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How to leverage trade to achieve a 2050 ocean dream

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The Ocean is central to our lives, providing vital ecosystem goods and services. It generates 50% of the Earth's oxygen; absorbs around 30% of anthropogenic carbon emissions; regulates the Earth's climate; and provides food, income, and livelihoods for hundreds of millions of people worldwide. However, the Ocean is under serious multiple threats from overexploitation, climate change, and pollution. Here, I state my dream 2050 scenario for the Ocean and describe how trade, in the midst of broader ocean governance efforts, can contribute to realizing this dream.

The Ocean is vast. It covers 70% of the Earth's surface and constitutes over 95% of the space available to living things^{1,2}, with the Pacific Ocean alone being over five times wider than the moon³. What is more, the world's population living within 100 km of the Ocean is predicted to double to 50% by 2030⁴. Despite its vastness, the Ocean is still at risk from degradation and overexploitation. The Ocean must be protected and used sustainably through time. The good news is that we have the brains, technologies, and cultures to do so. We just need to put our minds and hearts to it.

There are at least two reasons why it is crucial that we all do what we can to maintain a healthy ocean that is teeming with life. First, the Ocean is essentially 'our life support system' — it generates 50% of the oxygen on Earth, absorbs around 30% of anthropogenic carbon emissions, regulates Earth's climate, and is crucial for the Earth's environmental balance and survival⁵. The Ocean is also of incalculable sociocultural and spiritual values; it is a playground for many of us; it supports hundreds of millions of jobs and livelihoods⁶; and it is a major source of healthy, nutritious animal protein for billions of people worldwide, especially in low-income countries⁷. The Ocean is also the backbone of international trade via shipping⁸, and could eventually help generate a large chunk of renewable clean energy for the world. It is worth noting that innovations in shipping to make it greener, and development in ocean-based renewable energy would be fundamental to ensuring that trade contributes meaningfully to achieving the goal of having a sustainable ocean⁹.

Second, the Ocean is currently facing a multitude of stressors, ranging from overfishing¹⁰, climate change¹¹ and its associated threats (e.g., ocean acidification¹² and deoxygenation¹³), and marine pollution, including plastic¹⁴, oil spills¹⁵, and heavy metals such as mercury¹⁶. It is worth noting that these stressors are not always additive and are often synergistic or antagonistic, implying that they can either reinforce each other or reduce the impact of each other¹⁰.

Given the long list of vital ecosystem services provided by the Ocean and the threats it is facing, it is crucial that every private and public entity worldwide work diligently towards ensuring a healthy Ocean. The good news is that the world recognizes this; therefore, ocean sustainability is one of the 17 Sustainable Development Goals of the United Nations — SDG 14 Life Below Water¹⁷ — and the Ocean features prominently in the Global Biodiversity Framework¹⁸. My objective in this *Comment* is to explore how trade can more strongly support, rather than undermine, ocean sustainability and the well-being of billions of people worldwide by 2050.

At the fundamental level, people do just two things when interacting with the Ocean. First, we 'take' from the Ocean what we need, want, and desire (e.g., fish). We take these benefits into our economy, culture, and social settings to feed, nourish, warm, transport, and entertain ourselves. At the end of all these societal activities, we produce waste in the form of CO₂ and marine debris (e.g., plastic), while in many cases destroying marine ecosystems. In a nutshell, 'good things' come from the Ocean while 'bad things' go to the Ocean. Clearly, we need to organize economic and other societal activities, including trade in ocean goods and services, in ways that ensure that we do the 'taking' of the good things and the 'pumping out' of the bad stuff in a manner that does not degrade and deplete ocean biodiversity and fisheries. It is worth noting that I am deliberately ignoring nuances, such as the fact that humans are themselves part of nature¹⁹, in order to avoid complicating the grand narrative being laid out here.

The relationship between trade and the environment is complicated, as succinctly captured by Fischer²⁰: "trade liberalization can be a boon to resource-rich countries, *but not always*; that trade can lead to the depletion of natural resources, *but not always*; and that trade bans can be appropriate, and certified trade can be helpful—*but not always*". Using Fischer's quote as a point of departure, I paint a picture of my best-case scenario for the Ocean in 2050 as it relates to trade and the sustainability of the ocean economy, in the following paragraphs.

