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A Roadmap for Using the UN Decade of Ocean Science for Sustainable Development in Support of Science, Policy, and Action

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The health of the ocean, central to human well-being, has now reached a critical point. Most fish stocks are overexploited, climate change and increased dissolved carbon dioxide are changing ocean chemistry and disrupting species throughout food webs, and the fundamental capacity of the ocean to regulate the climate has been altered. However, key technical, organizational, and conceptual scientific barriers have prevented the identification of policy levers for sustainability and transformative action. Here, we recommend key strategies to address these challenges, including (1) stronger integration of sciences and (2) ocean-observing systems, (3) improved science-policy interfaces, (4) new partnerships supported by (5) a new ocean-climate finance system, and (6) improved ocean literacy and education to modify social norms and behaviors. Adopting these strategies could help establish ocean science as a key foundation of broader sustainability transformations.

Introduction

Covering more than 70% of the planet's surface, the ocean is central to human well-being, providing valuable and vital ecosystem services such as climate regulation, food, energy, mineral and genetic resources, and cultural and recreational services. The ocean is critical for achieving sustainable development of human society as a whole. Many Sustainable Development Goals (SDGs) may not be realized without achieving SDG 14 for a healthy ocean[1,2] (Figure 1). For instance, SDG 14 aims to eliminate overfishing and illegal and destructive fishing practices, pre-conditions required to meet a large number of other SDGs such as no poverty (SDG 1), zero hunger (SDG 2), good health and well-being (SDG 3), and reduced inequalities (SDG 10). Humans, however, increasingly affect ocean ecosystems and resources through their use of the ocean for food and energy production, tourism, and transportation, and through land-based activities such as atmospheric emissions and discharge of waste.[3] Such cumulative effects of human uses cause changes in the ocean's properties, altering habitats, species distributions, food webs, and ocean circulation and

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biochemistry,[4–7] thus altering the role of the ocean in climate regulation (SDG 13). While there is an urgency to modifying human behavior to allow sustainable development pathways,[8] there is still a need in some cases to further understand the magnitude of the problem to find and put into practice more effective solutions.[9,10]

For humanity to address the dreadful state of the ocean, the United Nations (UN) has proclaimed a Decade of Ocean Science for Sustainable Development (2021–2030). The Decade aims to encourage the science community, the policymakers, the private sector, and the civil society to think beyond "business as usual" and aspire for real change. Here, drawing from the 2018 international conference "From COP 21 toward the United Nations Decade of Ocean Science for Sustainable Development (2021–2030)" at UNESCO headquarters (https://en.unesco.org/ocean-climate-conference), we show how to address the conceptual, organizational, and technical scientific challenges that need to be overcome to allow us to facilitate transformative action and give us a chance of achieving the SDGs to which a healthy ocean can contribute.

Fostering Social-Ecological Synergies

The integration of social, natural, and physical sciences in the context of global environmental change research has been a very slow process,[11] mostly because of well-identified obstacles[12] that include (1) unrealistic expectations between disciplines; (2) problems relative to the nature of the data that are exchanged across disciplines; (3) the tendency of one field to dominate in the process of identifying and formulating the problem; (4) the spatial scale of the research (local versus global), which often differs among and even within disciplines; (5) the differences in terminology, jargon, and general outlook of different disciplines; (6) the academic reward system that differs among disciplines; and (7) the different representations and dimensions of the ocean as a system, resource, service, cultural, or symbolic element.

The scientific community has a key role to play as a starting point for developing evidence-based solutions that can promote ocean sustainability.[9] Solutions need to be adapted to local and regional ecological, economic, and sociocultural contexts, including regulatory frameworks and political realities, where policy and management actions take place. Effective solutions should support the integration of human and natural systems[13,14] and recognize and manage social-ecological trade-offs.[15] New sets of indicators should be developed to monitor the success of the different strategies scaling up from local to global scales. New synergies between and across disciplines in physical, natural, and social sciences, as well as arts, humanities, engineering, business, and other fields, should promote new knowledge to inform sustainable development options.

