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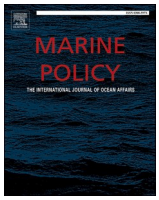

Full length article

Making the most of what we already have: Activating UNCLOS to combat marine plastic pollution

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ABSTRACT

Adequately responding to the crisis of marine plastic pollution will require parallel actions, by a variety of actors, on multiple fronts. The ocean governance regime, which has generally failed at shaping state behavior around land-based pollution, offers important legal and conceptual resources that can and should be utilized in these efforts. This article reviews three areas where the United Nations Convention on the Law of the Sea (UNCLOS) could be activated or applied to the problem of marine plastic pollution: the common heritage of mankind principle, the dispute settlement system, and reform through implementing agreements. Utilizing these elements of the ocean governance regime would be complementary to on-going efforts to negotiate a new plastics treaty. Working through UNCLOS offers several advantages, including important in-roads for non-state actors, norm-strengthening through an already well-subscribed regime, and expanding the avenues and obligations for scientific data collection on the patterns and impacts of marine plastics.

1. Introduction

Marine plastic pollution is – in a very real way – an ocean problem. Plastic accumulates in marine spaces, including coastal sediments, open ocean gyres, and deep ocean trenches. Many of the adverse consequences plastic has for humans and non-human animals occur when they encounter plastic in the ocean and along the coast. More diffuse impacts may result when plastic debris disrupts or corrupts Earth system processes and functions in the ocean, such as food chains and nutrient cycles. The basic fact that marine plastic pollution is an ocean problem suggests the relevance of ocean-focused solutions. Contrary to popular misunderstandings, the ocean is not a law-less place. The international community has, through centuries of practice and decades of diplomacy, constructed a vast regime of rules, norms, principles, and procedures to govern ocean space [24]. The basic goals of this regime, enshrined in the preamble to the United Nations Convention on the Law of the Sea (UNCLOS), include the "equitable and efficient utilization" and "conservation" of ocean resources, as a means of contributing to "the realization of a just and equitable international order." The ocean governance regime centered in UNCLOS has failed to achieve this goal in relation to the problem of marine plastic pollution.

Despite this failure, UNCLOS deserves a second look as part of the solution set for addressing marine plastic pollution. Because plastic pollution, and especially plastic *production*, is more than just an ocean problem, the solutions we seek must extend beyond ocean governance. Most observers agree with the assessment of Tessnow-von Wysocki and Le Billion, that an effective governance scheme "needs to affect countries' production cycles and industrial processes, and thus be an ocean treaty *and* a sustainable production and consumption treaty simultaneously" [32, p.99]. There is a real need for an international agreement that regulates activities in the terrestrial domain, and the recent movement towards a plastics treaty through the United Nations Environment Programme reflects that broad goal. But looking also to the ocean governance regime, and especially UNCLOS, can take advantage of existing institutions and principles that have already been formally endorsed by the international community of states. The ocean governance regime contains important legal and conceptual resources that can contribute to the overall solution set to marine plastic debris, especially in terms of procedural equity. UNCLOS includes unique features among international regimes – the progressive 'common heritage of mankind' principle, a compulsory dispute settlement mechanism, and multiple means of institutional change – that make it especially suitable to building social equity into any future plastics regime.

UNCLOS Part XII contains specific rules and norms related to land-based pollution, which have only weakly – if at all – shaped state behavior around plastic pollution. These obligations form the basis for how UNCLOS relates to marine plastics, but there is more to draw on. This article considers other features of the UNCLOS-centered ocean

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governance regime, to determine what legal and conceptual resources might be brought to bear on the issue of marine plastic pollution. These 'resources' may include explicit legal obligations, evolutionary terms in treaty text, organizational authority and competency, legal jurisprudence, and other factors that affect the emergence of norms that shape state behavior. Specifically, the article considers the Common Heritage of Mankind principle, the compulsory dispute settlement system in UNCLOS, and the use of implementing agreements as a means of modifying UNCLOS. The overall finding is that UNCLOS and associated institutions can support collaborative, over-arching approaches to confront marine plastic pollution, and provide a basis for the development of accountability mechanisms. But the mechanisms described are more blueprint than agenda: activating and developing these portions of UNCLOS will require focused, motivated groups of states willing to increasingly bind themselves to obligations and authorities articulated by international law.

