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2022 United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
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Interactive dialogues

Interactive dialogue 7: Enhancing the conservation and sustainable use of oceans and their resources by implementing international law, as reflected in the United Nations Convention on the Law of the Sea

Concept paper prepared by the Secretariat

Summary

The present concept paper was prepared pursuant to paragraph 23 of General Assembly resolution 73/292, in which the Assembly requested the Secretary-General of the 2022 United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development to prepare concept papers on each of the themes of the interactive dialogues, taking into account the relevant ocean-related processes of the Assembly and other possible contributions. The present paper relates to interactive dialogue 7, entitled "Enhancing the conservation and sustainable use of oceans and their resources by implementing international law, as reflected in the United Nations Convention on the Law of the Sea". In the paper, the status, trends, challenges and opportunities for the achievement of relevant targets of Sustainable Development Goal 14 are set out, under the overarching theme of the Conference: "Scaling up ocean action based on science and innovation for the implementation of Goal 14: stocktaking, partnerships and solutions".

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I. Introduction

1. The United Nations Convention on the Law of the Sea, its implementing agreements and other relevant instruments, both legally binding and non-binding, provide the international framework for the conservation and sustainable use of oceans and their resources. Their effective implementation is key to the achievement of that objective and to supporting efforts to scale up science-based ocean action to attain Sustainable Development Goal 14.

2. The relevant provisions of the Convention and related instruments are highlighted in the present concept paper, demonstrating how they underpin the conservation and sustainable use of oceans and marine resources, including by requiring the use of scientific evidence and information, applying both an ecosystem approach and a precautionary approach, and supporting the conduct of marine scientific research and the development and transfer of marine technology for such purposes. The instruments, trends in relevant fields, gaps and challenges in the implementation of the legal framework are examined, along with how effective implementation may be enhanced, including through partnership, cooperation and collaboration with stakeholders at all levels.

II. Status and trends

3. Science is crucial in the effective development and implementation of the international legal framework for the conservation and sustainable use of oceans and their resources. The General Assembly recognizes the importance of marine science for eradicating poverty, contributing to food security, conserving the world's marine environment and resources, helping to understand, predict and respond to natural events and promoting the sustainable development of the oceans and seas. It does so by improving knowledge, through sustained research efforts and the evaluation of monitoring results, and applying such knowledge to management and decision-making (resolution 76/72, preamble). The Assembly calls upon States, individually or in collaboration with others, to continue to strive to improve understanding and knowledge of the oceans and the deep sea, including, in particular, the extent and vulnerability of deep-sea biodiversity and ecosystems, by increasing their marine scientific research activities in accordance with the Convention (ibid., para. 291).

4. Increasing scientific knowledge, developing research capacity and transferring marine technology are specifically recognized under target 14.a of the Sustainable Development Goals as important for improving ocean health and enhancing the contribution of marine biodiversity to sustainable development. In the Convention, its implementing agreements, other international binding agreements, including regional treaties, and several non-binding instruments, ranging from the outcome documents of United Nations conferences and summits and annual resolutions of the General Assembly to guidelines, codes of conduct and programmes of action, the role of ocean science and innovation in enhancing the conservation and sustainable use of oceans is emphasized (A/CONF.230/10, paras. 7 and 8).

5. A strong and effective global legal regime can bolster ocean science and innovation by clarifying the rights and responsibilities of States and all stakeholders, harmonizing actions in and between different sectors, establishing common objectives for ocean health, productivity and resilience and providing a stable and predictable regulatory environment for their engagement. Central to this regime, the Convention sets out the legal framework within which all activities in the oceans and seas must be conducted and is of strategic importance as the basis for national, regional and global action and cooperation (resolution 76/72, preamble). With

168 parties, it enjoys close to universal acceptance, and many of its provisions reflect customary international law. It is supplemented by two implementing agreements – the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982,[1] which applies to the Area,[2] and the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (Fish Stocks Agreement)[3] – as well as an array of global and regional legal instruments covering many aspects of ocean use. The intergovernmental conference on an international legally binding instrument under the Convention on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction is currently negotiating a third implementing agreement to the Convention (resolution 72/249), the General Assembly having stressed the need for the comprehensive global regime to better address this issue (resolution 69/292).

6. The Convention, the "constitution for the oceans",[4] provides the overarching legal framework central to the implementation of many of the Sustainable Development Goals, in particular Goal 14. The provisions of the Convention on the conservation and sustainable use of oceans, seas and marine resources are briefly surveyed below, with particular consideration given to its recognition of the central role of science. Other relevant instruments and recent developments are also highlighted, focusing on five areas: the conservation and management of living resources; the sustainable use of non-living resources; the protection and preservation of the marine environment; the conduct of marine scientific research; and the development and transfer of marine technology.

7. On living resources, the Convention establishes the entitlements of States to exploit, and obligations to conserve and manage, marine resources in the different maritime zones, both within and beyond national jurisdiction. The importance of science in that context is clear: States are required under Parts V and VII to take into account the best scientific evidence available when adopting measures to ensure the conservation and management of the living resources in their exclusive economic zones and when determining the allowable catch and establishing other conservation measures for living resources in the high seas. They are also required to regularly contribute and exchange available scientific information, catch and fishing effort statistics and other data relevant to the conservation of fish stocks.[5] These obligations are elaborated in the Fish Stocks Agreement as they relate to straddling fish stocks and highly migratory fish stocks. Obligations include those relating to the promotion, conduct and exchange of science and scientific data and the application of the precautionary approach.[6] The Convention and the Fish Stocks Agreement are supplemented by other instruments in which the importance of ocean science in their implementation is recognized, including global and regional treaties relating to sustainable fisheries management, such as instruments developed under the auspices of the Food and Agriculture Organization of the United Nations (FAO) and those

[1] United Nations, *Treaty Series*, vol. 1836, No. 31364.

[2] The seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction (United Nations Convention on the Law of the Sea, art. 1).

[3] United Nations, *Treaty Series*, vol. 2167, No. 37924.

[4] Tommy T.B. Koh, "A constitution for the oceans", adapted from statements by the President of the Third United Nations Conference on the Law of the Sea", Montego Bay, Jamaica, 6 and 11 December 1982. Available at www.un.org/Depts/los/convention_agreements/texts/koh_english.pdf.

[5] United Nations Convention on the Law of the Sea, arts. 61 (2) and (5) and 119 (1) and (2).

[6] Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (Fish Stocks Agreement), arts. 5 (b), (c) and (k), 6 (1) (2) (3) and (7), 10 (d), (f) and (g), 14 and 16 (1).

relating to regional fisheries management organizations and arrangements. Given the reported overfishing of a third of the world's fish stocks,[7] the implementation of such obligations is critical to achieving target 14.c of the Sustainable Development Goals, as well as targets 14.2 and 14.4.

