that they can address and shape issues that affect people in the region, even though obvious questions remain over power differentials. At least until Russia's invasion of Ukraine in 2022, additional fora, which involve parliamentarians, such as the Standing Committee of Parliamentarians of the Arctic Region, or the Barents Euro-Arctic Council served as an informal communication channel between the EU and Russia and ensured there was scope to debate the normative foundations of who is responsible and what for.

However, there is more at stake than regional political stability and the preservation of local cultures. As with the Antarctic, changes in the Arctic affect climate and living conditions in other parts of the planet. The current set of fora does not address this—not least because there is sometimes a sense of anxiety over potential colonialism from non-Arctic actors (Young, 2019). At a time when non-Arctic voices would need to be heard in order to address the global repercussions of warming poles, research shows how non-Arctic voices are increasingly sidelined in the Council (Wilson Rowe, 2021). The object of responsibility can be defined from different vantage points depending on whether they are taken from Indigenous representatives, officials of Arctic states, or non-Arctic ones. Yet in the interest of long-term global wellbeing, there is a common denominator that needs to be discovered—perhaps with the help of more informal settings such as the Arctic Circle meeting: Namely, that climatic changes in the region will be felt elsewhere. At that point, short-term gains—often described as opportunities arising from an increasingly ice-free Arctic ocean—will be offset by higher costs—economic, social, cultural—at home.

6. Conclusion

Assigning or taking responsibility is a deeply political practice (Baron, 2022). The empowerment of some actors may come at the disempowerment or exclusion of others. Similarly, responsibility for a particular object will delineate appropriate practices and demarcate the contours of the object at the same time (Hansen-Magnusson & Vetterlein, 2022). Issues arise when the object of responsibility changes and assigned relations are no longer appropriate to ensure its sustainability.

Looking at the three cases discussed in this article, states have made considerable inroads over the last seven decades to assign responsibility for global public goods. Against the geopolitical background of the Cold War, states managed to share responsibility for specific spaces and create governance institutions that transform competitive relations into cooperative ones. Science is the common denominator in many of these relations, which is often praised as facilitating peaceful

coexistence (Berkman et al., 2017). The other factor is an elaborate managerial regime for supposedly equal access to resources, especially in and at the bottom of global oceans. Overall, the intention was to create a "global commons" that could be managed jointly or at least prevent a competitive scramble (Dodds & Nuttall, 2015; Soltau, 2016).

On the whole, these assignments of responsibility have worked fairly well in the context of world politics after 1945. But equal use of global commons is unlikely to lift the global institutions discussed in this article into the second part of the 21st century. The scientific networks that were established in the regimes have been quite vocal about the causes and impact of climate change. As a result of this research, the central role of oceans and polar regions in the planetary climate becomes increasingly clear. But given that contemporary maritime and polar institutional settings originate from Cold War politics, the assessment undertaken in this article suggests they are ill-equipped for the 21st century. What is now required is an awareness of the interconnectedness of oceans and the polar regions for living conditions elsewhere. However, especially concerning Antarctica and global oceans, the lack of local voices and potential for stewarding responsibilities is severely limited. To make current governance future-proof, this responsibility needs to be incorporated at remote localities and by non-regional actors, who will benefit from the conservation of these habitats themselves. It has been suggested that rather than referring to "global commons" the concept of "common concern" might provide a more forward-looking approach (Brunnée, 2008). Such a conceptual shift is to be complemented by a broadened subject of responsibility, one that includes but also exceeds narrowly defined localities. While it is unlikely that existing regimes can be transformed from within, alternative informal governance arrangements could provide the necessary impetus even in the absence of local voices.

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Article

Ocean Governance in the Coral Triangle: A Multi-Level Regulatory Governance Structure

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Abstract
The current mode of ocean governance in the biogeographically defined space of the Coral Triangle emerged due to the framing of marine degradation as a de-bounded risk with a transboundary nature. This framing justified the rescaling of the issue's governance from the national to the regional. This article will explore how ocean governance in the form of the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF) is an example of a regional multi-level regulatory governance arrangement based on disaggregated, regulatory forms of statehood. These new kinds of regional regulatory governance are defined by the dominance of policy and technical expertise. As such, non-state actors work closely with national and supranational actors in the development, implementation, and regulatory functions of the CTI-CFF. The organizational structure of the CTI-CFF's governance framework provides an example of how regional regulatory systems are networked into existing national government structures. The CTI-CFF's Regional Plan of Action and corresponding mechanisms serve as a model for each member country's National Plan of Action and domestic programs. These plans of action promote the transformation and rescaling of national governance to be consistent with regional standards of marine resource governance. To summarize, CTI-CFF is a multi-level governance structure constructed to strengthen regulatory regionalism.

Keywords
Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security; functional specialization; marine degradation; meta-governance; non-state actors; ocean governance; regulatory regionalism

Issue
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1. Introduction

Often referred to as the "Amazon of the Sea" (Poernomo & Kuswardani, 2019, pp. 102–103), the Coral Triangle is considered "the global center for marine biodiversity" (Thomas et al., 2017, p. 22). However, marine and coastal resources in the Coral Triangle are threatened by "rapidly expanding populations, economic growth, and international trade" (CTI-CFF Regional Secretariat, 2016, p. 2). Specifically, these threats include "over-fishing, destructive fishing practices, land-based sources of marine pollution, coastal habitat conversion" and the effects of climate change, all of which exacerbate each other (Fidelman et al., 2014, p. 117). Many of these drivers of marine degradation in the Coral Triangle are transboundary in nature, such as "overfishing of shared stocks, illegal cross-border fishing activity, trans-shipment of commercial-scale fishing operations" (Thomas et al., 2017, p. 35). The prevailing narrative surrounding marine degradation in the Coral Triangle is one of impending crisis, which is rooted in "empirical evidence of ecosystem degradation and species extinctions" (Berdej et al., 2015, p. 213). The two commonly used pieces of scientific evidence which support this crisis narrative are that the coral reefs in the Coral Triangle are reaching tipping points that will lead to their mass extinction (Burke et al., 2011) and that most of the fish stocks in Malaysia, the Philippines, and Indonesia are considered to be at a minimum fully exploited (Food and Agriculture Organization of the United Nations, 2011). This crisis narrative is used

to justify the creation of the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF), the need for political action, and the policy measures being implemented.

The policy responses which develop out of crisis narratives depicting the destabilization and degradation of ecosystems tend to promote conservation practices (Bischof, 2010). In the context of the CTI-CFF, conservation policy responses arising from the crisis narrative dominate due to the significant financial support and human resource capacity provided by international conservation organizations to create the CTI-CFF and support the implementation of its policies (Berdej et al., 2015). The dominance of conservation policy responses is also a consequence of the fact that the CTI-CFF was and is primarily framed as "the world's largest conservation initiative" (Mills et al., 2010, p. 292) even though the CTI-CFF's mandate covers food security, fisheries management, and measures to adapt to climate change (CTI-CFF Regional Secretariat, 2016). Because the conservation discourse is afforded priority, many policy solutions aim to restore, maintain, and protect ecosystems, often excluding or significantly limiting human activity in those areas (Berdej et al., 2015). This also prioritizes the involvement of "technical expertise and high-level, multilateral action" both in describing the problem and prescribing its solutions (Berdej et al., 2015, p. 215). Narratives, thus, privilege the specific theories, ideologies, scientific knowledge, and understandings of problems that underpin these narratives while marginalizing others.

Not only is the Coral Triangle a biodiversity hotspot, but its marine and coastal resources are also of significant economic importance. Reference is made in the CTI-CFF's Regional Plan of Action (RPoA) to the estimated 2.3 billion USD annual value of the mangroves, coral reefs, and related natural habitats in the Coral Triangle, the multi-billion USD tuna industry, the role of reef systems and mangrove belts in reducing the economic and human costs of storms and tsunamis, and the nature-based tourism industry which generates tens of millions of USD annually and thousands of jobs (CTI-CFF Regional Secretariat, 2016, pp. 1–2). In light of drastic marine degradation and the economic importance of preserving the existence of marine and coastal resources for the future, the countries in the biogeographically defined Coral Triangle region (Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands, and Timor-Leste), with the support of the international community, agreed in 2007 to launch the CTI-CFF and develop an RPoA to radically transform marine resource management in the region by 2020 (Fidelman et al., 2012).

This article will explore how ocean governance in the form of the CTI-CFF is an example of a regional multi-level regulatory governance arrangement based on disaggregated, regulatory forms of statehood. This form of regulatory regionalism manifests in the rescaling and transformation of domestic governance to conform to regional standards. The first section will describe the establishment of the CTI-CFF and how non-state actors worked with national and supranational state actors in the development, implementation, and regulatory functions of this new type of multi-level governance. The second section will explain how the CTI-CFF functions as a multi-level regulatory governance system by examining the networked governance structure of state and non-state actors from the regional to the national, using Indonesia as an example, highlighting the fact that technical experts are incorporated into every level of governance.

