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Ocean and climate change dialogue 2024

Informal summary report by the co-facilitators of the Ocean and Climate Change Dialogue 2023–2024

Summary

The ocean and climate change dialogue ("dialogue") was mandated by the Conference of the Parties at its twenty-sixth session. The 2024 dialogue was held in hybrid mode on 11–12 June 2024, in conjunction with the sixtieth sessions of the subsidiary bodies in Bonn, Germany. As the co-facilitators of the dialogue, we have prepared this report that provides a summary of the discussions that took place on the two topics, chosen in consultation with Parties and observers: first, marine biodiversity conservation and coastal resilience, and second, technology needs for ocean climate action, including finance links.

The dialogue offered a vital space for enhancing collaboration, understanding and building ocean-based climate action, illustrating needs, opportunities and case studies as well as highlighting key messages and ways forward. The dialogue aims to be a multi-year exercise, that builds knowledge in relevant topics on the ocean and climate change, and on previous years' experience, inputs and the 2023, 2022, 2020 informal summary reports.

Contents

Abbreviations and acronyms

AI	Artificial Intelligence
BBNJ Agreement	Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction
CBD	Convention on Biological Diversity
CCS	Carbon Capture and Storage
CO_2	carbon dioxide
COP	Conference of the Parties
DOALOS	Division for Ocean Affairs and the Law of the Sea
EU	European Union
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	greenhouse gas(es)
GST	Global Stocktake
ICZM	Integrated coastal zone management
IFI	International Financial Institution
IMO	International Maritime Organization
IOC-UNESCO	Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization
IoT	Internet of Things
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KMGBF	Kunming-Montreal Global Biodiversity Framework
LDC	least developed countries
mCDR	marine Carbon Dioxide Removal
MEAs	Multilateral Environmental Agreements
MPAs	Marine Protected Areas
MSP	Marine Spatial Planning
NAP	National Adaptation Plan
NbS	Nature-based Solutions
NBSAPs	National Biodiversity Strategies and Action Plans
NDC	nationally determined contribution
NGO	non-governmental organization
PPP	Public-Private Partnership
SCF	Standing Committee on Finance
SDG	Sustainable Development Goal
SIDS	Small Island Developing State(s)
SOPs	Sustainable Ocean Plans
TEC	Technology Executive Committee
UAE	United Arab Emirates
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNOC	United Nations Ocean Conference

I. Key messages

1. As co-facilitators, we have synthesized the following topical and cross-cutting messages from the two days of dialogue discussions, including the breakout groups discussions and the plenary statements. We hope that these messages are helpful for Parties as they develop their climate and ocean policies, especially in the context of preparing their new NDCs due by early 2025.

2. These key messages may also be useful for Parties when implementing existing mandates, including those contained in the first GST outcome.[1] We encourage Parties to read these messages in conjunction and as a complement to the key messages contained in the previous informal summary reports[2] of the ocean and climate dialogue.

3. Under marine biodiversity and coastal resilience, which is a continuity of the 2023 dialogue,[3] key messages underscore the importance of conservation, protection, and restoration of blue carbon ecosystems to adapt to climate change impacts, maintain biodiversity resilience and protect livelihoods. Under the new topic technology needs for the ocean climate action, including finance links, key messages relate to technologies, which when adequately financed, can act as a catalyst for accelerating adaptation and mitigation-based climate action, and enable climate resilient development. We further identify opportunities for Parties to act upon these key messages through their national climate goals and plans. Finally, we highlight some key messages which we believe can be useful for Parties for COP 29.

A. Marine biodiversity conservation and coastal resilience

4. Conservation, protection, and restoration of coastal and ocean ecosystems, including blue carbon habitats and NbS such as seagrasses, mangroves, coral reefs, salt marshes and kelp, protect coastal communities from sea level rise, sequester carbon and provide a range of ecosystem services and benefits. These ecosystems reduce the vulnerability of biodiversity and ecosystem services to climate change, support livelihoods by creating new income opportunities for communities, and help in achieving emissions reduction targets.

5. MPAs and other area-based management tools play a key role in supporting livelihoods, safeguarding marine biodiversity, and increasing resilience to climate change. Parties are encouraged to implement the KMGBF's 30 by 30 Goal for the effective conservation and management of ocean ecosystems. We further take note of the BBNJ agreement that includes specific procedures for the establishment of area-based management tools, including MPAs, with the aim of achieving specific conservation and sustainable use objectives, in areas beyond national jurisdiction.

6. Parties' efforts in advancing marine biodiversity conservation, including through the establishment of SOPs, ICZM and MSP, should be combined with building capacity, facilitating knowledge sharing and skill development. In this regard, Parties are encouraged to foster joint research, exchange good practices on the ocean, and promote ocean literacy.

7. Improved availability of and access to financing blue carbon ecosystems, including through the implementation of NbS and/or MPAs, can enable accelerated climate action. This implementation effort should be based in sharing of good practices, transparent and participatory processes and access to different funding sources. Tailored, long-term financing is essential to support local initiatives, for effective ecosystem restoration and sustainable management of blue carbon ecosystems. Financial incentives and results-based payments are essential for driving large-scale ecosystem restoration and improving project efficiency.

8. We reaffirm the key messages on this Topic from the 2023 dialogue, that were reiterated during the 2024 dialogue. In this regard, Parties are encouraged to adopt the IPCC

[1] Decision 1/CMA.5, paragraphs 35, 56 and 180.

[2] The 2023 summary report is available here. The 2022 summary report is available here; and the 2020 summary report is available here.

[3] Topic 1 of the 2023 dialogue was coastal ecosystem restoration, including blue carbon.

Wetlands Supplement in their national GHG inventories. Parties are encouraged to advance ecosystem mapping, natural national accounting and robust indicators to support ocean-based climate action, monitoring, and evaluation. We also underscore the 2023 key message on building awareness and advancing a data-driven approach for the sustainable management of coastal ecosystems and quantifying their adaptation benefits.

B. Technology needs for ocean climate action, including finance links

9. A range of renewable ocean energies, including offshore wind, wave, and tidal technologies, as well as green shipping technologies have the potential to deliver long-term carbon emissions reductions, with low environmental impacts.[4]

10. Some technologies, notably mCDR, involve significant uncertainties, and require further research to understand its mitigation potential, costs, co-benefits, adverse side-effects, and governance requirements. Parties' implementation strategies may wish to take into account these differences and potential trade-offs, including the implementation of IMO's amendments to regulate marine geoengineering.

11. Satellite mapping, and satellite-based remote sensing technologies are an important tool for monitoring the state of the ocean and advancing the efforts of Parties to adapt to climate change impacts. The use and scaling of advanced and automated ocean-based technologies like IoT and AI, has the potential to contribute to real-time data collection, and protect, restore and manage marine ecosystems.

12. TNAs can be an excellent tool for the identification, development and deployment of ocean-based technologies, and for informing the development and implementation of their NDCs. As TNAs follow a comprehensive, country-driven, participatory and action-oriented approach, involving all stakeholders, they could assist Parties in identifying technologies with the highest potential to mitigate climate change and adapt to its impacts, whilst identifying barriers to the development, transfer and uptake of these technologies.

13. Finance and capacity building are critical enablers to accelerate technology related ocean climate action. Developing countries, especially LDCs and SIDS, lack access to finance and have significant capacity building needs for the uptake of these technologies. Scaling financial flows would need clear government signalling to align public finance, and the development of innovative financial instruments to lower market barriers and costs, and related risks. The participation of private sector can be an important source of funding for ocean conservation and for the deployment of ocean – based technologies. In this regard, Parties and private investors should consider collaborating to develop innovative financial instruments, such as blue bonds and blended finance facilities including PPPs, which could assist with risk sharing and access to capital markets. This collaboration can be especially relevant when the market size or low commercial returns limit the investments. We further note the significant role of IFIs and climate funds such as the GCF and GEF, in funding guarantees, grants and concessional finance, that help to mitigate investment risks and attract private capital for ocean-based projects.

C. Strengthening ocean-based action in national climate goals and plans

14. Taking into consideration the multitude benefits of ocean-based technologies, and the protection, conservation and restoration of blue carbon ecosystems, Parties are encouraged to include ocean-based mitigation and adaptation measures in their NDCs and NAPs.

15. SOPs have the potential to guide Parties on the sustainable management of the ocean under national jurisdiction, while simultaneously providing economic, social, and environmental benefits across various sectors and communities. In this regard, we recognize the role of MSP and ICZM, to advance sustainable ocean management. Parties are encouraged to integrate these multi-sectoral strategies into their NDCs and NAPs as ocean-based measures.

[4] See IPCC Sixth Assessment Report for more details.

16. Parties may consider the inclusion of blue carbon ecosystems in their NDCs and NAPs, to achieve their emissions reduction targets, bearing in mind the existing methodological challenges. In their new NDCs, Parties could have quantified targets for their ocean-based measures and include the needs for, or the provision of, ocean-related finance, technologies and capacity building for implementation of their ocean targets.

17. Parties recognize the climate-ocean-biodiversity interlinkages, and the potential for enhancing synergies across the CBD and the Paris Agreement. In this regard, an opportunity exists for the Parties to align their NDCs, NAPs, and NBSAPs to enable the development of more coherent national strategies for climate and biodiversity, while enhancing coastal resilience and marine conservation. By recognizing that solutions to these challenges are often shared, Parties, can better integrate their actions, maximizing their collective contribution and impact, across these sectors.

D. Integration and strengthening of ocean-based action under the UNFCCC process and across ocean-related UN processes

18. Strengthening partnerships, and promoting international, domestic and regional cooperation can drive ocean-based climate action and enhance data accessibility. In this regard, we encourage Parties, non-Party stakeholders, and UN bodies to act on the implementation of the key messages of the dialogue.