Beyond the structural impediments for integration of social, natural, and physical sciences (scale of research, language,

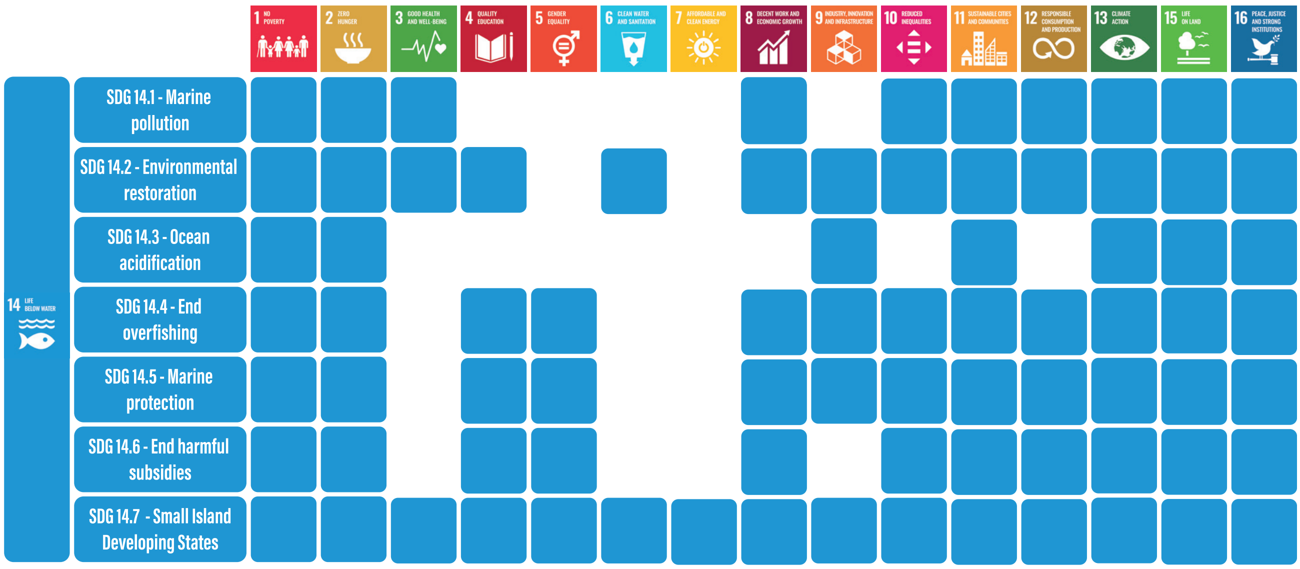

Figure 1. Contribution of Ocean Targets to the Other Sustainable Development Goals
Blue-colored blocks indicate identified potential co-benefits between achieving the ocean targets and other Sustainable Development Goals. Adapted from Singh et al.[2]

academic rewards), three simple principles for exchanging knowledge across disciplines may help to achieve better integration: (1) simplicity, to present and exchange data and results as clearly and precisely as possible, reducing discipline-specific jargon that can quickly confuse the information that needs to be conveyed; (2) transparency, to adhere to best practices and global standards in how data and results are obtained; and (3) integrity, to raise awareness on the potential limits and uncertainties around the results and data that are exchanged.

Pathways and scenario planning that explicitly take temporal and spatial dimensions into account can help integrate scientific and indigenous and local knowledge. A wide range of models and scenarios are available for ocean management, but important gaps exist. In particular, there is a strong need for the development of multi-scale scenarios that link global society and environmental changes with ecological, social, and economic challenges that are relevant and important from the regional to local scale.[16] An ensemble-of-assemblages approach should be used, as no single model can predict all the changes in the physical hydrodynamics, biogeochemistry, biology, ecology, and human uses of the ocean.[17]

Improving Science-Policy Engagements

The UN SDGs require evidence-based decision making rooted in science.[18] It is therefore key for the UN Decade of Ocean Science for Sustainable Development to improve the way in which scientific results can quickly and effectively inform action, and how we measure the impact of global and regional policies on the ocean. The critical role of science to inform policies should not be taken for granted and needs to constantly be reinforced. However, the development of an effective science-policy interface remains challenging in view of the complexity of the policy process and the distinct methods and epistemologies of science and policy. This transition requires scientists to be equipped with skills in science diplomacy and communication, areas that are not currently taught in most marine science courses, so that they can navigate the barriers that may require dealing with different cultures, languages, and institutional behaviors (Figure 2). Scientific information will compete with many other factors that shape the policy-making space, but co-production of knowledge can help develop science that fits the users' needs and that can better be transferred into action.[19]