1.1. Regulatory Regionalism

Regulatory regionalism, a term coined by Jayasuriya (2003, 2008, 2009), is a contested process in which the state's internal spatial architecture is transformed, manifesting in the emergence of novel forms of multi-level governance. This occurs primarily through reorganization to meet international standards of states' regulatory and legal arrangements and the networking of responsible national institutions into regional and global monitoring systems (Hameiri & Jones, 2015). These new configurations of regional regulation depend more on the active cooperation of national agencies and actors and the harmonization of national policy than on their enforcement through international organizations or formal international treaties (Jayasuriya, 2009). The regulatory state takes on the new role of managing the system of regulatory networks that have developed (Jayasuriya, 2009). Domestic regulatory agencies build networks with their foreign counterparts and transnational regulatory units (Jayasuriya, 2009). These new kinds of regional regulatory governance are defined "by the dominance of technical and policy expertise" (Jayasuriya, 2009, p. 340). As Jayasuriya (2009) notes, non-state actors have increasingly been working with national and supranational state actors in the development, implementation, and regulatory functions of new types of multi-level governance. Importantly, regulatory regionalism embodies the rescaling of policymaking and governance to spaces within the state or parallel to existing state institutions but does not indicate the advent of supranational rule (Hameiri, 2009; Jayasuriya, 2008). Regulatory regionalism is, thus, characterized by its efforts to integrate benchmarks, criteria, and systems of policy coordination at all governance levels (Jayasuriya, 2009).

1.2. Meta-Governance, Functional Specialization, and De-Bounded Risk Management

There are three main mechanisms of regulatory regionalism: meta-governance, functional specialization, and de-bounded risk management (Hameiri & Jayasuriya, 2011). Meta-governance refers to the "governance of governance" occurring through the establishment of

processes that regulate governance systems that include non-state actors and the provision of guidelines for the establishment of intricate multi-level and networked governance systems (Jayasuriya, 2005, p. 22; see also Jayasuriya, 2004; Jessop, 1998). Jayasuriya (2005) elaborates that the functions of meta-governance are often situated in international organizations and the state's core executive, while the implementation of that governance is increasingly scattered amongst an assortment of state and non-state actors.

Functional specialization pertains to efforts to control boundaries by distinguishing between the technical and political, thereby creating "new scalar arrangements within task-specific jurisdictions" (Hameiri & Jayasuriya, 2011, p. 29). These task-specific jurisdictions tend to cut across firmly delineated political boundaries and necessitate the active involvement of national and subnational agencies in the governance process (Hameiri & Jayasuriya, 2011). In addition, functionally specific jurisdictions generally relocate decision-making from centers of political structures legitimized by notions of territorialized rule to actors who gain their authority from claims to expertise on a certain issue (Hameiri & Jayasuriya, 2011).

De-bounded risk management involves governing social issues through risk rather than the governing of risk (Aradau & van Munster, 2007; Dean, 1999; Ewald, 1993; Mythen & Walklate, 2008). De-bounded risks, such as ecosystem degradation and species extinction, denote risks that are not bound by political borders nor calculable timeframes (Arnoldi, 2009). Risks should not be viewed as objective because "the very framing of particular issues as 'risks' is linked to forms of governance in which experts operating outside the official national governing apparatus play a key role in defining, assessing and managing such phenomena" (Hameiri & Jayasuriya, 2011, pp. 31–32). These de-bounded risks are the regional governance project's ideological drivers (Hameiri & Jayasuriya, 2011).

The CTI-CFF as an institutionalized form of ocean governance emerged due to the framing of marine degradation as a de-bounded risk with a transboundary nature, which justified the rescaling of the issue's governance from the national to the regional. There are multiple examples of functional specialization and meta-governance in the governance processes and framework of the CTI-CFF, while the de-bounded risk associated with marine degradation served as the ideological driver for the establishment of the CTI-CFF.

2. Establishment of the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security

The socio-economic contexts of the six countries in the Coral Triangle vary drastically and cover the spectrum from small to large governments and economies. Between the six member countries, there are differences in language, development trajectories, economies, population size and density, governance frameworks, cultures, and traditions of marine resource management (Fidelman et al., 2012). To put the economic disparity in perspective, Indonesia is the world's 10th largest economy in terms of purchasing power parity (The World Bank Group, 2022), while the Solomon Islands and Timor-Leste are on the United Nation's Least Developed Countries list (United Nations Conference on Trade and Development, 2022). The main political and cultural divide is between the Southeast Asian countries and the Pacific Island nations (von Heland et al., 2014). In general, the Southeast Asian countries have more resources available and greater political power than the Pacific Island countries (Berdej et al., 2015; von Heland et al., 2014).

In March 2006, at the 8th Conference of the Parties to the Convention on Biological Diversity, former President of Indonesia Susilo Bambang Yudhoyono first raised the need for an initiative in the Coral Triangle to protect marine and coastal resources for future generations (Rosen & Olsson, 2013). By December 2007, in conjunction with the 13th Conference of the Parties under the United Nations Framework Convention on Climate Change hosted by Indonesia, the six countries in the Coral Triangle agreed to initiate the CTI-CFF and develop an RPoA (Fidelman et al., 2012). Immediately following this announcement, the World Wide Fund for Nature (WWF), The Nature Conservancy (TNC), and the Conservation International (CI) committed to providing funding for the consultative planning processes in each country (Fidelman et al., 2012). The support of international NGOs and donors, such as the Asian Development Bank and the US and Australian governments, helped bolster the buy-in of stakeholders inside and beyond the region (Fidelman et al., 2014).

Though the former President Yudhoyono proposed the establishment of the CTI-CFF to Indonesia's five neighboring countries, this regional regulatory governance framework could not have been created without international financial support in the form of over 500 million USD (Mills et al., 2010, p. 292). The CTI-CFF continues to rely on international donors because the contributions from the six member countries are not sufficient to fund the implementation of the activities under the RPoA's five goals. For example, the cost of funding the activities under only the marine protected area (MPA) goal of the RPoA over the first ten years was estimated at 400 million USD (Clifton, 2009, p. 93). This reliance on external funding has introduced the interests of actors outside the six member countries into policy decisions and the prioritization of activities under the CTI-CFF. Some donors provide funds targeted at specific technical support in line with their programs of work, while the NGO development partners use their own funds and project-related funds from CTI-CFF donor partners to deliver on their CTI-CFF-related activities (Thomas et al., 2017). This reliance on piecemeal external funding linked to different actors' interests has affected the pace at which the implementation of CTI-CFF goals progresses (Thomas et al., 2017). The lack of guaranteed long-term

funding also jeopardizes the sustainability of the CTI-CFF as well as the operationalization of the goals in the RPoA (Fidelman et al., 2014). To conclude, because the CTI-CFF relies on external funding, donor partners significantly influence the operationalization of activities and can dictate the focus and direction of programs.

2.1. NGO Development Partners in the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security

In addition to the six member countries, non-state actors were heavily involved in the establishment of the CTI-CFF. The NGO development partners of the CTI-CFF, who de facto orchestrated the CTI-CFF to a significant extent, were the WWF, TNC, and the CI (Rosen & Olsson, 2013). They exerted disproportionate influence over its development by leveraging technical, financial, and political resources (Fidelman, 2019). This entailed strategically using lobbying and informal networks to gain initial support from the Indonesian President for the idea of the CTI-CFF and identifying and mobilizing technical and political support and partners throughout the process of establishing the CTI-CFF (Rosen & Olsson, 2013).

These NGOs provided significant financial and technical capacity support to the creation of the CTI-CFF and the development of the RPoA. The development of the RPoA was integral to establishing the CTI-CFF as it serves as the CTI-CFF's roadmap and policy agenda for the 10 to 15 years following its establishment (Fidelman, 2019, p. 278). The task of developing the RPoA was assigned to a CTI Coordination Committee comprised of representatives from each of the six member countries and technical advisors, predominantly from the WWF, TNC, and the CI (Fidelman, 2019). The CTI-CFF development partners worked closely with the six Coral Triangle countries for over 17 months to develop the RPoA (Thomas et al., 2017, p. 27). The NGOs' technical experts drafted the RPoA to which the six Coral Triangle countries then agreed (Thomas et al., 2017). As a result, the goals and targets of the CTI-CFF's RPoA directly reflect the specific agendas of the NGO development partners working in the region and, to a lesser extent, donors' agendas (Fidelman, 2019). For example, Goal 1 is typically viewed as an objective of the CI, targets related to live-reef fish trade and tuna fisheries under Goal 2 were pursued by the WWF, and the TNC and WWF were interested in the establishment of networks of MPAs under Goal 3 (von Heland et al., 2014, p. 57). This explains the CTI-CFF's strong focus on marine biodiversity conservation (Foale et al., 2013). The NGO development partners' extensive involvement in the development of the RPoA can also explain the fact that the framing of problems and the proposed associated solutions in the RPoA predominantly employ Western intellectual frameworks instead of drawing on national and local contexts (Clifton & Foale, 2017). This meant that some of the goals, such as the Ecosystem Approach to Fisheries Management and MPAs, advocated for by NGO partners, were not well understood by governments and other non-state actors (Fidelman et al., 2014, p. 125). These misunderstandings have led to slow progress towards some RPoA goals due to disagreements over terminology, the appropriate way to proceed, and the activities that should be adopted (Thomas et al., 2017).