19. Under the UNFCCC process, constituted bodies have made promising efforts to integrate the ocean into their workplan activities.[5] Further, in accordance with the Glasgow Climate Pact, we encourage the constituted bodies to continue mainstreaming the ocean in their work, in line with their mandates, thereby supporting Parties in the formulation and implementation of their NDCs and NAPs, and in the implementation of the outcomes of the dialogue.

20. Implementation of multilateral frameworks can be crucial for the success of national policies and have multiple climate co-benefits in adaptation and mitigation. Parties may consider streamlining their reporting obligations across international agreements, including the 2030 Agenda, the BBNJ agreement, and the KMGBF. To unify scarce resources, avoid duplication, and strengthen collective ocean-based action UN agencies leading on relevant ocean processes, may consider enhancing information sharing, so as to advance holistic ocean-based conservation action.

E. Considerations for COP 29

21. Key messages that Parties may wish to consider when deliberating on the conclusions and decisions at COP 29, include:

(a) When developing their new NDCs Parties might consider including an ocean component. Good practices and science-based solutions collated so far could be the basis for a more structured discussion on specific tools to support this effort, such as potentially voluntary guidelines developed under the UNFCCC on how to reflect ocean actions in NDCs;

(b) In the context of the GST follow up, such as the GST NDCs dialogue and the UAE dialogue on implementing the GST outcomes, Parties may consider submitting their views on ocean mandates contained in the GST decision 1/CMA.5;

(c) In the budget considerations for the biennium 2024–2025 and preparations for the 2026–2027 budget, Parties may wish to consider allocation of specific funding/resources to strengthen the capacities of the secretariat on ocean-climate issues;

(d) When considering finance mandates, including guidance to the operating entities, the seventh review of the Financial Mechanism, the NCQG and the Loss and Damage Fund, Parties may wish to reflect on how these negotiated outcomes can help in the

[5] We note with appreciation that the 2024 Information Note of the dialogue had the written contribution from eight constituted bodies.

implementation of the many projects, case studies and priority areas identified in the dialogue to date.

II. Introduction

22. The 2024 dialogue was held in hybrid-mode on 11–12 June 2024, in conjunction with the sixtieth session of the subsidiary bodies in Bonn, Germany. In accordance with decision 1/CP.27, the Sharm el-Sheikh Implementation Plan, Parties decided that the annual ocean and climate change dialogue ("dialogue") will, from 2023, be facilitated by two co-facilitators, selected by Parties biennially, who will be responsible for conducting the dialogue and preparing the informal summary report. As the co-facilitators of the 2024 dialogue, we have prepared this informal summary report.

23. In accordance with the mandate of decision 1/CP.27, para 49, we organized the virtual and informal exchange of views with Parties and observers, on March 6–7 to accommodate the various time zones. Based on the informal consultations, we decided the two topics of the 2024 dialogue to be: first, marine biodiversity conservation and coastal resilience; and second, technology needs for the ocean-climate action, including finance links.

24. We prepared an information note in advance of the dialogue which elaborated on our choice of the two topics and cross-cutting issues, the guiding questions, the expectations, structure, and agenda of the dialogue. Ten UN agencies and eight constituted bodies and work programmes of the UNFCCC provided written contributions to the information note.

25. Over the course of the two days of the dialogue, around 400 representatives from Parties and observers attended the dialogue in-person, while several hundred attended the dialogue virtually. The dialogue webcast from day 1 is available here, and of day 2 is available here. More than 300 case studies and good practices on the two topics were exchanged and discussed by the participants. They have been compiled on the UNFCCC's ocean webpage. All information on the 2024 dialogue is available on the UNFCCC's webpage.

26. The two-day dialogue was opened with high level remarks, followed by expert panels on the two topics, break out group discussions, national and regional panels on good practices, and plenary statements by Parties and observers on the way forward. This informal summary report summarises these proceedings and contains key messages of the dialogue, that will be presented by us at COP 29.

III. High-level remarks and opening

27. The dialogue was opened by Harry Vreuls, the SBSTA Chair, Vidar Helgesen, the IOC-UNESCO Executive Secretary, Kevin Magron representing France as the co-host of the UN Ocean Conference 2025, and, Simon Stiell, the UNFCCC Executive Secretary.

28. **Harry Vreuls, SBSTA Chair,** commended the Parties in the establishment of the annual dialogue. Tracing the origins of the dialogue from COP 25 onwards, he emphasised that the dialogue had strengthened the understanding of and action on ocean-related issues under the UNFCCC process. The outcome of the first GST had welcomed the outcomes of the 2023 dialogue and encouraged further strengthening of ocean-based action, as appropriate. Harry Vreuls urged the participants to use the 2024 dialogue as a catalyst to further collectively drive ocean-based climate action.

29. **Vidar Helgesen, Executive Secretary, IOC-UNESCO** stressed the critical need for timely access to ocean data and knowledge to inform policy decisions and support Parties in the development of their NAPs and NDCs. He reaffirmed IOC-UNESCO's commitment to collaborate with the secretariat to support Parties in the inclusion of ocean science in NDCs and NAPs. Making reference to the State of the Ocean Report 2024, he underscored the critical need for capacity development and global infrastructure for ocean observations. Vidar Helgesen highlighted the IOC-UNESCO coordinated UN Decade for Ocean Science for Sustainable Development 2021–30, as a source for Parties to scale up ocean-based mitigation, and adaptation solutions. Making reference to the Barcelona statement of the

IOC-UNESCO convened Ocean Decade Conference, he stressed the urgency of co-designing, co-producing and co-delivering ocean-based science, knowledge, and solutions.

30. **Kevin Magron, Head of Delegation for France and co-host of the** UN Ocean Conference 2025 briefed the participants on the ongoing preparatory process. The three cross-cutting themes of UNOC are: international ocean governance, blue economy and finance, and ocean science, with a focus on the ocean-climate-biodiversity nexus. The main deliverable will be the Nice Ocean Action Plan featuring a political declaration and voluntary commitments from Parties and stakeholders. The dialogue's success in raising awareness of the ocean's role in regulating climate change will be highlighted at UNOC. Kevin Magron shared the intention of France to launch the International Panel on Ocean Sustainability to address ocean-based knowledge gaps, and will be organizing with Costa Rica and Monaco, a forum on blue economy and finance to foster partnerships for ocean protection.

31. **Simon Stiell, the UNFCCC Executive Secretary** noted that while the 2023 NDCs Synthesis Report showed that over half of the Parties integrated coastal and marine NbS in their NDCs, the outcome of the first GST revealed that Parties are not on track to meet their ocean-related climate targets. He urged Parties to use the dialogue as an opportunity to share knowledge and inform the next round of NDCs. Simon Stiell further highlighted the role of other constituted bodies such as the TEC in supporting Parties to enhance national ambition on the ocean. He stressed the importance of NAPs in building ocean-based resilience. He emphasised the need to scale-up ocean finance, noting that SDG 14 is the most underfunded SDG, despite its significant potential for climate action. Lastly, he called on the UN agencies to continue strengthening synergies to boost ocean-based climate action.

IV. Expert Panels

32. In the next segment of the dialogue, experts representing Parties, UNFCCC constituted bodies, UN agencies, and non-Party stakeholders, made presentations to introduce the topics and cross-cutting considerations based on the guiding questions.

A. Marine biodiversity conservation and coastal resilience

33. **Brittany Young, SCF**. She presented on the various activities of the SCF. The fifth Biennial Assessment highlighted significant data gaps in global conservation financing, estimating USD 124 to 143 billion invested in 2019 but lacking clarity on whether these investments align with low-emissions, climate-resilient pathways. The Biennial Assessment particularly noted insufficient data on sector-specific issues including ocean finance that was hindering effective decision-making. The Biennial Assessment acknowledged the role of NbS in marine conservation. As the sixth Biennial Assessment approaches its release, there is a concerted effort to address these issues, particularly in ocean financing, to enhance the effectiveness of global conservation efforts.

34. Brittany Young further presented on the first National Determination Report, which found that over half of developing countries identified conservation and biodiversity as critical for adaptation, linking their CBD biodiversity strategies to climate adaptation plans under the NAPs. The submissions for the 2021 and 2022 SCF Forum on NbS had highlighted a significant investment gap in financing NbS, including for the ocean, projected to reach USD 4.1 trillion by 2050. Key findings included scaling up financial instruments like debt-for-nature swaps, strengthening the investment case for NbS, integrating nature into national budgets, and improving private sector disclosure of nature-related financial risks. She encouraged the dialogue participants to make submissions on sectoral financial flows, especially for the ocean, to the open call for evidence on the second National Determination Report, the sixth Biennial Assessment, the USD 100 billion report, and the 2024 SCF forum.

35. **Stephanie Ockenden, Deputy Head of Secretariat, High Level Panel for a Sustainable Ocean Economy (Ocean Panel).** She presented on the work of the Ocean Panel, led by 18 heads of state, collectively representing 50 per cent of the world's coastlines, 45 per cent of EEZs, 21 per cent of global fisheries, and 22 per cent of the world's shipping fleets. The Panel was committed to 100 per cent sustainable ocean management with the

development of the SOPs. She explained the SOPs as a tool for sustainable ocean governance, strengthening resilience, catalysing sustainable ocean economy investments, and delivering on global biodiversity and climate-based mitigation and adaptation goals. Stephanie Ockenden encouraged Parties to integrate SOPs in the ocean-related goals of NDCs, NAPs, and NBSAPs, as they would advance holistic solutions, strengthen food security, sequester carbon through NbS, and protect coastal areas and communities from sea-level rise.

