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Title: Transformational opportunities for an equitable ocean commons.

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A frontier mentality has been a defining aspect of human history. Often this sentiment is optimistically framed in the language of aspirations and opportunities. But it can also be accompanied by unsavory narratives of over-exploitation, inequity and conflict (1). If any place on Earth can be considered a final frontier, it is perhaps the ocean’s “areas beyond national jurisdiction” (ABNJ), which are both distant (generally starting some 370 km from coastlines) and vast (covering nearly 40% of the planet’s surface). It is also the subject of ongoing UN negotiations for a treaty on the conservation and sustainable use of marine biological diversity found in areas beyond national jurisdiction (typically shortened to BBNJ, <https://www.un.org/bbnj/>). However, if current trajectories of expansion of human activities in the ocean continue, we are at the crossroad of deciding whether this rapidly-receding frontier will bring the economic and social benefits that drive progress towards achieving the Sustainable Development Agenda, or further cement global inequities (2).

25 Humanity has never benefited more from the ocean, but 60% of USD 1.8 trillion revenues of the eight main ocean-based sectors were accrued by just 100 corporations (3). Almost half of these are oil and gas companies headquartered in 13 countries, emphasizing the distance between today’s ocean economy and aspirations of a sustainable and equitable “blue economy” (4). Over the past 50 years, this concentration has been accompanied by accelerating growth in the diversity and scale of claims on the ocean’s food, material, and space, not only in coastal areas, but increasingly in international waters (the Blue Acceleration (5)). For instance, industrial fishing fleets have expanded their focus to deeper and more distant waters—the landed catch of ABNJ fishing operations was valued at USD 7.6 billion in 2014, but only 47% of these operations would have been profitable without perverse subsidies (6). Elsewhere, the international seabed, which, together with its mineral resources, is considered the common heritage of humankind, is poised to shrink by some 37 million km², twice the size of Russia, due to extended continental shelf claims that would bring these areas under national jurisdiction (5).

40 Frontiers are uncertain territory, characterized by high risks and high rewards. In the case of ABNJ, the financial and human capacity needed to participate are substantial, and has encouraged a single-minded focus on production, leading to “blind spots” in the ocean economy that are perpetuating inequities, and are incompatible with international development agendas (7). Pivoting the current narrative of ABNJ away from this status quo will require a new operational logic. Here, we propose four transformational opportunities to reshape our

relationship with the ocean and foster equity for people and nature, and suggest two avenues for public and private sector actors to lead the way.

Equity as the guiding principle for transformational changes in areas beyond national jurisdiction (ABNJ)

50 Concepts shape policy, and our first transformational opportunity is to fundamentally
reconceptualize the ocean as a global commons. The fragmented nature of the ocean policy
seascape is out of sync with the interconnected nature of the ocean’s biophysical processes and
the accelerating human footprint in ABNJ, leading some to embrace emerging conceptualizations
55 of the ocean as a global commons (8). There is diversity in these notions of a global commons,
but they are distinct from the legal concept of the common heritage of humankind, which applies
for instance to the Moon. While legal concepts carry legal implications and can cause
international negotiations to grind to a halt, a conceptual global commons does not—and it finds
60 resonance with moral and political concepts that capture a spirit of connectivity and shared
benefit as well as the imperative of collective action. Accordingly, the ocean is of vital
importance for present and future generations, implying a responsibility by each State, economic
actor, community and individual to protect it. Such sentiments are implicit in the preamble of the
United Nations Convention on the Law of the Sea (UNCLOS), which notes that “the problems of
ocean space are closely interrelated and need to be considered as a whole.”
65 (https://www.un.org/depts/los/convention_agreements/convention_overview_convention.htm)