8. According to the Code of Conduct for Responsible Fisheries, conservation and management decisions for fisheries should be based on the best scientific evidence available, and it is recommended that States prioritize the undertaking of research and data collection to improve scientific and technological knowledge and the wide application of the precautionary approach to the conservation, management and exploitation of living aquatic resources. Technical guidelines on various issues have been developed, promoting scientific data collection, exchange and research with respect to fisheries management, fishing operations, information- and knowledge-sharing and the ecosystem approach to fisheries.

9. The role of science in sustainable fisheries management was considered during the thirteenth round of informal consultations of States parties to the Fish Stocks Agreement, dedicated to the "science-policy interface".[8] In 2019, FAO hosted the International Symposium on Fisheries Sustainability: Strengthening the Science-Policy Nexus. The Committee on Fisheries of FAO recently endorsed the 2021 Declaration for Sustainable Fisheries and Aquaculture, recognizing the need to strengthen the scientific basis for fisheries and aquaculture management decisions, including by using new technology and promoting international scientific cooperation, especially transdisciplinary research, capacity-building, education and training, and ensuring that the best available scientific, sector-based advice is duly considered in the decision-making process.

10. The Review Conference on the Fish Stocks Agreement, to be resumed in 2023, will provide further opportunities to promote marine science and strengthen the science-policy interface for fisheries management, building on previous recommendations. The implementation of science-based fisheries and aquaculture management policies have been recognized as the minimum substantive criteria for sustainable fisheries and aquaculture. *The State of World Fisheries and Aquaculture 2020: Sustainability in Action* contributes to data needed in relation to Sustainable Development Goal 14 by providing an overview of global fisheries and aquaculture every biennium and a synopsis of fisheries and aquaculture knowledge, based on a system of databases integrated through a cross-cutting set of reference data, that supports its findings and outlook.[9]

11. Concerns regarding deep-sea fishing led to specific guidance from the General Assembly, aimed principally at improving the management of deep-sea fisheries (e.g. resolutions 61/105 and 64/72). This has helped to promote measures to protect benthic habitats and vulnerable marine ecosystems, especially at the regional level, including through the adoption of the International Guidelines for the Management of Deep-Sea Fisheries in the High Seas and the creation of the Database on Vulnerable Marine Ecosystems. The crucial role of science in addressing the impacts of bottom fishing on vulnerable marine ecosystems and the long-term sustainability of deep-sea fish stocks will also be explored during a multi-stakeholder workshop convened by the Assembly in 2022.

[7] Food and Agriculture Organization of the United Nations (FAO), *The State of World Fisheries and Aquaculture 2020: Sustainability in Action* (Rome, 2020), pp. 47 and 54.

[8] Report on the thirteenth round of informal consultations of States parties to the Fish Stocks Agreement, New York, 22 and 23 May 2018 (ICSP13/UNFSA/INF.2). Available at www.un.org/depts/los/convention_agreements/ICSP13/ICSP13_final_report.pdf.

[9] FAO, *The State of World Fisheries and Aquaculture*, pp. 102 and 103.

12. For non-living resources, the contribution of science to informing decision-making processes for implementing the legal regime for the Area is reflected in the obligations of contractors undertaking exploration to collect extensive amounts of scientific data and information, including on over 100 environmental parameters, to establish environmental baselines for future exploitation. Data and information generated over more than 40 years through exploration for mineral resources in accordance with Part XI of the Convention and the Part XI Agreement have increased global knowledge of the deep sea and its environment (A/74/70, para. 28)[10] and informed the development of evolving rules governing activities in the Area. Similarly, the submission of scientific information on the limits of the continental shelf beyond 200 nautical miles to the Commission on the Limits of the Continental Shelf by coastal States has contributed to a better geoscientific understanding of continental margins within national jurisdiction by improving the spatial coverage and resolution of primarily bathymetric and seismic data.[11]

13. The International Seabed Authority has developed regulations and recommendations regarding prospecting and exploration for mineral resources in the Area and is currently developing regulations on exploitation and associated standards and guidelines. Often referred to as the "mining code", these instruments are intended to provide the framework for regulating and managing exploration and exploitation in a sustainable and responsible manner, including by addressing the protection and preservation of the marine environment from the harmful effects that may arise from such activities.

14. In terms of the protection and preservation of the marine environment, the obligations of States to prevent, reduce and control pollution of the marine environment from any source and to protect and preserve rare or fragile ecosystems and the habitats of depleted, threatened and endangered species and other forms of marine life are set out in Part XII of the Convention. Given the threats to ocean health from anthropogenic activities, including the effects of climate change, plastic pollution and damage to marine ecosystems and biodiversity,[12] effective implementation of those obligations is crucial to achieving target 14.c of the Sustainable Development Goals and others, including targets 14.1, 14.2 and 14.3. The important role of science in the protection and preservation of the marine environment is acknowledged in Part XII, encouraging, for example, the use of scientific methods to observe, measure, evaluate and analyse the risks or effects of pollution, cooperation in research and the exchange of information and data, the establishment of appropriate scientific criteria for the formulation and elaboration of rules, standards and recommended practices and procedures, and the provision of scientific and technical assistance.[13] The World Ocean Assessments, as the main outputs of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects, provide a regular assessment of the state of the oceans globally, informed by hundreds of scientists worldwide, and provide an important scientific basis for policymaking.[14]

15. Other instruments in this field recognize the importance of ocean science in their implementation, including global treaties relating to certain sources of pollution or degradation, the release of hazardous substances into the environment and the protection of certain species or habitats, as well as regional seas conventions and

[10] See also International Seabed Authority, *The Contribution of the International Seabed Authority to the Achievement of the 2030 Agenda for Sustainable Development* (Kingston, Jamaica, 2021), p. 32. Available at https://isa.org.jm/files/files/documents/ISA_Contribution_to_the_SDGs_2021.pdf.

[11] United Nations Convention on the Law of the Sea, art. 76 and annex II.

[12] United Nations, *The Second World Ocean Assessment: World Ocean Assessment II* (New York, 2021), chap. 1.

[13] United Nations Convention on the Law of the Sea, arts. 200–202 and 204.

[14] See www.un.org/regularprocess.

action plans. Also pertinent in this context are international conventions on international maritime law, including those focusing on ship-source pollution and related liability issues.

