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.

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 addi-

tion, 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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Conflict of Interests

The author declares no conflict of interest.

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