2. Common heritage of mankind

The concept of state sovereignty is a core feature of the modern international system. The 'national' government of each state has sovereignty over its people and territory, meaning it is the sole source of political authority (and typically has a monopoly on the use of legitimate violence). Sovereign states recognize one another as sovereign, and in doing so implicitly pledge non-intervention into one another's domestic affairs. The norm of 'sovereign equality' is the idea that sovereign states are equally sovereign, reflected in the fact that each state has one vote in the UN General Assembly. This vision of the international community as a collection of independent sovereign states underlies many parts of the UNCLOS regime, including Part XII on marine pollution. It can be contrasted with ideas of collective interest, including the notion of common or public good and future generations. Therein lies the potential for a more equitable and effective approach to regulating plastic pollution.

If all states are equally sovereign, and sovereignty means non-intervention in domestic affairs, then every state is solely responsible for the pollution emanating from its factories, shops, landfills, rivers, and coastlines. UNCLOS Part XII, which contains specific rules for marine environmental protection, frames land-based pollution as a national issue, rather than an international one [8, p.379]. Although it encourages international cooperation, "the balance between national and international laws…is in favour of national laws" [30, p.279]. And states, who jealously guard their national economies (especially in terms of growth, development, and competitiveness), lack the political will to lead on self-regulation [2, p.154; 30, p.280]. In short, the world of sovereign territorial states leaves little room for legal obligations that truly serve common interests such as a plastic-free ocean. The situation of sovereign equality therefore fosters inequitable outcomes in the case of shared global problems like marine plastic pollution, which have disproportionate negative impacts on coastal developing states.

An alternative, more equitable approach, lies embedded within UNCLOS. Although sovereignty as an ordering principle dominates the international system, there are limited examples where international regimes have fostered a kind of "conceptual expansion…against the grain of the foundational structures of international law" [39]. These include principles such as common interest, common concern, common but differentiated responsibilities, and common heritage. Principles represent the goals, purposes, or values of the governance architecture created through international treaties [21]. They provide a normative basis for treaties and are intended to provide guidance for the interpretation and implementation of rules, norms, and procedures.

The Common Heritage of Mankind (CHM) principle is one of a handful of principles embedded in UNCLOS, but is the most radical in terms of its implications for social, economic, and political equity [9, 18]. Although it lacks a precise definition, the CHM principle contains the following important elements:

- Non-appropriation by sovereign states
- Cooperative international management
- Usage limited to peaceful purposes
- Equitable benefit sharing
- Protection and conservation of the marine environment for future generations

In addition to being a principle of international law, CHM is an ethical concept [38]. Its articulation and insertion into UNCLOS was part of a broader effort to "reshape international law to reflect developing country concerns and priorities" [39]. Elements such as cooperation, non-appropriation, and benefit sharing have positive effects for equity, by helping "to neutralize the technological, economic, or geopolitical advantages" of more technologically advanced states [40]. CHM was initially intended to apply to all ocean resources, but to achieve sufficient support, its proponents reduced the application of the principle to the resources and seabed of the 'Area' (the international seabed beyond national jurisdiction).

The CHM principle frames the international seabed and its resources as public goods, meaning that they are owned, managed, and used to the benefit of the international community. The CHM designation was a significant and revolutionary step in international regime building, because in other areas of international environmental law the primacy of national interests has largely obstructed the recognition of global public goods [11, p.107]. In contrast, CHM "challenges traditional international law concepts" including elements of sovereignty and territoriality [1]. The principle entered into customary international law quickly, in the 1970 Declaration on Seabed Principles, and is now deeply embedded in the ocean governance regime. Indeed, the CHM principle is the only part of UNCLOS that cannot be amended (Article 311(6)).