16. More specifically on the conservation and sustainable use of marine biodiversity, an aim reflected in Sustainable Development Goals 14 and 15, the Convention on Biological Diversity is to be implemented in respect of the marine environment consistently with parties' rights and obligations under the law of the sea.[15] Parties to that Convention provide national reports on measures taken to implement it, including through national biodiversity strategies and actions plans. Based on national reports and other authoritative sources, information on progress towards global biodiversity targets, including in relation to marine and coastal biodiversity, is synthesized in the Global Biodiversity Outlook reports.[16]

17. Given the alarming impacts of climate change on oceans, marine species and coastal ecosystems, the United Nations Framework Convention on Climate Change and the 2015 Paris Agreement are essential to achieving Sustainable Development Goal 14. Climate change effects, including ocean deoxygenation, heating, acidification and circulation changes, substantially affect the living and non-living components of the marine environment. The major cause is increased levels of atmospheric, anthropogenic carbon dioxide, further emissions of which must be prevented and concentrations reduced. Scientific knowledge, including that produced under the auspices of the Intergovernmental Panel on Climate Change, is critical and has informed the increasing recognition of climate change effects on the oceans and the role of oceans in providing solutions for meeting climate change commitments under the Framework Convention, the Paris Agreement and Goal 13.[17] The Intergovernmental Panel will release the synthesis report of its Sixth Assessment Report in late 2022, which will update the underlying scientific knowledge informing decision-making on climate change under the Framework Convention, including parties' decisions relevant to the oceans and the monitoring and protection of marine environments.[18]

18. Marine pollution from vessels is governed by several international legal instruments, most prominently those adopted under the auspices of the International Maritime Organization (IMO): the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the 1978 and 1997 Protocols, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) and its 1996 Protocol, and several international conventions dealing with liability and compensation.[19]

19. With regard to marine scientific research, a comprehensive legal framework is set out in Part XIII of the United Nations Convention on the Law of the Sea for the promotion and conduct of marine scientific research, creating legal certainty and facilitating its undertaking. It is reaffirmed in Part XIII that States and competent international organizations have the right to conduct such research, and they are encouraged to promote and facilitate its development and conduct. Obligations are also set out to promote international cooperation, to create favourable conditions for the conduct of such research, to make available by publication and dissemination knowledge resulting from it and to promote the flow of scientific data and information and the transfer of knowledge.[20] In Part XI of the Convention, the mandate of the

[15] Convention on Biological Diversity, art. 22.

[16] Available from www.cbd.int/gbo/#:~:text=Global%20Biodiversity%20Outlook%20(GBO)%20provides,genetic%20resources%20are%20shared%20equitably.

[17] See, for example, Intergovernmental Panel on Climate Change, *Special Report on the Ocean and Cryosphere in a Changing Climate* (2019).

[18] See www.ipcc.ch/report/sixth-assessment-report-cycle.

[19] See www.imo.org/en/About/Conventions/Pages/ListOfConventions.aspx.

[20] United Nations Convention on the Law of the Sea, arts. 238 and 242–244.

International Seabed Authority to promote and encourage marine scientific research in the Area, which should be carried out for the benefit of humankind as a whole, and to carry out its own research, is recognized. The Authority must, in addition, coordinate and disseminate the results of such research when available and promote and encourage the transfer to developing States of technology and scientific knowledge relating to activities in the Area. In the Part XI Agreement, States are similarly encouraged to promote international technical and scientific cooperation. The Authority undertakes specific activities to fulfil this responsibility, with a particular focus on the needs identified by the least developed countries, landlocked developing countries and small island developing States (see ISBA/26/A/17 and ISBA/26/A/18).

20. Marine technology is essential to the conduct of marine science. Part XIV of the Convention is dedicated to promoting the development and transfer of marine science and marine technology, as well as the development of marine scientific and technological capacity, in particular of developing States, while having due regard for all legitimate interests of holders, suppliers and recipients of marine technology. It sets out basic objectives and measures for their achievement, as well as promoting international cooperation for the development and transfer of marine technology and calling for the establishment of national and regional marine scientific and technological centres.[21]

21. Marine science, marine technology and innovation have gained increasing attention at the intergovernmental level in recent years and lie at the centre of the United Nations Decade of Ocean Science for Sustainable Development (2021–2030). They have also featured in the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, with recent and forthcoming meeting themes including “Ocean science and the United Nations Decade of Ocean Science for Sustainable Development” and “Ocean observing”, in the 2019 celebration of World Oceans Day under the theme “Innovation for a Sustainable Ocean”, and in the 2022 IMO World Maritime theme “New technologies for greener shipping”. Marine science, marine technology and innovation are also critical in the ongoing negotiations on biodiversity beyond national jurisdiction and for the effective implementation of any new agreement. The Convention on the Protection of Underwater Cultural Heritage also encourages technological and scientific progress to enhance understanding and conservation of underwater cultural heritage.

III. Challenges and opportunities

22. While much progress has been made in strengthening the international legal framework, the lack of full and effective implementation of the Convention, its implementing agreements and other instruments continues to hamper the conservation and sustainable use of oceans and their resources.

23. First, while the Convention has been extensively ratified, participation is not universal, in particular among landlocked developing countries. There are 17 States parties to the Convention that have not yet ratified the Part XI Agreement, while there are only 91 States parties to the Fish Stocks Agreement. Similar concerns regarding participation levels apply to many of the related instruments noted above, while several instruments adopted under the auspices of IMO are yet to enter into force.[22]

[21] United Nations Convention on the Law of the Sea, arts. 275–277.

[22] These include the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009, the Cape Town Agreement of 2012 on the Implementation of the Provisions of the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977, and the Protocol of 2010 to the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996.

Increased ratification, implementation and enforcement of legal instruments would greatly contribute to the sustainable use of oceans. The negotiations on biodiversity beyond national jurisdiction also represent a key opportunity to address gaps and provide a baseline for achieving target 14.a of the Sustainable Development Goals, among others.

24. Second, States parties face challenges in implementing the Convention and related agreements, as evidenced by fish stocks being overexploited or depleted and the continued degradation of ocean and coastal ecosystem health. Marine scientific research can be impeded when working in disputed areas and under national jurisdiction by challenges in obtaining coastal State consent, a lack of clear national procedures for requesting clearances, the late provision of consent and differences of opinion concerning the application of Part XIII to certain data collection technologies.[23] Part XIV of the Convention still suffers from limited implementation, reflecting difficulties encountered by States in effectively fulfilling their obligations and exercising their rights thereunder. Obligations on flag States to exercise jurisdiction and control over their vessels are undermined by the existence of flags of convenience. Some States also struggle in delineating and delimiting their maritime zones, including in making scientifically and technically complex submissions to the Commission on the Limits of the Continental Shelf, resulting in uncertainties concerning the area over which States exercise maritime entitlements and the Area's spatial extent.