Not only did the NGO partners steer the development of the RPoA, but they and donor partners also provided financial and capacity resources to support the interim Regional Secretariat in its coordination duties. The establishment of the CTI-CFF's internal structure and collaborative working methods were largely supported by the 60 million USD grant from the US Coral Triangle Initiative Support Program (Thomas et al., 2017, p. 31). Of this program's total budget, 44 million USD (Thomas et al., 2017, p. 31) went to the Coral Triangle Support Partnership (CTSP), which was a consortium of international conservation NGOs composed of the WWF as the leading organization, and TNC and the CI (Fidelman, 2019, p. 280). The CTSP established the framework of the technical working groups (TWGs), Senior Officials Meetings, National Coordinating Committees (NCCs), Regional Exchanges, and the interim Regional Secretariat (Thomas et al., 2017, p. 31). The NGO development partners continue to influence the CTI-CFF through their involvement in the TWGs and Governance Working Groups (GWGs), where NGO personnel supply expert technical advice and leadership in driving the process of implementing the CTI-CFF's goals forward, and their membership in each country's NCC (Thomas et al., 2017; von Heland et al., 2014). Due to their extensive programs running on the ground in the region, the NGO development partners also implement a substantial proportion of the activities involved in meeting the goals of the RPoA (Thomas et al., 2017). By providing key technical and financial capacities to the CTI-CFF during its establishment and afterward, the NGO development partners have ensured and continue to ensure that their interests are reflected in the CTI-CFF's structure and processes.

During the establishment of the CTI-CFF, two mechanisms of regulatory regionalism were present. One mechanism was functional specialization, which refers to efforts to control boundaries by distinguishing between the "technical" and "political." An illustration of this is the composition of the CTI Coordination Committee tasked with developing the RPoA, which included both "political" representatives from the member countries' governments and "technical" advisors who were predominantly NGO partners. These functionally specific jurisdictions relocated decision-making regarding the development of the RPoA away from centers of political structures legitimized by notions of territorialized rule to actors who gain their authority from claims to expertise on a certain issue. As the RPoA is the CTI-CFF's roadmap and policy agenda for the 10 to 15 years following the CTI-CFF's establishment, this rescaling and boundary control has clear implications for the governance outcome.

A second mechanism was meta-governance. The CTI-CFF is an example of meta-governance, or the "governance of governance," occurring through the establishment of processes that regulate governance systems that include non-state actors and the provision of guidelines for putting in place intricate multi-level and networked governance systems. The following section will present the CTI-CFF as a multi-level and networked governance system.

3. Governance Framework of the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security

The CTI-CFF governance framework has been welded onto existing governance frameworks at the global, regional, and national levels. These agreements cover conservation, climate change, marine sovereignty, development, and trade (Fidelman & Ekstrom, 2012). The agreements at the regional level tend to exist respectively among Southeast Asian countries and between the Pacific Island countries (Fidelman et al., 2012). In addition to the bilateral and multilateral regional agreements, there are other regional institutions that govern marine resources across the Coral Triangle (Fidelman & Ekstrom, 2012). Some of these regional institutions, which overlap with the CTI-CFF in geographical implement area as well as subject matter, are the Secretariat of the Pacific Regional Environmental Programme, the Coordinating Body on the Seas of East Asia, and the Partnerships in Environmental Management for the Seas of East Asia (Thomas et al., 2017, p. 59). There are also regional and sub-regional instruments that were adopted outside of the CTI-CFF framework, but the CTI-CFF nevertheless considers them to be implementing measures under its framework (Thomas et al., 2017). An example is the Sulu Sulawesi Marine Ecoregion's Action Plans which the Tri-National Committee adopted in July 2009 (Thomas et al., 2017, p. 57). This committee, a precursor of the CTI-CFF, was set up as a result of a memorandum of understanding between Indonesia, Malaysia, and the Philippines on February 13, 2004 (Thomas et al., 2017, p. 57). These different governance processes have evolved in a gradually binding manner (Thomas et al., 2017). To summarize, the CTI-CFF developed upon existing processes but also created new ones at the regional, cross-regional, and sub-regional levels.

3.1. Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security: Governance Structure

The formal source of authority for the CTI-CFF comes from the Coral Triangle Initiative Leaders' Declaration signed by the six member countries' heads of state in May 2009 (CTI-CFF, 2022a). This declaration marked the official establishment of the CTI-CFF as a regional institution and the adoption of the RPoA at the highest political levels (Fidelman, 2019). Though the CTI-CFF is not legally binding, it holds significant authority in the sense that prominent stakeholders support it and it aligns with existing international institutions (Fidelman, 2019).

The CTI-CFF has a functionally specific jurisdiction that networks together state and non-state actors across regional, national, and local levels. The state actors include the six Coral Triangle countries, the US, Australia, and Germany (CTI-CFF, 2022b). The non-state actors are composed of international NGOs and the academic community (von Heland et al., 2014). The CTI-CFF governance framework includes a Council of Ministers composed of the heads of each of the six countries' primary national implementing ministries, a Committee of Senior Officials formed from designated senior government officials from the six member countries, a CTI-CFF Regional Secretariat to manage the CTI-CFFs internal and external relations, and a parallel system of the NCCs that serve as a channel between transboundary marine management and national management structures (CTI-CFF, 2022c).

Figure 1 illustrates the governing bodies at the regional and national levels and their interlinkage with the CTI-CFF's development partners composed of other governments, international NGOs, and multilateral organizations. As indicated in Figure 1, at the same level of reporting as the Regional Secretariat are the GWGs, the TWGs, and the Cross-Cutting Initiatives. The five TWGs, which correspond to each of the RPoA goals (CTI-CFF, 2022a), are comprised of representatives nominated by each of the NCCs and technical experts endorsed by the CTI-CFF development partners and donor organizations (CTI-CFF, 2022c). Chaired by two countries each, the TWGs supply technical inputs and recommendations to Senior Officials Meetings, the NCCs, and the Regional Secretariat, and advance implementation of activities that contribute to the RPoA goals (CTI-CFF, 2022c). At the national level, each member country of the CTI-CFF has an NCC and national TWGs.

Though the CTI-CFF is not legally binding, the agreement establishing the Regional Secretariat is (Thomas et al., 2017). This agreement formalized the Regional Secretariat's coordination procedures and the financial contributions of all six countries to the Regional Secretariat (Thomas et al., 2017). The Regional Secretariat supports the three other decision-making and implementing bodies: the Council of Ministers, the Committee of Senior Officials, and the working groups. The Regional Secretariat is crucial to the effective functioning of the CTI-CFF and successful operationalization of the RPoA because it ensures that each country's National Plan of Action (NPoA) aligns with the RPoA and provides technical and coordination support to the NCCs (Pratikto, 2016).

The goals of the RPoA are implemented through each country's NPoA, which were developed by representatives from each country's national government with support from NGOs and other stakeholders (Fidelman et al., 2014). Each of the six countries designated a national ministry to be the lead agency charged with coordinating the implementation of the respective country's