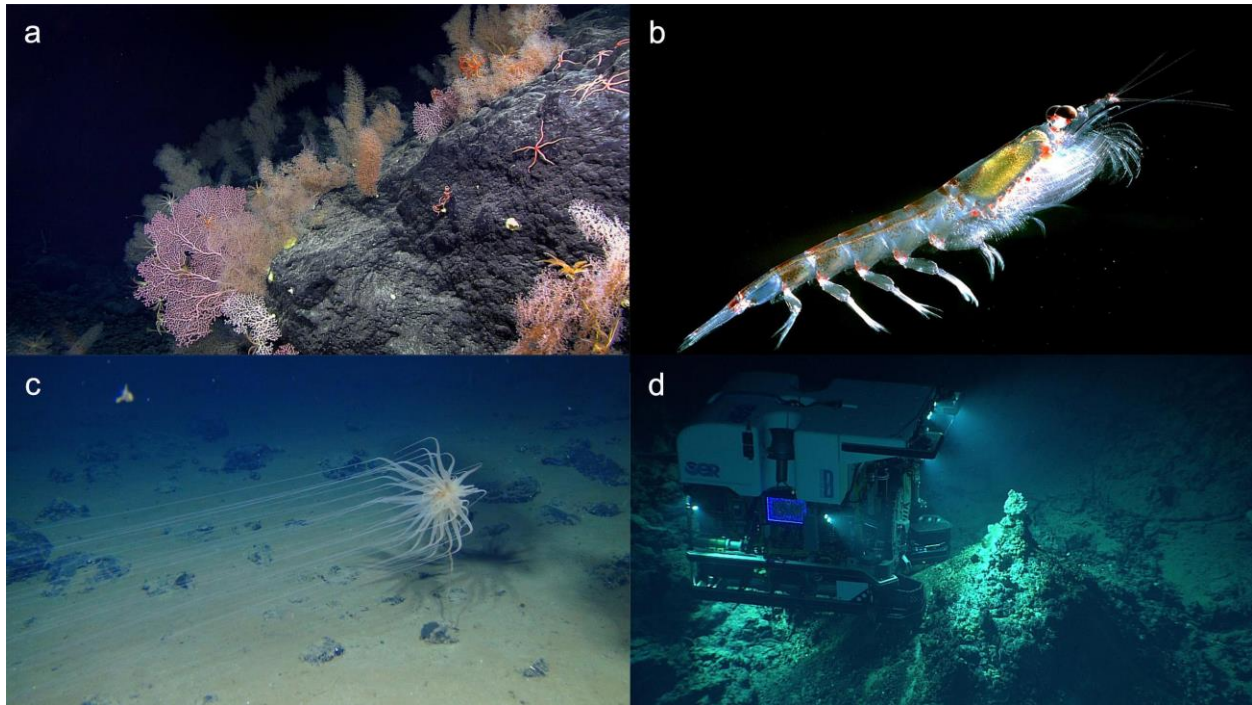
Our second transformational opportunity focuses on the development of global infrastructure for
fair ocean research. Marine scientific activities in ABNJ are inherently costly due to the
70 remoteness and associated technical challenges, hampering equity in participation and
knowledge production. The exploration and study of ABNJ does not mirror the diversity of the
world’s science community, and has largely excluded developing nations and vulnerable
communities, which are among the most reliant on a functioning and predictable ocean (9). In
order to make ABNJ a truly global commons, we need to explicitly focus not just on scientific
75 questions worthy of investigation, but also on building up the capacity of emerging and future
researchers by reversing inequity in marine research and education infrastructure. This can be
achieved through three complementary elements of a new global infrastructure.

80 First, the creation of a “research fleet for the world” formed through the commissioning and/or
repurposing of vessels positioned strategically around the world, would allow for ocean science
by individuals from adjoining regions (9). This research fleet could encompass not only ships but
also submersibles, gliders, buoys, floats, autonomous underwater vehicles, or remotely operated
vehicles. Second, an international mobile deep-sea station—akin to the International Space
Station, which has substantially expanded our understanding of the solar system and beyond, and
85 inspired millions of people worldwide—would help humankind to understand the deep sea, its
rhythms over time and space, and its role in climate, via state-of-the-art instrumentation with the
promotion of diversity, equity, and inclusivity as guiding principles (9). Third, a global institute,
with science advancement and capacity development as interwoven core missions, would
actively promote large-scale, fair, interdisciplinary collaboration between high-income and low-
90 income countries for the co-production of knowledge, as well as co-discovery, co-cataloguing,
and co-stewardship of biodiversity. Distance-learning technologies are becoming increasingly

effective and the institute would mobilize these to create an online global platform that could assist with broadening access, including to centralized and accessible data, in accordance with FAIR data principles (9). The emergence of regional and global networks of expertise through such a new global infrastructure can accelerate the pace of discovery and research advances, stimulating a deeper sense of stewardship and engagement to foster transformative policymaking.

Our third transformational opportunity entails a reordering of paradigms of conservation and use. The BBNJ treaty negotiations provide an opening to fundamentally change how humanity approaches ocean resources. The value of conserving biodiversity with marine protected areas (MPAs) is internationally recognized, as highlighted by the Convention on Biological Diversity (CBD) and Sustainable Development Goal (SDG) target 14.5. While a target of 30% of coastal and marine waters designated as MPAs (or other effective conservation measures) is being considered for the CBD's post-2020 Agenda, some have advocated raising this to half the Earth's surface. The potential for large-scale establishment of MPAs in ABNJ rests largely in the hands of the states negotiating the BBNJ agreement, an uncertain prospect following some 15 years of discussion and negotiations (10). Rather than binding the future of ABNJ solely to this process, we propose a new operating logic whereby the entirety of ABNJ would become a de facto conserved area. In line with a rights of nature approach (see below), this would entail switching from an assumption that ABNJ is open for business wherever it is most advantageous, to assuming it is closed pending collective decisions on where (and when) to exploit its resources (see (11) for a proposed approach for fisheries management off Canada's west coast). Far from limiting human benefits from ABNJ, this approach could sustain these, contributing to climate change mitigation and adaptation, increased fisheries catch at national levels or in areas open to fishing (10), and potentially improved nutrition and food security in developing countries (12). Decisions on when and where to allow further activities in ABNJ should be made in an explicitly inclusive manner through an equity lens supported by benefit-sharing mechanisms.