Global and regional instruments for increased ocean sustainability need built-in flexibility to respond to new insights (Figure 2). Changing the core content of an international treaty, however, is a cumbersome and lengthy process that will not necessarily lead to the desired results and cannot be used for speedy adaptation of either policy or management. Scientists and policymakers need to be aware of the different options to translate scientific insights into governance instruments, which shape and steer the behavior of stakeholders toward sustainability.[20] The development of new global or regional governance arrangements may be required to achieve the SDGs, as in the case of areas beyond national jurisdictions.

From an institutional perspective it is crucial that independent scientific committees are established to feed knowledge into decision-making processes, providing transparency to those processes, and fostering transboundary and regional cooperation. At the same time, such bodies should also have clear scientific integrity policies that lay out the conditions for scientific information to be used but not abused.[21] In theory, different scenarios can be imagined concerning the relevance of scientific assessments and recommendations in governance: from a merely recommendatory function to inform policies to meaningful participation in decision-making processes. At the international level, however, it continues to be individual nations that need to consent to any restrictions on their activities, and so far, scientific committees and bodies only have an advisory function while decisions are being made by state representatives. Being bound by expert evidence is difficult to reconcile with the traditional

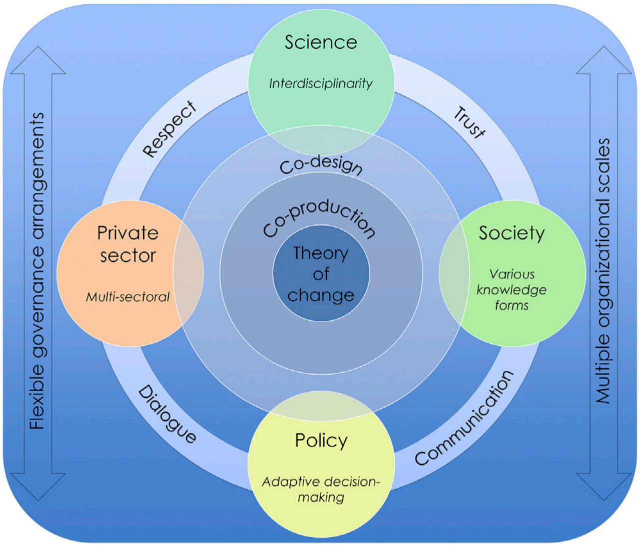

Figure 2. Science-Policy Interface within the Broader Context of the Development of a Theory of Change

Respect and trust, facilitated by dialog and communication, should support the integration of knowledge from science, policy, the private sector, and society. Co-design of research needs and co-production of new knowledge and data should feed into a theory of change framed at the appropriate organizational scale and supported by the relevant governance structure.

concepts of state sovereignty, although the content of sovereignty and sovereign rights has considerably changed with regard to obligations to protect the marine environment.[22] Binding obligations on environmental protection have increased over the last decades by international treaties and unwritten customary international law. Examples of such change toward legal restrictions on behavior that used to be lawful concern the regulation of pollution from vessels, stricter rules on dumping, and fisheries laws. If scientific committees instead of states were granted the power to make binding decisions on the international level, the question of legitimacy of such institutions would arise, with the risk of making them effectively political bodies. The quest for a "neutral" body relying on scientific evidence could easily be compromised in this process. The ongoing multilateral process under the UN Framework Convention on Climate Change (UNFCCC) provides, with the Intergovernmental Panel on Climate Change, a good example of how science can inform policy without being legally binding, even if it shows that on the political level states are often slow or unwilling to follow the advice given. The convention itself was born after the scientific recognition that collective action was needed to address a universal problem that no single person or nation can solve individually. This was an important step in the right direction, but the current lack of action calls into question the effectiveness of international law, even if science-driven recommendations are available.

