

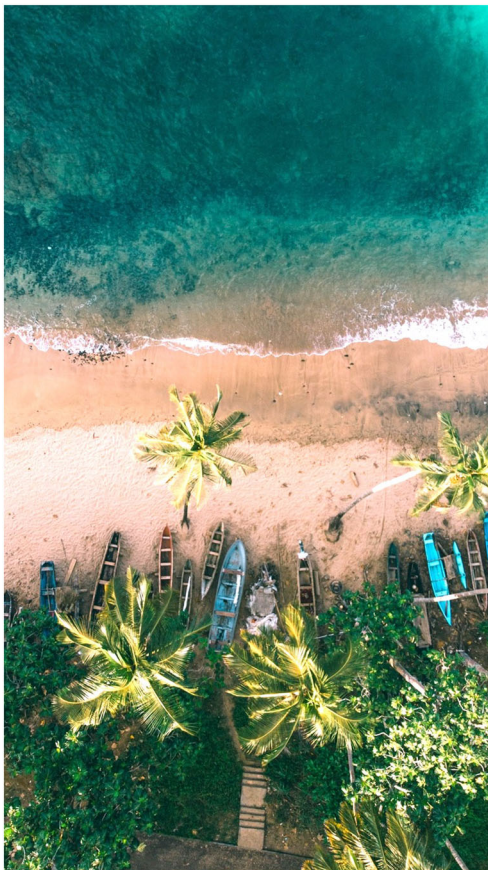
EDITORIAL OPEN



A sustainable ocean for all

npj Ocean Sustainability (2022)1:2; <https://doi.org/10.1038/s44183-022-00004-4>

Welcome to the opening editorial of *npj Ocean Sustainability*. This new interdisciplinary journal aims to provide a unique forum for sharing research, critically debating issues, and advancing practical solutions to achieve ocean sustainability. The ocean and people are deeply interconnected. Thus, decision-makers require integrative, interdisciplinary, and transdisciplinary knowledge to design solutions and approaches based on the multitude of visions for what a sustainable ocean entails. For that reason, the journal recognizes the benefits of knowledge pluralism and equally welcomes research from natural and social sciences; from marine ecology to Indigenous Studies; from the legal, policy, and management sciences to medical sciences, to arts and humanities. We acknowledge the fundamental need to understand and integrate the environmental and human dimensions into ocean research and management to effectively ensure long-term sustainable ocean use and conservation. We also acknowledge that while the ocean is “one” from a biophysical standpoint, there is a “plurality” of values and relationships between humans and the ocean, emerging from multiple geographical and historical specificities that need to be accounted for.



Credit: Vasco Pissarra

The ocean covers 71% of our planet’s surface, containing 95% of the biosphere, and provides a myriad of services that humans depend on and benefit from¹. It ensures climate regulation and water supply, and underpins cultural and spiritual values, among many other benefits. The ocean and its biodiversity are a vital source of food and livelihoods for a third of humanity, especially those living in coastal areas (including in the Arctic) and small island developing states (SIDS)—better referred to as “large ocean states”—from the Global South to North of the Equator. The ocean’s continued ecological functioning is fundamental to human well-being and socio-economic development. Yet, the ocean is also increasingly threatened by human pressures¹. Climate change², overexploitation of marine resources, and pollution influence ocean health affecting its ability to support resilient marine social–ecological systems. Sustainably governing the ocean is not only essential but a “collective responsibility of humanity”³. Awareness of the need to develop a sustainable blue economy is also growing, particularly in ways that encourage equity and inclusion alongside ocean health, while recognizing that the human–ocean relationship is undoubtedly strong, diverse, and complex³. This is especially critical for large ocean (small island) states.

