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Introduction: Oceans

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■ **ABSTRACT:** In this introduction, we introduce the new editors of the journal and the new members of the editorial board. We then summarize the articles, highlighting the intellectual contributions they make to an environmental and social analysis of the world's oceans, ocean scientists, and marine species.

■ **KEYWORDS:** Oceans, maritime governance, marine species, marine policy, oceanography, science and technology studies

Before we dive into this special issue on oceans, we would like to thank *Environment and Society's* founding editors, Paige West and Dan Brockington, for their decade of service. The journal, its review style, contemporary themes, and audience are all a result of their tireless work and that of their amazing managing editor, Rebecca Feinberg. Together, and with the help of some truly creative guest editors, they bravely published a mix of articles from junior scholars and well-known figures in the field, addressing topic areas with real cutting-edge relevance for our times. We hope we can live up to their high standard for content, mentorship, and collaboration.

We would also like to thank the outgoing book review editors, Michael Cepek and Jamon Halvaksz, and welcome our new book review editors, Patrick Gallagher and Rebecca Witter. There are changes to the Editorial Board as well. We would like to welcome Vanessa Agard-Jones, Monica Barra, Clint Carroll, Lisa Cliggett, Robert Fletcher, Elizabeth Hoover, Marama Muru-Lanning, and Jerry Zee. At the same time, we give thanks to the outgoing editorial board members, Tor Arve Benjaminsen, Aletta Biersack, Brian Boyd, Bram Büscher, Lindsey Gillson, Ken McDonald, and Kartik Shanker.

Finally, we are very happy to welcome our new managing editor, Gregorio Ortiz III. It has already been a pleasure working with him on our first issue together as the new *Environment and Society* team, and we look forward to working with him on many issues to come!

This Issue

Back in 2018, we decided to kick off our editorship with a special issue on the ocean(s). In that pre-pandemic era, we agreed the ocean is vital to the existence of all life on Earth, and that the "oceanic turn" in the social sciences and humanities has resulted in a great deal of recent scholarship that continues to inspire current conversations (Deloughrey 2017). For many, the ocean



is the epicenter of evolution as well as the ultimate bellwether for the continued vitality of living systems. It is vast, deep, and mysterious, and simultaneously familiar, intimate, and personal. The ocean can be simultaneously thought of as a singular space or divided into multiple oceans and seas and it is frequently studied as one component of the planet's complex biological, geological, and chemical processes.

It is also the site of scientific exploration, geopolitical territorialization, Romantic imagination, capitalist extraction, and shifting everyday relations of love, death, and livelihood (Helmreich 2009; Rozwadowski 2008; Walcott 1992). The ocean is both an epic backdrop and an active agent in human activities, at times teeming with living beings and at times emptied of all agency. It is at once dangerous and endangered. Despite or perhaps because of the sea changes to the world system brought on by COVID-19 in 2020, we believe the oceanic turn is here to stay. This issue of *Environment and Society* explores the contemporary enigmatic condition of the world's ocean(s) through examples of social research that examines lives lived with and within the sea. Our aim is to show that the ocean is deeply social in ways that many of us have only just begun to understand.

The Articles

The seven articles in this collection approach the ocean as a contingent idea and emergent material realm. We are presented with shifting regimes of ocean governance and scientific ways of knowing over time and in the Anthropocene future present, along with ontological and epistemological challenges to fisheries management in an era of global change and the resurgence of indigenous sovereignty. Readers will discover that a herring is never just a herring (nor is a whale ever just a whale), algae may not be innocent, and big ocean data is far from an objective representation of reality.

In “Navigating Shifting Regimes of Ocean Governance,” Ana Spalding and Ricardo de Ycaza, explore the changes in ocean governance from the landmark 1982 United Nations Convention on the Law of the Sea to the 2015 Sustainable Development Goal 14: Life Below Water. As the authors note, we are entering a time of what many are calling the Anthropocene Ocean—an epoch marked by “human domination of the ocean in which the environmental, biological, physical, and chemical alterations to ocean ecosystems and spaces are largely anthropogenic and driven by social, economic, psychological, and political forces.” This requires unprecedented levels of new forms of ocean governance, in which governments, civil society, and industry coalesce to define policies and uses of the planet's oceanic spaces. In their review of ocean governance, they trace the evolution of governance from top-down approaches to more participatory and representative processes. At stake in governance regimes are four critical areas related to oceans: fisheries, pollution, conservation, and climate change. With the onset of SDG 14 in 2015, the authors examine a new era in ocean governance in which oceans are seen as both vulnerable and spaces of development opportunity and growth. In doing so, they highlight our complex relationships to our oceans.

In “Decoupling Seascapes,” Shingo Hamada highlights that the concept of coupled social-ecological systems in many ways reproduces the binaries that it is purportedly attempting to move beyond. As a contrast to this, Hamada explores how ideas of multispecies ontological frameworks can allow us to better understand the intricate webs that bind humans, seascapes, and nonhuman animals through fisheries biology and marine stock enhancement programs. Theoretically, Hamada deploys multispecies ethnography to examine these hybrid seascapes. Multispecies ethnography, he argues, “let fish and shellfish think and talk like other human actors.” These kinds of approaches focus on relationality rather than rationality and pro-

vide alternative solutions to the bioeconomic models used by modern fisheries management schemes. Using this approach to analyze hatchery fish programs, Hamada introduces the term *techno-fish* to capture the assemblage of actors—fishers, biologists, managers, wild fish, cultured fish, zooplankton, technicians, and others—that constitute a high-modernist fishery.