Ocean policies generally need to be more multi-sectoral to be able to integrate global change dynamics and interactions, and their consequences, in the short and long term. Managing the ocean and its natural resources requires biodiversity and climate concerns to permeate all sectors—spatial planning, fishing, energy exploration and production, shipping, coastal development, tourism, and others—and all national, regional, and local development and planning policies and programs (Figure 2). Multi-sectoral policies, coupled with financing, use of appropriate technologies, and changes in behavior, will be needed for sustainable use of coastal and marine resources. Behavioral change can best be derived from more inclusive, participatory, and decentralized governance arrangements involving governments, the private sector, civil society, indigenous peoples, and local communities.[23] Involving all relevant stakeholders in decision making is likely to result in the development and ownership of more sustainable practices. In this respect, it is encouraging that the 2017 high-level UN Ocean Conference on SDG 14 received massive and strong multi-stakeholder participation, as evidenced by the over 1,500 voluntary commitments made to ocean action (https://oceanconference.un.org/commitments/). This symbolizes the birth of an ocean community, very much like the rise of the climate community around the processes that led to the UNFCCC Conference of the Parties (COP) 21.

An important avenue for more inclusive and effective science-policy interfaces is the co-creation of scientific information and research. Engaging scientists with all relevant stakeholders (policymakers, managers, private sector representatives, and citizens) can only make scientific data more trustworthy and thus help address some of the challenges that arise from a "post-truth world."[24] In addition, stakeholders' engagement can facilitate the development of a theory of change—a description of the desired change and how and why it could happen—to establish plausible links between expected impacts and new policies.

Supporting Good Science with Adequate Data

Informed decisions require suitable data. Ocean-observing systems have emerged in the past decades as instrumental tools for providing physical data on the ocean system. A globally coordinated, sustained, better integrated, and fit-for-purpose ocean-observing system is still needed to systematically assess the status and trends of the ocean to support ocean science, assessment, prediction, and the production of information that can inform policymakers and decision makers at all levels, from local to regional to global. The Global Ocean Observing System (GOOS), with its partners, is continuously developing and advancing an integrated system using the Framework for Ocean Observing, and existing online repositories. To address climate, real-time services, and ocean health issues, GOOS collects physical, biogeochemical, and biological and ecological critical information through "Essential Ocean Variables" (https://www.goosocean.org/eov). Three multidisciplinary panels have set requirements for developing and coordinating these observations while promoting standards and interoperability of data and information products based on end-user needs. These panels are the Ocean Observations Physics and Climate Panel working in collaboration with the Global Climate Observing System (GCOS) and the World Climate Research Programme, the Biogeochemistry Panel acting with the International Ocean Carbon Coordination Project, and the GOOS Biology and Ecosystems Panel.[25] The implementation of global networks is coordinated through the Joint Technical Commission for Oceanography and Marine Meteorology Observations Coordination Group (JCOMM-OCG) and through 13 GOOS Regional Alliances from all around the world. Additional GOOS Projects help to fill gaps in the observing system and to extend its capabilities