Our final, and perhaps most aspirational transformational opportunity entails an expansion beyond anthropocentric notions of equity and rights in ABNJ to explicitly encompass the natural world and its components. Recognizing the intrinsic value of the ocean and its biodiversity, and upholding their legal rights to exist, flourish, and evolve, could provide the paradigm shift needed (13, 14). This could transform the relationship between humans and the ocean, with the ocean respected as a rights-bearing entity, rather than a resource to be exploited (15). This could also lead to entities seeking restitution when nature in ABNJ is harmed through regulatory failure (13). Successfully applying this approach depends on addressing fundamental questions, such as how exactly to define "nature". If transformational change is the aspiration, however, these are not insurmountable hurdles. The "rights of nature" movement can provide a common vision and encourage progressive interpretations of key principles, potentially enhancing the effectiveness and equitability of ocean governance instruments, and normalizing a role for the global community as better stewards.



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Figure 1: (a) A high density and diversity of organisms inhabit areas beyond national jurisdiction (ABNJ) including many species of coral in the deep ocean. (b) Between 2002 and 2011, Antarctic krill accounted for 24% of catch on the high seas. (c) Mineral resources in ABNJ are gathering attention, including in the Clarion-Clipperton Zone. (d) Marine technology such as Remotely Operated Vehicles could form part of the “research fleet for the work.”

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Image Credits: (a) NOAA Office of Ocean Exploration and Research; (b) Prof. Dr. habil. Uwe Kils; (c) Dr. Diva Amon and Prof. Craig Smith, University of Hawaii; (d) NOAA Office of Ocean Exploration and Research.

145 **Beyond the BBNJ Agreement**

While there are attractive aspects of such transformational opportunities, their feasibility may be undermined by a fragmented ocean governance seascape and “treaty fatigue”, with states becoming reluctant to engage in multilateral treaty-making, thus threatening to deflate the ambition level of new policy instruments such as the BBNJ treaty. It is therefore crucial to explore alternatives that can fit within this policy space, but be more agile and bold, ideally setting the stage for future binding instruments (2). We outline two avenues for action, one in the public sphere, one in the private, aligned with the proposed transformational opportunities.

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Proactive states have a role to play in leading the way for the international community. The High Level Panel for a Sustainable Ocean Economy provides one promising model, whereby 14 heads of state—a diverse subset of the global community seeking to position themselves as ocean leaders—have taken a step in unison with time-bound commitments to sustainable ocean management (16). The ink is still drying on the commitments made by the High Level Panel, but convincing progress demonstrating the dividends of this approach could bolster broader regional and eventually global coalitions of states committed to comparable efforts. If the BBNJ negotiations fail to conclude in a timely and ambitious manner, we see value in the establishment

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of a High Level Panel of heads of state committed to transformational science-based leadership on ABNJ.

165 Similar to states, industry leaders can also appeal to their peers in leading change for an
equitable ocean commons. The private sector is driving the Blue Acceleration (5), with its good
and bad practices shaped by public policy. Yet there is a growing awareness among corporate
actors that the limits of the biosphere are being breached, constituting not only a threat to the
170 Earth’s most vulnerable ecosystems, but a threat to the future viability of entire industries. In the
context of ABNJ, for instance, while the Pacific island nation of Nauru applied in early 2021 for
approval to the UN International Seabed Authority to begin mining in two years, a handful of
corporate giants committed to not source metals or minerals from the international seabed unless
it could be clearly demonstrated that such activities can be managed in a way that ensures the
175 effective protection of the marine environment (17, 18). Comparable leadership by seafood
corporations might include commitments to only source seafood from within national
jurisdictions (19). On a small scale, such efforts would carry little impact. But through vehicles
of pre-competitive collaboration, small groups of influential actors can catalyze notions of
corporate biosphere stewardship, and rapidly shift industry norms with far-ranging impacts (20,
21). If such a critical mass is reached, key risks to ABNJ would rapidly dissipate.

180 A status-quo approach to ABNJ is a risk for humanity and the biosphere, and would be a missed
opportunity. Shifting and elevating narratives away from the pragmatic and towards truly
transformational change is urgently needed in order to make humanity’s relationship with ABNJ
an example of how action can spur equitable outcomes (2). We applaud the multiple efforts,
185 including within the scope of the BBNJ negotiations, to achieve such outcomes, and underscore
the constructive role for public and private actors to remain proactive in raising ambition levels
and shaping an equitable future for humanity’s relationship with ABNJ.

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