# What role for local knowledge in ocean governance?

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## 1. Preamble

Recent years have seen a significant reappraisal of 'local knowledge' and its value in science policy and global science governance. This type of knowledge, often interchangeably used with the term 'traditional knowledge', was already discussed and embedded in the 1992 Earth Summit in Rio de Janeiro, with the *Convention on Biological Diversity* (CBD)[1] and the ensuing Nagoya Protocol adopted in 2010 on *Access to Genetic Resources and Equitable Sharing of Benefits arising from their utilization.* The Nagoya Protocol refers to "traditional knowledge" of "Indigenous and local communities".[2] In 2022, the Conference of the Parties of the CBD made a Decision[3] adopting the Global Biodiversity Framework (GBF) which importantly promotes coherence and cooperation across biodiversity and other relevant multilateral agreements[4] engaging with what it terms as "best available data" and "traditional knowledge".[5]

The recently adopted Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ Agreement) constitutes a new landmark for ocean biodiversity and a springboard for new reflections on the role and value of local knowledge in marine policy and ocean governance. The BBNJ Agreement—the text of which was agreed in March 2023 and is currently going through the ratification process—includes several provisions relating to traditional knowledge of Indigenous Peoples and local communities as well as provisions for fair and equitable benefit

[1] CBD recital 12, arts 8(j) and 17(2).
[2] Nagoya Protocol, Art 6(1), 6(2), 6(3)(f), 7, 8(j), 11, 12 (3) (a).
[3] The Conference of the Parties (i.e. its state members) of the CBD meet regularly and at these meetings they make Decisions on key points: the legal weight of these are unclear, however at a practical level these give important indications of the trajectory being undertaken by key actors (Jonas, 2020, 26).
[4] Global Biodiversity Framework (GBF) 2023, Annex, Art 6.
[5] GBF Target 21, p. 13.

sharing of marine resources, plans for capacity building and technology transfer in marine science.[6]

Here we use the term ‘local knowledge’ (rather than ‘traditional knowledge’) deliberately to refer to varieties of knowledges broadly understood along the lines delineated in Massimi (2025)—namely, local knowledges are often oral rather than written, artisanal and experiential in nature, and transmitted from one generation to the next. The use of the term ‘local knowledge’ intends to mark a departure from connotations associated with the term ‘traditional knowledge’ that have been criticised for erroneously suggesting a somehow static rather than dynamic and ever-evolving image of knowledge (see consideration in Oguamanam 2022 356-7).

Moreover, the term ‘local knowledge’ is also functional to denoting a broader class, including *experiential ways of knowing* for epistemic communities[7]—from seaweed divers to fishers—that may or may not have been subject to Western-European colonisation in different parts of the world. It is this broader and wider approach to varieties of local knowledges so understood that we adopt here.

This special issue combines humanities, social sciences, marine and environmental sciences with marine policy and ocean governance to rediscover the importance of local knowledge in local, regional, national, and international contexts, and to highlight the challenges local knowledge faces. The articles in this special issue combine policy and scholarly perspectives towards achieving fairer and more equitable ocean policies for coastal communities at large. Before introducing the specific contributions to this special issue, we explore the wider legal, philosophical, and scientific debate surrounding local knowledge in the context of marine policy and, more specifically, in contemporary debates surrounding ocean governance starting with the landmark BBNJ Agreement.

## 2. The BBNJ Agreement and the role of local knowledge in equitable ocean governance

[6] BBNJ Agreement notably Art 7(j), 13, 19(3), 19(4)(j), 21(2)(c)(iii), 26(5), 44(1)(b), 49(2), 51(3)(c). See consideration of the development of the BBNJ Agreement in Humphries (2025).

[7] The term “epistemic community” as is used here refers to communities that are identified by distinctive local ways of knowing as the examples in this special issue indicate (for a discussion see Collins and Evans 2002; Turnhout et al 2019; Massimi 2022a).

The BBNJ Agreement marks the end of a two-decade long negotiation process in relation to areas beyond national jurisdiction (ABNJ, see https://www.un.org/bbnj/) that has witnessed the international community becoming more aware of the importance and relevance of local knowledge to ocean governance. The BBNJ Agreement is part of a growing legal landscape which has increasingly paid attention to the role and importance of varieties of local knowledges for levelling the playing field and widening democratic participation in environmental and marine policy.[8] The BBNJ Agreement stresses the importance of international cooperation[9] providing a new and valuable foundation upon which to build more equitable governance systems.