36. **Joanna Post, Head of Ocean Observations and Services**, **IOC-UNESCO**. She presented on the State of the Ocean Report 2024 that underscored the importance of findable, accessible, interoperable, and reusable data in supporting ocean conservation efforts and building a global ocean digital ecosystem. IOC had initiated a consultative process on SOPs for monitoring, building a data ecosystem, and risk management. Referring to IOC's Ocean Biodiversity Information System, she encouraged Parties to use the data for biodiversity protection and conservation for their ocean-related NDCs. She further underscored the need to develop indicators to monitor the implementation of the NDCs and for reporting in the biennial transparency report, including through available tools like the Global Mangrove Watch.

37. **Valentina Germani, Senior Legal Officer, United Nations DOALOS.** She presented on the BBNJ agreement as the first global instrument to address climate change impacts on marine biodiversity of areas beyond national jurisdiction, that can support Parties to adapt to the accelerating impacts of climate change. She highlighted the package of issues that the BBNJ agreement covers, including marine genetic resources, MPAs, environmental impact assessments, capacity-building and the transfer of marine technology. The agreement emphasizes the need to strengthen and enhance cooperation with and among relevant legal instruments and frameworks and relevant global, regional, sub-regional, and sectoral bodies, to achieve its objectives. Valentina Germani referred to the International Tribunal for the Law of the Sea advisory opinion which held that anthropogenic GHG emissions constitute pollution of the marine environment under UNCLOS, and further noted the complementarity of the UNFCCC and the Paris Agreement. Noting that cross-sectoral capacity-building is essential to support ocean-based climate and biodiversity action at the national level, she reiterated the commitment of DOALOS in enhancing collaboration with UNFCCC and other relevant organizations.

38. **Sinikinesh Beyene Jimma, Chief, Marine and Coastal Ecosystems, UN Environment.** The presentation emphasized UNEP's role in conserving and restoring marine ecosystems to build resilience and support. Sinikinesh Jemma recalled that UNEP's strategy focuses on supporting decision-making, capacity-building and innovation, and linking science to policy to support NAPs, NDCs and NBSAPs. She emphasized the need for integrated, multi-sectoral approaches, including Area-Based Planning and Management, ICZM, MSP, Sustainable Blue Economy, MPAs, Sustainable Blue Finance as well as Blue Carbon, to conserve and restore marine ecosystems. These strategies should be incorporated into NDCs and NAPs to support economic decarbonization and coastal community resilience. Restoration of natural buffers such as coral reefs, wetlands, and mangroves is crucial for defence against climate impacts. She also stressed the importance of adaptation management and Indigenous knowledge. Finally, she underscored the need for international collaboration and financing as essential for building resilience, highlighting the need for the engagement of the private sector, increased multilateral financing, and the utilization of NbS like blue carbon and primer for ecosystem services to enhance resilience and adaptive capacity, especially in vulnerable regions.

B. Technology needs for the ocean-climate action, including finance links

39. **Filippo Berardi, Climate Change Focal Area Coordinator, GEF.** He highlighted the GEF Trust Fund's role in channelling USD 25 billion to various countries, with over USD 3 billion dedicated to ocean conservation. In its current replenishment phase, the Fund allocated USD 5.3 billion, including USD 800 million for sustainable ocean management and marine pollution prevention. GEF plays a pivotal role in combining funding across conventions, linking ocean conservation with climate change and biodiversity, and recently expanded its mandate with the Global Biodiversity Framework Fund. Filippo Berardi

highlighted GEF's long-standing partnership with the IMO, where GEF invested USD 25 million and leveraged an additional USD 87 million for marine shipping projects, including the Globalist Initiative, which aims to reduce biofouling, improve efficiency, and lower emissions.

40. Filippo Berardi mentioned that under GEF-8, USD 650 million is allocated to ocean-related themes through integrated programs such as the Clean and Healthy Ocean Integrated Program (addressing land-based pollution), the Blue and Green Islands Integrated Program (promoting sustainable management for SIDS), and the Circular Solutions for Plastics Pollution (addressing the global plastic pollution crisis). GEF is funding innovative financial instruments under GEF-8, using non-grant approaches like the new innovation window in GEF-8, and the Challenge Program for Adaptation Innovation. Examples include the Coral Bond in Indonesia, which channels coupon payments into coral conservation, and Coral Reef Insurance for the Pacific Islands, supporting reef restoration and protection. He also noted that GEF-9 replenishment negotiations will begin at the end of 2024, offering a chance to integrate the latest COP guidance and further align climate and ocean initiatives.

41. **Ambrosio Yobánolo del Real, TEC.** The presentation highlighted the role of TEC in providing policy recommendations and technical assistance on technology to developing countries. TEC, alongside the Climate Technology Centre and Network, forms part of the technology mechanism, and has recently added a workstream on ocean-related activities, including AI and early warning systems, with publications expected by the end of 2024. An example of this work is Belize that used machine learning with satellite imagery and field data to update estimates of key coastal ecosystems like coral reefs and mangroves, significantly improving risk knowledge and informing its NAP.

42. Ambrosio Yobánolo del Real highlighted that TEC's current focus is on mitigation, with a recent TEC publication exploring five emerging ocean-related energy technologies like floating solar PV, tidal power, and Ocean Thermal Energy Conversion, and offering significant energy potential and desalination benefits. Additionally, the Climate Technology Centre and Network is working on verifying the deployment of technology, which is not only technically feasible, but also socially, environmentally and economically viable. Discussions with the IMO also highlighted the need for port infrastructure to be compatible with low-emission maritime transport showcasing the broader impact of integrating new technologies.

43. **Fredrik Haag, Head, Office for London Convention, IMO.** The IMO is the Secretariat for the London convention and the 1996 London Protocol, the two oversee global treaties that prevent marine pollution from waste dumping. These treaties have taken measures to regulate climate change mitigation technologies, including CCS and marine geoengineering. Since 2006, and more recently from 2019, the London Protocol allows the export of CO_2 streams for CCS in specific seabed geological formations, following criteria established in a 2009 amendment. Amendments to regulate marine geoengineering, adopted in 2013, have not yet come into force but remain a priority for implementation. IMO efforts also include protecting marine biodiversity through measures on invasive species, ballast water management, and anti-fouling systems.

44. Fredrik Haag highlighted the IMO's focus on decarbonizing the maritime sector, with the 2023 IMO Strategy on Reduction of GHG Emissions from Ship aiming for net-zero GHG emissions from international shipping by 2050. He also noted the protective measures for sensitive sea areas and emission control zones under the International Convention for the Prevention of Pollution from Ships, linking these efforts to the KMGBF and SDG 14. These actions emphasize the need for adopting new technologies, the importance of capacity-building, advancing the maritime sector's energy transition, and ensuring just transition for developing countries, including SIDS, and LDCs. Fredrik Haag also noted that the dialogue reinforces the necessity of collaboration and synergies among UN entities, sectors, and stakeholders.

45. **Loreley Picourt, Executive Director, Ocean & Climate Platform.** The presentation focused on the Ocean Breakthroughs, a joint effort by the Marrakesh Partnership and High-Level Climate Champions, to identify crucial turning points for a healthy and productive ocean by 2050. Focusing on marine conservation, ocean renewable energy, shipping, aquatic foods, and coastal tourism, these breakthroughs aim to significantly enhance mitigation and

adaptation efforts while benefitting nature and people. The Ocean Renewable Energy Breakthrough emphasizes the significant potential of offshore wind energy, which could contribute up to 35 per cent of emissions reductions by 2050. The goal is to install at least 380 gigawatts of offshore capacity by 2030, ensuring net-positive biodiversity outcomes.

46. Loreley Picourt highlighted that the development of offshore wind in emerging and developing economies is crucial for both energy transition and sustainable development, requiring technology transfer and affordable access to clean energy. To support this, the breakthrough calls for USD 10 billion in international concessional financing. Finally, she underscored the need to integrate marine renewable energy into national strategies for achieving net-zero emissions by 2050.

V. Breakout group discussions

47. On day 1 of the proceedings, participants exchanged on the two topics of the dialogue, in ten break out groups led by moderators and facilitators (see annex I) based on the guiding questions. On the following day, Gail Sant and Andrew McMaster reported back on behalf of the moderators and facilitators. This section summarizes the knowledge exchange, highlighting the main ideas, actionable recommendations, and the good practices.

A. Marine biodiversity conservation and coastal resilience

1. How can conservation measures such as MPAs, NbS, and blue carbon ecosystems, support efforts by Parties to adapt to the accelerating impacts of climate change, restore biodiversity, support livelihoods, and maintain ecosystem services?

48. On this question, the discussions highlighted the following takeaways:

(a) Blue carbon ecosystems like seagrass, mangroves, and salt marshes are essential for enhancing coastal resilience, supporting livelihoods, and preserving biodiversity. MPAs and NbS are key for marine biodiversity protection and climate adaptation. Restoring coastal ecosystems is crucial for protecting against climate impacts, and for creating new income opportunities.

(b) SIDS face significant challenges in financing ecosystem restoration and conservation projects. Tailored, long-term financing is essential to support local initiatives and ensure sustainable management of blue carbon ecosystems.

(c) mCDR may compensate for greenhouse gas emissions from sectors that cannot completely decarbonize. However, mCDR methods differ in terms of removal process, timescale of carbon storage, technological maturity, mitigation potential, cost, co-benefits, adverse side-effects, and governance requirements. Parties' implementation strategies may wish to take into account these differences and potential trade-offs, including the implementation of IMO’s amendments to regulate marine geoengineering.