Although both the Area and its resources are CHM (Article 136), Part XI of UNCLOS fleshes out a management regime that is focused on the exploitation of seabed minerals. The CHM is reflected in the design and composition of the International Seabed Authority (ISA), which manages and controls exploitation of mineral resources in the Area. As an inter-governmental organization with the same membership as UNCLOS, the ISA represents the cooperative international management prescribed by the CHM principle. Once commercial seabed mining is operational, the ISA is empowered (and required) to create a formula for equitable benefit sharing, such that a portion of the wealth generated from deep-seabed mining is re-distributed, especially to developing countries (Article 140(2)). In other words, the ISA is tasked with executing the CHM commitment of the international community to environmental protection, inter-generational equity, and benefit sharing. This in itself has positive implications for social equity, unrelated to the problem of marine plastic pollution.

Although the ISA is mainly focused on facilitating the exploration and exploitation of seabed mineral deposits, it also has mandates related to scientific research, environmental protection, and cultural heritage (Articles 143, 145, 149). These specific mandates, in addition to the general injunctions contained within the CHM principle, create space for the ISA to take action on marine plastic pollution. Existing scientific research has found increasing amounts of plastic pollution in the deep ocean, creating risks for benthic ecosystems [7,12,27,31,37]. Yet little is known about the full distribution and effects of marine plastics in the deep ocean. And there is a need for standardization in scientific sampling techniques, so that data can be usefully compared across time and space [3]. Because the ISA is a rule-making institution – with rules being binding on its members – it offers an opportunity to add to the nascent marine plastic pollution regime. But such actions must come from the ISA's existing power and mandates to be effective and legitimate.

The production and dissemination of scientific knowledge about marine plastic pollution – such as its location and impacts – is critical for the creation of timely and effective policies [19, p.236; 23]. The ISA is tasked with ensuring that marine scientific research (MSR) in the Area is carried out "for the benefit of mankind as a whole" (Article 143). The

ISA itself can engage in MSR, or contract with external groups, and is obligated to disseminate the results of such research (Article 143(2)). And State Parties are supposed to cooperate to promote MSR, including the development of ISA programs (Article 143(3)). None of these provisions suggest that such MSR must be focused on seabed minerals, or that these obligations only apply in areas of interest for seabed miners. Indeed, the ISA legal regime was intended to "gradually expand overtime, as knowledge of the deep seabed expands" [41].

The ISA is not currently engaging in independent data collection. It depends largely on measurements and sampling collected by private parties interested in seabed mining, who establish the baselines against which the impact of their activities are assessed [22, p.68]. But this data is inconsistently collected and shared, and there is no obligation for data collection in surrounding protected areas [22, p.69]. While it might be useful for ISA to collect its own data on the seafloor of the Area, the ISA could also mandate that data collection by miners include information about plastic distribution and composition. While this data would be useful for understanding the global problem of marine plastic debris, it would also serve as a baseline of information to gauge the impact of seabed mining on the presence and distribution of plastics. It is possible that mining operations themselves could be a source of plastic, or stir up plastics on the seabed in the course of mining activities. But regardless of the direct relevance of plastics data to mining operations, the simple fact that the Area is CHM, combined with its mandates around MSR and environmental protection, should justify the ISA taking action to increase the amount of scientific research focused on plastics in the Area. Such research would reflect the shared interest of humanity in understanding the nature of the plastic pollution problem and could also support other aspects of the plastics 'solution set' related to accountability, controlling waste streams, and remediation.

3. Dispute settlement system

Accountability mechanisms are rare among international environmental regimes, but they can be useful for achieving compliance among member states. UNCLOS is notable for creating a compulsory dispute settlement system. Part XV requires State Parties to submit disputes to one of three judicial bodies: the International Court of Justice (ICJ), the International Tribunal on the Law of the Sea (ITLOS), or an arbitral tribunal. Although there are some important exceptions to compulsory dispute settlement, these do not directly apply to provisions for protection of the marine environment from land-based pollution. Theoretically, one member of UNCLOS could sue another member for violating the provisions of UNCLOS Part XII ("Protection and Preservation of the Marine Environment"). This may be an especially important mechanism for accountability because a primary weakness of UNCLOS Part XII is the fact that compliance and enforcement is left to state parties [42].