Best-case scenario for 2050

My dream 2050 scenario is for a healthy, clean ocean teeming with marine life and biodiversity, and supporting sustainable ocean economic activities through time²¹. The best-case scenario includes trade as a key contributing factor in helping to attain this dream.

Two things have to happen for this dream ocean scenario to be achieved by 2050. First, an enabling environment needs to be created to allow the trade of only sustainably sourced ocean goods and services. Second, the trade sector itself needs to ensure that trade is done in a manner that is benign in terms of its impacts on marine life and biodiversity.

A 'whole-ocean-governance approach' needs to be implemented by 2050 to help create the necessary enabling environment and ensure that marine biodiversity is conserved, used, and traded sustainably. Thinking of fisheries, in particular, there is a range of actions the trade

sector can take in support of the creation of an enabling environment to ensure a sustainable ocean, including catalyzing governments at all levels, civil society, communities, and scientists to pay special attention to the management of essential habitat, using safe minimum biomass levels, applying input controls, eliminating destructive fishing gear (e.g., bottom trawlers) and fishing methods (e.g., dynamite fishing), establishing networks of marine protected areas, properly assigning access rights to communities, including Indigenous ones, and eliminating harmful subsidies. The trade sector can also influence management indirectly by deciding not to trade in illegally and unsustainably extracted ocean resources. Finally, without adequate finance, we cannot create an effective enabling environment that would help ensure that by 2050, trade is conducted in support of a sustainable ocean²². The trade sector can also deploy some of its political and financial capital to drive finance and investment towards sustainable ocean economic activities²³.

The trade sector, like all others, must actively contribute to the sustainability of ocean biodiversity, shaping a 2050 ocean condition we can all be proud of. To achieve the latter, trade measures and policies must meet specific prerequisites: (i) fish trade policies need to be inclusive, transparent, and coherent, reflecting the interconnected nature of the ocean—both underwater and through markets. Achieving this requires international, regional, and national cooperation; (ii) a concerted effort is essential to enhance transparency in policies, data, and information related to the state of the ocean and ocean-based trade activities. A promising step is integrating academic, private, and public data sources into platforms at various scales, with examples such as ABALOB²⁴ and Peskas²⁵ offering tools for sustainable management and real-time data analysis.

For such efforts to succeed, integrated platforms must exhibit key features: inclusivity by incorporating contributions from small-scale fishers, researchers, policymakers, Indigenous peoples, and private sector actors; accessibility, ensuring all stakeholders can trust and use the data for informed decision-making; and coherence, harmonizing these platforms with existing trade and environmental policies such as SDG 14 and the GBF. Global initiatives, including the One Ocean Hub, the World Bank's PRO-BLUE Ocean Governance Capacity Building Program, and UNESCO's IOC, provide a foundation to build capacity worldwide. A notable example is the International Institute for Sustainable Development (IISD)²⁶, which supports global efforts to align trade with the sustainability of marine biodiversity.

In terms of measures and policies, these should be designed and implemented to tackle at least the following stumbling blocks to a sustainable ocean: (i) the menace of illegal and illicit trade in ocean resources such as fish catch²⁷; (ii) disciplining subsidies that are harmful to ocean biodiversity and life²⁸; (iii) decarbonizing aquatic food and trade systems²⁹; and (iv) putting in place eco-friendly tariffs and non-tariff measures³⁰.

Stakeholder collaboration is vital to create momentum and the necessary infrastructure to support the swift uptake of an enabling environment and the measures proposed in this contribution. The implementation of appropriate economic and financial incentives for that purpose is crucial, as well as innovative communication and outreach.

If the enabling environment, the prerequisites, measures, and policies discussed above are put in place fast enough, we will be on our way to a 2050 best-case scenario. In such a case, both the Ocean and the trade that depends on it are thriving by eliminating or minimizing all the “*but not always*” in the quote by Fischer²⁰ stated above.

Data availability

No datasets were generated or analyzed during the current study.

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U.R.S. conceived and wrote the article.

Competing interests

URS is currently a co-editor-in-Chief of *npj Ocean Sustainability*. He had nothing to do with the review of this contribution.

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