At the core of this landscape is Article 13 in the BBNJ Agreement, which deals with local knowledge (albeit under the terminology "traditional knowledge of Indigenous Peoples and local communities") regarding access to marine genetic resources (MGR), which are defined as "any material of marine plant, animal, microbial or other origin containing functional units of heredity of actual or potential value".[10] Article 13 states that

> [p]arties shall take legislative, administrative or policy measures, where relevant and as appropriate, with the aim of ensuring that traditional knowledge associated with marine genetic resources in areas beyond national jurisdiction that is held by Indigenous Peoples and local communities shall only be accessed with the free, prior and informed consent or approval and involvement of these Indigenous Peoples and local communities. Access to such traditional knowledge may be facilitated by the Clearing-House Mechanism.

[8] Key developments in addition to the CBD and Nagoya Protocol are the Indigenous and Tribal Peoples Convention (1989); TRIPS. 1994. *Marrakesh Agreement Establishing the World Trade Organization* (1994) 1867 U.N.T.S. 154, Art. II and Annex IC (*Agreement on Trade-Related Aspects of Intellectual Property Rights*) https://www.wto.org/english/docs_e/legal_e/27-trips_01_e.htm; the UN Declaration on the rights of Indigenous Peoples (UNDRIPS) in 2007 (to which reference is made in the BBNJ Agreement, Recital 7); the Indigenous People Kyoto Water Declaration in 2003 made by representatives of Indigenous Peoples and centred around the relationship between communities and Mother Earth; the Universal Declaration of the Rights of Mother Earth (2010), from the World People's Conference on Climate Change and the Rights of Mother Earth; WIPO Treaty. 2024. *WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge* GRATK/DC/7; UNESCO. 2003. Convention for the Safeguarding of the Cultural Heritage 2003 UNTS 2368 https://ich.unesco.org/en/conventionz

[9] BBNJ Agreement Art 5(2) and Art 8(3).

[10] BBNJ Agreement Art 1(8).

Other objectives of the MGR Part of the BBNJ Agreement[11] relevant to local knowledge are capacity building and marine technology transfer, which are also reflected in the provisions of the BBNJ Agreement. In both cases, the BBNJ Agreement recommends cooperation in all forms and at all levels including (where appropriate) with the private sector and with Indigenous Peoples and local communities as holders of traditional knowledge, as well as strengthened cooperation between relevant legal instruments and bodies.[12] Further, the BBNJ Agreement establishes a Scientific and Technical Body (STB)[13] with members elected by the Conference of the Parties and with multidisciplinary expertise, including relevant knowledge by Indigenous People and local communities.[14]

Zooming in on the fine-grained details of the envisaged mechanism and framework for international cooperation by the BBNJ Agreement, two dichotomies can be found in the legal language of the General Principles and Approaches, which apply to the BBNJ Agreement as a whole.[15] The first dichotomy is between "the best available science and scientific information" on the one hand,[16] and "the use of relevant traditional knowledge of Indigenous People and local communities, where available", on the other hand.[17]

The reference to "where available" and "relevant" alongside "traditional knowledge" in the Principles and in BBNJ Article 13 warrants some attention. The terminology could be read as a way of respecting different forms of knowledges and ways of accessing them, for example through community rules. At the same time, the use of "best available science" in the general Principles and Approaches could also be read as applying to Western knowledge and its values, and risks being seen as potentially introducing an inappropriate hierarchy of power over varieties of local knowledges.

[11] BBNJ Agreement Art 9(c) and 9(d).
[12] BBNJ Agreement Art 41(2).
[13] BBNJ Agreement Art 49(1) and (4).
[14] BBNJ Agreement Art 49(2).
[15] BBNJ Agreement Art 7.
[16] BBNJ Agreement Art 7(i).
[17] BBNJ Agreement Art 7(j). This dichotomy is also found in the Area Based Management Tools (ABMT)—BBNJ Agreement Art 19(3), 19 (4) (j), 24(3), 26(5)—and Environmental Impact Assessment (EIA)—BBNJ Agreement Art 31(1)(a)(ii) and (iv), 31(1)(b) and (c), 35; 37(4)(a), (c)—parts of the BBNJ Agreement.