(d) Improving data availability, fostering international cooperation, and advancing ocean literacy are essential for effective coastal management. Building capacity, adopting a systems thinking approach, and strengthening coordination across MEAs will streamline conservation efforts and bolster global and local resilience.

49. **The importance of blue carbon ecosystems, such as seagrass, mangroves, salt marshes, and kelp, in supporting livelihoods, biodiversity conservation and enhancing coastal resilience and adaptation to climate change, was highlighted.** Participants discussed the multiple co-benefits of the blue carbon ecosystems, such as sequestering carbon, protecting against coastal acidification, offering nurseries for fisheries, supporting alternative livelihoods such as coastal tourism, and serving as natural barriers against storm surges and flooding. For example, the Pew Charitable Trust is developing the concept of blue carbon habitats, emphasizing the importance of coastal ecosystems for carbon sequestration. Japan's fisheries strategy is focused on conducting research on blue carbon and preserving blue carbon ecosystems to support and enhance fisheries. Colombia's Vida Manglar project

highlights the role of blue carbon habitats like mangroves in climate mitigation and adaptation, while enhancing local livelihoods through restoration and sustainable practices.

50. **Restoring coastal ecosystems is crucial for protecting against climate impacts, such as flooding and storm surges, while also creating new income opportunities for communities.** Effective restoration relies on investments in improved mapping, scientific research, and evaluation programs to identify and understand the benefits of these ecosystems. Such investments help determine the best locations for flood protection, storm defence, and marine biodiversity support. Highlighting and promoting projects that protect blue carbon ecosystems, such as those recognized by France's Blue Carbon Label, can attract investment. Australia's Blue Carbon Ecosystem Restoration Grant Scheme, supports five restoration sites across the country, enhancing ecosystem's biodiversity and coastal protection. Singapore is protecting its coastal areas from erosion with the construction of walls and stone embankments covering 70 per cent to 80 per cent of the country's coastline.

51. **MPAs are critical for strengthening resilience of coastal communities, providing alternative livelihoods and for marine biodiversity protection and conservation.** Participants highlighted the crucial role of MPAs in enhancing climate resilience by protecting against extreme weather events, preserving key marine areas and supporting sustainable fishing practices. For example, Indonesia utilizes MPAs to provide for alternative livelihoods through local tourism. Enhancing the effectiveness of monitoring strategies for MPAs provides decision makers with science-based information, to effectively respond to changing climate conditions and for resource management. For instance, Greece is committed to banning bottom-trawling in all MPAs by 2030 demonstrating a significant step towards protecting marine biodiversity and enhancing ecosystem resilience. The Shore: How We See the Sea project led by the University of Glasgow, uses storytelling to explore coastal communities' responses to MPAs in Scotland. Participants emphasized the design and management of marine parks in protecting marine biodiversity while increasing the resilience of marine ecosystems, citing the example of Australia that has developed marine park management plans and a Sustainable Ocean Plan. The EU is expanding the North-East Atlantic's largest MPA to include seabed protection and additional species, such as coral gardens and deep-sea sharks, which will be supported by the BBNJ agreement and is aligned with the EU's biodiversity strategy and Global Biodiversity Framework.

52. **SIDS underscored the role of MPAs and NbS in adaptation to climate change and for sustaining local livelihoods**. Effective implementation of MPAs and NbS requires SIDS to access good practices, scientific and technical expertise, and adequate financial resources. For instance, Fiji is building nature-based seawalls through mangrove restoration, which supports local community livelihoods while enhancing coastal protection. The role of area-based management tools in enhancing mitigation and adaptation efforts was highlighted, with the importance of making these tools accessible to local communities. The European Commission's funded AMAre project develops concrete pilot actions and coordinated strategies in selected MPAs to address hot spots of conflicts affecting marine biodiversity and the services it provides. Whilst the importance of NbS was recognized, the need to combine with existing and traditional green-grey infrastructure for additional ecological benefits, was also discussed.

53. **SIDS emphasized the significant challenges incurred in financing ecosystem restoration projects, and the need for tailored, long-term, and sustainable financing to support locally led initiatives and foster community ownership.** Participants discussed that financial incentives could encourage community participation in restoration efforts. To attract more financing, the co-benefits of mitigation and adaptation, such as restoring mangroves for carbon sequestration and coastline protection, was highlighted. Developing guidelines under the GCF was suggested to facilitate access to ocean-related funding for mitigation and adaptation solutions. The importance of building national and local capacity to access and utilize funding from the multilateral financial mechanisms was also emphasised. It was recommended that UN agencies further provide information on the available funding opportunities to streamline access to funding sources.

54. **Effective marine protection and coastal resilience require active engagement and capacity-building of local communities, whilst integrating traditional knowledge.** Participants emphasised integrating a human rights-based approach for inclusive decision

making. For example, the Climate Science Alliance is an Indigenous-led initiative has successfully informed ocean plans in Southern California while leveraging local knowledge for effective conservation. Australia's National Environmental Science Program combines science and traditional knowledge for practical implementation of marine protection.

55. **Promoting ocean literacy to increase community awareness and building capacity around the value of blue carbon ecosystems, is essential for recognizing their ecological and economic benefits.** By enhancing understanding of the blue carbon ecosystems, communities can better appreciate their role in supporting coastal resilience and generating alternative livelihoods. In China, the targeted education programs for fishers have raised awareness around the disappearance of endangered turtles within the country's nature reserves, and is promoting more sustainable fisheries practices. Participants highlighted the importance of capacity building and technological support to equip communities with the necessary knowledge, skills, and technologies to adapt to and mitigate climate impacts. Australia supports the Indian Ocean Rim Association's Blue Carbon Hub to build capacity to protect and restore blue carbon ecosystems in the Indian Ocean.

56. **Adopting a systems thinking approach to overcome fragmentation is crucial for effective marine and coastal protection.** Discussions highlighted the silos that existed across national ministries, and the lack of coordination among the MEAs, for the conservation and restoration of coastal ecosystems. Adopt a more coordinated and integrated approach would help streamline conservation efforts, improve access to funding, identify co-benefits, and avoid duplication in reporting. Malta's Climate Action Board was established to mainstream climate action across the line ministries, monitor the implementation of International and EU obligations on GHG emissions and to facilitate preparedness to ensure adaptation to the impacts of climate change. The EU Action Plan: Protecting and restoring marine ecosystems for sustainable and resilient fisheries is part of the Commission's efforts to achieve a more consistent implementation of the EU's environmental policy and the common fisheries policy with its three sustainability pillars – environmental, economic, and social.

57. **International cooperation and data exchange are vital for effective marine and coastal protection.** Developing knowledge platforms for sharing information, good practices, and scientific research is crucial for informed decision-making and global collaboration in marine resource management. Participants also referred to the dialogue as a platform for strengthening international partnerships and promoting knowledge exchange. Colombia's Skylight software tracks commercial and illegal fishing vessels, thereby exemplifying the importance of data sharing for effective coastal management.

58. **mCDR can complement emission reduction efforts by sequestering carbon through nature-based and technical solutions. However, more research is needed to fully understand its benefits and impacts.** Participants recommended conducting more research to fully understand the potential benefits and impacts of mCDR, including obtaining free, prior, and informed consent from impacted communities. Furthermore, the use of mCDR must be in compliance with the existing regulations and restrictions imposed by existing international agreements, such as the London Protocol. The US Federal Technical Assistance Center has developed a federal research plan on mCDR, which can potentially serve as a model for addressing climate-related challenges.

2. What comprehensive strategies exist that can enhance coastal resilience against the impacts of climate change that are also informed by the outcomes of the GST?

59. The key takeaways from these discussions included:

(a) To advance sustainable ocean management and bolster coastal resilience, Parties are encouraged to include ICZM and MSP into their NDCs and NAPs as ocean-based measures.

(b) Parties recognize the climate-ocean-biodiversity interlinkages, and the potential for enhancing synergies across the CBD and Paris Agreement. In this regard, an opportunity exists for the Parties to align their NDCs, NAPs, and NBSAPs to enable the development of more coherent national strategies for climate and biodiversity, while enhancing coastal resilience and marine conservation.

(c) Incorporating blue carbon ecosystems into climate action plans is vital for boosting coastal resilience and achieving emissions reduction targets. Parties may consider the inclusion of blue carbon ecosystems in their NDCs and NAPs, to achieve their emissions reduction targets. Ocean-based measures in Parties NDCs and NAPs must be informed by the best available science.

(d) It is crucial to strengthen financial and technical support for the development and implementation of NDCs and NAPs, particularly in LDCs and SIDS.

60. **MSP should be integrated in the Parties NDCs.** MSP was recommended as a core element of NDCs due to its ability to improve sectoral coordination, provide a comprehensive view of marine management, and support decision-making for resilient and productive oceans. The European Commission and UNESCO-IOC launched an updated roadmap to accelerate MSP worldwide from 2022–2027, through expanded knowledge sharing, capacity building, and transboundary cooperation in the MSP domain for better management of ocean and coastal areas.

61. **Incorporating ICZM in Parties NDCs blends traditional knowledge with scientific data, empowering communities to sustainably manage their resources.** For example**,** India reported in its NDC that it is implementing ICZM programs to build national capacity for comprehensive coastal management, focusing on ecological conservation, critical habitat protection coastal engineering, socio-economic aspects, and coastal governance. Coastal resilience requires inclusive decision-making and active public participation in MSP and ICZM to ensure sustainable and effective conservation strategies.

62. **The integration of protection and restoration strategies into NDCs and NAPs is essential to boost coastal resilience.** Participants stressed the incorporation of blue carbon ecosystems like mangroves, seagrasses, and salt marshes into NDCs, recognizing their role as significant carbon sinks that contribute to emissions reduction targets. For example, Brazil's National Programme for the Conservation and Sustainable Use of Mangroves to conserve and manage mangrove ecosystems, focuses on climate change adaptation, resilience, and improving the lives of dependent communities. Additionally, deep-sea protection was highlighted as essential for safeguarding carbon sinks and maintaining marine health.