Although Part XII of UNCLOS has been generally unsuccessful at shaping state behavior in pro-environment, anti-pollution directions, and has been under-utilized in dispute settlement cases, it contains a variety of obligations that could be drawn on in the context of dispute settlement. Part XII begins with a direct statement: "States have the obligation to protect and preserve the marine environment" (Article 192). In doing so, they must take "all measures…that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities" (Article 194). States are also supposed to notify each other, and "competent international organizations," if they become aware of cases where the marine environment has been, or is about to be, damaged by pollution (Article 198). They are required to develop contingency plans for marine pollution events (Article 199), promote cooperative scientific research about marine pollution (Article 200), and use that research to cooperatively create scientific criteria for rules, standards, and procedures related to marine pollution (Article 201). States are specifically obligated with respect to land-based pollution, and must "adopt laws and regulations to prevent, reduce and control" emissions (Article 207).

All these actions – notification of damage, contingency plans for spills, cooperative research, standardization, and adoption of rules and regulations – would benefit efforts to address marine plastic pollution. But states have only partially, if at all, satisfied these obligations with regard to plastic emissions. Dispute settlement is a useful option for holding states to account for their failure to meet these obligations. And it is particularly impactful from an equity perspective because dispute settlement is a means of 'leveling the playing field,' so that asymmetries of power are less likely to influence outcomes. Rulings by international tribunals can have direct effects on the parties involved in transboundary land-based pollution. In the *Land Reclamation* and *MOX Plant* cases, ITLOS used provisional measures (an interim ruling to prevent serious harm) to require neighboring states to cooperate to "establish independent parties to monitor the marine environment" [29, p.366]. A relatively minimal obligation, essentially delegated to states by an international tribunal, can cause disputing states to enter "co-operative mode" and start working together [20]. Courts are also able to issue specific rulings requiring states to take action to fulfill their UNCLOS commitments, although there are very limited existing examples of this in the case of land-based pollution.

Rather than simply punishing violators, dispute settlement can be understood as a means of institutional change, and therefore a way of strengthening UNCLOS Part XII. Addressing non-compliance through institutional mechanisms is "part of an iterative process of developing understanding, knowledge, capacity, and standards…as a trigger for growth of the regime" [19, p.236]. In short, "courts and tribunals do more than simply apply the law: they are part of the process of its continuing evolution" [17, p.7]. Tribunals can interpret UNCLOS through the lens of "evolving principles of international environmental law," and thereby update and improve its provisions in light of contemporary circumstances [2, p.160; 5, p.66]. For example, in the *Land Reclamation* case, ITLOS read Principle 19 of the Rio Declaration into UNCLOS Part XII (especially Articles 204–206), which strengthened and clarified the requirements for prior and timely notification of potential transboundary environmental harms, as well as good faith consultation [2, p.144]). And there is a long history of jurisprudence on the responsibility of states for transboundary pollution, such that new interpretations would build on and reinforce existing customary international law [33].

Working within this system would strengthen the integrity of the UNCLOS regime more generally, both demonstrating and ensuring that it is comprehensive, flexible, and 'futured-proofed.' This kind of systematic improvement and application enhances the degree to which UNCLOS is understood as soft or customary law, meaning that it binds the entire international community (including non-members of UNCLOS) [43]. The use of dispute settlement mechanisms can therefore strengthen Part XII provisions on land-based pollution in three ways: by holding states accountable for specific infractions, by clarifying and updating the meaning of existing provisions, and by confirming and/or strengthening the customary status of UNCLOS rules.

Ultimately, whether dispute settlement can be used to activate, apply, and develop Part XII of UNCLOS depends on whether state parties have the will and resources to bring cases against other UNCLOS members [2, p.161]. Several factors suggest this strategy contains real potential, including the increasing involvement of activist private law firms, the generality of UNCLOS provisions, and the authority of courts themselves to decide questions of standing and jurisdiction [14, pp.271–278].