The second dichotomy to be found in the BBNJ Agreement, for present purposes, concerns "the precautionary principle or precautionary approach, as appropriate"[18] vis-à-vis "the ecosystem approach".[19] These two approaches are included together in proposals for Area Based Management Tools, and are juxtaposed to the aforementioned dichotomy between "best available science" and "where available, relevant traditional knowledge of Indigenous People and local communities".[20]

In what follows, we zoom in on the question as to how to understand the epistemic nature and value of local knowledges within the BBNJ Agreement in relation to the "ecosystem approach" (which has roots in the CBD).[21] We explore new ways of thinking about varieties of local knowledges in a robust way that bypasses and resolves the aforementioned dichotomies, hierarchies of power, and potential epistemic injustices in how local knowledges have historically been severed, extracted, and appropriated. This philosophical analysis could in turn provide the basis for strengthening the ecosystem approach and for levelling the epistemic playing field in the ratification process of the BBNJ Agreement and in wider ocean governance mechanisms.

## 3. Local knowledges, cultural keystone species, and the argument from ecological connectivity

Local knowledge enters into discussions concerning ocean governance in many ways. We focus here on migratory species that are *cultural keystone species* (CKS) for local communities, as an important and representative example of possible applications of the ecosystem approach in ABNJ. In this respect, for example, Vierros and collaborators (2020) have stressed how "island and coastal communities around the world are custodians of globally-significant species and ecosystems…. and hold knowledge that is important for their management" (Vierros et al. 2020, p. 104039-2). Morgera too has argued for greater participation of local knowledge holders in transformative ocean governance, and that participation should consider "ecological connectivity between areas within and beyond national jurisdiction, as well as our

[18] BBNJ Agreement Art 7(e).
[19] BBNJ Agreement Art 7(f).
[20] BBNJ Agreement Art 19(3).
[21] CBD art 2; CBD 2000 Decision V/6 COP 5 UNEP/CBD/COP/5/23; CBD 2004 Decision VII/11 COP 7; CBD 2008 Decision IX/7 COP 9 UNEP/CBD/COP/DEC/IX/7 UNEP/CBD/COP/DEC/VII/11

evolving understanding of the ecosystem services provided by BBNJ" (Morgera 2022, p. 260).

Migratory species have long been recognised for their biocultural importance. Vierros and collaborators refer to Garibaldi and Turner's (2004) notion of CKS such as e.g. edible red laver seaweed for the Gitga'at of Hartley Bay in British Columbia among others. CKS are defined as the

> culturally salient species that shape in a major way the cultural identity of a people, as reflected in the fundamental roles these species have in diet, materials, medicine, and/or spiritual practices...the main criterion for a cultural keystone species is its key role in defining cultural identity; it may or may not be considered ecologically dominant. (Garibaldi and Turner 2004, p. 3).

Consider the following example. Sea turtles are CKS for the women divers of Jeju, an island off South Korea. The Jeju community has a rich cosmogony and cultural worldview whereby sea turtles are deemed to be the daughters of the dragon king/queen of the ocean. The Jeju share with the people of Ryukyu Islands in nearby Japan the belief in the existence of an oceanic paradise from which three princesses drifted on the shore of the ancient land of Tamna-guk marking the start of the Jeju people (Heo and Lee 2018). To this day Jeju women divers (see UNESCO Culture of Jeju Haenyeo) culturally identify sea turtles with ocean deities and follow a series of culturally informed protocols in their marine encounters with turtles. For example, if a turtle is encountered by chance during diving, sea shells must be offered to the turtle. In addition, when a turtle is found dead on the shore, complex rituals are performed to send the turtle back to the ocean wrapped in sacred cloths (Kang 2017; Kim et al. 2019).

Crucially, then, the notion of CKS serves two important functions: (1) it defines the cultural identity of the local community by entering into a range of expert know-how, daily livelihood, cultural practices, and spiritual worldviews; (2) in so doing, it has the potential to give voice to the local community and their expertise in the ecological management of the species at the coastal level, as well as in marine governance for ABNJ where the migratory species straddles.

Local knowledge of CKS becomes then a staple for a more equitable ocean governance for biodiversity in ABNJ. The argument from ecological connectivity

recognises the intimate interconnection between cultural communities and their local ecosystem. It shines a light on the complex inter-relations among human, animal, and vegetable worlds as culturally identifying for the community in question,[22] so much so that "losing access to such species, or moving away from the knowledge about them, can foreshadow or symbolize a more drastic loss of language and culture" (Garibaldi and Turner 2004, p. 14).