25. Challenges for developing countries, notably the least developed countries and small island developing States, in implementing the Convention and achieving sustainable development are particularly acute, given their particular situations and vulnerabilities, including limited technological and human capacity to monitor and manage ocean activities, access to historical and current data and analyses of key indicators. Participation in activities in areas beyond national jurisdiction is limited. Although substantial ocean-related information exists, it is often fragmented among numerous institutions nationally, regionally and globally, while countries with the greatest need often have the least capacity to access and apply such information in policymaking. The lack of common standards for collecting, integrating, storing and using ocean data and statistics, and the exchange of data, information and best practices, prevents evidence-based programming and optimal use of resources. In 2021, to address some of these challenges, the International Seabed Authority, with the support of the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, released a series of three publications outlining the relevance of the Convention for such countries.[24]

26. The upscaling of action can also be challenging, in particular for the least developed countries and small island developing States, owing to factors such as remoteness, poverty, gender inequality and high vulnerability to extreme weather events and climate change impacts. Small island developing States, the exclusive economic zones of which often far exceed their total terrestrial space, face challenges in managing extensive ocean areas, including implementing measures to prevent, deter and eliminate illegal, unreported and unregulated fishing and protect and preserve the marine environment. Building capacity for monitoring and assessing marine resources would fill gaps in global ocean science and resource management.

27. Nonetheless, opportunities exist to strengthen the implementation of international law as reflected in the Convention. A critical element in doing so is ensuring effective

[23] Global Ocean Observing System, "Ocean observations in areas under national jurisdiction (OONJ) workshop", Paris, 12 and 13 February 2020 (Intergovernmental Oceanographic Commission, Paris, 2021), available at www.goosocean.org/index.php?option=com_oe&task=viewDocumentRecord&docID=26607.

[24] See https://isa.org.jm/event/report-launch-law-sea-ocean-opportunity-ldcs-lldcs-and-sids.

national regulation and policy. For example, enforcement against illegal, unreported and unregulated fishing can be strengthened through legislative reform and by ensuring appropriate penalties. Indicator 14.c.1 of Sustainable Development Goal 14 is aimed at assessing the number of countries making progress in ratifying, accepting and implementing, through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the Convention. Its methodology enables the gathering of data and the establishment of a baseline to inform the assessment of progress in the implementation of target 14.c and assists States in identifying their capacity-building needs and priorities.

28. In strengthening national implementation of ocean-related instruments and frameworks, the collection of observational ocean data and resulting marine science is essential (see A/77/68). Such science underpins the development of regulations and policy, the conduct of environmental assessments and monitoring of the effectiveness of, and compliance with, such regulations. For example, remote sensing tools deliver timely and accurate data on a global basis, while in situ instrumentation provides on-the-spot updates in real time. Data can be used to analyse short- and long-term trends in biodiversity, climate, pollution, weather patterns and ecosystem evolution. Marine observations are important for the safety of navigation and shipping, assessing and monitoring the risk of climate change impacts and taking appropriate and effective adaptation action, resilience-building, disaster risk reduction, response and recovery, and for forecasting extreme events, including through early warning systems, to reduce and minimize associated loss and damage, including to coastal infrastructure.[25]

29. Mobile devices can help with access to ocean information and play an active role in monitoring progress against conservation targets. With the installation of new trans-ocean and regional telecommunication cable systems equipped with sensors, a global network could provide decadal real-time data for ocean climate monitoring and disaster mitigation. Earth observation data can be used to monitor ecosystems and pollution, including monitoring the spread of oil spills and facilitating clean-up efforts. Combining earth observation and oceanographic data with information from fishing vessel databases can alert officials to suspicious vessel movements to detect and reduce illegal, unreported and unregulated fishing. Remotely sensed data and global navigation satellite systems can also be used to improve the productivity of fishing activities, their monitoring, control and surveillance, and compliance with fishery regulations (A/74/630, paras. 82 and 83).

30. However, technological developments alone will not be sufficient. Capacity development and knowledge generation are critical in developing policy and legal frameworks for the sustainable use of oceans and their resources, including those that promote and facilitate marine scientific research. Various capacity-building projects, including those managed by the Division for Ocean Affairs and the Law of the Sea, are aimed at enhancing States' capacity to implement the Convention and related instruments nationally, improve ocean governance and achieve sustainable development.[26] For marine scientific research specifically, the capacity-building

[25] United Nations Framework Convention on Climate Change, "Policy brief: technologies for averting, minimizing and addressing loss and damage in coastal zones" (Bonn, 2020). Available at https://unfccc.int/topics/adaptation-and-resilience/workstreams/loss-and-damage-ld/policy-brief-technologies-for-averting-minimizing-and-addressing-loss-and-damage-in-coastal-zones. See also https://unctad.org/topic/transport-and-trade-logistics/policy-and-legislation/climate-change-and-maritime-transport and https://SIDSport-ClimateAdapt.unctad.org.

[26] See www.un.org/oceancapacity; International Seabed Authority, *International Workshop on Capacity Development, Resources and Needs Assessment*, Kingston, 10–12 February 2020 (Kingston, 2020), available at https://isa.org.jm/files/files/documents/Workshop%20report%202%20ebk.pdf; and www.fao.org/port-state-measures/capacity-development/ongoing-capacity-building-efforts/en.

programme on its conduct under the Convention, developed by the Division in cooperation with the Intergovernmental Oceanographic Commission, serves as an example. In future, capacity-building activities will need to engage political and social science to explore solutions for improved implementation of relevant legal frameworks.

31. Including the least developed countries, landlocked developing countries and small island developing States in future initiatives and projects to collect data relevant for the implementation of the Convention and the full exercise of the rights and obligations thereunder, such as mapping exercises, would assist such States in obtaining data and support for delimitation and delineation. Developing States would also benefit from the increased availability of, and accessibility to, scientific knowledge and data in relation to negotiation processes for new legal instruments.

32. Stimulating marine scientific research and the transfer of marine technology through capacity development is also central to the objectives of the Ocean Decade. One of the Decade's 10 challenges relates to capacity development and equitable access to data, information, knowledge and technology across all aspects of ocean science, including for small island developing States and the least developed countries. Given the importance of science for implementing the international legal framework, providing such a foundation for all will strengthen the enabling environment for implementation to be effective. The Decade also seeks to foster the strengthening of the ocean science-policy interface, enabling Governments and policymakers to access scientific and technical advice to inform decision-making on transboundary ocean matters on the basis of research and observations. The Intergovernmental Oceanographic Commission has developed an implementation plan for the Decade (see resolution 76/72), while the Assembly of the International Seabed Authority has adopted a dedicated action plan focused on six strategic research priorities (see ISBA/26/A/17).

33. Several programmes and instruments also specifically address the special position of developing countries, including the Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014–2024 and the SIDS Accelerated Modalities of Action (SAMOA) Pathway, which, inter alia, supports action to undertake marine scientific research and develop the technological capacity of small island developing States. Bearing in mind the importance of awareness-raising, capacity-building and technology transfer to landlocked developing countries, the International Seabed Authority is partnering with the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States in the context of the road map for the accelerated implementation of the Vienna Programme of Action for landlocked developing countries to identify and address their specific challenges in undertaking marine scientific research in the Area (see ISBA/26/A/25).