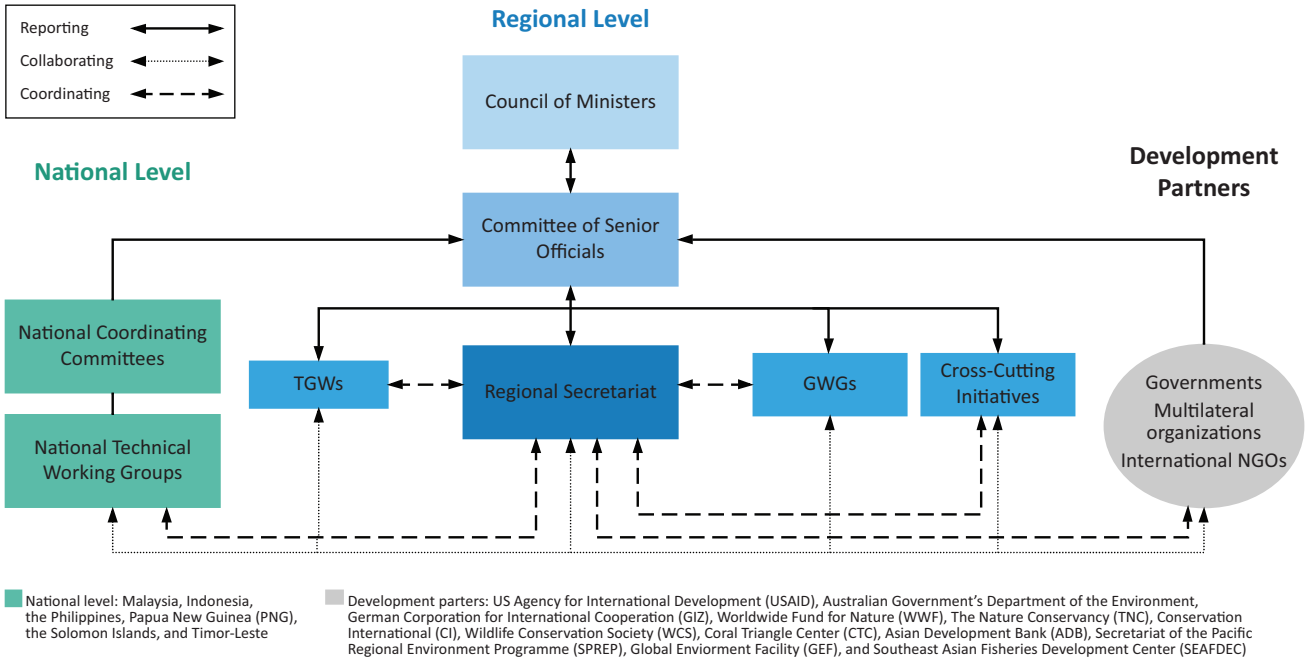

Figure 1. The CTI-CFF's governance structure at the regional and national levels.

NPoA. These ministries were selected based on their existing relationship with the NGO development partners rather than on a strategic assessment of each country's socio-political and economic context (Thomas et al., 2017). The lead agencies of each country then established NCCs comprised of representatives from the designated lead agency, a range of national ministries, technical experts, academic institutions, national and international NGOs, and the private sector (Fidelman et al., 2014). A CTI-CFF coordinator, typically based in the lead government ministry, organizes each NCC (CTI-CFF Regional Secretariat, 2016). The functions of the NCCs are broadly to facilitate the national operationalization of the RPoA and their respective NPoAs (CTI-CFF Regional Secretariat, 2016). Members of the NCCs also represent their countries at regional CTI-CFF meetings and in the CTI-CFF TWGs (CTI-CFF, 2022c). The NCCs cooperate with the CTI-CFF development partners who implement activities at the national and local levels and also undertake communication and outreach activities (CTI-CFF, 2022c). Depending on country-specific conditions, the NCCs will take different forms, but all NCCs are tasked with ensuring the implementation of the RPoA and leading multi-stakeholder processes to achieve this.

The CTI-CFF multi-level governance structure illustrates regulatory regionalism through the networking of domestic institutions into a regional regulatory system and by transforming countries' domestic regulatory systems to meet regional goals, policies, and standards. These new transnational regulatory regimes, such as the CTI-CFF, are not designed nor empowered to intervene but instead operate through regulatory regionalism. As such, there is a dearth of binding law present in the CTI-CFF regime and a lot of "goodwill commitments" (Thomas et al., 2017, p. 56). The NPoAs, like the RPoA, tend to be policy instruments and are not legally binding for the countries that adopt them (Thomas et al., 2017). By leaving the development of the NPoA up to each member country, the intention was to respect each country's national jurisdiction and encourage the incorporation of their varying laws, national institutions, and local contexts on marine resource protection (Berdej et al., 2015). The CTI-CFF does not impose strict standardization; instead, it provides the coordinating space for the six member countries and all development partners to agree to "priorities, minimum standards, methodologies and progress metrics" (Thomas et al., 2017, p. 42). For example, each member country manages the portion of the transboundary MPAs and seascapes (e.g., Sulu-Sulawesi Marine Ecoregion) in the CTI-CFF implementation area that falls under their national jurisdictions. Meanwhile, the CTI-CFF supplies the overarching mechanism that ensures these different approaches produce a coordinated transboundary outcome (Thomas et al., 2017). The CTI-CFF has, for the most part, successfully standardized the approach to the management of transboundary MPAs (Thomas et al., 2017). Since the CTI-CFF does not have compliance assessment or dispute settlement mechanisms, the national implementation measures contain enforcement mechanisms following national laws (Thomas et al., 2017).

3.2. Networking Indonesia Into the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security

In the case of Indonesia, the Ministry of Marine Affairs and Fisheries (MMAF) was selected as the thematic home for the CTI-CFF. This undertaking empowers

Indonesia's designated lead government agency, the MMAF, through its access to financial and technical resources. The major challenge regarding the selection of the MMAF is that it is not the sole managing authority of coastal and marine resources. Established in 1999, the MMAF is relatively new compared to other Indonesian ministries (Susanto et al., 2015). To create it, the Ministry of Agriculture transferred its fisheries and aquaculture sectors to the MMAF, while the Ministry of Forestry handed over the authority to manage some national MPAs (Poernomo & Kuswardani, 2019; Susanto et al., 2015). Though the MMAF is mandated with the integration of marine and coastal zone management, this management is at best arbitrarily formulated and lacks coordination with the various implementing institutions (Poernomo & Kuswardani, 2019). Thus, the creation of the MMAF caused significant changes in the Indonesian government's administrative system.

The reality of implementing and enforcing the MMAF's mandate, including the conservation aspects, is very complicated. In Indonesia, coastal and marine resources are primarily governed by the state through two ministries at the national level: the MMAF and the Ministry of the Environment and Forestry (MEF; see Susanto et al., 2015). In practice, there are a minimum of "nine line departments, three state ministries, one coordinating ministry, four non-departmental government agencies, and one interministerial council" participating at the national level in marine and coastal management (Asian Development Bank, 2014, p. ix). At least eleven national government institutions jointly enforce the management of Indonesia's marine and coastal resources (Asian Development Bank, 2014, p. 19). Currently, Indonesia has 197 MPAs in coastal and marine areas covering approximately 235,622 km^2 (White et al., 2021, p. 578). Article 78A of Law No. 1/2014 mandates that all MPAs be under MMAF management (Susanto et al., 2015, p. 33). However, of these 197 MPAs, 30 are managed by the MEF, 157 are managed by the sub-national government—while the MMAF manages only 10 (White et al., 2021, p. 578). Thus, alone the management of MPAs is challenging and requires extensive coordination between the MMAF and MEF as well as between national and sub-national governments. These intricacies surrounding coastal and marine resource management illustrate the challenge of networking national government agencies into regional governance systems.

As the selected national implementing agency, Indonesia's MMAF is networked into the CTI-CFF's multi-level governance system. Three statutes integrate the MMAF and other Indonesian ministries into the CTI-CFF governance framework and outline the membership and tasks of the committees and working groups established under these statutes. These regulations are the Presidential Regulation of the Republic of Indonesia No. 85/2015 enacted on July 23, 2015, the Decree of the Coordinating Minister for Maritime Affairs No. SKEP/9/Menko/Maritim/III/2016 of March 31, 2016, and the Decree of the Director-General of Marine Space Management No. 27/KEP-DJPRL/2016 gazetted on August 2, 2016. These decrees established the membership composition and working procedures of Indonesia's NCC, the Secretariat of the Indonesian NCC, and Indonesia's working and expert groups. Reporting directly to the President of Indonesia and housed in the MMAF, the Indonesian NCC is tasked with operationalizing the RPoA and formulating the country's NPoA (President of Indonesia, 2015, sec. 3).

The Presidential Regulation outlines eight national working groups (NWGs) with members coming from ministries, academic institutions, or NGOs (Coordinating Minister for Maritime Affairs and Resources, 2016; MMAF, 2016). The eight NWGs cover the following: seascapes, ecosystem-based fisheries management, MPAs, climate change adaptation, management of endangered species, capacity building, food security, and CTI-CFF data and information (President of Indonesia, 2015, sec. 7). The first five NWGs correspond to the RPoA's five goals and the CTI-CFF's five TWGs. Thus, the governance structure at the national level corresponds to the model provided by the CTI-CFF itself.

The NWGs are similar to the TWGs at the regional level, both in member composition and technical focus. For example, Indonesian NWG no. 3 (*Kelompok Kerja Kawasan Konservasi Perairan* in Indonesian) is tasked with spearheading the implementation of the goals and objectives of the RPoA and the NPoA as they relate to MPAs in Indonesia. This NWG corresponds to the MPA working group at the regional level tasked with supporting the implementation of Goal 3 of the CTI-CFF's RPoA. NWG no. 3 is led by the Director-General of Marine Space Management from the MMAF (Coordinating Minister for Maritime Affairs and Resources, 2016). With 13 members, NWG no. 3 is split almost evenly between state and non-state actors. There is a representative from the Ministry of Tourism and the MEF, respectively, with four spots filled by MMAF members (MMAF, 2016). Representatives from NGOs, including all three of the CTI-CFF's founding international NGO development partners, occupy six of the seats in NWG no. 3 (MMAF, 2016). NWG no. 3 is supported by an expert working group almost exclusively composed of scientists affiliated with either research institutions or NGOs (Coordinating Minister for Maritime Affairs and Resources, 2016). Thus, the composition of members of NWGs is similar to the composition of the TWGs at the regional level.