Accordingly, the ecosystem approach to biodiversity in areas beyond national jurisdictions is entangled—via the argument from ecological connectivity—with a particular variety of local knowledge understood as place-based or culturally-identifying form of knowledge of particular natural phenomena relevant to a particular coastal community.

Such variety of local knowledge is an asset to the ecological management of marine biodiversity especially for those species that seasonally migrate between coasts and high seas. In turn, the preservation and successful management of such CKS migratory species is an integral part of preserving the cultural identity of the community in question.

In what follows, we draw the contours of a possible way of strengthening and supplementing the ecosystem approach and the argument from ecological connectivity by examining the distinctively epistemic nature of varieties of local knowledges and how they enter into equitable policy making and ocean governance.

## 4. Local knowledges, epistemic injustices, and the ecosystem approach. From custodians of raw materials to epistemic communities in their own right.

[22] It is in this specific sense that Massimi (2025), p. 12 defines one specific variety of local knowledge as *place-based knowledge* in that it is "knowledge based on, or grounded in, a culturally identifying world system. This is not just experiential knowledge of situated practices, it is also knowledge of some natural phenomena—animals, plants, minerals, rivers, forests, and so forth—that are for that community akin to what Garibaldi and Turner call 'cultural keystone species' (CKS) entangled with those practices". Massimi distinguishes this variety of local knowledge from two other varieties that she defines as *place-bound* and *place-indexed* respectively. Massimi explores both their distinctive features as well as their intersectionalities. For a discussion of how these different varieties of local knowledges apply to both historical examples of local coastal communities and their knowledge as well as to contemporary discussions about marine biodiscovery within the BBNJ Agreement, see Massimi, Brown, and Jaspars (forthcoming).

Very often local knowledge has been portrayed as mostly knowledge concerning 'raw materials' so to speak (be it knowledge of plants and fungi in the CBD context; or, in the marine context, knowledge of plankton, fish,[23] sea turtles, abalone, or similar). In ocean policy narratives, local knowledge is frequently presented as synonymous with 'stewardship' or 'custodianship' of natural resources. This stance warrants further and broader consideration, as the connotations behind this terminology may indeed vary and may not well reflect the complex, subtle, reciprocal interrelation between local knowledge and biocultural ecosystem.

One view is that 'stewardship' and 'custodianship' involve local knowledge and expertise being primarily attuned to the conservation, sustainable management, and co-development of coastal territories and their fragile ecosystems. Recital 11 in the BBNJ Agreement provides Parties "[d]esiring to act as stewards of the ocean in areas beyond national jurisdiction on behalf of present and future generations by protecting, caring for and ensuring responsible use of the marine environment, maintaining the integrity of ocean ecosystems and conserving the inherent value of biological diversity". Stewardship's importance is also reflected in arguments supporting rights of nature (Harden-Davies et al. 2020, Section 4.1.1).

From a different angle, however, some legal scholars (e.g. Sunder 2007; Anderson 2009) have questioned the language of 'stewarding' or 'custodianship'. They suggest that this language risks portraying local knowledge as passive rather than active; static rather than dynamic and ever evolving. Most of all, they see in this terminological approach a genuine risk of pitting local knowledge as dichotomous to / antithetical to scientific knowledge (or "the best available science and scientific information" in the language of BBNJ Art 7(i)).

What is often implicitly at stake in ocean governance and marine policy is a kind of epistemic *divide and conquer* strategy in which distinctive varieties of epistemic injustices lurk. In debates about local knowledge vis-à-vis scientific knowledge, familiar epistemic injustices take various forms: 'epistemic severing and epistemic

[23] Note that fishing and other living marine resources known to have been taken in fishing and fishing related activities in ABNJ are not within Part II of the BBNJ Agreement (the MGR and benefit sharing Part), except when they are regulated as "utilization" under Part II (Art 10(2) and Art 1(14)).

trademarking' (see Massimi 2022a);[24] and 'epistemic extractivism' (see Alcoff 2022),[25] are just two examples.