34. To assist in addressing the challenges noted above, efforts have been made, more generally, to elaborate the regulatory framework and develop practical guidance for marine scientific research and the transfer of marine technology under the Convention and other instruments. For instance, to assist in the implementation of Part XIV, the Intergovernmental Oceanographic Commission adopted the Criteria and Guidelines on the Transfer of Marine Technology.[27] The Division of Ocean Affairs and the Law of the Sea has developed practical guidance on the implementation of the provisions of the Convention relating to marine scientific research.[28] The Assembly of the

[27] Available at https://unesdoc.unesco.org/ark:/48223/pf0000139193.

[28] United Nations, *Marine Scientific Research: A Revised Guide to the Implementation of the Relevant Provisions of the United Nations Convention on the Law of the Sea* (New York, 2010). Available at www.un.org/Depts/los/doalos_publications/publicationstexts/msr_guide%202010_final.pdf.

Commission adopted the Commission's procedure for the implementation of article 247 of the Convention, relating to marine scientific research projects undertaken by or under the auspices of international organizations.[29] The Executive Council of the Commission adopted guidelines for the implementation of resolution XX-6 of the Assembly regarding the deployment of profiling floats in the high seas within the framework of the Argo programme. Following a technical workshop on the theme "Enhancing ocean observations and research, and the free exchange of data, to foster services for the safety of life and property", the World Meteorological Organization adopted resolution 45 (Cg-18), urging its members to facilitate and promote marine meteorological and related oceanographic observations.[30]

35. The Intergovernmental Oceanographic Commission is engaged in several activities to strengthen the existing enabling environment and to contribute to overcoming obstacles to the effective implementation of the legal framework for marine scientific research, including the development of the Ocean InfoHub initiative, which includes a clearing-house mechanism to increase accessibility to data and match capacity development and the transfer of marine technology needs with the providers of support.

36. With regard to the Area, the International Seabed Authority deep seabed and ocean database, DeepData,[31] launched in 2019, contains deep-sea-related geological and environmental data and information, including biological, physical and geochemical parameters of marine ecosystems from the seafloor to the ocean surface.[32] In 2021, the Authority joined the International Oceanographic Data and Information Exchange network to serve as a node for the Ocean Biodiversity Information System of the Intergovernmental Oceanographic Commission for sharing data on deep-sea biodiversity and biogeography in the Area. The new partnership will contribute to enhancing the global accessibility and visibility of deep-sea biodiversity data collected and submitted by contractors, ensuring data quality and standardization and enhancing the capacity for data analysis and synthesis.

37. In addition, the International Seabed Authority is developing regional environmental management plans informed by scientific research, while the Endowment Fund for Marine Scientific Research in the Area supports the participation of qualified scientists and technical personnel from developing countries in marine scientific research programmes and activities and in relevant initiatives, with 146 scientists or government officials from 51 countries having benefited from financial support.[33]

38. Recent developments highlight opportunities to enhance the conservation and sustainable use of oceans and marine resources, including through cooperation and the development, improved implementation and heightened understanding of legal frameworks. In 2019, for instance, the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities launched a project entitled "Protecting the marine environment from land-based pollution through strengthened coordination of global action", which was aimed at strengthening responses to land-based pollution, enhancing cooperation and fostering action to tackle issues related to wastewater pollution, nutrient management and marine litter. The Plastic Waste Partnership under the Basel Convention on the Control of Transboundary Movements

[29] See http://ioc-unesco.org/index.php?option=com_content&view=article&id=309&Itemid=100024.

[30] World Meteorological Organization, *World Meteorological Congress: Abridged Final Report of the Eighteenth Session, Geneva, 3–14 June 2019* (Geneva, 2019), p. 149, Available at https://library.wmo.int/doc_num.php?explnum_id=9827.

[31] See www.isa.org.jm/deepdata.

[32] International Seabed Authority, "Technical brief: DeepData in a nut shell". Available at https://isa.org.jm/files/files/documents/DeepData_brief_Final.pdf.

[33] See www.isa.org.jm/contractors/endowment-fund.

of Hazardous Wastes and their Disposal was established in 2019, while the United Nations Environment Assembly of the United Nations Environment Programme, at its fifth session, adopted a resolution with a view to developing an international legally binding agreement to end plastic pollution, including in the marine environment, by 2024 and agreed on establishing a science-policy panel to support action on chemicals, waste and pollution.

39. In the fifth edition of the *Global Biodiversity Outlook*, it was indicated that, at the global level, none of the 20 Aichi Biodiversity Targets had been fully achieved by 2020, meaning that the world is currently not on track to reverse trends in global biodiversity loss, including marine biodiversity loss. Parties to the Convention on Biological Diversity are currently developing the post-2020 global biodiversity framework, which will be submitted for adoption at the fifteenth meeting of the Conference of the Parties to the Convention in 2022 and is aimed at providing the global guiding framework for action on biodiversity, including marine and coastal biodiversity. This provides a key opportunity to address the shortcomings in achieving the Aichi Biodiversity Targets and to put the world back on track to achieving a sustainable future for the oceans.

40. Water management, including wastewater management and the condition of rivers, also has a significant impact on seas and the oceans. The International Decade for Action, "Water for Sustainable Development", will run from 2018 until 2028.[34] The Secretary-General's Plan: Water Action Decade 2018–2028, prepared with the support of UN-Water, includes activities to improve international scientific cooperation in freshwater and marine water research, resources management, education and capacity-building through enhanced access to knowledge.[35] The United Nations Conference on the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action, to be held in 2023, will shine the spotlight on commitments that create an impact and set a clear agenda for the second half of the Decade and beyond.

41. There is general acknowledgement that achieving ocean-related climate change targets requires the effective implementation of international instruments, the enhancement of synergies in the implementation of climate and ocean legal instruments, cooperation among relevant institutional frameworks and the strengthening of inter-agency collaboration. Sea level rise has increased awareness for many States, in particular small island developing States and coastal and low-lying least developed countries, of the importance of their maritime entitlements under the United Nations Convention on the Law of the Sea and the exercise of rights and jurisdiction therein.[36] The relationship between the delineation and delimitation of maritime zones and the conservation and sustainable use of oceans and their resources is also increasingly recognized. To enhance understanding of the implications of sea level rise for international law, including the law of the sea, the International Law Commission is currently studying the topic.[37] Moreover, the twenty-first session of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea was dedicated to the theme "Sea-level rise and its impacts" and heard presentations, inter alia, on the legal dimensions. Appropriate policy and legal frameworks are also important in adapting critical transport infrastructure and services to the impacts of

[34] See https://wateractiondecade.org.

[35] See https://wateractiondecade.org/wp-content/uploads/2018/03/UN-SG-Action-Plan_Water-Action-Decade-web.pdf.