The description of the CTI-CFF governance structure and the way in which Indonesia's government agency is networked into the CTI-CFF governance system demonstrate that the CTI-CFF is a form of meta-governance. The organizational structure of the CTI-CFF's governance framework provides an example of how a regional regulatory system is networked into existing national government structures. Non-state actors are included in the processes that regulate the CTI-CFF's governance system.

The functions of the CTI-CFF are situated in its regional governance bodies and each member country's NCC, while the implementation of its RPoA is reliant on each member country's national implementing ministry and the non-state actors who assist in the operationalization of the RPoA's activities. The creation of the RPoA and the corresponding NPoAs, which promote the transformation and rescaling of national governance to be consistent with regional standards on marine resource governance, are mechanisms of regulatory regionalism.

Furthermore, the CTI-CFF has functionally specific jurisdictions involving state and non-state actors who cooperate to further conservation and ocean and environmental management following international rules and principles. Inherent to this regional regulatory governance arrangement are complex boundary conflicts over what should be governed, by whom, and at what level. Due to the number of interests involved and the intricacy of the governance structure, the governance system's effectiveness can be questioned.

4. Conclusion

This article has demonstrated that regional regulatory governance occurs in the Coral Triangle. The current mode of governance in the Coral Triangle emerged due to the framing of marine degradation as a de-bounded risk with a transboundary nature, which justified the rescaling of the issue's governance from the national to the regional. The efforts to manage the transboundary marine degradation in the Coral Triangle do not, however, indicate the advent of the rule of the CTI-CFF as a supranational organization. Instead, the governance of marine degradation occurs primarily through the reorganization of countries' domestic regulatory arrangements using regional standards and the integration of responsible national institutions into a regional multi-level regulatory governance arrangement, the CTI-CFF. As a regional multi-level regulatory governance structure composed of state and non-state actors in which policy and technical experts participate at every level of governance, the CTI-CFF demonstrates the rescaling and multiplicity of scales of governance that distinguish regulatory regionalism.

Functional specialization and meta-governance as mechanisms of regulatory regionalism are present in the ocean governance of the Coral Triangle. In particular, the NGO development partners have used their specialization in technical aspects of topics covered in the CTI-CFF to ensure that they have seats in decision-making bodies such as working groups at the national level and in the CTI-CFF. Meta-governance, which occurs through the establishment of processes that regulate governance systems that include non-state actors, has also been demonstrated. This article has shown that the functions of this meta-governance of the Coral Triangle are situated in the CTI-CFF and national ministries, while the implementation of that governance is scattered amongst national and sub-national state actors as well as international and local non-state actors.

As a multi-level regulatory governance system, the CTI-CFF is based on disaggregated, regulatory forms of statehood. The organizational structure of the CTI-CFF's governance framework provides an example of how a regional regulatory system is networked into existing national government structures. Indonesian state apparatuses have also been rescaled. They are no longer only confined to the national level as they apply regional standards and are networked across national borders with their international counterparts through the CTI-CFF. The CTI-CFF's RPoA and corresponding mechanisms also serve as a model for each member country's NPoA and domestic programs. These plans of action promote the transformation and rescaling of national governance to be consistent with regional standards on marine resource governance. To summarize, the hallmarks of regulatory regionalism (integration of benchmarks, criteria, and systems of policy coordination at all governance levels) exist in the ocean governance structure of the CTI-CFF. Thus, the CTI-CFF is a multi-level governance structure constructed to strengthen regulatory regionalism.

Conflict of Interests

The author declares no conflict of interest.

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Article

Fragmentation or Effective Governance? The Regime Complex of Counter-Piracy in Asia

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Abstract
Asian waters have been particularly affected by a high number of piracy incidents during the last three decades. Against the backdrop of established international legal frameworks to combat piracy, states have created additional regional fora of cooperation. Existing theoretical contributions on the regime complex of counter-piracy consider this institutional framework to be highly fragmented and regard it as an impediment to effective cooperation, but empirical evidence is yet lacking. To systematically analyze the development of piracy incidents in Asia, I draw on incident data from 2001 to 2021. Results show that the effect of counter-piracy cooperation is indeed not as negative as hypothesized by the regime complex literature. However, a positive effect cannot easily be quantified either. Discussing possible explanations for this finding, I suggest that instead of unorganized fragmentation, counter-piracy governance in Asia may rather be characterized by a functional differentiation between regional cooperation mechanisms, which can be expected to be more conducive to effective cooperation.

Keywords
Asia; institutional effectiveness; maritime crime governance; piracy; regime complexes

Issue
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1. Introduction

Maritime crimes—such as piracy and armed robbery—endanger the marine environment, the security of people, and ships at sea as well as international trade (Bueger, 2015). Since maritime crimes often involve the crossing of borders or take place on the high seas, international cooperation is vital for effective containment, but also a challenge to states seeking to maintain territorial sovereignty. Indeed, the combat of maritime crimes, and particularly piracy, is a complex process that is governed by a variety of international treaties, institutions, states, and non-state actors (Bueger, 2013a).

To analytically grasp the structures and dynamics of counter-piracy governance, scholars increasingly use the concept of a regime complex, which is defined as "an array of partially overlapping and nonhierarchical institutions governing a particular issue-area" (Raustiala & Victor, 2004, p. 279). To combat piracy, states participate in a large number of international institutions which touch upon piracy, yet there is no single overarching international institution which specifically deals with maritime piracy (Nance & Struett, 2013, pp. 125–126). Overall, these governance structures "have a significant degree of complexity, form anything but a well-ordered coherent whole, and are characterized by…multiplicity, overlap, contradictions, and incoherencies" (Bueger, 2013b, p. 299).

Despite a general consensus in the literature that regime complexity has consequences, there is discord on the actual implications of institutional complexity for the effectiveness of cooperation (Alter & Meunier, 2009; Orsini et al., 2013). In fact, although the institutional density of the regime complex of counter-piracy is increasing, as new regional mechanisms to combat piracy have been established in recent years to supplement international

legal frameworks (Bueger, 2013a), systematic analyses of the impact of institutional complexity on counter-piracy cooperation between states are yet scarce. Thus, the question arises: How does institutional complexity influence the effectiveness of state cooperation in the combat of piracy?

Understanding effectiveness as the extent to which state cooperation contributes to solving the cooperation problem at hand, I take counter-piracy governance in Asia as a case in point. As a region with a longstanding history of piracy activities, Asia was faced with a particular increase in piracy attacks at the end of the 1990s. Following international pressure to control the rampant incident numbers, several regional cooperation mechanisms between littoral states have been established in 2004, adding complexity to already existing legal frameworks for counter-piracy. Following the Asian example, similar cooperation mechanisms have since been set up in other world regions (Menzel, 2018).

Several scholars have discussed questions of counter-piracy governance and state cooperation (e.g., Bueger, 2013a; Kraska, 2011; Liss & Biggs, 2016). However, there is discord on the consequences of institutional complexity for the effectiveness of counter-piracy governance. While some argue that the institutional landscape of counter-piracy is highly fragmented and thus ineffective (Struett et al., 2013), regional cooperation mechanisms are nevertheless often considered a success story in the fight against piracy (Hribernik, 2013; Parameswaran, 2016). Yet, there is a lack of research that systematically scrutinizes the effect of cooperation on the actual numbers of piracy attacks in Asia.

This article proceeds as follows: I introduce the literature on regime complex effectiveness as the theoretical framework of analysis, lay out the methodology, and introduce the international legal frameworks and regional cooperation mechanisms constituting the regime complex of counter-piracy in Asia. Following, I evaluate the effect of state cooperation on the development of piracy incident numbers in Asia. Results suggest that the theorized negative impact of institutional complexity on the effectiveness of counter-piracy cooperation cannot be confirmed, but that a positive impact of regional cooperation mechanisms cannot be easily quantified either. I discuss possible explanations for this finding before closing with an outlook on further research possibilities.

2. The Effectiveness of Regime Complexes

A vast strand of scholarly research covers the effects of causal relationships between institutions and issue areas, also termed "effectiveness" of international institutions (Mitchell, 2009; Underdal & Young, 2004; Young, 2011). Effectiveness generally describes the extent to which an institution contributes to solving the problems which motivated states to create it. Institutions can contribute to solving cooperation problems by prescribing norms that lead to observable, desired changes in the behavior of states and other actors relevant to the problem at hand (Raustiala, 2000, p. 394). However, as states may create various institutions that overlap in their scope and subject instead of constructing a single institution governing one issue area, studying the effects of a cluster of institutions differs from studying the effects of individual institutions.