We suggest that in addition to these varieties of epistemic injustices, even in cases where no deliberate extractivism is in place, often a more subtle variety of epistemic injustice might be operating. This is the injustice of 'objectifying' local knowledge qua primarily knowledge of particular *objects* of interest (be it sea turtles, laver seaweed, or else), and the ensuing 'commodification' of such knowledge as knowledge that is *useful for a purpose* (be it biodiscovery or ecological management or tracking migratory species or developing a new product) even if this is done in some cases as part of an interlaced, braided, and complementary approach to Western science (on the notion of 'interlacing' see Massimi 2022a, Ch 11, p. 349ff; and 'braiding' see Kimmerer, 2013).

Unsurprisingly, there has been a clear stance against such objectification and commodification of local knowledge in relation to e.g. land and water. The so-called movement of Water Rematriation has, for example, questioned the very conceptualisation of water and land as 'objects' that can be 'stolen', as something that belong to "the language and logics of settler-colonial societies that understand relationships as things rather than relations (Watts, 2013)" (Leonard, David-Chavez et al. (2023), p. 394).

The epistemic injustice in this case does not consist only in severing local knowledge, appropriating it, extracting it from its wider cultural context for selective use within Western science. Instead, the epistemic injustice consists in carefully siloing varieties of local knowledges and labelling them in a way that objectify /commodify their nature and value. Once reduced to mere knowledge of *objects,* local knowledge risks being equated with mere stewardship or custodianship of *those objects*.

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[24] "*Epistemic severing* affects narratives about scientific knowledge production that tend to surgically excise the contributions of particular communities…it can...happen...as a result of socioeconomic structures and epistemic norms that place an emphasis on particular modalities of scientific knowledge production over others (e.g. textual rather than oral, codified in educational curricula rather than artisanal, universal rather than local knowledge)…Epistemic severing is a precondition for epistemic trademarking..[it] involves the appropriation and branding of entire bodies of knowledge claims, with associated practices, as a 'trademark' of one particular epistemic community" Massimi (2022a), pp. 349, 351, and 354.

[25] As Alcoff (2022), p. 4 and p. 9 explains it: "I will use the term 'extractivism' to mean common practices of extracting monetized value that are linked to colonial histories and that are embedded still today in vastly unequal global economic and political power…Living beings are transformed into raw material and a forest becomes a field for extraction rather than a habitation to watch, nurture, and preserve from year to year".

Such object-focussed eco-stewardship misses the wider, more complex socioeconomic and cultural practices in which local knowledge is often embedded and therefore cannot often fully ground equitable ocean governance as a way of giving due credit to local communities and their ways of knowing.

Hence the need to rethink in this context local knowledge not just or primarily as knowledge of *objects* but instead as knowledge of *phenomena*—e.g. not as knowledge of seaweed, but knowledge of phenomena such as 'seaweed growth', and 'seaweed harvesting' among others; not as knowledge of sea turtles, but as knowledge of phenomena such as the spawning or the hatching of sea turtle eggs, and so on.

This shift of emphasis from *objects* to *phenomena* would relocate attention toward a range of *epistemic relations* between the relevant community and their ecosystem broadly understood, including cultural practices as well as sustainable livelihood strategies. A *phenomena-first ontology* (see Massimi 2022a, esp. Ch 6) can do better justice to the relational, reciprocal, and responsibility-based ways of knowing and of being held by local communities worldwide.

With this special issue we aim to draw attention to this different way of thinking about the complex inter-relations among varieties of local knowledges held by coastal communities wordlwide, their cultural practices, livelihood needs, and ecological management in coastal areas and in ABNJ for an equitable implementation of the BBNJ Agreement, and for other ocean governance decision-making contexts.

This new way of thinking should concentrate on complex *relational phenomena* where the aforementioned ecosystem approach could be further strengthened and supplemented by rediscovering and giving due attention to *epistemically salient* know-how by relevant coastal communities as inherent in how those phenomena are conceptualised and cared for within situated artisanal, experiential, and in some cases also culturally-identifying practices.

This way of thinking has therefore the potential of shedding new light on and resolving the tension behind the two aforementioned dichotomies in the language of the BBNJ Agreement—namely, the dichotomy between "the best available science and scientific information" on the one hand and "the use of relevant traditional knowledge of Indigenous People and local communities, where available", on the other hand, as well as the second dichotomy between the precautionary principle and the ecosystem approach. It also echoes recent calls to interpret the 'ecosystem approach'

beyond tired competing narratives of ecocentrism vs. anthropocentrism (see De Lucia 2019 pp. 99-109).