Article 194 of UNCLOS, which requires states to use the "best practicable means at their disposal and in accordance with their capabilities" reflects the 'common but differentiated responsibilities' concept from Principle 7 of the 1992 Rio Declaration. Two factors therefore matter for choosing which country to bring a case against: the sources of marine plastic pollution, and the actors with particular leverage or ability to prevent plastic pollution. Although it is theoretically possible for a State

Party to bring a case about damages to Areas Beyond National Jurisdiction (ABNJ), specific transboundary harm in the territorial sea or Exclusive Economic Zone (EEZ) is likely to be an easier case for supporting remedies. If the pollution of concern is *not* causing damage in the territorial sea or EEZ, but rather in ABNJ, the state instituting proceedings must demonstrate that it specifically is subject to damage [13]. Although the remedies prescribed may be limited, any ruling that a State Party is in violation of Part XII obligations regarding land-based pollution would be a significant advancement of the applicability and utility of these UNCLOS provisions.

4. Implementing agreements

Although the existing resources of the ocean governance regime may be sufficient to empower, or at least provide some political cover, to states and organizations interested in making bolder moves around plastic pollution, they seem inadequate for prompting or requiring such moves. In other words, to compel (or lock in) substantial action by states, new binding international law containing specific and strong obligations may be necessary. Although there is already an effort to negotiate a new plastics treaty, a parallel effort in the ocean governance regime might bear complementary fruit. Options for augmenting UNCLOS offer a potential path-of-less-resistance when it comes to negotiating new legal instruments; specifically, through 'implementing agreements.' The concept of an implementing agreement was novel to UNCLOS, and a way to alter or augment UNCLOS without using the formal amendment process [41]. Two implementing agreements were negotiated in the mid-1990s, the so-called Part XI Agreement and the Fish Stocks Agreement.

A third implementing agreement for Biodiversity Beyond National Jurisdiction is currently being negotiated [10,26]. In addition to possibly stretching the application of the CHM principle to marine genetic resources, the BBNJ agreement will cover the use of environmental impact assessments, the establishment of area-based management tools including marine protected areas, and capacity-building and technology transfer. The BBNJ treaty will only apply to ocean 'Areas Beyond National Jurisdiction' (ABNJ), which include both the high seas and the Area. Although the scientific evidence strongly suggests that marine plastic pollution has a negative impact on biodiversity in the open and deep ocean, the BBNJ negotiations do not have a mandate to cover marine plastic pollution, and the draft treaty contains nothing targeted at plastics [34,35]. However, there are three areas where plastic pollution could be at least partially accounted for: Environmental Impact Assessments (EIAs), Marine Protected Areas (MPAs), and Capacity Building and the Transfer of Marine Technology (CBTMT).

An obligation to conducts EIAs means factoring the impact of human activities on the environment into our decision-making about whether, when, and how we should allow those activities. Although there is a nascent EIA obligation contained in UNCLOS (Articles 204–206), the BBNJ process seeks to elaborate "more detailed procedural and substantive requirements" to conduct EIAs for activities within, or that effect, ABNJ [15]. One potential objective of new EIA requirements (currently an option in the draft text) would be to enable to consideration of cumulative and transboundary impacts on marine ecosystems. Plastic pollution would qualify as a cumulative and transboundary impact because it comes from outside the boundaries of sectoral activities, and its impact adds up over time. Portions of the draft BBNJ treaty would require the consideration of these impacts when determining whether to conduct an EIA, how it is conducted, and whether to authorize the activity based on the EIA's results.

Many of the same contributions could be made through the BBNJ's provisions on MPAs. Information about the location and likely impacts of marine plastic debris can inform the location, designation, and design of MPAs. And indeed, the draft treaty includes "cumulative and transboundary impacts" as one of the criteria which could be used to identify areas for protection. These processes could aid the effort against marine plastic pollution by (1) mandating more thorough assessments of the negative impacts of plastic pollution, (2) spotlighting plastic pollution that arises as part of the typical operation of resource extraction, and (3) possibly limiting other activities to minimize the overall impact of plastics and other stressors on marine life.