Regime complexes can generate both opportunities and obstacles for cooperation. A substantial part of the literature focuses on fragmentation and its negative implications for the effectiveness of regime complexes. Here, norm divergence is central and can be observed when norms prescribed by one institution diverge from or contradict norms prescribed by other institutions. Norm divergence is presumed to reduce the clarity of legal obligation by introducing overlapping sets of legal rules and jurisdictions governing an issue. As a consequence, regime complexity provides actors with the opportunity to select the fora which prescribe norms that suit their interests best. It is argued that strategies such as regime shifting (Helfer, 2004) and forum shopping between institutional alternatives (Jupille et al., 2013) result in competition over resources or governance functions and undermine accountability as well as effective governance outcomes (Alter & Meunier, 2009, pp. 19–20). Actors may also strategically add to fragmentation by creating strategic inconsistencies or by establishing new cooperation fora which they can use in their best interest (Raustiala & Victor, 2004, p. 301). This can lead to fragmented actor constellations in which relevant actors remain outside of key institutions or even support different institutions (Biermann et al., 2009, pp. 19–20). Overall, it is assumed that the more fragmented a regime complex, the more dysfunctional its policy outcomes (Keohane & Victor, 2011, p. 19).

Another strand of literature focuses on the potential positive impacts of regime complexity on governance outcomes. Instead of understanding fragmentation as generally impeding effective cooperation, it is argued that institutional overlap and norm divergence are not per se negative, but that management of this interface is crucial for policy outcomes (Kreuder-Sonnen & Zürn, 2020, pp. 250–251; Oberthür & Stokke, 2011, p. 6). From this perspective, specialization within a regime complex can be conducive to its problem-solving capacity. Specialized institutions may be more promising to address an issue effectively than institutions with large scope and membership which are likely to be unwieldy as a result of political compromise (Keohane & Victor, 2011, p. 16). Moreover, fragmentation facilitates flexibility over issues, because it allows states to adapt the norms to distinctively different conditions, or with different coalitions of states in a different forum, which may be especially important if an existing problem has been blocked in one or more institutional settings within the regime complex before, or if new cooperation problems emerge (Keohane & Victor, 2011, p. 14). As a result,

fragmentation may result in a division of labor (Gehring & Faude, 2014) or functional differentiation (Henning & Pratt, 2020) between institutions, and permanent patterns of institutional co-governance may emerge. Even more so, institutional complexity may facilitate inter-institutional collaboration, in which information or expertise can be shared between institutions within a regime complex (Eilstrup-Sangiovanni & Westerwinter, 2022, p. 250).

Questions of fragmentation are particularly important for the institutional complexity that characterizes counter-piracy governance. International legal frameworks to counter-piracy have existed for decades, while several regional institutional answers have been set up more recently. The institutions of the regime complex prescribe distinct definitions of piracy, different degrees of legal obligation and diverging rules on how to combat piracy (Nance & Struett, 2013). The institutions are also characterized by a considerable variation in membership. Following the argument put forward by the existing literature on institutional complexity and piracy governance (Struett et al., 2013), this high degree of fragmentation would lead to the overall low effectiveness of the regime complex.

3. Methodology

To test the hypothesized causal mechanism, I focus on state cooperation in counter-piracy in Asia, which is the region currently most affected by piracy. In 2021, almost 45% of all globally reported incidents took place in Asian waters (International Chamber of Commerce's International Maritime Bureau [ICC IMB], 2001–2021). Asia is also the region where regional cooperation mechanisms to combat piracy were first established (Menzel, 2018). Operating for over 15 years, I expect the effects of these regional cooperation mechanisms to be more observable than comparable mechanisms set up more recently in East and West Africa. Finally, as the Asian cooperation arrangements are often considered to be largely successful by the public (Ho, 2009; Parameswaran, 2016), my research aims at scrutinizing this widely made assumption.

The main body of information drawn on for analyzing the effectiveness of counter-piracy governance is incident data on piracy and armed robbery put together by the ICC IMB's Piracy Reporting Centre (ICC IMB, 2001–2021). To obtain incident data for Asia, I utilize incidents recorded in the categories "Southeast Asia," "East Asia," and "Indian Subcontinent" in the ICC IMB reports. Although comparable data is also provided by other bodies, most notably the Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia (ReCAAP) Information Sharing Center, the overall numbers largely conform with the ICC IMB data, which also covers the longest time frame and is therefore selected. My analysis focuses on the period from 2001 to 2021, allowing for a comparison of incident numbers before and after regional cooperation mechanisms have been established. While the data provides extensive information, concerns about underreporting have to be considered (Coggins, 2012). In addition to incident data, I draw on several semi-structured, anonymized expert interviews. The interviews concerning the effectiveness of regional mechanisms governing piracy as well as their potential shortcomings were conducted with decision-makers of regional counter-piracy institutions in 2016 and 2017.

4. The Regime Complex of Counter-Piracy in Asia

I scrutinize the degree of fragmentation of the counter-piracy regime complex in Asia by introducing the scope and membership of key institutions as well as the norms they prescribe for the combat of piracy for their member states. In Asia, these key institutions include the United Nations Convention on the Law of the Sea (UNCLOS), the Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation (SUA), the ReCAAP, and the Malacca Straits Patrols (MSP). While it could be argued that other cooperative mechanisms such as the Information Fusion Centre based in Singapore or the Contact Group on Maritime Crime in the Sulu and Celebes Sea are also part of the regime complex of counter-piracy, I am specifically interested in the effects of norm divergence and thus focus only on the institutions that prescribe specific norms on the combat of piracy for their member states.

4.1. Key Institutions

UNCLOS is the most important comprehensive multilateral treaty regulating the international use of the ocean. Concluded in 1982, its membership is almost comprehensive: 167 states are parties to the convention. Several additional states have signed the agreement but have not ratified it. Altogether, there are only 15 UN member or observer states that are not in some way connected to UNCLOS, and none of these states is directly affected by piracy in Asia (United Nations, 2022). As a focal point for counter-piracy governance, the legally binding UNCLOS defines maritime piracy as a criminal act only taking place on the high seas, between two ships and for private gains (UNCLOS, 1982, Article 101). If such an incident takes place, any state can exercise jurisdiction by referring to the doctrine of universal jurisdiction. UNCLOS lays down a duty to cooperate in the repression of piracy. When witnessing a piracy incident, every state may thus seize a pirate ship or a ship under the control of pirates and arrest the persons on board (UNCLOS, 1982, Article 105). It is however important to note that these provisions do not apply to states' territorial waters (Beckman & Page, 2014, p. 235).

The legally binding SUA convention was adopted in 1988. 166 states are parties to the convention. 29 UN member states have not yet signed the agreement. Citing

concerns over their territorial sovereignty, Indonesia and Malaysia are the most notable non-member states. As they constitute two of the most piracy-prone states, they are key actors in regard to the governance of piracy in Asia (Nance & Struett, 2013, p. 138). SUA criminalizes behavior which endangers the safety of maritime navigation. Although SUA does not explicitly mention maritime piracy, most of the acts it criminalizes correspond in whole or in part to actions committed by pirates or armed robbers (Treves, 2013, p. 147). The convention generally applies to international waters (SUA, 1988, Article 4.1). However, it de facto extends its application to the territorial waters of all member states (SUA, 1988, Article 4.2; Nance & Struett, 2013, pp. 134–135). SUA also does not contain the UNCLOS requirements of piracy having to be motivated by private ends, or two ships having to be necessarily involved (Sittnick, 2005, p. 760). Furthermore, SUA endorses the so-called "hot pursuit," meaning that suspicious vessels can be prosecuted across maritime boundaries into foreign member state territories (Beckman, 2002, p. 330). In contrast to UNCLOS, which is considered customary law, SUA only applies to its signatories (SUA, 1988, Article 5). Member states are also required to establish jurisdiction over such crimes when committed by or against one of their nationals or against a ship registered under their flag (SUA, 1988, Article 6).

ReCAAP is a legally binding regional agreement established in 2004 to foster data collection on piracy and facilitate capacity-building efforts in Asia. ReCAAP's membership is open to all interested state parties. Thus far, 21 states are contracting parties to the legally binding agreement, including 14 Asian littorals, the United States, Australia, and several European states. Due to concerns over extra-regional involvement, Indonesia and Malaysia are the only littoral states affected by piracy that chose not to ratify ReCAAP in 2006, although they were involved in the drafting process (Hribernik, 2013, p. 4). ReCAAP adopts the definition of piracy taking place on the high seas from UNCLOS but adds the description of armed robbery against ships (ReCAAP, 2004, Article 1.2a). Thus, it extends the definition of criminal acts to member states' territorial waters, but nevertheless adopts the two-ships requirement of UNCLOS (Win et al., 2016, p. 174). Hence, ReCAAP defines piracy and armed robbery as offenses on both the high seas and territorial waters and obliges member states to legally prosecute offenders (ReCAAP, 2004, Article 3.1) but only in their own territory (ReCAAP, 2004, Article 2.5).