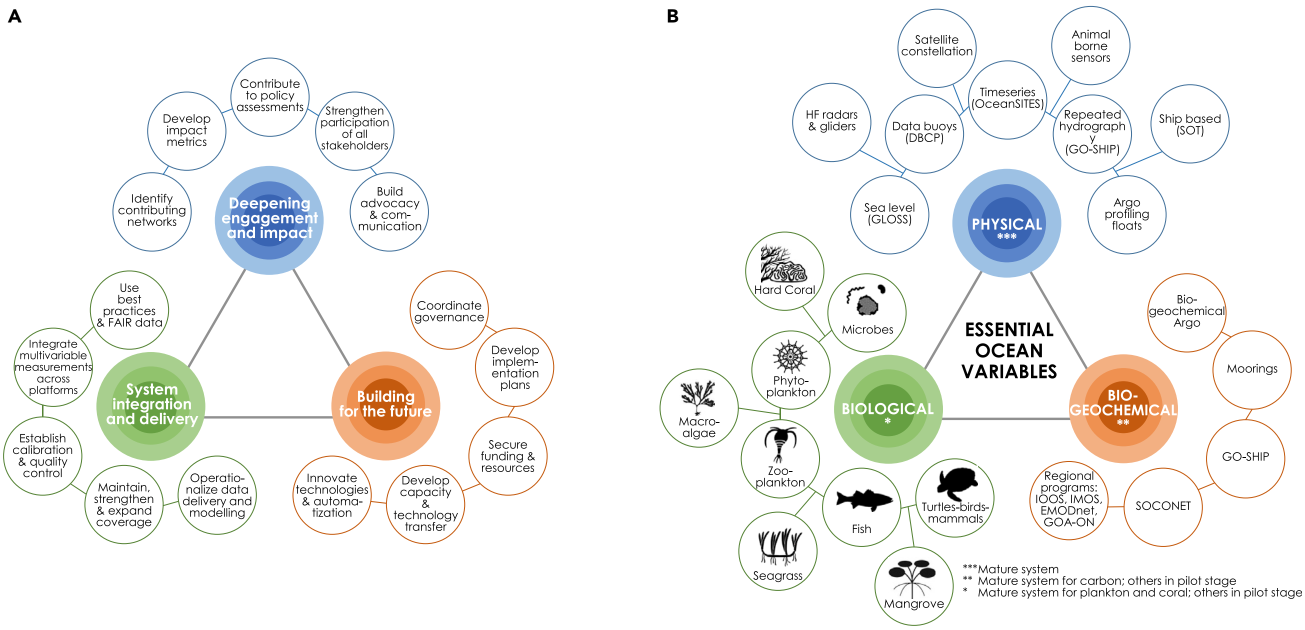

Figure 3. Priority Actions and Variables of the Global Ocean Observing System

(A) Priority actions in the next decade to deliver each of the Global Ocean Observing System (GOOS) 2030 strategic objectives and incorporate biological observations in the global ocean-observing system (based on Bax et al.[26] and the GOOS 2030 Strategy[27]).

(B) Networks and platforms monitoring Essential Ocean Variables within the three main GOOS areas: physics, biogeochemistry, and biology and ecosystems; level of readiness defined by the Framework for Ocean Observing as concept, pilot, and mature.

through technological innovation and focus on sustainability (Figure 3).

The criteria to become an ocean-observing network (Figure 3) were defined by the OCG of JCOMM Observations Program Support for physical and biogeochemical variables and are currently being revised for biological networks. In general, the criteria allow flexibility in the system and determination of what is or is not an observing network. Observing networks should be required to (1) have coordination at a regional or ideally global scale; (2) represent a globally coordinated community of best practice and governance whose members have agreed to follow and document best practices to deliver observational data for timely access and with known quality; (3) contribute to the observing requirements of Essential Ocean Variables and Essential Climate Variables as defined by GOOS and GCOS; (4) have a defined observation mission and implementation targets, with measurable progress toward targets; (5) be at least at the pilot stage of technological readiness in all aspects of the Framework for Ocean Observing[28] (requirements, observing systems, and data management) with a roadmap toward maturity in all areas.

However, capturing socioeconomic and sociocultural data is also critical when addressing sustainability problems. Further efforts should focus on diversifying our understanding of human activities globally, with improved mapping and assessment of issues and practices including small-scale fisheries, tourism activities, land-based pollution, trends in shipping, indigenous knowledge and ocean use, community planning and adaptation to global changes including sea-level rise, and cultural considerations around biodiversity. Social data that could help assess a community's sensitivity to changes as well as its adaptive capacity will also be key to helping identify the best management strategies. For example, lack of understanding of how different communities use and rely on ocean and coastal resources has led to conflicts, ecological damage, and suboptimal outcomes. In New England in the United States, conflicts among fisheries, shipping, whales and wildlife, indigenous communities, and offshore renewable energy development were caused in part by a lack of information of which economic and cultural resources different actors relied on. In response, first two states, and then the New England region, adopted coastal and marine spatial planning as a tool to gather and share information, involve citizens and stakeholders, and make informed decisions that are sustainable and build on and shore up political support.[29] The ideal system will combine information from remotely sensed, modeled, *in situ*, and societal sources provided by a wide range of actors from science, government, the private sector, youth, and civil society. Data and synthesized information should be openly and equitably shared around the globe to serve society's information needs just as global weather observations currently are. The system should also be monitored and assessed to ensure that it is meeting the goals of recording, retaining, and sharing this information in ways that are useful to policymakers.