[36] Certain States have made declarations in this respect: see Pacific Islands Forum, "Declaration on preserving maritime zones in the face of climate change-related sea-level rise", 6 August 2021. Available at www.forumsec.org/2021/08/11/declaration-on-preserving-maritime-zones-in-the-face-of-climate-change-related-sea-level-rise.

[37] See https://legal.un.org/ilc/guide/8_9.shtml.

climate variability and change and enhancing their overall climate and disaster-risk resilience.[38]

42. The challenges noted above have been exacerbated by the coronavirus disease (COVID-19) pandemic. The full extent of its impact on the application of international law, rules, regulations and procedures related to marine scientific research and the development and transfer of marine technology is not yet fully known. There is, however, evidence that the pandemic has had an impact on processes to implement and advance the legal framework, as meetings, workshops and conferences have been cancelled or postponed or have proceeded with limited stakeholder participation, including the United Nations Ocean Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development and several decision-making processes under the Convention. At the same time, the expansion of virtual communications has offered opportunities for enhanced cooperation, coordination and partnerships at all levels and across sectors (A/75/340, para. 13). The pandemic has also highlighted the importance of the conservation and sustainable use of oceans and their resources to prevent the outbreak of zoonotic diseases and maintain a balance with nature.

IV. Existing partnerships

43. As understanding grows regarding the linkages between marine pollution, biodiversity loss and climate change and the cumulative impact of human activities on oceans, resources, coordination and cooperation at all levels, including across sectors, it is essential to ensure the effective, coherent and integrated implementation of the Convention, its implementing agreements and supplementary instruments. With innovation and science playing a key role in informing monitoring, goal-setting and decision-making, multi-stakeholder ocean partnerships are critical to the development of multi-disciplinary and cross-sectoral marine science.

44. For the 2017 United Nations Ocean Conference, 326 voluntary commitments addressing target 14.c of the Sustainable Development Goals were registered by Governments and other stakeholders, many involving multi-stakeholder partnerships. These voluntary commitments encompassed a broad range of activities critical to facilitating the implementation of international law to enhance the conservation and sustainable use of oceans and their resources, including to raise awareness of the legal and policy framework for the oceans and promote effective implementation; to develop the capacity of States for broader participation in, and effective implementation of, the Convention and related instruments; and to strengthen ocean governance.[39]

45. In particular, UN-Oceans, the inter-agency coordination mechanism on ocean and coastal issues within the United Nations system, made a voluntary commitment on raising awareness of relevant regulatory and policy frameworks and its members' activities in support of their implementation, as a foundation for conserving and sustainably using the oceans, seas and their resources, and members hosted side events at several international meetings in 2018, 2019 and 2021, informing participants of current ocean-related regulatory and policy frameworks and members' activities in support of implementation.[40] The key common implementation

[38] United Nations Conference on Trade and Development, *Climate Change Impacts and Adaptation for Coastal Transport Infrastructure: A Compilation of Policies and Practices*, Transport and Trade Facilitation Series No. 12 (Geneva, 2020). Available at https://unctad.org/system/files/official-document/dtltlb2019d1_en.pdf.

[39] See https://sustainabledevelopment.un.org/content/documents/22781UNCLOS_COA_interim_assessment.pdf, p. 3.

[40] See https://oceanconference.un.org/commitments/?id=16758.

challenges identified at these events were capacity issues, stakeholder engagement (including effective coordination and consultation costs) and the broader availability of sustainable funding and/or resources.[41]

46. Leading up to the 2022 United Nations Ocean Conference, several new voluntary commitments are being registered under target 14.c of the Sustainable Development Goals aimed at supporting the implementation of legal frameworks through scientific and technological innovation.[42] For example, Nepal and Mauritius will continue to implement voluntary commitments in support of target 14.c on the implementation of relevant provision of the Convention and a review of existing policies, legal and institutional framework for the sustainable use and development of marine fisheries resources.[43]

47. Examples of intergovernmental processes, programmes and projects that foster international cooperation and coordination in marine scientific research include the Global Ocean Observing System and its various networks, which promote partnerships and collaboration in ocean observation, supporting various governmental and non-governmental stakeholders. The System is developing a deep ocean observing system, which could promote international cooperation in advancing knowledge of biodiversity in areas beyond national jurisdiction. The FAO EAF-Nansen programme partners with research institutions in Africa, Asia and Latin America to provide the knowledge base for the sustainable management of fisheries.[44] Marine research is conducted with the participation of local scientists, including phase surveys involving detailed mapping and inventories of fish resources within the exclusive economic zones of beneficiary countries.

48. The Regular Process and its World Ocean Assessments play a powerful role in increasing scientific understanding of the oceans and the legal instruments that govern it, including the Convention and its implementing agreements, by translating science for decision makers and enabling ocean scientists and policymakers to build partnerships bridging the science-policy interface. The second World Ocean Assessment contains calls for improved coordination and cooperation in managing human activities in the oceans, with an emphasis on improving capacity development, innovations in marine technology, the integration of multidisciplinary observation systems, the implementation of integrated management and planning, and improved access to, and exchange of, ocean knowledge and technologies.

49. In the field of biodiversity, the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organizations and Regional Fisheries Bodies on Accelerating Progress Towards the Aichi Biodiversity Targets and Sustainable Development Goals, coordinated by the secretariat of the Convention on Biological Diversity, the United Nations Environment Programme and FAO, serves as a global platform for facilitating dialogue and cooperation among regional seas organizations and regional fisheries bodies around the world. It is focused on facilitating the exchange of experiences and discussing specific tools and guidelines in order to enhance science-based, cross-sectoral and ecosystem-based approaches for addressing biodiversity and fisheries issues, and identifying options and opportunities to enhance cross-sectoral collaboration among such organizations and bodies. A virtual intersessional workshop held in 2021 was focused on sharing experiences of the impacts of the COVID-19

[41] See https://sustainabledevelopment.un.org/content/documents/22781UNCLOS_COA_interim_assessment.pdf, p. 1.

[42] See https://sdgs.un.org/partnerships/action-networks/ocean-commitments.

[43] See https://sdgs.un.org/partnerships/implementation-relevant-provision-unclos; and https://sdgs.un.org/partnerships/review-existing-policies-legal-and-institutional-framework-sustainable-use-and.

[44] See www.fao.org/in-action/eaf-nansen/background/history/en.

pandemic and discussing the role of, and opportunities for, regional organizations and regional collaboration in the post-2020 global biodiversity framework. The third meeting of the Global Dialogue will take place in the third quarter of 2022.

50. In the field of climate change, the twenty-sixth Conference of the Parties to the United Nations Framework Convention on Climate Change adopted the Glasgow work programme on Action for Climate Empowerment, which promotes long-term, strategic, operational, multilevel, stakeholder, intergenerational partnerships that bring together different expertise, resources and knowledge to accelerate its implementation.[45] The Conference of the Parties also mandated an annual ocean and climate change dialogue to allow parties and other stakeholders to discuss how to strengthen action on the oceans and climate change related to mitigation and adaptation (FCCC/CP/2021/12/Add.1).