The MSP is a cooperative mechanism specifically for the Strait of Malacca, comprising naval patrols, air patrols, and information sharing structures to combat piracy. It was established in 2004 by the littoral states Indonesia, Malaysia, and Singapore. Thailand joined in 2008. The state parties regularly conduct joint exercises to enhance security in the Strait. Due to sensitivities over sovereignty issues, the patrols are not joint, and each state patrols its own waters and air space, however in a coordinated manner institutionalized in Standard Operating Procedures, which are not legally binding (Storey, 2009, p. 41). Since the patrols only aim at securing the waters of the Strait of Malacca, the criminal activity they are concerned with is armed robbery in the territorial waters of littoral states. The MSP's Standard Operating Procedures allow for cross-boundary hot pursuit up to five nautical miles into a neighboring state's territorial waters (Raymond, 2007, p. 74) and three nautical miles into its air space (Osman, 2005). Nevertheless, the MSP also provides for a "hands-off mechanism" regarding cross-boundary enforcement (Beckman, 2013, p. 20),

Table 1. Membership and norms of key counter-piracy institutions.

	UNCLOS	SUA	ReCAAP	MSP
Membership	Open 167 members	Open 166 members	Open 21 members	Restricted 4 members
Scope	International law of the sea	Unlawful acts against the safety of maritime navigation	Piracy and armed robbery in Asia of Malacca	Criminal maritime activities in the Strait
Criminalizes unlawful acts in…	International waters	International and territorial waters of member states	International and territorial waters of member states	Territorial waters of member states
Obligations	Legally binding Duty to cooperate	Legally binding Duty to prosecute, also in other member states' territorial waters ("hot pursuit")	Legally binding Duty to prosecute in international and own territorial waters	Legally non-binding Commitment to prosecute in own territorial waters, and conditionally in other parties' territorial waters

meaning that hot pursuit cannot be carried out without a prior arrangement between the littorals. Although such agreements on hot pursuit exist, states are reluctant to prosecute pirates over borders due to sovereignty concerns (Song, 2009, p. 135).

4.2. Diverging Norms and Memberships

The review of key counter-piracy institutions shows that the regime complex of counter-piracy consists of various international treaties and regional initiatives governing the combat of piracy, some of which are rejected by key actors Indonesia and Malaysia. The specificity of the counter-piracy provisions prescribed by these institutions as well as their degree of legal obligation differ substantially (Table 1). As a result, fragmentation of the regime complex is high.

The existing literature linking regime complexity to piracy governance would expect this fragmentation to hinder the effectiveness of counter-piracy cooperation, as conflicting definitions of piracy and the non-membership of key states are seen as detrimental to effective governance in Asia. This particularly applies to a crucial chokepoint—the Strait of Malacca—where passing vessels are never outside any state's territorial waters, meaning that the UNCLOS provisions for combating piracy do not apply (Nance & Struett, 2013, p. 138). Since Malaysia and Indonesia are not parties to SUA nor ReCAAP, their obligations do not apply either, which is expected to further reduce effectiveness. In the following section, I put this argumentation to the empirical test.

5. Piracy in Asia From 2001 to 2021

To assess the effectiveness of the regime complex of counter-piracy, I evaluate the number of piracy incidents in Asia before and after the establishment of regional institutions. Due to data limitations, I cannot compare the period before and after UNCLOS and SUA were established. Consequently, I focus on the impact of ReCAAP and the MSP. As important components of institutional complexity of counter-piracy governance, the role of UNCLOS and SUA is nevertheless considered throughout. Following the definition of institutional effectiveness as the extent to which an institution or a system of institutions contribute to solving the underlying cooperation problem (Underdal, 2008, p. 54), I consider the regime complex to be effective if the total number of incidents in Asia declined after regional cooperation mechanisms to govern piracy were established in 2004. I regard it not to be effective if the numbers rose or stagnated. As the problem-solving impact may only materialize after a certain time span, considering a time lag is crucial. Membership may also be a key variable here. Assuming only member states benefit from the added value of cooperation measures such as information sharing and capacity building, I also consider single cooperation mechanisms to be effective if I observe a lower number of incidents in member states' territories compared to non-member states, which I will test for ReCAAP membership.

5.1. Total Number of Piracy Incidents

Figure 1 depicts the total numbers of attempted and actual incidents of piracy and armed robbery which took place in Asia as reported by the ICC IMB Piracy Reporting Centre (2001–2021). After a temporary peak in 2003, a general downwards trend in attacks can be observed from 2004 onwards, which coincided with the establishment of ReCAAP and MSP. This trend continued until 2008, which may speak for the effectiveness of these cooperation mechanisms. In 2009, the first impact of the Great Recession was observable, leading to a steady increase in numbers between 2010 and 2015. In 2016, a 50% drop in incidents could be observed. Since then, the numbers fluctuate at a lower level than in the years before. While it could be argued that the decline starting

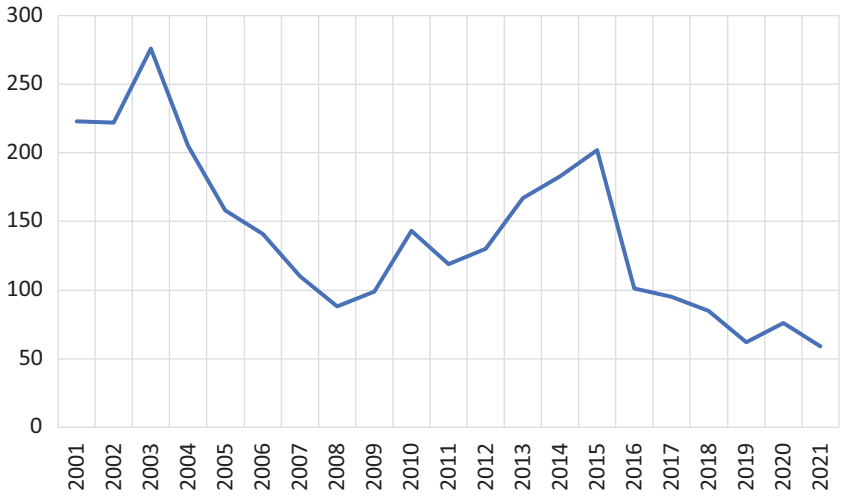

Figure 1. Total number of annual incidents in Asia.

in 2016 is a late success of counter-piracy cooperation, 10 years seems a long-time lag for cooperation effects to materialize. Instead, it is conceivable that external factors have also played a role in the sudden decline. They are scrutinized in Section 6.

5.2. Piracy Incidents by Membership

Disaggregating the data to the state level and distinguishing between ReCAAP member and non-member states provides additional insights. When excluding non-members Indonesia and Malaysia, the Strait of Malacca and the Strait of Singapore are crucial categories, as these have extra entries in the ICC IMB Piracy Reporting Centre data. I count both as non-member territories because the Strait of Malacca mostly consists of Indonesian and Malaysian territories (Kraska, 2011, p. 42) and the Strait of Singapore is located between Singapore and Indonesia, which is a non-member state. However, when treating the Strait of Singapore as member territory, the overall trend stays the same.

Figure 2 shows the numbers of actual and attempted incidents for ReCAAP member states, contrasted with the incident numbers for non-member states. It is noticeable that when incident numbers saw an interim peak in 2009, a significant decline from 2010 onwards can be observed only for ReCAAP member states. In 2016, both groups converge, but in recent years the gap increases again. However, the relation between the two graphs has to be treated with caution, as the group of Asian ReCAAP members consist of 14 states, while the non-member group is only made up of Malaysia and Indonesia, including the Straits of Malacca and Singapore. It also has to be noted that a large part of incidents in the analysis period has taken place in Indonesian waters. Thus, only one state, even though not a member of ReCAAP, makes up for the majority of reported incidents. The particular role of Indonesia in counter-piracy governance in Asia is discussed in the next section. In summary, there is an indication that ReCAAP membership does make a difference in the capacity to combat piracy effectively, but the extent of this influence remains unclear.

6. Discussion

Although the data suggests that there is a general downwards trend in incident numbers in Asia, particularly in ReCAAP member states, with several outlier years, the analysis provides an ambiguous picture: While a clear causal link between the development of incident numbers and the establishment of regional cooperation mechanisms cannot be established, the hypothesized negative impact of fragmentation of the regime complex on counter-piracy efforts cannot be confirmed either. Alternative explanations may provide additional insights into these results.