There is general agreement that capacity building and the transfer of marine technology (CBTMT) is a key enabler for developing countries to fulfill their obligations under the agreement [10,36]. Although the main locus of the debate over CBTMT has been whether it should be voluntary or mandatory, another persistent topic has been whether it should be limited to helping states fulfill their obligations under the treaty or should include the fulfillment of broader social and economic goals [10,25,35]. Even if CBTMT were limited to the BBNJ goals of "conservation and sustainable use of marine biodiversity beyond national jurisdiction," this would theoretically include capacity and technology to combat plastic outflows and collect plastic debris. And because CBTMT modalities will very likely be needs-driven, the process could be used to connect developing coastal states with the resources they need to deal with plastics crises more effectively. If CBTMT is voluntary, however, there is no guarantee of such transfers.

A major limitation of the BBNJ process for confronting plastic pollution is the fact that its application is limited to ABNJ. But the implementing agreement approach could also serve more directly as a means of regime building around marine plastic pollution, with a fourth implementing agreement focused on fleshing out the provisions of Part XII on land-based pollution. Such an agreement might include specific targets, financial mechanisms, contemporary environmental principles, and even new institutional architecture. The extensive provisions of Part XII leave significant room for flexibility, via the interpretation of evolving concepts and the activity of competent international organizations. And the CHM principle – although it applies exclusively to the Area and its resources – provides a conceptual and philosophical foundation for the provision and/or protection of public goods in the global commons.

One area where a new implementing agreement could make a significant contribution concerns who has standing to sue in order to hold another state liable for damage from plastic pollution in ABNJ. This is a key topic for equity, because the diffuse impacts of plastic emissions tend to disproportionately effect marginalized coastal communities and ocean users. Proving that a state is responsible or liable for environmental damage caused by land-based pollution, especially marine plastics, and especially beyond national jurisdiction, is a difficult task. Practically, it is very challenging to determine the origin of any particular instance of plastic pollution, or to determine the precise relationships between outflows, impacts, and policy responses [19, p.236; 23]. And the prevention of transboundary marine pollution has been interpreted by ITLOS as a duty of due diligence, meaning an obligation of conduct, not result [2, p.141]. In other words, States are required to adopt and enforce laws that meet the specific requirements of UNCLOS, but there is no requirement for those laws to be *effective* relative to a specific goal or target. As Beckman describes it:

"Although UNCLOS provides States with a mechanism to hold States *responsible* if they fail to fulfill their obligations to prevent, reduce, and control pollution…it does not provide an easy mechanism for holding States *liable* for damage caused to the marine environment…a State can be *responsible* for breaching its international obligations, but it may not be *liable* to pay reparations for damages unless it can be established that there is a causal link between the breach of the international obligation and the damage to the marine environment" [2], p.161].

Even if a causal link can be established, there is no clear threshold for damage, under UNCLOS or international environmental law generally [6, p.900].

A new implementing agreement could build off existing models to create a responsibility and liability system that is more effective in terms of funding compensation and remediation. Development of liability provisions would promote fulfillment of UNCLOS Art 235(2), which

requires states to "ensure that recourse is available…for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction." Such a system might be based off the models for responding to oil pollution in the 1992 Civil Liability Convention and 1992 Fund Convention. Together, these agreements require relevant industry actors to hold compulsory insurance and contribute to collective funds to ensure that the 'money is there' in the event of spills that cause harm and damage. A new implementing agreement for UNCLOS focused on Part XII, and land-based pollution, could use these models to create systems to fund compensation and remediation. Such an agreement might also clarify that protection of the marine environment in ABNJ is an *erga omnes* norm, and therefore that any UNCLOS member has standing to bring a case to dispute settlement or make a claim for compensation.

5. Plastic pollution and the ocean governance regime

Getting the international community of states to formulate a new, detailed, and binding global plastics treaty will be a difficult challenge, and one that is likely to take many years (despite the aspirational two-year timeline). We cannot wait for, and should not rely on, a new treaty to solve all the world's problems related to plastic pollution. The urgency of the plastic pollution crisis calls for action at multiple scales and from different angles. The ideas presented here represent ways that UNCLOS and its associated institutions can be mobilized to better confront the problem of marine plastic pollution, by applying and developing the rules in ways that fit within existing legal frameworks. But these legal and conceptual resources will not mobilize themselves; motivated and empowered actors must take the lead in activating, interpreting, and applying UNCLOS provisions to the problem of plastic pollution.