63. **Participants advocated for aligning NAPs with NBSAPs to integrate biodiversity conservation targets into climate action plans.** For example, Brazil's NAP focuses on marine and coastal management by expanding conservation units and implementing monitoring programs to assess climate change impacts on coastal and marine ecosystems. The NBSAP of the Republic of Korea encouraged greater investment in ecosystem services and the development of national strategies, increasing overall interest in ecosystem services.

64. **Current scientific knowledge should be made more accessible and utilized in the formulation and implementation of NDCs and NAPs.** Participants highlighted the dialogue as a means to bridge the gap between science and policy, ensuring scientific findings are translated into actionable policies. Further, the importance of enhancing ocean-related data availability through citizen science to support better-informed decision making for planning and implementing effective coastal resilience strategies, was highlighted. For example, programmes such as the Pacific Blue Carbon Program focus on facilitating knowledge and expertise exchange between Indigenous communities creating synergies between traditional and scientific data. Finally, discussions emphasized the need for access to finance and building technical capacity for the development and implementation of NDCs and NAPs.

65. **It is essential for Parties to implement the KMGBF's 30 by 30 Goal for the effective conservation and management of MPAs.** In this regard, the linkages between the biodiversity and climate change goals were emphasised, with reference to the conservation of marine biodiversity in line with the KMGBF in the outcome of the first GST. Participants also agreed that coordination and aligning reporting across MEAs could streamline conservation measures and enhance resource mobilization.

B. Technology needs for the ocean-climate action, including finance links

1. Considering the current developmental stages of ocean technologies, what are the critical pathways to developing and deploying sustainable ocean technologies towards net-zero emissions? How can the integration of automation and satellite technologies, further transform our approach to ocean health and resource management under the UNFCCC process?

66. The key takeaways from the discussions on this guiding question were:

(a) Parties are encouraged to consider investing in the development and deployment of renewable ocean energies, including offshore wind, wave, and tidal technologies, and green shipping technologies, to deliver on long-term carbon emissions reductions.

(b) Satellite mapping, and satellite-based remote sensing technologies are an important tool for monitoring the state of the ocean and advancing the efforts of Parties to adapt to climate change impacts. The use and scaling of advanced and automated ocean-based technologies like IoT and AI, has the potential to contribute to real-time data collection, and protect, restore and manage marine ecosystems.

(c) By developing an ethical framework for technology deployment, stakeholders can ensure responsible practices whilst conducting ocean-based technologies research. Standardizing data reporting can help in improving data access.

(d) Developing countries, especially LDCs and SIDS, have significant capacity building needs on how to access ocean-based technologies and related finance. Finance and capacity building are critical enablers to accelerate technology related ocean climate action. By prioritizing capacity-building initiatives, having knowledge exchanges, and establishing regional centres, Parties can support the development of and access to new technologies.

67. **The adoption and expansion of renewable ocean energy and tidal and wave energy is necessary for achieving net-zero emissions. Funding and technology advancement are critical for deploying tidal and wave energy technologies, which, while included in some NDCs, are currently underdeveloped.** Parties widely discussed offshore wind programs as the only marine energy technology that was ready for efficient large-scale deployment. For example, Colombia registered an offshore wind power potential of 50 GW, equivalent to 2.8 times the country's current generation capacity, with significant potential to reduce emissions. In Belgium, the Dutch offshore solar company Ocean of Energy has completed the North Sea Three (N3) floating solar farm. Floating solar panels present a renewable energy option for densely populated areas. Although some Parties already include offshore wind in their NDCs, these technologies require further advancement and funding for large-scale deployment, particularly for SIDS. Vanuatu is actively pursuing wave and tidal energy as part of its NDC, despite current technological limitations. Participants stressed the importance of prioritizing offshore renewable energy in NDCs, as exemplified by the EU's focus on offshore wind energy. Participants emphasised the need for regional and international partnerships for technology transfer and advancing clean energy initiatives.

68. **Green shipping and the decarbonization of ports had the potential to significantly reduce CO_2 emissions.** Participants discussed the use of biofuels and green hydrogen fuels in the maritime industry, and the adoption of electric and hybrid propulsion systems in the fishing and shipping fleets. Singapore and IMO have launched NextGEN Connect, a multistakeholder project, that focuses on creating route-based action plans, using new technologies and zero-carbon maritime fuels, to reduce greenhouse gas emissions in the Asia-Pacific region. Further, implementing carbon pricing on shipping fuels was suggested to incentivize the use of cleaner fuels. Japan's Joint Credit Mechanism has been implemented in 17 partner countries resulting in the introduction of leading decarbonization technologies. Participants noted that green shipping strategies could significantly reduce CO_2 emissions, though lack of infrastructure for green ships in SIDS remains a significant barrier for energy transition and access to the global energy market. With a focus on technology solutions for domestic shipping, the IMO CARES project, champions the accelerated adoption of green

maritime technologies in developing countries, especially SIDS and LDCs, to ensure no country is left behind in the energy transition.

69. **Investment in fuelling technology and the electrification of boat connections was emphasized as crucial for ports' decarbonization, which should be included in NDCs.** The objective of the Global Industry Alliance is to address the barriers to the installation of energy-efficient technologies, including for infrastructure, decision-making tools, and the sharing of data and knowledge. However, significant issues remain in decarbonizing shipping, mainly due to gaps in funding and technological capacity, particularly in SIDS and LDCs. The IMO GreenVoyage-2050 Project supports the global shipping industry's transition to a low-carbon future by working with selected developing countries, including SIDS and LDCs, supporting the reduction of GHG emissions from shipping, in line with the levels of ambition set out in the Initial IMO GHG Strategy. The United States and Denmark are promoting green shipping through the Green Shipping Corridor Initiation Project, which aims to establish green maritime corridors with Panama, Fiji, Namibia, and other countries in the Pacific and Caribbean. The project focuses on global research and data sharing to support the adoption of green shipping technologies.

70. **Integration and automation of satellite technologies has the potential to transform ocean health and resource management**. Satellite technologies enable continuous and accurate monitoring of vulnerable ecosystems, offering a global view of the state of the ocean and facilitating the observation of remote and protected areas. Automatic data collection, combined with remote sensors and real-time monitoring networks, supports mapping coastal ecosystems and managing the ocean. These technologies provide vital information on water quality, track marine species and biodiversity, and offer early warnings for natural disasters. The eReefs project implemented by Australia utilizes satellite data and oceanographic models to monitor the impacts of pollution and climate change on the Great Barrier Reef, demonstrating the value of satellite technology in marine conservation.

71. **Expanding satellite mapping projects to cover more regions and ecosystems ensures comprehensive data collection for marine conservation efforts.** Implementing satellite-supported routing can prevent ecosystem damage and promote sustainable navigation practices. Enhancing maritime domain awareness through satellite monitoring, surveillance, and data sharing is also essential. For instance, Global Mangrove Watch uses satellite imagery to monitor the health of mangroves globally, providing valuable data for the protection and preservation of mangroves.

72. **Use of advanced technologies, such as AI and the IoT can further enhance marine conservation efforts.** In the Seaflower Scientific Expeditions, Japan has implemented underwater drones and unmanned surface vehicles to collect precise data and monitor mesophotic reefs. Japan's Strategy for Sustainable Food Systems integrates AI, IoT, and robots to promote sustainable fisheries, balancing enhanced productivity with environmental sustainability. The German Federal Ministry for the Environment is funding a World Wildlife Fund project under the EURopean ENvironment Initiative to promote knowledge exchange on sonar technology and the GhostDiver App.

73. **MSP was emphasized as necessary for facilitating the deployment of renewable technologies.** The EU has launched various initiatives such as the European MSP Platform and the European Blue Forum to facilitate data sharing of MSP-related knowledge and impact assessment before deployment. Barbados has a Marine Spatial Plan to foster the responsible use of marine resources and nurture a blue economy benefitting all Barbadians. The UN Global Compact Report on enabling data and knowledge sharing in the marine space on offshore renewable energy, provides key takeaways and recommended actions for engaging stakeholders to enhance ocean data and knowledge sharing, promoting cross-border harmonization to support data-driven maritime spatial planning and sustainable ocean management.

74. **It is essential to develop and implement an ethical framework to ensure responsible practices in the development and deployment of technologies and research.** Developing ethical guidelines at the early stages of technology development ensures promotes sustainable and responsible practices. It was recommended that comprehensive impact assessments be conducted before deploying renewable marine technologies to

evaluate their transboundary impacts and impacts on human rights, Indigenous peoples, local communities, and biodiversity. A precautionary approach should be adopted to minimize negative impacts when developing new ocean-based technologies. The TASDEMO project involves deploying SATH technology for a floating offshore wind turbine in Australian waters. This project will evaluate the technical and economic feasibility of deploying the technology.

75. **Improved data access is critical for decision-making and creating an enabling environment for deploying ocean technologies at scale.** Enhancing data collection, sharing, and utilization, along with strengthening national initiatives to improve data quality and accessibility in line with international standards, is crucial. Efforts should focus on making fisheries net-zero emitters, potentially incorporating citizen science and local community knowledge. Integrating data and technology with effective policies can boost capacity for successful project implementation. The EU's Copernicus program exemplifies improved data access by offering free and open data resources. It collaborates with the Central American Integration System to develop an information system using earth observation technology.