6.1. Alternative Explanations

Several factors can be identified which may reduce the explanatory power of regional cooperation mechanisms for the development of incident numbers in the analysis period. First, the 2004 Indian Ocean earthquake may explain why incident numbers dropped significantly thereafter. The resulting tsunami destroyed vast areas of Indonesia's province Aceh, then known as a notorious pirate hideout (Amirell, 2006, p. 54), and temporarily weakened their base. Second, Indonesian domestic politics may have influenced the conduct of the piracy business. In 2005, the settlement of a long-lasting civil war between the government and the Free Aceh Movement was reached. As piracy incidents were associated with increased rebel activity in Aceh beforehand (Daxecker & Prins, 2016), the end of the civil war may have been one of the reasons for a decline in numbers during that time. Third, after Lloyd's Market Association had declared the Strait of Malacca a "war risk zone" in 2005 due to rampant piracy numbers, the commission of private maritime security companies in the Strait increased but was highly disputed due to territorial concerns of

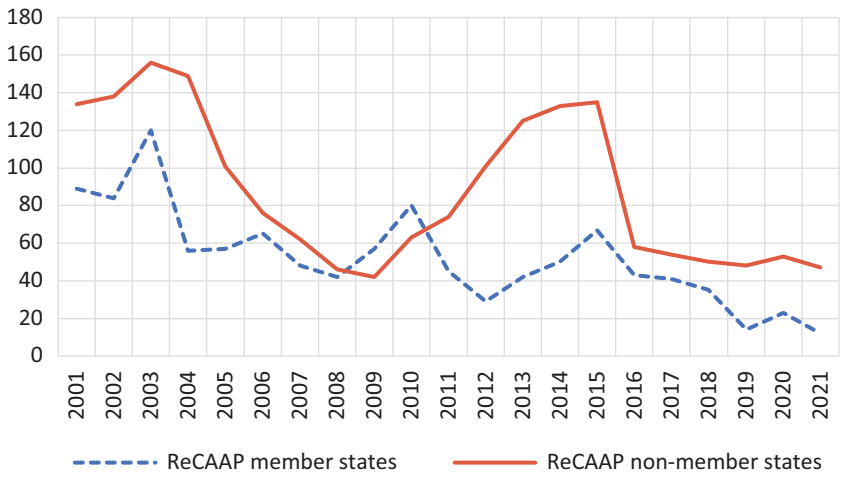

Figure 2. Total number of annual incidents: ReCAAP member and non-member states.

littoral states (Liss, 2012). Although data on the de-facto deployment of private maritime security companies in this period is lacking (Liss, 2011, p. 329), their services may have nevertheless contributed to a decrease in numbers. Fourth, strengthening of national enforcement agencies of key states may have also played an important role in the decline of incidents. The establishment of the Malaysian Maritime Enforcement Agency in 2004 is noteworthy, as Malaysia previously did not have a national coastguard, but the task was divided between several agencies (Ooi, 2007, p. 74). Similarly, initiatives such as the 2015 Rapid Reaction Force by Indonesian and Malaysian navies and the 2017 Trilateral Patrols in the Sulu Sea between Indonesia, Malaysia, and the Philippines may have contributed to a more recent decline in attacks in Asia (Parameswaran, 2017).

However, there are also several factors which may conceal a positive effect of counter-piracy cooperation. First, not knowing the extent of underreporting poses a methodological challenge. Although the establishment of ReCAAP's and MSP's information-sharing structures in 2006 as well as technological advances have led to an improved reporting system, underreporting very likely still masks the real rate of incidents and thus the impact of cooperation. Second, maritime traffic in the region has increased significantly. In 2004, about 64,000 vessels passed through the Strait of Malacca. In 2017, this number rose to about 85,000 vessels per year (Hand, 2018). This is an increase of almost 25% in potential targets for pirates, while incident numbers have not risen accordingly. Third, economic crises may press individuals into engaging in in illicit maritime activities to compensate for personal economic losses. The Great Recession is a case in point: From 2007 to 2010, incident numbers in Asia almost doubled, which may have covered a potential effect of counter-piracy governance. The impact of the Covid-19 pandemic remains to be seen, although incident numbers only slightly increased in 2020.

Overall, the numbers of piracy incidents in Asia are influenced by an interplay of different factors. While it is not possible to precisely establish the extent to which the alternative explanations account for constancy of or change in incident numbers, they nevertheless have to be kept in mind when assessing the effectiveness of the regime complex of counter-piracy.

6.2. Revisiting the Theoretical Argument

Although the regime complex of counter-piracy governance is characterized by a high degree of legal fragmentation, and its effectiveness is likely to be restricted by the non-membership of key states Indonesia and Malaysia to both ReCAAP and SUA, the empirical findings do not support the hypothesized negative effect of fragmentation on the overall combat of piracy. While the data does not provide an unambiguous picture of the impact of institutional complexity on the effectiveness of counter-piracy in the region, a decrease in incident numbers coinciding with the establishment of counter-piracy institutions can be observed particularly from 2004 to 2008, as well as a general slight downwards trend in recent years. Instead of the suspected hampering effect of regime complexity, institutional complexity may have offered flexibility for states to choose different fora for cooperation, which has not been unfavorable to effectively combat piracy.

Going back to the theoretical assumptions of the regime complex literature, another theoretical explanation might therefore be more sensible. While regime complexity creates legal inconsistencies, it may also strengthen problem-solving capacities: If an issue is blocked in one forum, complexity facilitates flexibility over issues, because it allows states to cooperate under different conditions, or with different coalitions of states (Keohane & Victor, 2011, p. 14). Indeed, as Indonesia and Malaysia refused to ratify ReCAAP due to sovereignty concerns, while cooperation with all states affected by piracy in Asia through SUA was also blocked by the non-accession of Indonesia and Malaysia, a parallel cooperation forum was established simultaneously. As such, the MSP allows for cooperation in a different coalition under distinct conditions, and at least includes the littoral states of the Strait of Malacca. Therefore, it could be argued that as a consequence of fragmentation, functional differentiation (Henning & Pratt, 2020) has emerged: While ReCAAP mainly focuses on information sharing and capacity building, the MSP offers a strong operational role and coordinates patrols of member states in the Strait of Malacca. As a result, all states affected by piracy in Asia are involved in its combat to some extent, although in different fora.

Interestingly, despite not being formal members, Indonesia and Malaysia cooperate with ReCAAP on a more informal level. They share selected information with ReCAAP and have repeatedly participated in capacity building workshops (ReCAAP, 2018). Interviews with decision-makers of regional counter-piracy institutions underline the importance of informal cooperation in contrast to formal membership and thus support the importance of informal complexity management within regime complexes (Kreuder-Sonnen & Zürn, 2020). One interviewee expressed the personal view that although being an official part of an agreement mattered, the most crucial thing for a state would be to assist the cooperation and coordinate counter-piracy activities with each other (interview, May 6, 2016). Similarly, another interviewee pointed out that the non-membership of Indonesia and Malaysia to ReCAAP might not be as vital for the combat of piracy in Asia as widely assumed: The agreement should rather be understood as a reference point, since it was more important for states to actually work together than having a binding code (interview, May 10, 2016). According to practitioners, the effects of the non-ratification of ReCAAP by Malaysia and Indonesia may hence not be as severe as expected by observers, as long as other, less formalized cooperation

opportunities such as the MSP but also bilateral cooperation are available.

7. Conclusion

Drawing on the literature on institutional effectiveness and regime complexity, and focusing on counter-piracy governance in Asia, this article tested the widely made assumption that a fragmented regime complex hampers effective cooperation on the governance issue at hand. Although the regime complex of counter-piracy is characterized by a variety of diverging norms prescribed by individual institutions in the combat of piracy, the empirical analysis for the years from 2001 to 2021 could not establish the hypothesized negative effect on counter-piracy governance. However, an overall causal effect between state cooperation and piracy incident numbers could also not be demonstrated. These results equally question assessments which consider the regime complex of counter-piracy too fragmented to work effectively, and which perceive regional cooperation mechanisms to be a particularly successful instrument in the fight against piracy. Instead, my analysis has underlined the importance of considering a variety of external factors which influence the effectiveness of counter-piracy cooperation in Asia.

My findings hold important implications for future research on the effectiveness of institutionalized cooperation to counter maritime crimes. First, they highlight the importance of accounting for contextual factors which may vary in different world regions. Second, they underline the need to further consider and theorize the role of formal and informal membership in the effectiveness of maritime crime cooperation. While my analysis suggests that membership may indeed have an impact, practitioners have instead highlighted the importance of low-key cooperation and information sharing between member and non-member states for the success of counter-piracy cooperation. It will thus be interesting to see if the accession or non-accession of key states makes a difference in the effectiveness of other regional cooperation mechanisms to combat maritime crimes. Third, they suggest revisiting commonly made assumptions about the role of institutional complexity. While so far, the scholarly focus has mostly laid on the negative consequences of fragmentation, this article has underlined that institutional complexity also holds opportunities for effective cooperation through functional differentiation between key institutions. Future research should thus shed further light on the mechanisms and effects of managing institutional complexity beyond piracy governance.

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Conflict of Interests

The author declares no conflict of interests.

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