Utilization of the existing ocean governance regime to confront marine plastic pollution depends primarily on the actions of states, especially those who are members of UNCLOS. Only states can bring a case related to Part XII to international tribunals, and only states are members of the ISA. Only states can formally negotiate, finalize, and ratify implementing agreements to UNCLOS. The institutions and organizations that make up the ocean governance regime provide many fora for state interaction and decision-making, including the UNCLOS Meeting of State Parties, and the Conference of Parties for the new BBNJ agreement. The ISA is an inter-governmental organization with an articulated committee structure, where seats are held by state representatives. The BBNJ agreement will create new bodies and committees, and states will drive much of the implementation around EIAs and MPAs. What is needed is states that are interested, motivated, and willing to apply their expertise and expend political capital on pushing these ideas forward in institutional fora. The history of both the law of the sea and plastics regulation contains many examples of individual states, even small ones, leading the way in terms of both norm creation and rulemaking. Such states can probe the boundaries of UNCLOS and exploit the opportunities it creates for progressive development via interpretation and modification.

Although the international system is ultimately dominated by sovereign territorial states, and international law is based on the consent of those states, there are real possibilities for non-governmental actors to pursue these approaches. The concept of CHM, for example, has been (and can be) developed and advocated for by civil society groups [38]. Non-governmental organizations have been influential in the negotiations for the new BBNJ legal instrument [4]. International tribunals, which can theoretically 'level the playing field' for weaker states pursuing claims against stronger ones, are themselves organizational actors, with a fair amount of leeway to decide their subject matter jurisdiction [14, p.273]. And the fact that private law firms are increasingly involved in UNCLOS dispute settlement cases suggests that such firms can play a role in developing, bringing, and winning cases regarding land-based pollution. Even the BBNJ treaty, which is negotiated and agreed to by states exclusively, is likely to create new institutional bodies that can play a role in elevating and activating ocean governance rules to combat marine plastic pollution. As the ISA demonstrates, even inter-governmental organizations can have a degree of independent identity that shapes the direction of rulemaking [16].

The approach taken in this article also represents a larger research agenda, wherein scholars can identify legal and conceptual resources in other parts of the ocean governance regime which might be applied to the problem of plastic pollution. Recent work has demonstrated the possibilities for scholarship on ocean governance to influence the progressive development of the regime [28]. Other areas that might be amenable to modification or interpretation to better account for ocean plastics include the idea of 'ecosystem-based management,' and the barriers to marine scientific research in foreign waters. The regional and sectoral fragmentation that characterizes governance of Areas Beyond National Jurisdiction suggests multiple avenues for development in terms of more specific rules for plastics research, plastics emissions, and responses to plastic pollution. The obligations for additional cooperation in enclosed and semi-enclosed seas contained in UNCLOS Articles 122 and 123 may provide specific opportunities for development of regional regimes.

Although movement on all these fronts simultaneously is unlikely, if any of these strategies is successfully pursued by interested states, the entire edifice of UNCLOS becomes stronger. UNCLOS is a well-subscribed international agreement with multiple mechanisms for institutional change and building on the regime makes every part of it more legitimate, credible, and authoritative. Because UNCLOS Part XII contains the foundational obligations to "reduce, prevent, and control" land-based pollution, it is essential that UNCLOS remains a core feature of the international political system. Its more radical and innovative elements, including the CHM principle and compulsory dispute settlement system, make UNCLOS especially promising as an avenue for international rulemaking around plastics that is more equitable.

Adequately addressing marine plastic pollution will require parallel actions, by large collectives, on multiple fronts. Doing so in ways that are socially and economically equitable will necessitate creative and resourceful thinking. The existing principles, norms, rules, and procedures of ocean governance are an important part of the toolbox for an equitable and effective response to marine plastic pollution.

Author statement

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Data Availability

No data was used for the research described in the article.

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