Transdisciplinary Perspectives on Ocean Governance

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Ocean Governance as a Wicked Problem

Oceans are probably one of the most challenging ecosystems to govern.\(^1\)
Oceans are diverse, complex, and dynamic ecosystems that provide numerous functions and services to life below and above the water. Humanity, in particular, has relied on the oceans for food, livelihoods, transportation, recreation, and most recently, on other extractive resources, including oil, gas and minerals, among other things. Demands on the oceans have been rising with the continued growth in population, industrial development on land and sea, and many other pressures, which together make ocean sustainability an increasingly impossible goal to attain. As suggested in the United Nations Sustainable Development Goal on Oceans (SDG 14\(^2\)), about 40 percent of the world’s oceans are heavily affected by human activities and concerted actions from all nations are required in order to deal with multitude of problems in the oceans, such as pollution, resource overexploitation, and habitat loss.

Many characteristics of the oceans make governance a wicked problem.\(^3\)
For instance, oceans are full of ‘unknown’ and the ‘unknowable’. As the saying goes, we know more about space than we know about the oceans. But like space, knowledge about the oceans is centralized around scientific exploration and research, which, while important, contributes little to addressing the complex problems of human–ocean interactions. Ocean governance, in this case, is not about doing more science in order to convert the unknown to known, but about recognizing the unknown as well as the unknowable as part of the wicked ‘social’ problems and dealing with them accordingly. This also means that while it may not be possible to precisely determine whether human use

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\(^1\) U.R. Sumaila, “Seas, Oceans and Fisheries: A Challenge for Good Governance,” The Round Table 101, no. 2 (2012): 157–166.

\(^2\) “Sustainable Development Goals: 14 Life Below Water,” United Nations, http://www.un.org/sustainabledevelopment/oceans/, last accessed 19 February 2018.

\(^3\) H.W.J. Rittel and M.M. Webber, “Dilemmas in a General Theory of Planning,” Policy Sciences 4 (1973): 155–169.
of the ocean resources has exceeded the carrying capacity, there is still no reason to drive the system to the edge. Oceans are fragile ecosystems, physically less stable than terrestrial, are susceptible to disruption, and are vulnerable to change. A precautionary principle is therefore highly applicable in any effort to govern the oceans.

As wicked problems go, insufficient information and uncertainty about the oceans are one of the factors leading to difficulties in defining what the problems really are, what they are caused by, and how to go about solving them. Scientists, policy-makers, industrial users, and coastal communities are likely to differ in their opinion about why oceans are not healthy. Their perception and understanding of the problems are based on knowledge and experiences that come from various sources and are expressed in many forms. One of the most classic examples was the Northern cod fishery, which, 25 years after the moratorium, still finds no consensus about what caused the collapse. Yet, having an agreement about the nature and the causes of the problem is not a guarantee that the proposed solutions will be broadly accepted, especially when they involve high costs or impose major losses to certain stakeholder groups. As in other resource sectors, ocean stakeholders are numerous and vary in terms of their urgency, legitimacy, and power to influence governance. Decisions about the oceans, especially those related to uses and access to resources, like where to place marine protected areas, are always contentious as they normally result in restrictions for some stakeholders. In this case, fundamental principles such as social justice, equality and equity, and human rights, have to be considered along with others. This is precisely what the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) aim to promote in order to address food security, poverty and sustainability concerns in small-scale fisheries around the world. Providing small-scale fisheries with access to marine resources (and markets) is also one of the SDG14 targets.

Another key characteristic about the oceans that creates challenges in governance is related to scale and boundaries. As an open system, ocean governance has to deal with spatial and institutional mismatches due to overlapping jurisdiction and other transboundary issues. Formulating rules and regulations that correspond with the size and scale of the activities, and that take into consideration the flows of some resources and polluted substances, is a

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4 Food and Agriculture Organization of the United Nations (FAO), Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (Rome: FAO, 2015).
5 A.M. Song et al., “Transboundary Research in Fisheries,” Marine Policy 76 (2017): 8–18.
daunting task that requires co-operation in various levels of governance. This also means that it might not be possible to isolate one problem in the ocean from the others, neither in the understanding of the problem nor in the way to address it. In the interconnected and transboundary system like the ocean, fixing one problem in one location may lead to a new problem in other areas.

Ocean Governance as a Transdisciplinary Process

Different thinking about governance is required to deal with the diversity, complexity, dynamics, and the scale issues in the oceans. Holistic and integrated approaches have long been promoted for ocean sustainability. Among them is the ‘interactive governance’ theory, which focuses specifically on the understanding of interactions both within the systems, i.e., the governing system and the natural and social systems that are being governed, and between them. According to Kooiman, these interactions are not only where the majority of the problems are situated but also where solutions can be found and opportunities created. Through a careful analysis of the systems and the understanding of their interactions, appropriate institutions can be designed, in accord with the underlying principles, values, and images that inform them.