An emphasis on how a plurality of situated practices methodologically intersect and historically interlace over time to produce reliable knowledge of modally robust phenomena (see Massimi 2022a, 2022b, and 2024) can avoid the risk of objectifying and commodifying varieties of local knowledges. At the same time, it can also bring to the foreground the ineliminable role and profound value of varieties of local knowledges in fulfilling the ecosystem approach when it comes to marine policy and ocean governance, especially in the current ratification stage of the BBNJ Agreement.

## 5. Special issue overview

The articles in this Special Issue illustrate the aforementioned complex legal-philosophical-scientific nexus of questions surrounding local knowledges and equitable ocean governance. They also provide a kaleidoscope of examples and case studies from local coastal communities across the globe illustrating varieties of local knowledges in action (see footnote 22 drawing on Massimi 2025). In some cases, the local knowledge in question is best understood as *experiential knowledge* of local communities (e.g. see article by Jimlea Nadezhda Mendoza, Renata Sõukand et al.'s on fishers' knowledge concerning invasive algae in the Lagoon of Venice). In other cases, the local knowledge in question is instead best understood as culturally-identifying knowledge of particular CKS *phenomena* which have proved pivotal to projects of ecological management, environmental restoration, and sustainability in the face of climate change (see e.g. article by Christy Juteau, Harley Chappell Xwopokton, Sarah Marie Wiebe and Robert Lapper on Indigenous shellfish harvesting in the Semiahmoo First Nation in Canada). And in yet other cases the local knowledge in question is best understood as the intersection of these two main ways of thinking about local knowledge. What follows is an overview of the articles in this Special Issue and their fascinating case studies that illustrate in a number of ways how issues of equity arise in the marine policy context.

In “Establishing coastal partnerships for sustainable development in Taiwan: A case of Shanshui area, Penghu”, Wen-Hong Liu, Hsiao-Chien Lee, Shingo Akaike, Li-Shu Chen, Chih-Cheng Lin, Hu Chun-Chieh and Kuei-Chao Chang explore the importance of local knowledge in initiatives such as the creation of the Penghu National Scenic Area in Taiwan, where sustainable ecological development crucially depends on partnership with the local coastal community.

The importance of better partnership between policy-makers and local communities is also stressed by Maria João Correia, Paula Chainho, Thomas Goulding, Frederico Carvalho, et al. in “Participatory action research supporting adaptive governance of Manila clam fisheries” in the fight against illegal fishing in the case study of Manila clam fisheries in Portugal.

“Towards legal modernisation: Pakistan’s maritime legal regime vis-à-vis the maritime labour convention 2006” by Muneeb Khan, Aiman Bibi, Yen-Chiang Chang discusses the better protection of seafarers’ rights through various legal instruments with specific reference to Pakistan as a flag and port state. This is with the aim to encourage more young people to engage in maritime careers whilst being protected from abuses at sea.

The new Lafkenche Law in Chile established Indigenous Marine Areas enabling Indigenous peoples to manage marine and coastal areas to protect their customary uses. In “Getting our sea back: Indigenous governance and biocultural conservation of coastal and marine commons”, Daniel Carrasco-Bahamonde, Antònia Casellas and Francisco Araos conclude that this law can broaden the range of actors, knowledge, and practices involved in the commons, promote equity in access to and management of marine spaces and resources and facilitate greater movement towards sustainability.

Jinpeng Wang and Xiaohan Fan explore the place of traditional knowledge of Arctic Indigenous Peoples in the negotiation of the BBNJ Agreement, particularly concerning Area Based Management Tools in “Traditional knowledge of Arctic Indigenous Peoples and the establishment of area-based management tools beyond national jurisdiction”. They discuss opportunities for future engagement through the Arctic Council and new structures and observer status possibilities as the BBNJ Agreement is implemented.

In “Weaving science and traditional knowledge: Toward sustainable solutions for ocean management” Mariana Caldeira, Alumita Talei Sekinairai and Marjo Vierros

explore policy opportunities and mechanisms for better interweaving local knowledge and scientific knowledge in the context of initiatives spanning the UN Ocean Decade.

The vital role of local Indigenous practices is the topic of "The beauty underneath: A critical coastal governance approach to revitalize indigenous shellfish harvest" by Christy Juteau, Harley Chappell Xwopokton, Sarah Marie Wiebe and Robert Lapper. The paper explores the deep inter-relation between local knowledge and culturally-identifying shellfish harvesting practices, and its relevance to ocean governance and land sovereignty among the Semiahmoo First Nation in Canada.