Some of the major challenges that need to be addressed to achieve the implementation of a global observing system include (1) achieving standardization of the measurements for data inter-comparability, (2) developing scientific and technical innovations, (3) improving data access and management using the FAIR principles (findability, accessibility, interoperability, and reusability), (4) having long-term commitment from all international stakeholders to support the cost of the observing system along with the needed capacity development and technology transfer, and (5) measuring and accounting for users'

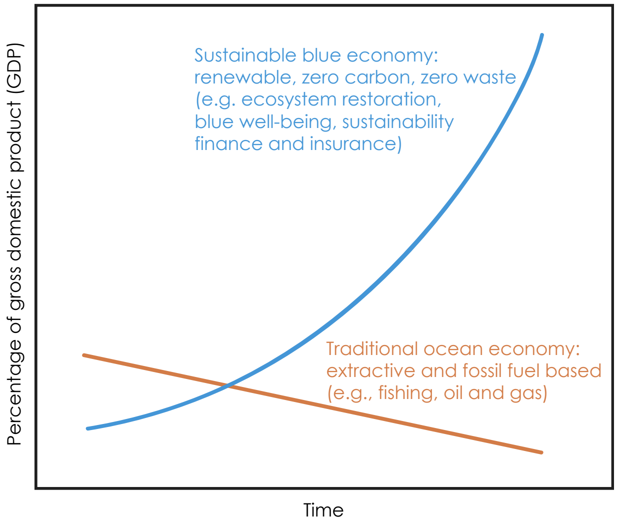

Figure 4. Breakdown of Blue Economy as Percentage of Overall Economy

In the new environment of the SDGs and Paris Agreement, sustainable blue-economy sectors are more competitive and challenge past understanding of the blue economy based on industrial-scale sectors (e.g., oil and gas extraction, industrial fishing, shipping). Despite the OECD prediction of a doubling by 2030 of these ocean-based industries' value from $1.5 to $3 trillion, their future is unclear due to the impacts of climate change, overexploitation of resources, and the need for zero carbon policies. On the other hand, sustainable blue-economy sectors can be expected to grow and represent a much larger part of the global economy. These sectors include, but are not limited to, marine energy (e.g., offshore wind, floating solar, waves, and algae biofuels), blue health and recreation, ocean ecosystem restoration, coastal rehabilitation and resilience, and ocean sustainability finance and insurance. Significant employment opportunities are expected in marine and coastal engineering as the full burden of the coastal rehabilitation aligned with nature-based solutions and climate adaptation required for long-term resilience becomes apparent. Public-private partnerships and significant, innovative ocean finance will be needed to deal with the aftermath of the exploitative, extractive ocean economy and to facilitate the transition to the sustainable blue economy.

perceptions of the ocean and its singularities. Contributions from citizen science can help address some of these challenges.[30]

Efforts to compile global biological data should continue to fill data gaps, including global species data repositories such as the Ocean Biodiversity Information System (OBIS) and the Global Biodiversity Information Facility. Global models of species distributions based on these repositories, such as AquaMaps, should be provided at higher spatial and temporal resolution that are relevant for regional and local management. Global datasets created in the last decades such as assessments of the overall human footprint on the ocean[31] and mapping of global fishing efforts[32] have helped characterize human activities and their potential impacts on the ocean. Further efforts should focus on diversifying our understanding of human activities globally, with improved mapping of small-scale fisheries, tourism activities, and land-based pollution, among others. Socioeconomic data that could help assess a community's sensitivity to changes as well as its adaptive capacity will also be key to helping identify the best management strategies.

While predictions are key to identifying sustainable pathways, it is important to frame them within a risk-based approach that is transparent about uncertainty at all levels.[33] Policymakers, managers, and the private sector need to be aware that revisiting policies and adapting management are essential in such a dynamic and complex environment.

The response of marine ecosystems to a changing ocean can be particularly difficult to predict or even observe in remote habitats such as polar systems, the deep sea, and the high seas, as well as in many territorial waters that lack regular biological monitoring.[34,35] These changes can scale up regionally, so focused research efforts targeted specifically to these relatively poorly known systems are needed.

