


RESEARCH ARTICLE

Reflections on international ocean science and ocean governance: Can our global structures rise to the occasion?

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Abstract

There is increasing awareness that the ocean touches all aspects of our lives and that a healthy ocean is central to a healthy planet and sustainable future. The ocean is a highly connected system and ocean science is characterized by voluntary international collaboration supported by an enthusiastic and engaged community. Increasingly, it is being recognized that international structures and instruments need to be stronger and more holistic than the current arrangements. This article outlines some perspectives on this, drawing on experience in ocean science and scientists at national, international and intergovernmental levels.

Keywords: blue economy; global commons; international relations; ocean governance; ocean science; ocean treaty; United Nations Convention on the Law of the Sea (UNCLOS)

1. Introduction

I am an ocean scientist who has spent much of my career working in programme coordination. I have worked on collaborative programmes focused on marine science and ocean observing at national, international and intergovernmental levels. I therefore write from the perspective of an understanding of the ocean system, the marine science community dynamics, and the international institutional and political landscape, which gives me a sense of how to use the levers at our disposal to make things happen. At the highest level, ocean governance needs to consider several factors:

- The ocean is a dynamic and highly connected system – connected from open ocean to coasts, physics to fish and surface to seafloor. Straight lines and static boundaries simply do not translate in the ocean in practical terms – particularly an ocean that is changing (e.g. coastlines and species ranges changing with climate change). We need to provide for a future in which we can take dynamic approaches to marine spatial planning and governance.
- The ocean plays a crucial role in the Earth's system, ensuring the planet is habitable, and contributing to the functioning of a healthy planet. The ocean modulates our climate, including taking up over 90 per cent of excess heat and 25 per cent of excess

carbon accumulating in the atmosphere due to climate change. The ocean also supports 90 per cent of the planet's biosphere.

- The growing blue economy and its role in a sustainable future need to be considered, including the importance of shipping (including green shipping corridors), trade and tourism, energy generation (including renewables) and resource extraction. We need a holistic framework for managing the fair/sustainable use of the ocean and exploitation of resources across the high seas, continental shelves and coastal regions.
- The rights and interests of people are central – we have an intrinsic connection with the ocean as a place to build communities, a source of food, a connection to the outside world and a source of wellbeing. Provision is needed to consider rights of coastal (and non-coastal) communities, particularly in protection against sea level rise and extreme events and the importance of coastal ecosystems to local economies, freedom of movement and trade.

The complex geopolitics and interests in the ocean and its resources have led to governance frameworks being developed reactively and fragmented by application. Now is a good time to take a step back and holistically consider needs for governance and what they should enable. We are at the start of the UN Decade of Ocean Science for Sustainable Development (UN Ocean Decade)¹ so why not use the decade to facilitate a discussion on the ocean governance required for sustainable development, engaging the right balance of experts? We can look to examples of other formal frameworks and conventions, as well as the characteristics of the ocean and the people that interact with it, including institutional landscape and cultural/organisational norms.

Currently, the primarily legal tool for ocean governance is the UN Convention on the Law of the Sea (UNCLOS),² which gives sovereign rights to nations within their exclusive economic zone (e.g. static boundaries) and governs some aspects of high seas activities. Its role and limitations will be covered in more depth in another article in this edition. The International Seabed Authority³ governs *aspects* of exploiting the seabed. Aspects of the UN Framework Convention on Climate Change⁴ and the Convention on Biological Diversity⁵ are also relevant to the ocean. Regionally, the Antarctic Treaty⁶ and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)⁷ have some jurisdiction, as do frameworks for particular species such as the International Whaling Commission (IWC) and the regional fisheries management organisations.

Examples of related conventions and governance structures upon which we might draw on are:

- The World Meteorological Convention⁸ – motivated by the need to collaborate to protect lives, livelihoods and property, particularly through sharing data and best

¹UN Decade of Ocean Science for Sustainable Development: <<https://www.oceandecade.org>>.

²UN Convention on the Law of the Sea (UNCLOS): <<https://www.unctlos.org>>.

³International Seabed Authority (ISA): <<https://www.isa.org.jm>>.

⁴UN Framework Convention on Climate Change (UNFCCC): <<https://unfccc.int>>.

⁵Convention on Biological Diversity (CBD): <<https://www.cbd.int>>.

⁶Antarctic Treaty: <<https://www.ats.aq>>.