Interactive governance encourages an elevation of the understanding of the problems through governance orders. Illegal fishing, for instance, could be seen as a violation of law and thus can be dealt with by issuing fines and strengthening monitoring, control, and surveillance. Here, illegal fishing problem is treated at the first-order of governance. However, illegal fishing could be a symptom of something more fundamental, including the incongruity between the rules and regulations and the characteristics of the fisheries (second-order), and the lack of agreement about why certain activities are considered illegal (meta-order). In effect, interactive governance requires a ‘transdisciplinary’ process of problem identification and of creative solution-making, one that relies on diverse expertise and knowledge from natural, social, and political scientists, among others, as well as from practitioners, resource users, and community stakeholders in an ‘open’ transdisciplinary process.

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6 See, e.g., A. Charles, Sustainable Fishery Systems (Oxford: Wiley-Blackwell, 2001).
7 J. Kooiman, Governing as Governance (London: Sage, 2003).
8 V.A. Brown et al., “Towards a Just and Sustainable Future,” in Tackling Wicked Problems: Through the Transdisciplinary Imagination (eds.), V.A. Brown, J.A. Harris and J.Y. Russell (London & Washington, DC, Earthscan, 2010), 3–15.
The main differences between transdisciplinary approach and others like multidisciplinary and interdisciplinary approaches are the process and the expectation. Similar to multidisciplinarity, a transdisciplinary approach is a team-based effort. A transdisciplinary process goes beyond what a group of researchers from various disciplines do when working in a multidisciplinary project. The focus of a transdisciplinary approach is the deliberative and concerted effort in understanding and identifying what the problems are, in the exploration about what the possible pathways may be, and in the development, and, in some cases, the co-implementation, of agreed-upon solutions or ways forward. Scientists and other stakeholders in the open transdisciplinary practice are expected to work closely in a collaborative manner, contributing their expertise to the understanding of the problem, and iteratively building on each other’s knowledge and ideas in a respectful and considered manner. Through that process, they will be able to reveal certain aspects of the problems that they do not see on their own, broaden their perspectives about the issues, and together come up with ideas and innovation that they would not have done otherwise. Thus, unlike interdisciplinarity, one should not expect to see a transdisciplinary researcher working alone on a problem. This also implies that there is no expectation that researchers involved in a transdisciplinary project need to have multiple skillsets the way interdisciplinary scientists do. Knowledge integration is not necessarily the aim. Instead, the co-creation of knowledge and co-learning is expected. While researchers in the transdisciplinary team will eventually gain new knowledge and additional skillsets, the most important contribution to the process is still their own expertise and experience.

Because of the wicked problems in ocean governance, and considering that decisions about the oceans have different consequences for stakeholders, a transdisciplinary process is required to understand the ocean natural and social systems and their interactions, assess the capability of the governing system in dealing with ocean issues, and determine the overall level of governability. The same process follows in framing the questions and in the exploration of the policy options and governance solutions to address them.

Transdisciplinarity as a ‘Slow’ Science

Given the above, transdisciplinary process cannot be anything but slow. Similar to the tenet of slow movement, building of a transdisciplinary research
team and the production of a transdisciplinary outcome requires engagement, commitment, and perseverance. The making of the book *Fish for Life* is a good example of such an effort. Even though it is an edited volume, the contributors engaged in an intense process of deliberation and negotiation in the writing of all chapters. Contributors were academics from a broad range of disciplines, from sociology, anthropology, political science, economics, philosophy to biology and ecology. Interdisciplinary scientists and practitioners were also part of the team. Many meetings were held throughout the five-year project period, which enabled the team to co-develop the content of the book and collaborate in the writing of the chapters. An internal review process was used as a mechanism to foster cross-fertilization, streamline concepts, and standardize language.

*Fish for Life* is one of the first volumes that applies the interactive governance perspective to examine fisheries systems. Except for the senior editor, Professor Jan Kooiman, all authors were new to interactive governance, and thus went together through a long journey of dissecting the theory and the philosophy behind it. The book took much longer to produce than if it were written by a small number of authors. This slow process lead to a unique book that went 'between, across and beyond' disciplines in offering a novel way of looking at fisheries and a new approach to govern them. Wicked ocean governance problems can be addressed through theoretical and conceptual frameworks that include interactive governance and transdisciplinary processes to assess the level of overall governability.

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J. Kooiman et al. (eds.), *Fish for Life: Interactive Governance for Fisheries* (Amsterdam: University of Amsterdam Press, 2005).