Promoting Innovative Ocean Finance

The ocean and coastal regions are critical for our livelihoods and economic activities. The ''blue economy'' is estimated to be worth US$3–$6 trillion per year and is expanding (Figure 4). As ocean pressures are mounting, their effects will continue to intensify, including economic losses associated with more frequent extreme weather events and natural catastrophes.[36] The aforementioned global ocean-observing system requires roughly from $500 million to $1 billion per year, including *in situ* and satellite observations, which, even if a significant investment, still provides long-term savings as we improve our forecast capacity and support good policy and management actions.

Innovative ocean finance schemes will be key to delivering scientific, solution-based opportunities upon which actions can be taken. Comprehensive ocean science can improve public and private sector decision making and deliver significant economic benefits. Nevertheless, a substantial upfront investment is required to deliver an adequate, near real-time, global ocean-observing infrastructure at the specific level of granularity for each variable and with universal, open, and real-time data access. This requires upfront capital expenditure, using new and innovative sources of finance for the ocean. Such finance should be linked to climate and conservation finance efforts and should be sustainable in the long term. Evidence-based funding that links finance to delivering blue natural capital benefits is one option; for example, results-based financing that offers incentive payments to private sector market actors could provide an effective way to involve private capital based on an ocean finance pathway that shifts from grants to payment for results.[37,38] The creation of a dedicated ocean sustainability bank could be another. The concept of ocean risk,[39] as was developed with the insurance industry[40] at the first Ocean Risk Summit in Bermuda in 2018, can help further integrate insurance solutions into such structures, lowering the risk to investors and offering opportunities to link scientific progress and operational benefits. By linking finance to resilience, we have the chance to address ocean challenges at scale and as an investment opportunity.

Sharing Ocean Information and Promoting Ocean Literacy

Simply advancing research knowledge and drafting policy, however, will not ensure ocean sustainability; new models for ocean action are needed. The ocean is at the core of many countries' and regions' identity, especially the Small Island Developing States that first put ocean action on the international agenda. The ''Blue Pacific'' narrative has placed the powerful cultural identity of Pacific Islanders with their ocean at the heart of regional policy, ambition, and collective action. As we look

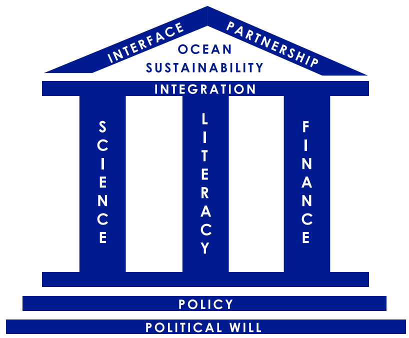

Figure 5. Key Enabling Conditions for Strengthening Ocean Contributions to Sustainable Development

This requires partnerships with the various actors, an effective science-policy interface, and interdisciplinarity. It should rest on three integrated pillars: sound science, ocean literacy and education, and innovative and sustainable financial strategies. Strong political will should support the development of new transformational policies.

toward the UN Decade of Ocean Science for Sustainable Development, there is an opportunity to be inspired by the peoples of Oceania and other ocean champions at all scales to collectively harness a global ocean identity, using ocean science and ocean advocacy to ensure that, through international policy and action, we preserve that identity for future generations.

The ocean is so central to achieving a sustainable future that it is time for a new narrative for the ocean, returning the ocean to the center of our lives.[41] Such a change of perspective can help develop new social norms that will in turn create new conditions that incentivize governments, the private sector, and individuals to make necessary changes to their behavior.[38]

Ocean literacy, a key tool to engage society and to lever actions on the ground, needs to be more efficiently and widely promoted. Specific tools are being developed and supported by a growing range of institutions, such as the new UNESCO Ocean Literacy Portal (https://oceanliteracy.unesco.org/) that provides access to products in multiple languages. New approaches for sharing information, including via social networks, science YouTubers, open data, storytelling, citizen science, art and literature, and participatory research approaches should play a key role. There should also be more coordination in building and implementing new education curricula using the latest ocean science to strengthen ocean literacy in young generations. Benchmarking of national education systems could be invited to assess environmental literacy systematically, including ocean literacy, to highlight this issue in national education strategies, as recommended by the InterAcademic Partnership.