⁷Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR): <<https://www.ccamlr.org>>.

⁸World Meteorological Convention: <https://library.wmo.int/index.php?lvl=notice_display&id=14206#.YuO9fXbMfuU>.

practice. Very process focused, with an emphasis on ‘monitoring and compliance’. The atmosphere is also a highly connected system, so it serves members’ national interests to collaborate in measuring, understanding and predicting. The primary focus of the World Meteorological Organization on weather and climate information is perhaps simpler than managing the many interests and users of ocean resources.

- The Antarctic Treaty – perhaps provides a framework for governing our environmental assets holistically and for collective benefit with a focus on scientific research. However, given the established human relationship with the ocean and its resources, from the individual and community level (e.g. coastal communities and artisan fisheries) to large commercial interests (shipping and trade, oil and gas), it is difficult to guarantee that the ocean will be used only for scientific purposes.

Any holistic ‘ocean treaty’ needs to balance protection with the promotion of fair use of and benefit from ocean resources, which brings us back to the UN Agenda 2030 Sustainable Development Goals (SDGs)⁹ as a starting framework. While the SDGs are imperfect, they provide a useful framework for discussions and approaches in the future. The main issue is timeframes: economic development and sustainability are not at odds on longer timeframes – they are intrinsically connected; they are only at odds on short timeframes.

While there are social science aspects of marine science that will be discussed in other articles, it would also be useful to consider the social science/cultural aspects of improving marine science collaboration and delivering change/impact. When I worked at The World Meteorological Organization (WMO), despite many common features (both effectively the study of environmental fluid dynamics!), I was struck by how the cultures of oceanography and meteorology had evolved so differently. Meteorology has evolved to become risk averse, focused on process, protocols and compliance (tick the box, job done) due to the overwhelming mandate of met services to protect lives and property (and defend their advice when things go wrong).

There are aspects of how we work in ocean science that we do not want to lose along the way of tightening/formalizing governance. Oceanography is still seen as an exciting and exploratory science, where taking big risks (putting large expensive pieces of equipment in the ocean/under the ice) is still accepted as important, and the global effort is reliant on collective trust, enthusiasm and voluntary collaboration to get things done. We don’t want to snuff out this positive energy that has got us to where we are today, but we need to strengthen the top-down structures and instruments to consolidate our progress. For instance, the UN Ocean Decade has led to an energetic proliferation of great new programmes and project ideas; the challenge will be consolidating progress to deliver a clear legacy. Structures are now being set up to achieve that – Decade Collaborative Centres and Coordination Offices, focused on each of the ten Decade Challenges.

I would like to see us engage social scientists and psychologists in the way we construct marine science programmes and collaborative structures, given the nature of how scientists, policy-makers and governments work and interact. It is time to take a step back and consider how best to govern the ocean for what it is: a single, highly connected, holistic system that touches all aspects of our lives and our future on this planet.

At the time of writing, the Biodiversity Beyond National Jurisdiction (BBNJ) negotiations were underway. In March 2023, a significant step forward in ocean governance has

⁹The UN Agenda 2030 Sustainable Development Goals: <<https://sdgs.un.org/goals>>.

been achieved through the agreement of the High Seas Treaty (an outcome of the BBNJ negotiations).¹⁰ The treaty provides a legal framework that could place 30 per cent of the world's oceans into protected areas and put more money into marine conservation; it covers access to and use of marine genetic resources. The treaty also includes ambition to modernize environmental impact assessments.

The High Seas Treaty fills a large hole in the jigsaw of existing ocean governance legislation, but it does not encompass or usurp the other governance frameworks outlined. For instance, frameworks for regulation of human activities such as fishing, deep sea mining and shipping can continue to operate as normal without following the environmental standards agreed in the treaty. While this is an important step forward, we are still a few steps away from addressing the need for a holistic ocean governance framework. The Treaty will take time to ratify, and structures will take time to establish. A dedicated secretariat will be established, and a Conference of the Parties will be held (akin to other UN Conventions). For a small community such as ocean science, this provides both an opportunity and a challenge. We need to use this opportunity to leverage, strengthen and consolidate our international structures and avoid the proliferation of many more. I look forward to follow-up discussions, factoring in the agreement of the treaty, its consequences and opportunities for international ocean science to contribute to the discourse.

¹⁰High Seas Treaty/BBNJ Negotiations: <<https://www.un.org/bbnj>>.