The need to ensure a healthy ocean is now firmly recognized in the international political and economic agenda—as is the ocean’s role in ensuring healthy atmospheric and terrestrial environments. We recently entered the United Nations (UN) Decade of Ocean Science for Sustainable Development (2021–2030)⁴, with its mission to develop transformative ocean science solutions for sustainable development, connecting people and the ocean, and achieving seven intended outcomes (from a clean, resilient ocean to an inspiring and engaging one). At the heart of the UN Sustainable Development Goals (SDGs) is the relationship between nature and people, and we are halfway through the timeline to achieving SDG 14, Life Below Water⁵, with its targets to conserve and sustainably use the ocean, seas, and marine resources. The importance of the ocean–climate nexus has recently become widely acknowledged, with ocean-based mitigation and adaptation solutions being recognized as essential to addressing climate impacts and achieving the Paris Agreement⁶. Negotiations are nearing completion on an international legally binding instrument, under the UN Convention on the Law of the Sea, on the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction (BBNJ)⁷. The World Trade Organization just secured a new Agreement prohibiting harmful fisheries subsidies to help protect marine resources and the countless human communities who depend on it⁸. All these, along with the elevated role of the ocean–food nexus, drive much of the discussion around how to achieve blue growth while protecting the crucial role of the ocean in maintaining planetary health. In light of all this attention, the second UN Ocean Conference⁹ which just took place in Lisbon, was the stage for many commitments and pledges focusing on scaling up ocean action based on science and innovation to support the implementation of SDG 14 along with many of the other goals.

In line with this global momentum on ocean sustainability discussions, we are launching the first issue of *npj Ocean Sustainability*. This issue includes three pieces that are representative of the intended transdisciplinary and solution-oriented nature

of the journal. The issue starts with a Comment by Bennett et al.¹⁰ on local marine stewardship initiatives and ocean defenders, commonly at the forefront of ocean sustainability efforts yet often receiving insufficient recognition and support. The piece provides five recommendations to bring greater attention and support to the topic in research, policy, practice, and funding. A Review article by Crosman et al.¹¹ follows, focusing on the role of social equity in ocean governance. Calls to address social equity in ocean governance are expanding, and a framework is presented to support consistent operationalization of equity and evaluate progress without oversimplification. A second Review article by Galparsoro et al.¹² closes this first issue, highlighting the ecological impacts of offshore wind energy production. The scaling up of ocean energy production will take place in upcoming years due to the need for decarbonization and climate change mitigation, as well as ensuring future energy independence in Europe and other regions of the world. Related environmental impacts need to be comprehensively assessed so they can be minimized to the maximum extent possible to ensure ocean sustainability and avoid unintended environmental losses.

For the future, *npj Ocean Sustainability* is particularly interested in research focused on science–policy–practice interlinkages, systematic approaches, transformative solutions, and innovation to support ocean sustainability at multiple levels, particularly under global environmental, social, political, and economic challenges. The journal, therefore, strongly welcomes inspiring comments, critical reviews, thought-provoking perspectives, and original research articles, both theoretical and empirical, from case study-based to meta-analyses, addressing a broad range of fields, their policy dimensions, and potential pathways and solutions to identified issues. Research related to the UN 2030 Agenda, particularly to SDG 14 but also to its interconnections with other SDGs, is also of high interest to the journal. The journal also welcomes research from local to global levels, from the high seas and deepest ocean to land-sea interactions, from all ocean basins, coastal states, and particularly large ocean states and Indigenous scholars. With a diverse editorial board, *npj Ocean Sustainability* will be further seeking and welcoming editorial team members from diverse regions (e.g., Asia, Central and South America, the Pacific, Africa, the Middle East). As the journal takes a holistic view in developing more inclusive knowledge of the ocean, it welcomes submissions from any discipline or combination of disciplines, provided the work meets the academic standards of its field and is clearly aligned with improving our collective understanding of pathways to ocean sustainability.

We need to ensure a sustainable ocean for all to protect our planet and the livelihoods of the billions of people who depend on it. At a time when the ocean is both highly threatened and recognized as essential to human well-being, unraveling sustainable solutions and pathways to progress based on the best ocean science, knowledge and praxis are fundamental.