76. **Standardized reporting, establishment of national indicators and update to the Wetlands Supplement is essential for effective carbon accounting and technology deployment.** Addressing gaps in data, analysis of ocean carbon cycles and CCS for accurate carbon accounting is needed for effective carbon accounting and technology deployment. Participants discussed updating the Wetlands Supplement and developing national indicators to measure progress and implementation at the national level. The EU is addressing data gaps in CCS through a Wetlands and Blue Carbon assessment, to improve understanding of GHG emission removals from coastal ecosystems and enhance the mapping of blue carbon storage areas. Panama is enhancing its understanding and protection of mangroves and seagrasses by including coastal wetlands in its NDC under the Paris Agreement. The data collected will establish updated mangrove carbon stock baselines, allowing researchers to monitor future changes resulting from restoration or degradation, providing crucial insights for effective conservation efforts. Discussions also highlighted the challenges in the inclusion of ocean technologies within national climate strategies and policies frameworks, including NAPs.

77. **Prioritizing capacity-building and knowledge sharing is essential for the successful implementation of new technologies.** Various capacity building initiatives were shared by the participants. The Caribbean Community Climate Change Centre's Enhancing Eco-systems and Coastal Protection for Climate Change Resilience project, funded by Global Affairs Canada, aims to build climate resilience in seven CARICOM nations through capacity building and improved management of coral reefs, seagrass beds, and mangroves. The Sustainable Ocean Alliance Leadership Program will have youth-capacity-building programs in small island countries and globally, ensuring a steady pipeline of youth entering the ocean field. The OECD publications on technology and innovation were highlighted for their guidance on capacity-building and technology transfer. Discussions highlighted open platforms for exchanging technology transfer knowledge and good practices. The 2021 Nairobi Work Programme report highlighted knowledge gaps and opportunities for coordinated action to enhance ocean and coastal resilience, while also showcasing new solutions and good practices.

78. **Establishing regional centers of excellence in marine science and technology can facilitate knowledge sharing and skill development.** Discussions underscored the importance of regional collaboration for scientific capacity-building and enhancing developing countries' ocean resource management capabilities**.** Developing local manufacturing for ocean technologies and incorporating Indigenous knowledge are key for social acceptance and sustainability. Matching technologies to local conditions ensures effective deployment. The National Environmental Science Program Marine and Coastal Hub is an example of regional collaboration in which research is informing the management of Australia's marine and costal environments including costa reefs shelf and deep-water. The Commonwealth Scientific and Industrial Research Organisation collaborates with regional organizations like the Pacific Community and Secretariat of the Pacific Regional Environment Programme to deliver tools and research tailored to regional needs, including initiatives like the Vanuatu Climate Futures Portal and the Climate Science to Ensure Pacific

Tuna Access program. A flexible framework for assessing technology needs and impacts is needed, with UNEP's Regional Seas Programme recommended for sharing strategies on managing ghost gear.

79. **Considering the current high costs and developmental stages of ocean energy technologies, what innovative financial approaches could be pursued to attract sufficient capital for research, development, and deployment to support countries in using technology to enhance participation in UNFCCC processes? How can Parties apply the potential role of PPPs, blue bonds, and climate funds in supporting these technologies?**

80. The main takeaways from the discussions on this guiding question included:

(a) Current market mechanisms do not offer attractive commercial returns for the private sector to incentivize the broad scale research, development and deployment of ocean-based technologies. These projects frequently lack the necessary deal size and favorable risk-return ratios to draw significant private sector investments.

(b) Public finance is an important enabler for adoption of ocean-based technologies. Scaling up financial flows would require clear signaling and government support to align public finance and lower risks for private sector investments.

(c) Parties and private investors may consider collaborating to develop innovative financial instruments, such as blue bonds[6] and blended finance facilities including PPPs, which could assist with risk sharing and access to capital markets. The use of results-based financing is encouraged for ensuring efficiency, accountability, and creating a stable investment environment for the private sector.

(d) Providing small tech businesses with financial and technical at local and sub-national levels is essential for engaging local communities in the ocean technology landscape.

(e) Parties can enhance risk management and debt relief for ocean technology investments by utilizing risk-sharing instruments, tailored financial instruments, insurance, and government-backed guarantees.

(f) Parties may wish to utilize the UNFCCC TNAs for the identification, development and deployment of the ocean-based technologies, and for informing the development and implementation of their NDCs.

81. **Leveraging PPPs is crucial to attract sufficient capital for research, development, and deployment of ocean energy technologies.** PPPs can provide necessary funds and technical expertise, particularly in transboundary areas, by guiding countries on accessing and deploying these funds effectively. To further develop the use of Copernicus data and information in Central America, the European Union's Directorate-General for International Partnerships is financing the creation of Earth Observation data centres in the region, for users, entrepreneurs and scientists to exchange knowledge, expertise, research, and data to better address climate-related disasters throughout the region. The Nature Repair Market scheme is an Australian government initiative that promotes environmental restoration by incentivizing nature-positive land management. It creates a marketplace where individuals and organizations can generate and trade certificates through nature repair projects that enhance biodiversity. The Mangrove Breakthrough initiative demonstrates how coordinated efforts from governments to, the private sector, and non-state actors, can protect mangroves.

82. **The potential of blue finance including blue bonds and blue loans specifically for ocean energy projects was highlighted as a key mechanism to attract investors interested in sustainability, providing significant capital for developing renewable energy technologies.** Participants suggested creating specialized funds, such as dedicated venture capital funds for emerging technologies in the ocean energy sector, to attract private investors. These funds would provide the necessary capital for early-stage research and

[6] Blue Bonds are financing instruments that raise and earmark funds for investments such as water and wastewater management, reducing ocean plastic pollution, marine ecosystem restoration, sustainable shipping, eco-friendly tourism, or offshore renewable energy. *See*, https://www.ifc.org/en/what-we-do/sector-expertise/financial-institutions/climate-finance/blue-finance.

development, driving innovation and progress in the sector. Mechanisms like nature swaps can unlock additional financing for ocean climate action. Seychelles launched the world's first sovereign blue bond, raising USD 15 million to finance sustainable marine and fisheries projects, showcasing the potential of capital markets for financing the sustainable use of marine resources. The Australian Government's Green Bond program aims to boost Australia's green finance market by increasing transparency and attracting more green capital, setting a standard as a good practice by reporting to the investors.

83. **The role of governments in de-risking investments is crucial to attract private sector investments and reduce the financial risks associated with ocean-based projects.** Risk-sharing instruments and insurance schemes are needed to reduce investment risks and attract private sector involvement. For instance, partial bidding processes can diversify energy suppliers in offshore renewable energy projects, spreading risk and encouraging innovation. Governments and international organizations can develop counter-guarantees to commercial bank credit, enhancing the financial stability of emerging ocean-based technologies. Colombia's Sustainable Tourism Policy exemplifies how the government can mitigate financial risks and attract private investment by incorporating environmental and climate change considerations into tourism management. GEF's Coral Bond launched in collaboration with the World Bank, the Government of Indonesia, IUCN, and Banque Nationale de Paris, leverages private capital to achieve measurable conservation outcomes, including better coral reef health and increased economic benefits from fisheries and tourism.

84. **The use of climate funds, such as the GCF and the GEF, is crucial for supporting SIDS with grants and concessional financing tailored to their unique challenges.** SIDS face significant challenges in accessing funding, including a lack of technical expertise to conduct feasibility studies and navigate application processes for funds from entities like GCF and GEF. Simplified processes are needed to enhance access to multilateral financing. Participants mentioned the Adaptation Fund whose accreditation process is designed to ensure that entities meet rigorous, fiduciary, and environmental standards before assessing its financial resources.

85. **Assessing the readiness of ocean-based technologies before financing and conducting regular technology needs assessments is vital.** Innovative financing structures should be explored to accommodate varying stages of technology readiness, and a coherent approach across international financing mechanisms should be developed. The Future Fuels and Technology for Low- and Zero-Carbon Shipping Project, a partnership between the Government of the Republic of Korea and the IMO, provide technical analysis and easy access to the latest information on zero- and near-zero marine fuels and technologies in support of the regulatory decision-making process.

86. **Innovative financing mechanisms tailored to the specific needs of developing countries, including SIDS and LDCs, are essential for effective ocean-based mitigation and adaptation actions.** The urgent need to develop and provide financial support, improve accessibility, and offer technical assistance to vulnerable communities and SIDS was emphasized. It was highlighted that SIDS require concessional financing, low-interest loans, and PPPs for climate investments. This support should include grants, capacity-building programs, and partnerships to access funding and technology, ensuring these communities can implement and benefit from sustainable ocean technologies. The Republic of Korea has pledged to carry out marine energy official development assistance programs including Ocean Thermal Energy Conversion. It will provide 50kW Ocean Thermal Energy Conversion generators as well as air conditioners and heaters which can cool and heat about 5000m^2 areas. In addition, education program will be provided on how to desalinate discharge water and use it for hydroponics. Additionally, blue bonds, and tailored financial instruments for SIDS were recommended to avoid increasing their debt burdens. Additionally, operationalizing debt relief for climate adaptation and mitigation investments was also emphasized. Multidimensional Vulnerability Index for SIDS was proposed to capture the real costs and impacts faced by these countries while promoting resilience.

87. **Support for small tech businesses at local and sub-national levels is vital to involve local communities in the climate technology landscape**. Access to finance is crucial for small maritime industries to adopt low-carbon technologies. It is essential that technology and knowledge transfers are designed to be replicable across different regions,

adapted to local conditions, and capable of long-term learning and application. The Blue Carbon Accelerator Fund, with USD 7.25 million for 2021–2025, supports blue carbon restoration in developing countries and aids capacity-building and private sector financing, benefiting nations such as Benin, Madagascar, Malaysia, Indonesia, Peru, and the Philippines. The Bio-rights mechanism is an example of a financial incentive mechanism which is integrating ecosystem sustainability and poverty reduction, to guide coastal restoration in Java, Indonesia.