Increasing Capacity Building

Promoting joint capacity building and technology transfer is key to enhancing international cooperation and local production and uptake of relevant science into policy and actions. Human capital development, scientific exchange, cross-cultural dialog, interdisciplinary engagement, and international cooperation are fundamental tools of capacity building. Data co-production and sharing are also important strategies to enhance science and cooperation. Large, overarching organizations such as the Intergovernmental Oceanographic Commission (IOC), the Scientific Committee on Oceanic Research, and the Partnership for the Observation of the Global Ocean, have a tradition of capacity development programs. Their experience during the last 20 years confirms the direct link between qualified scientific production and availability of data. For example, the Ocean Teacher Global Academy (OTGA: https://www.oceanteacher.org/), run by the IOC's International Oceanographic Data and Information Exchange, consists of a network of Regional Training Centers across all regions delivering training courses in several languages and combining traditional and e-Learning methods in ocean-related topics such as ocean observing, data management, coastal and marine spatial planning, marine biodiversity data (specifically on contributing data and using the OBIS), the tsunami warning system, and harmful algal blooms. At present, OTGA has trained more than 2,500 people from 134 IOC member states in more than 180 courses, with more than 4,200 registered users in the online platform.[42]

Enabling Conditions for Ocean Sustainability

In 2015, the ocean was explicitly acknowledged by the UN in both the Paris Agreement and Agenda 2030's SDGs. The message is clear, and awareness is increasing: any climate action or sustainable development path will require a focus on the ocean. The UN Decade of Ocean Science for Sustainable Development is an unprecedented opportunity for the international ocean science community to organize itself and create the needed synergies, partnerships, connections, and interfaces to support policy and action with science and knowledge. Sound science based on robust data is necessary to identify solutions, assess their potential and feasibility, and track their efficiency. It is imperative that we get to the end of the Decade with a new way of carrying out marine science involving a transdisciplinary approach that is financially sustainable and fit for purpose.

Following an international conference of UNESCO, we call for focusing the Decade on two general strategies. First, the Decade will have to help transcend traditional disciplinary cultures and adopt transdisciplinary approaches to inform a sustainable ocean management. To produce "socially relevant" knowledge about the ocean, as well as to respond to the needs of policymakers and the public, the Decade must better integrate disciplines and link the actors involved in ocean action into a common transdisciplinary framework. Second, the Decade will have to provide the enabling conditions, including capacity development, knowledge mobilization, transdisciplinary and multi-sectoral input, engagement of early-career researchers and professionals, information sharing and outreach, and inclusion of a diversity of voices, including those of historically under-represented communities, local and traditional ecological knowledge, and different forms of knowledge and knowledge transfer (e.g., storytelling) to achieve effective action informed by the best data, science, and knowledge.

Those two general strategies will require a strong political will to support the development of new policies that will allow changes at the national and regional levels (Figure 5). These policies will only be effective if they are informed by sound science, if they are followed by innovative financial strategies, and if they are enacted with the support of a society that shares those values and supports those changes. Improvements in ocean literacy and education will help in gaining this necessary societal support.

The declaration of the Decade is a clear and important first step toward achieving national and international targets for sustainability; however, it will only achieve success if the UN Member States and a wide range of stakeholders including science, civil society, the private sector, and state and regional actors support the activities under the Decade with significant financial commitments for research, observations, information products, literacy, and science-policy interactions at both national and international levels. Some of the root causes of barriers to achieving a healthy ocean also stem from insufficient progress in other aspects of sustainable human development. Ineffective governance, poverty, low education levels, gender or social inequity, and the desire to meet people's short-term needs often drive unsustainable activity. The Decade represents a unique opportunity for indigenous peoples, civil society, and all interested parties to work together to solve ocean sustainability problems. This will require effective coordination and tremendous scientific, societal, and political will. It is imperative that we get to the end of the Decade with a new way of carrying out marine science involving a transdisciplinary approach that is financially sustainable and fit for purpose. A systemic view of ocean issues is needed to reach "win-win" solutions to support the needs of ocean-dependent communities while achieving the goal of a global healthy ocean.

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AUTHOR CONTRIBUTIONS

J.C. and F.G. conceived the project. J.C. wrote the first draft of the manuscript. L.B., W.L.C., R.D., E.E.-B., P.H., J.J.H., V.M.-D., N.M.-L., P.M., L.M., M.V., R.W., and A.M.Z. contributed to the writing and editing of the manuscript. All other authors edited and approved the manuscript.

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