Received: 31 May 2022; Accepted: 11 July 2022;
Published online: 10 August 2022

Catarina Frazão Santos^{1,2,3}✉, Tundi Agardy⁴, Edward H. Allison⁵, Nathan J. Bennett^{6,7}, Jessica L. Blythe⁸, Helena Calado⁹, Larry B. Crowder¹⁰, Jon C. Day¹¹, Wesley Flannery¹², Elena Gissi^{10,13}, Kristina M. Gjerde^{14,15}, Judith F. Gobin¹⁶, Clement Yow Mulalal¹⁷, Michael Orbach¹⁸, Gretta Pecl^{19,20}, Marinez Scherer²¹, Austin J. Shelton²², Carina Vieira da Silva^{2,3}, Sebastián Villasante⁷ and Lisa Wedding²³

¹Department of Animal Biology, Faculdade de Ciências, Universidade de Lisboa, Lisbon, Portugal. ²MARE–Marine and Environmental Sciences Center / ARNET–Aquatic Research Network, University of Lisbon, Lisbon, Portugal. ³Environmental Economics Knowledge Center, NOVA–

SBE, Carcavelos, Portugal. ⁴Sound Seas, Bethesda, MD, USA. ⁵WorldFish, Batu Maung, Penang, Malaysia. ⁶The Peopled Seas Initiative, Vancouver, Canada. ⁷EqualSea Lab, University of Santiago de Compostela, A Coruña, Spain. ⁸Environmental Sustainability Research Centre, Brock University, St. Catharines, ON, Canada. ⁹Marine and Environmental Sciences Center, University of the Azores – FCT, Ponta Delgada, Portugal. ¹⁰Hopkins Marine Station, Stanford University, Stanford, CA, USA. ¹¹ARC Centre of Excellence for Coral Reef Studies, Townsville, Australia. ¹²Queen's University Belfast, Belfast, Northern Ireland, UK. ¹³National Research Council, Institute of Marine Sciences, Venice, Italy. ¹⁴International Union for Conservation of Nature and World Commission on Protected Areas, Cambridge, MA, USA. ¹⁵Middlebury Institute of International Studies at Monterey, Monterey, MA, USA. ¹⁶The University of the West Indies, St. Augustine Campus, St. Augustine, Trinidad and Tobago. ¹⁷Permanent Mission of the Federated States of Micronesia to the United Nations, New York, USA. ¹⁸Duke University Marine Laboratory, Duke University, Durham, NC, USA. ¹⁹Centre for Marine Socioecology, University of Tasmania, Hobart, Australia. ²⁰Institute for Marine and Antarctic Studies, University of Tasmania, Hobart, Australia. ²¹Federal University of Santa Catarina, Florianópolis, SC, Brazil. ²²Center for Island Sustainability and Sea Grant, University of Guam, Mangilao, USA. ²³School of Geography and the Environment, University of Oxford, Oxford, UK. ✉email: cfsantos@fc.ul.pt

REFERENCES

1. The United Nations. *The Second World Ocean Assessment*. <https://www.un.org/regularprocess/woa2launch> (2021).
2. The Intergovernmental Panel on Climate Change. *The Ocean and Cryosphere in a Changing Climate*. https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC_FullReport_FINAL.pdf (2019).
3. The High Level Panel for a Sustainable Ocean Economy. *The Human Relationship with Our Ocean Planet*. <https://oursharedseas.com/wp-content/uploads/2020/10/Allison-et-al.-The-Human-Relationship-with-Our-Ocean-Planet.pdf> (2020).
4. The United Nations. *The United Nations Decade of Ocean Science for Sustainable Development (2021–2030)*. <https://unesdoc.unesco.org/ark:/48223/pf0000261962> (2021).
5. The United Nations. *Transforming Our World: The 2030 Agenda for Sustainable Development*. <https://sdgs.un.org/2030agenda> (2015).
6. The United Nations. *Glasgow Climate Pact*. https://unfccc.int/sites/default/files/resource/cma2021_10_add1_adv.pdf (2021).
7. The United Nations. *Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction*. <https://www.un.org/bbnj/> (2022).
8. The World Trade Organization. *Agreement on Fisheries Subsidies*. https://www.wto.org/english/tratop_e/rulesneg_e/fish_e/fish_e.htm (2022).
9. The United Nations. *The United Nations Ocean Conference*. <https://www.un.org/en/conferences/ocean2022> (2022).
10. Bennett, N. et al. Local marine stewardship and ocean defenders. *npj Ocean Sustain* (2022).
11. Crosman, K. M. et al. Social equity is key to sustainable ocean governance. *npj Ocean Sustain* (2022).
12. Galparsoro, I. et al. Reviewing the ecological impacts of offshore wind production. *npj Ocean Sustain* (2022).



Open Access This article is licensed under a Creative Commons

Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

© The Author(s) 2022