88. **Further integration of the ocean within the UNFCCC constituted bodies and work programmes was encouraged.** Parties stated that ongoing UNFCCC processes on financing could be used for ensuring ocean finance. This included the new collective quantified goal and operationalizing ocean actions through the Loss and Damage Fund and the Santiago Network.

C. Cross-cutting issues

89. The breakout group discussions highlighted several cross-cutting issues. The key takeaways from these discussions included:

(a) International cooperation is vital for equitable access to ocean technologies, data, and research, especially for countries vulnerable to climate change. Sharing data, good practices, and promoting technology transfer through global partnerships is crucial.

(b) The ocean dialogue is an important forum to identify the priority needs of the Parties by convening stakeholders for knowledge exchange and promoting collaboration.

(c) The engagement of local coastal communities, youth, Indigenous peoples, and women in decision-making processes, can help Parties develop effective coastal resilience strategies. By establishing robust legal frameworks and institutional capacities, Parties can ensure the long-term sustainability of ocean-based projects and the engagement of local communities.

(d) IFIs and climate funds such as the GCF and GEF, have a significant role in funding guarantees, grants and concessional finance, that help to mitigate investment risks and attract private capital for ocean-based projects.

(e) Implementation of multilateral frameworks can be crucial for the success of national policies and have multiple climate co-benefits in adaptation and mitigation. Parties may consider streamlining their reporting obligations across international agreements, including the 2030 Agenda, the BBNJ agreement, and the KMGBF.

(f) Innovative financial instruments like blue bonds, conservation bonds, and venture capital funds, can help to attract private investments interested to support early-stage research in emerging ocean technologies, and to fund initiatives related to nature and marine biodiversity. Parametric instruments, such as parametric insurance or Catastrophic Bonds, offer timely resources to support supporting ocean-based climate mitigation and adaptation action.

(g) Tailored financing is needed for SIDS and LDCs, including lower interest loans, grants, and capacity-building support to access financial assistance. For mechanisms such as results-based payments to be effective in SIDS and LDCs, they must include clear, achievable indicators tailored to local capacities and conditions.

1. How can international cooperation enable just and equitable access to ocean-based technologies, data management, capacity-building and marine scientific research, particularly for developing countries, especially those that are particularly vulnerable to the adverse effects of climate change?

90. **The role of international cooperation in gathering and disseminating ocean-related data, exchanging on good practices on technology transfer and their state of deployment was emphasised throughout the discussions**. Forums such as the ocean dialogue were highlighted as identifying the priority needs of the Parties by convening stakeholders for knowledge exchange and promoting collaboration. Additionally, various

knowledge exchange forums, ocean research centres and data collection platforms were highlighted, including the International Partnership for Blue Carbon, the Society for Conservation Biology Conservation Technology Working Group, Argo, and Commonwealth Scientific and Industrial Research Organisation.

91. **Participants stressed the importance of including diverse voices, such as youth, Indigenous peoples, and women, in decision-making processes**. The Sea Country Indigenous Protected Area program in Australia aims to ensure that land and sea areas are managed by First Nations to protect and conserve natural and cultural values. The role of citizen science in increasing data availability and engaging communities in scientific research was highlighted.

92. **Data accessibility is crucial for informed decision-making and effective coastal resilience strategies.** Participants underscored the importance of open data platforms for data accessibility. The Ocean Panel commissioned research with open source publications providing ocean knowledge and policy interface was highlighted. The use of shared clearing-house mechanisms, similar to those under the BBNJ agreement, was recommended to facilitate information exchange and cooperation.

2. What role can international agreements, including the 2030 Agenda, BBNJ agreement and KMGBF play to enhance international cooperation in these areas?

93. **International agreements are key to promoting cooperation, aligning strategies, and enhancing the conservation of marine resources, ultimately strengthening ocean health and resilience.** Throughout the discussions, participants underscored the role of international agreements in providing a legal and policy framework, and setting common goals and standards, within which countries can collaborate, to promote marine conservation and ensure access to financial resources for the communities. The International Policy Framework, developed by IUCN, Conservation International and partners, provides recommendations to align actions across international policy processes for the conservation and restoration of coastal blue carbon ecosystems.

94. **Participants discussed the need for coherence of the agendas across international agreements, to streamline resources, and strengthen ocean-based climate action.** Integrating climate and biodiversity goals by streamlining efforts across international agreements can greatly boost marine conservation efforts. They highlighted the importance of harmonizing efforts across conventions like UNCLOS, BBNJ, and CBD to support marine conservation and biodiversity. Enhancing synergies through inter-agency collaboration and avoiding duplication of efforts was also a key focus. To enhance coordination and create synergies between international agreements, participants highlighted the importance of the IPBES second global assessment of biodiversity and ecosystem services, currently in the scoping phase.

95. **Participants suggested linking NDCs, NAPs, and NBSAPs to enhance their impact and enable the integration of ocean-based climate goals in national policies and strategies.** The EU biodiversity strategy for 2030, aims to fulfil the 30 by 30 goal of KMGBF, and promotes a full integration of biodiversity objectives into other sectors such as agriculture, fisheries, and forestry for a coherent implementation of EU measures.

3. What are the most promising innovative financing mechanisms currently available or under development that could support ocean-based mitigation and adaptation climate action? How can these financial mechanisms be tailored to address the specific needs and vulnerabilities of developing countries, including SIDS and LDCs? How can IFIs and global partnerships enhance their support for these financial mechanisms?

96. **There was a call for increased financial, technical, and institutional support from IFIs.** Discussions highlighted the potential role of IFIs in funding guarantees, grants, and concessional finance, which help reduce investment risks and attract private investors to ocean-based projects. IFIs are also crucial for offering technical assistance and strengthening the institutional capacities of developing countries to manage and monitor ocean-based mitigation and adaptation projects more effectively.

97. **Participants emphasized the critical role of IFIs and global partnerships in implementing NDCs.** To secure support for the implementation of NDCs, discussions

stressed the need for enhanced financial capabilities, streamlined application processes, and early investor engagement, with IFIs playing a key role in facilitating this backing. The Climate Finance Readiness Programme assists partner countries in accessing international funds from the GCF and other climate finance sources.

98. Innovative **financing instruments and initiatives are essential for supporting ocean-based climate mitigation and adaptation efforts.** Discussions highlighted several innovative financial instruments and initiatives currently available or under development. These included blue bonds and venture capital funds attracting private investments interested to support early-stage research in emerging ocean technologies. Green loans, through second-tier banking, raise capital for green projects, while conservation bonds fund initiatives related to nature and biodiversity. Sustainable development bonds mobilize funds from investors in bond markets to support financing projects related to the SDGs. In addition, parametric instruments, such as parametric insurance or Catastrophic Bonds, offer timely resources to support climate action when activated by specific parameters.

99. **The need for multilateral financing tailored to the unique challenges of SIDS and LDCs was emphasized.** SIDS representatives mentioned the need for lower interest loans and grants to meet their special needs, including building their capacity for accessing financial assistance. The World Trade Organization Agreement on Fisheries Subsidies has established a fisheries funding mechanism for technical assistance and capacity-building. Despite the role of private and concessional loans, public financing remains essential, with developed countries' contributions being crucial for supporting ocean-related policies in developing nations. Australia is deploying high quality climate finance to meet the needs of its Pacific country partners and is responding flexibly by prioritizing grant-based funding for adaptation projects in the Pacific.

100. **PPPs are crucial for attracting investment in blue infrastructure projects like** coastal **defenses and mangrove restoration.** Participants emphasized the need for robust legal frameworks and institutional capacities to ensure these projects' long-term sustainability and benefits for local communities. The Clean Energy Finance Corporation, provides government-backed financing to commercial projects, reduces investment risks, and supports renewable energy and low-emissions technologies through loans and equity investments.

101. Financial **incentives and results-based payments are essential for large-scale ecosystem restoration and project efficiency.** Participants emphasized the role of incentives in restoring carbon-absorbing ecosystems, citing the Australian Carbon Credit Unit Scheme, which funds ocean-based projects like tidal reintroduction to coastal wetlands. Results-based payments, tied to measurable outcomes such as habitat regeneration or carbon reduction, were also highlighted. For these mechanisms to be effective in SIDS and LDCs, they must include clear, achievable indicators tailored to local capacities and conditions.

VI. Panel discussions on case studies, good practices and challenges at the regional and national level

102. Day 2 of the dialogue featured panel discussions on regional and national case studies that addressed specific national needs and regional perspectives within the global context.

A. Marine biodiversity conservation and costal resilience

103. **Sophie Mirgaux, Special Envoy for the Ocean, Belgium** presented on the BBNJ agreement. She reiterated the commitment of the EU under the KMGBF to protect 30 per cent of land, inland water and marine coastal areas by 2030. She called the BBNJ agreement, as a game changer for ocean conservation, particularly in areas outside national jurisdiction. She stated that the EU and its Member States were committed to ratifying the BBNJ agreement before the next UN Ocean Conference in June 2025. She further mentioned that the PrepCom sessions of the BBNJ agreement will lay the groundwork for the first COP and will focus on implementing MPAs and addressing funding and logistical issues to ensure effective implementation of the BBNJ agreement.