51. The World Maritime University and the IMO International Maritime Law Institute have been supporting the practical advancement of the science-policy interface. In 2018, a dedicated ocean governance institute, the World Maritime University-Sasakawa Global Ocean Institute, was created, which seeks to act as an independent focal point for the ocean science-policy-law-industry-society interface and to build transformative partnerships, including with non-traditional partners.

52. In 2018, the Economic and Social Commission for Asia and the Pacific initiated a project to strengthen member States' capacity to achieve Sustainable Development Goal 14. The project enhances partnerships among international, regional and national stakeholders, focusing on an agreed framework for the standardization of ocean-related statistics and their application to sustainable ocean management and enhancing States' technical capacity to regularly produce coherent priority ocean statistics (ocean accounts) and apply ocean accounts in policy analysis.

53. Partnerships are essential for the least developed countries, landlocked developing countries and small island developing States to overcome challenges in implementing international law. One example of a successful partnership among small island developing States in the Pacific is the joint submission to the Commission on the Limits of the Continental Shelf by the Federated States of Micronesia, Papua New Guinea and Solomon Islands in respect of the Ontong Java oceanic plateau, with the Commission's recommendations issued in 2017. Sustainable funding is needed to maintain and update data and technical capacities for these often lengthy processes. Another example is the Small Island Developing States Global Business Network to enhance private sector partnerships in the implementation of the SAMOA Pathway and the Sustainable Developing Goals, which provides a bridge for developing closer private sector ties between the three regions of small island developing States and the wider international business community, for exchanging lessons learned and best practices and for following up on partnerships and project announcements. The Network's fourth forum was held in the margins of the 2022 "Our Ocean" Conference in Palau, focusing on creating partnerships for small island developing States in ocean-related industries. The International Seabed Authority, in partnership with the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States and over 20 member States, research institutions and contractors, is also implementing a series of activities to advance the empowerment and leadership of women in deep sea research, with a particular focus on women scientists from developing States, including the least developed countries and small island developing States.[46]

54. Supporting and ensuring more systematic, consistent, sustained, strategic and structured involvement of the ocean business and investment community could assist

[45] See https://unfccc.int/sites/default/files/resource/cop26_auv_3b_Glasgow_WP.pdf.

[46] See www.isa.org.jm/vc/enhancing-role-women-msr.

in the development and implementation of international law. For example, the "Smart Ocean-Smart Industries" programme of the World Ocean Council is aimed at scaling up the use of commercial vessels and platforms to host or deploy instruments and innovative technology to collect important ocean information in support of ocean governance and international law, including the implementation of the United Nations Convention on the Law of the Sea.

V. Possible areas for new partnerships

55. The General Assembly has recognized that realizing the benefits of the Convention could be enhanced by further partnerships and international cooperation to facilitate technical assistance, advance scientific knowledge, generate funding and promote capacity-building. It has called on States and international institutions to promote bilateral, regional and global cooperation programmes, technical partnerships and fellowships and to strengthen capacity-building activities in developing countries, in particular the least developed countries and small island developing States, to develop and implement maritime-related legal frameworks in accordance with international law (resolution 76/72, para. 19). There are possibilities for such new partnerships in different fields and with different groups.

56. In ocean science, the Ocean Decade provides a historic opportunity to stimulate new partnerships and mobilize resources for transformative, locally relevant science to inform policy and decision-making across the 2030 Agenda for Sustainable Development. The implementation plan for the Decade recognizes the need for data and resulting knowledge to be provided in an open-access, shared, discoverable manner, in accordance with the Convention.[47] Planned collaborative centres for the Decade are aimed at enhancing the coordination of various thematic and geographic priorities for the Decade in a decentralized manner and are expected to, inter alia, identify opportunities for collaboration and provide technical, logistical and financial support for scientific coordination, planning and capacity-building efforts towards the Decade.[48]

57. The second Global Ocean Science Report also contains calls for the promotion of new multi-stakeholder partnerships in ocean science, in particular to operationalize the provisions of the Convention on capacity development and the transfer of marine technology.[49] In the report, the Intergovernmental Oceanographic Commission encourages South-South and North-South partnerships and broad cross-sectoral cooperation as vehicles to facilitate such technology transfer. With the SAMOA Pathway recognizing the importance of "dedicated regional oceanographic centres" for developing the technological capacity of small island developing States to undertake marine scientific research (resolution 69/15, para. 58 (f)), the development of national and regional marine scientific and technological centres, as envisaged under Part XIV of the Convention, could strengthen its implementation in the least developed countries and small island developing States and foster new partnerships between ocean stakeholders.[50]

[47] Intergovernmental Oceanographic Commission, "The United Nations Decade of Ocean Science for Sustainable Development (2021–2030): implementation plan summary" (Paris, 2021). Available at www.oceandecade.org/wp-content/uploads//2021/09/337521-Ocean%20Decade%20Implementation%20Plan:%20Summary.

[48] See www.oceandecade.org/news/decade-collaborative-centres-to-provide-focused-regional-and-thematic-support-for-decade-actions.

[49] Intergovernmental Oceanographic Commission, *Global Ocean Science Report 2020* (Paris, 2020). Available at https://unesdoc.unesco.org/ark:/48223/pf0000375147.

[50] See https://sustainabledevelopment.un.org/content/documents/5214236EGM%20Report%20on%20Oceans.pdf, p. 13.

58. The Regular Process, now in its third cycle, is implementing in cooperation with the Intergovernmental Oceanographic Commission a dedicated capacity-building programme to assist developing States in producing integrated assessments of the marine environment for enhanced decision-making in managing ocean areas. The International Seabed Authority-China Joint Training and Research Centre was launched in 2021 with the aim of providing training programmes in marine science and technology and in techniques for marine scientific research designed to facilitate developing States' full participation in activities in the Area.[51] Efforts to strengthen the international legal framework through the elaboration of new instruments, such as on biodiversity beyond national jurisdiction, may offer the potential for strengthening partnerships, as well as coordination and cooperation in and among bodies engaged in ocean management, including in the areas of capacity-building and the transfer of marine technology.

59. With ocean observing capacity at the regional level remaining uneven, opportunities for new partnerships exist at all levels in support of monitoring and reporting on international ocean-related agreements. Nationally, key challenges include increasing the number of countries and partners actively participating in ocean observing and better integrating efforts into regional and global initiatives.[52] The Global Ocean Observing System strategy for 2030, in combination with challenge 7 of the Ocean Decade on ocean observing, can provide a framework for strengthening engagement with new partners, including emerging national ocean observing programmes.[53] The twenty-second meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea on the theme "Ocean observing" will further consider these themes.