Walking through intertidal zones at low tide in search for species to be used or sold by coastal women in Zanzibar is the topic of "Intertidal gleaning fisheries. Recognising local-scale contributions and management scenarios" by Felicity Pike, Narriman S. Jiddawi and Lina Mtwana Nordlund. They explore the economic importance of gleaning in seagrass areas in the Indo-Pacific region and women's ways of knowing and lived experiences for a more inclusive management system of sustainable fisheries.

In "Fishing (in) the past to inform the future: Lessons from the histories of fisheries management in Lake Malawi and Mbenji Island" David Wilson, Elias Chirwa, Bryson Nkhoma, Milo Gough, Charles W. Knapp, Tracy Morse and Wapulumuka Mulwafu discuss the importance of including local communities in decisions regarding fisheries management, using a case study in Malawi. Historical awareness is stressed for preventing repeating failed approaches.

The industrial perspective, funding for research and benefits to local communities from working with seaweed are considered by Martha Berman in "Leveraging EO 14801 to grow the U.S seaweed industry". Key points are the impact of a Biden Administration Executive Order for advancing biotechnology innovation, research, and technology sharing with priorities accorded to Indigenous communities. The piece calls for collaboration between scientists, communities, nonprofit organisations and government.

In "BBNJ Agreement in the purview of developing countries: a case study of Pakistan" Yen-Chiang Chang, Muneeba Javid and Mehran Idris Khan show how regional engagement was important in shaping the final agreement text and how regional blocs such as the G77 led to a more equitable outcome. It follows the story of the initial lack of engagement by Pakistan in the BBNJ Intergovernmental Conferences to their being regarded as a major contributor to the shape of the final text.

In “Seaweeds and Sovereignty: Governance Gaps and Self-Determination within Limu Stewardship in Hawai’i” Gina McGuire, Alexander Mawyer, James J Akau and Noelani Puniwai highlight the use of ‘Ōiwi (Native) science to complement methods for monitoring limu (seaweeds) in Hawai’i and stress the importance of local community’s agency, self-determination, and self-governance in research concerning the life cycle of seaweed.

The article "Climate change adaptation: Raising fisherwomen’s voices to policy making” by Leandra Gonçalves, Caroline Fassina, Lana Resende de Almeida et al. shines a light on the undervaluation and underrepresentation of women’s voices in Brazilian small-scale fisheries and presents key findings from the Vozes do Mar project in making the case for local ecological knowledge.

Local fishers' ethnobotanical knowledge as a valuable complement to scientific knowledge in assessing the impact of invasive alga species for local biodiversity is the topic of Jimlea Nadezhda Mendoza, Renata Sõukand, Baiba Prūse, Giulia Mattalia et al.’s paper “Impacts of invasive algae from the perspective of fishers in the Lagoon of Venice, Northern Italy.”

And the role and importance of local qua lived knowledge in the fishing community of Marajó archipelago situated at the confluence of the Amazon River with the Atlantic Ocean in Brazil is the topic of Gonçalves, Renck, Vivacqua et al.’s paper “Reimagining Coastal Management: Addressing Socio-Environmental Conflicts in a Traditional Fishing Community in the Delta of the Amazon River”. Through semi-structured interviews with the local fishing community, the authors argue against top-down governance model and for a more equitable and participatory coastal management framework.

Traditional ecological knowledge, the Sustainable Development Goals, inclusion and exclusion from the perspective of women and persons with disabilities and socio-economic constraints are considered by Oluwatoyosi O Abikoye and Abimola Abikoye in “Marine Policy and Community Engagement: Rethinking the Role of Vulnerable Groups in Climate and Ocean Action on Lagos’ Atlantic Coast, Nigeria”.

Collectively, these contributions make a powerful plea for the importance of varieties of local knowledges by coastal communities worldwide in their fight for having their local ways of knowing better embedded into equitable ocean governance. Local knowledges by coastal communities play a fundamental role in environmental and ecological practices worldwide. It is our hope that this special issue with its wonderful

array of geopolitically situated case studies might shine a light on these practices; and, in so doing, it might also level the epistemic playing field for local knowledges beyond entrenched terminological dichotomies, historical hierarchies of power, and deeply ingrained epistemic injustices.

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