Florence Durney, in “Appropriate Targets,” examines the conflicts and issues surrounding another fishery—whaling and marine mammal hunting. From the massive overexploitation of marine mammals from the eighteenth to twentieth centuries, today with regulations and protections in place, most marine mammals have recovered to sustainable levels. With the exception of a few countries that still allow whaling, much marine mammal hunting is done by traditional and indigenous communities. Given the charismatic nature of marine mammals, these practices are highly contested and fraught with emotional arguments about their suitability from primarily Western audiences. Durney explores the charismatic nature of marine mammals, especially cetaceans, and the role of animal sentience in determining acceptable versus unacceptable prey. She then juxtaposes these global discourses about marine mammals with the practices and cosmologies of indigenous communities involved in marine mammal hunting around issues of cultural authenticity and argues that the self-determination and sovereignty of indigenous hunting communities are challenged in an era of global protection of cetaceans.

With “Ocean Thinking,” Susannah Crockford uses a science and technology studies approach to understand how the work of oceanographers produces the ocean as “space.” Ocean scientists span a diverse array of research interests in biology, geology, physics, and climatology. Each of these disciplines has unique epistemologies, ontologies, and practices that Crockford argues construct the ocean as an “undifferentiated mass, a smooth surface to be delineated by human action.” She examines this process through four main themes: conservation, sovereignty, governance, and resource extraction. While ocean scientists often see their work as saving oceans that are threatened and vulnerable, Crockford’s article demonstrates how their work enables the other three themes as well. Detailing the historical development of ocean science, she sheds light on the ways that ocean science in the seventeenth and eighteenth centuries became enmeshed with colonialism and imperial expansion. These territorial claims to oceanic space have led to a plethora of governance agreements (see also Spalding and de Ycaza) that attempt to regulate human use of the seas. Many people see these same seas, however, as a vast frontier for human exploitation. Knowledge production by ocean scientists paradoxically works in lockstep with capitalist processes of accumulation, opening up the ocean for fisheries, deep-sea mining operations, and other extractive endeavours. Crockford concludes her article with an exploration of how climate change impacts the oceans and the work of ocean scientists.

Governing, exploiting, and researching the oceans creates vast amounts of data. As Kate Sullivan details in “Documenting Sea Changes,” the relationships between the data producers and managers and oceanic governance poses challenging ethical questions in a time when oceans are under threat from climate change, acidification, sea level rise, and other entrepreneurial possibilities. Examining the relationships between territoriality and ocean science, Sullivan highlights the role of the US Navy in shaping much of this work in the nineteenth and twentieth centuries, echoing Crockford’s discussion of the entanglement of imperialism and capitalism on the high seas. Since the mid-twentieth century, the US government has been actively involved in managing the vast amounts of data produced on oceans to ensure that “scientific principles [would form] the basis of federal marine management policies.” The creation and management of this data has an ontological politics to it as well (see also Hamada). Sullivan calls these assemblages of people, technologies, ocean systems, and marine life “socialities.” Paying attention to the relationalities and contingencies of these socialities highlights the complex ethical issues that surround them. Another line of research that Sullivan explores in her review are the human

networks that are involved in oceanic big data networks and the implications of the politics of representation in these human networks.

In “New Materialist Approaches to Fisheries,” Lauren Drakopoulos examines the complexities of the concept of “bycatch”—a term that often depicts dolphins, sea turtles, and other charismatic marine species being captured in fishing nets as an unintentional consequence of fishing. While bycatch is a critical issue in fisheries management, Drakopoulos argues there is little consensus about what it really is, how it impacts fisheries, and how it should be measured and managed. Similar to many of the articles in this volume, there is an ontological politics at play around the issues of bycatch that can best be understood through new materialist approaches. Drakopoulos notes that such an endeavor shifts the focus from what bycatch is, to “how bycatch is *done* through relational and heterogeneous practices of science and management.” New materialism, as she notes, sees objects as emergent through relational processes rather than being fixed and stable, upsets dualisms of nature and culture, and attributes agency to humans as well as other-than-human beings. As such, bycatch is brought into being by fisheries science, policy, and management, and takes on a life of its own in unexpected ways.

Alix Levain and her colleagues document in their article another unexpected outcome of human activities on the marine environment. In this case, they investigate the proliferation of marine eutrophication in near offshore waters around the world. Like many of the articles in this issue, “Green Out of the Blue” notes that coastal eutrophication is a “wicked” problem that not only results from biochemical processes resulting in algal blooms but is entangled in social, technological, managerial, and political dimensions as well. As such, algal blooms can best be understood as “hydro-social assemblages,” which fuse social and natural dynamics into entities capable of study by social scientists. The authors fuse science and technology studies with political ecology to examine the ways that diverse groups of actors around the world attempt to manage and cope with environmental disruptions caused by marine eutrophication.

Taken together, these seven articles detail the rich and provocative research on the ocean that is being undertaken by social scientists around the world. We hope you find these articles as compelling and critically important as we have.

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