60. Opportunities for new partnerships have also been recognized in sustainable fisheries management, including through FAO and among fisheries management agencies, the private sector and academic institutions, to bridge resource and capacity gaps related to managing climate change impacts and promoting efforts to support adaptation and resilience.[54] The updated zero draft of the post-2020 global biodiversity framework highlights that implementing the Convention on Biological Diversity framework will require partnerships to leverage sustainable activities and programmes at all levels (see CBD/POST2020/PREP/2/1). There are also opportunities to improve the implementation of international law across the climate-ocean nexus, including, as recognized in the first United Nations Framework Convention on Climate Change dialogue on ocean and climate, by breaking down silos and cooperating to build capacity and deliver financing, integrating public and private finance and creating partnerships and innovative solutions.[55] National focal points across different international legal regimes could also have greater cross-cutting engagement, while data-sharing and ocean literacy among stakeholders could be improved. Targeted capacity-building and the development of supportive policy and legal frameworks, guidance, best practices, checklists, methodologies and other tools in support of adaptation will be critical, especially for small island developing States and other vulnerable coastal developing countries.

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[51] See www.isa.org.jm/training/JTRC; and www.isa.org.jm/node/19338.

[52] See www.ocean-ops.org/reportcard2018.

[53] Vladimir Ryabinin and others, "The UN Decade of Ocean Science for Sustainable Development", *Frontiers in Marine Science*, 31 July 2019. Available at www.frontiersin.org/articles/10.3389/fmars.2019.00470/full.

[54] Serena Lomonico and others, "Opportunities for fishery partnerships to advance climate-ready fisheries science and management", *Marine Policy*, vol. 123, January 2021. Available at www.sciencedirect.com/science/article/pii/S0308597X20308988.

[55] See https://unfccc.int/sites/default/files/resource/SBSTA_Ocean_Dialogue_SummaryReport.pdf, para. 129.

61. More generally, increasing collaboration with civil society, underrepresented groups and communities such as women, indigenous peoples and local communities offers the potential for new ocean science partnerships. There is growing awareness of the importance of indigenous and local ocean knowledge for enhancing the conservation and sustainable use of oceans and their resources.[56] To address their historical exclusion from ocean observation and data systems, indigenous peoples have called on the ocean observing community to "establish meaningful partnerships with indigenous communities, organizations and nations to learn and respect each other's ways of knowing".[57] In addition to containing calls for the full and effective participation of indigenous peoples and local communities, the updated zero draft of the post-2020 global biodiversity framework recognizes the need for the empowerment of women, young people and gender-responsive approaches (ibid.). It is relevant to note that the International Seabed Authority is leading the organization of a conference to celebrate the contribution of women, with a focus on women from the least developed countries, landlocked developing countries and small island developing States, to the progressive development of the law of the sea.[58]

62. Finally, partnerships with the private sector, including through citizen science, public-private partnerships and engaging philanthropists, offer opportunities for expanding ocean science in support of the implementation of the United Nations Convention on the Law of the Sea and target 14.c of the Sustainable Development Goals. Private sector involvement in the registration of voluntary commitments for target 14.c has, however, been limited.[59] It is, however, crucial in developing new and innovative ways of securing sustainable financing needed to enable developing countries to implement projects on a medium- to long-term basis. Furthermore, as the application of modern technologies for enhanced monitoring depends on new scientific insights and technological innovation, the full involvement of all science sectors, public or private, is essential. The Ocean Decade provides an opportunity for enhancing such partnerships, including by promoting the involvement of industry and donors.

VI. Conclusions and recommendations

63. International law, as reflected in the Convention, is critical to the conservation and sustainable use of the ocean and its resources. Its extensive legal framework governs the management of living and non-living resources, the protection and preservation of the marine environment and the facilitation of marine scientific research and the transfer of marine technology, as a crucial underpinning of efforts to promote ocean health and resilience.

64. Despite improvements in recent years, challenges subsist in ensuring adherence to, and effective implementation of, various legal instruments in these fields. Participation is not universal, and better implementation is essential. Capacity gaps are significant, in particular for developing countries, including the least developed countries, landlocked developing countries and small island developing States. Financing is insufficient, but there is a host of opportunities as well. Technology and

[56] Nathan Bennett and others, "Advancing social equity in and through marine conservation", *Frontiers in Marine Science*, 30 July 2021. Available at www.frontiersin.org/articles/10.3389/fmars.2021.711538/full?utm_source=F-NTF&utm_medium=EMLX&utm_campaign=PRD_FEOPS_20170000_ARTICLE.

[57] See www.oceanobs19.net/wp-content/uploads/2019/09/Indigenous-Ocean-Obs19-Declaration_8.5x15_Final.pdf.

[58] See www.isa.org.jm/conference-women-law-sea-2022.

[59] United Nations, "In-depth analysis of Ocean Conference voluntary commitments to support and monitor their implementation", 2017. Available at https://sustainabledevelopment.un.org/content/documents/17193OCVC_in_depth_analysis.pdf.

science are improving at a remarkable speed, providing new possibilities for regulatory development, monitoring and enforcement. Capacity-building continues apace across sectors, offering opportunities for global coverage and consistency in the implementation of regulatory frameworks. Partnerships are being developed between States, relevant organizations and the private sector in pursuit of common goals.

65. The 2022 United Nations Ocean Conference offers a singular opportunity to further work towards improved and more holistic management of human activities and their cumulative impacts in the oceans.

66. Identifying and leveraging synergies in the implementation of international law, including through the science-policy interface, is crucial. Reducing duplication and enhancing efficiency through collaboration and multisectoral engagement is a necessity. It is essential to seize the opportunity that the Conference presents to identify innovative and effective multi-stakeholder partnerships for truly effective implementation of international law for sustainable development.

VII. Guiding questions

67. The following guiding questions may be used to inform the dialogue:

(a) How can the implementation of international law, as reflected in the Convention, contribute to the scaling up of ocean action based on ocean science and innovation?

(b) How can innovation, science and technology be better utilized to support the implementation of international instruments, including capacity development, knowledge exchange and the transfer of marine technology, and how can the technology sector be better engaged in multilateral policy processes?

(c) How can United Nations system entities support Member States in harmonizing their legislative and policy strategies with the Convention and their obligations under other international instruments relating to the oceans to enhance ocean science and innovation?

(d) How can activities by non-State actors, including the private sector, in the field of ocean science and innovation better support the implementation of international law?

(e) What are the most pressing needs in terms of capacity-building and financial and technical assistance in the field of ocean science and innovation to support the implementation of international law, as reflected in the Convention, and what are the most effective channels for such support?

(f) How can adherence to reporting obligations under various international instruments be improved by building synergies across different processes while mitigating reporting burdens on Governments?

(g) How can new and innovative practices, partnerships and solutions that have been implemented or developed to address challenges arising from the COVID-19 pandemic continue to contribute to enhancing the implementation of international law as reflected in the Convention?