104. **Denzel Atumurirava, Oceans Stream, Ministry of Environment and Climate Change, Fiji** presented on key ocean-related initiatives in Fiji. He mentioned that Fiji aims to protect 30 per cent of its marine areas by 2030 in alignment with the KMGBF. SIDS have adopted community-based management, integrating local and indigenous knowledge in initiatives like Locally Managed Marine Area Network and Community-Based Fisheries Management. In Southeast Fiji, the Climate Adaptation and Protected Areas Initiative models marine ecosystem protection and climate resilience with local community involvement. The Fiji Locally Managed Marine Area Network combines traditional knowledge with modern practices, enhancing marine biodiversity across 400+ communities and serving as a potential Other Effective Area-based Conservation Measures tool for long-term conservation beyond formal protected areas. Additionally, SIDS are developing climate resilient infrastructure including mangrove restoration, integrated barriers and wave breakers, supported by the Kiwa Initiative and Adaptation Fund, to implement nationwide NbS for coastal communities. Denzel Atumurirava reiterated that SIDS continue facing climate change impacts, limited funding, and inadequate scientific and technological capacity, including ocean monitoring and observation systems.

105. **Gunnar Finke, Ocean Team Leader and Head of MeerWissen Secretariat, Deutsche Gesellschaft für Internationale Zusammenarbeit, Germany**. He presented on the MeerWissen initiative, funded by the German Federal Ministry for Economic Cooperation and Development. It supports 16 research projects in 11 African countries, emphasizing the integration of local knowledge with international research to enhance coastal resilience and sustainability. As part of the Ocean Decade Action, the initiative fosters partnerships between African and German marine research institutions and promotes innovative marine conservation technologies. For example, the "The Mangroves as Nature-Based Solutions to Coastal Hazards in Eastern Ghana" project uses a digital twin model to evaluate mangroves' role in coastal hazard mitigation in Ghana. MeerWissen's co-design approach involves local communities, aligning research with policy frameworks like the Paris Agreement and CBD. A key lesson is that aligning development research with international agreements is vital for effective science-policy integration. The MeerWissen example demonstrates the value of involving local knowledge holders to bridge local, national, and international efforts in shaping NDCs and biodiversity strategies.

B. Technology needs for the ocean – climate action, including finance links

106. **Juan Carlos Bedoya Ceballos, Head of Regulatory and Business Affairs, Ministry of Mines and Energy, Colombia.** The presentation highlighted Colombia's Ocean Renewables Strategic plan, which focuses on transitioning to renewable energy, particularly offshore wind, aiming to become a top contender in Latin America and the Caribbean. The goal is to achieve 1–3 gigawatts of offshore wind capacity by 2032, through modernized energy policies and regulations, private investment, and fiscal incentives. The strategic plan aims to mitigate climate change impacts like the El Niño–Southern Oscillation phenomena using satellite and geographic data to identify suitable sites for renewable energy projects. It includes comprehensive maritime spatial planning to balance environmental, economic, and social interests along the Caribbean coast. However, the strategy faces challenges such as limited development, grid connection issues, and the need for capacity-building at local and national levels, along with improving licensing processes. Support from international cooperation for funding, technical assistance, and creating a framework for PPPs was highlighted as crucial in advancing sustainable ocean-climate actions.

107. **Nobuhito Mori, Professor at Disaster Prevention Research Institute, Kyoto University, Japan**. He presented on the collaboration of the research institute with the Ministry of Education, Culture, Sports, Science, and Technology on climate change adaptation in coastal areas. Key challenges include the projected rise in sea levels by 50 to 100 centimetres by the end of the century and extreme coastal water levels influenced by tides, storm surges, and ocean waves. To tackle these issues, Japan is designing resilient coastal infrastructure, such as the storm surge barriers in Osaka Bay, which protect millions from severe weather events like Typhoon Jebi. Advanced climate projection data, including high-resolution local models and climate science, are integrated into practical adaptation

strategies. Nobuhito Mori stressed the importance of high-quality data for informed decision-making, infrastructure development and technology to ensure resilience and mitigate risks of coastal communities, particularly in vulnerable small island nations.

108. **Taryn Laubenstein, Office of the Special Presidential Envoy for Climate, United States of America.** The presentation highlighted U.S. initiatives and international partnerships to decarbonize shipping by 2050, including the Green Shipping Challenge, which has driven over USD 3 billion in investments in zero-emission maritime technologies. Various countries are leading efforts in this area, with Germany, Sweden, and Namibia making significant technological and policy contributions, and France's Euro 200 million public-private investment fund for maritime decarbonization. A key focus is the development of green corridors, which are designated sea routes that facilitate zero-emission shipping. The U.S., in collaboration with Denmark and the Maersk McKinney Moeller Center for Zero Carbon Shipping, has launched the Green Shipping Corridor Initiative to conduct feasibility studies, particularly for developing countries and SIDS. Domestically, investments in hydrogen hubs and port electrification are supported by the bipartisan infrastructure law and the Environmental Protection Agency. Taryn Laubenstein mentioned the Floating Offshore Wind Shot initiative to expand offshore wind energy by 2035 as a member of the Global Offshore Wind Alliance. These initiatives are part of the U.S. Ocean Climate Action Plan, which outlines comprehensive federal strategies for ocean-based climate mitigation and adaptation.

109. **Dwikorita Karnawati, Head of Indonesia Agency for Meteorology in Climatology and Geophysics**, Indonesia. The presentation emphasized the critical role of systematic observations in climate change mitigation, noting record global temperatures in 2023 and increased severe disasters like droughts and floods. These trends underscored the need for comprehensive monitoring systems to design effective climate adaptation and mitigation policies. Indonesia is using digital twin technology to enhance observation networks and data processing, and has developed a coupled atmosphere-wave-ocean model integrating ocean and atmospheric data for more accurate climate forecasting. The importance of integrating scientific findings from systematic observations within the UNFCCC process, was highlighted as being critical for policy design, and to avoid exacerbating the food security crisis for the USD 500 million smallholder farmers who are highly vulnerable to climate change.

VII. Plenary statements by Parties and observers on ways forward and further strengthening ocean-based action

110. For the plenary session, we invited Parties and non-Party stakeholders to share their views on advancing and further strengthening ocean-based action through the ocean dialogue in their statements and in writing. Annex II contains a list of the Parties and observer organizations that provided oral and written submissions. We have compiled responses to our two guiding questions from these plenary statements and written submissions received.

1. How can the ocean dialogue support Parties to deliver on the ocean-related language of the outcome of the first GST in their national actions and strategies, including NDCs and NAPs?

Guidelines, information sharing, good practices and solutions for inclusion in NDCs, NAPs, and national climate strategies	Provide clear and operationalizable guidelines for parties on integrating and strengthening ocean-based measures in NDCs and NAPs. Stronger guidelines on blue carbon ecosystems as well as incorporating mangroves, sea grasses and tidal marches into the NDCs. The next generation of NDCs should emphasize quantified objectives and clearly outline the means for implementation. Enhance the GHG reduction efforts in the 2025 NDCs.

	Share information on how Parties can include ocean-based actions in their NDCs and NAPs.
	Parties to be encouraged to include robust ocean-based measures in their NDCs.
	Share good practices, address barriers and identify solutions to strengthen ocean-based actions in NDCs and NAPs.
	Ocean-climate solutions are prominently included in NDCs, incorporating inclusive and participatory processes particularly vulnerable communities, and Indigenous Peoples.
	Dialogue should raise awareness and integrate oceanographic considerations into national climate change mitigation and adaptation strategies.
	Dialogue to support countries, especially SIDS and LDCs in integrating ocean elements into their climate strategies.
	Countries ensure that their efforts to formulate and implement NAPs are consistent with the UAE Framework on Global Climate Resilience.
	NAPs are integrated throughout sectors and government layers to reduce maladaptation.
	Integrate ocean-based targets into NDCs and NAPs using a programmatic approach to support the specific needs of SIDS in mitigation, adaptation, and loss and damage.
	Align NDCs with NBSAPs for coherence and effectiveness in actions by countries.
Follow up on the ocean-related outcomes of the first outcome of the GST	Support Parties to deliver on the ocean-related language of the first outcome of the GST.
	Integrate the ocean dialogue more effectively into the GST process, both during the technical assessment and the consideration of outputs.
	Future dialogues should focus on supporting countries in implementing ocean-related elements of the GST.
	Incorporate the conclusions of the dialogues into the next COP.
Cooperation and partnerships	Promote regional cooperation for coastal and marine conservation for implementation of more harmonized policies bolstering the resilience of coastal communities.
	Coordinated efforts among countries for better sharing of resources, expertise, data and increasing capacity.
	Parties, non-Party stakeholders, and UN bodies to actively engage with the dialogue outcomes for catalysing ocean-based climate action.
	Fostering joint research projects between institutions in developed and developing countries, and promoting the exchange of information, good practices, and lessons learned across nations.
	By encouraging international cooperation and collaboration, the dialogue can uncover funding opportunities and drive the implementation of actions aligned with the goals of NDCs and NAPs.
	Facilitate partnerships with NGOs, the private sector, and coastal communities to support ocean-based solutions.
	Promote partnerships between technologists and ecologists.

	Encourage participation in open-source communities and use online resources for problem-solving and support.
Innovation & technology hubs	Support developing countries by fostering innovation and technology hubs dedicated to developing ocean climate solutions tailored to local communities and regions.
Data gaps & monitoring	Address data gaps, improve ocean technology monitoring and enhance funding mechanisms for implementation of climate actions in developing countries.
Finance	Dialogue should identify pathways to secure adequate financial and human resources to develop and implement ocean-climate measures. Foster innovative financial tools and mechanisms to support conservation efforts, including those aimed at addressing funding gaps and leveraging investments in ocean and coastal protection. Ensure adequate funding and technical resources for ocean-climate projects. Articulate strong political narratives that highlight the importance of ocean finance flows.

2. What is needed to better integrate the ocean within the existing mandates and workplans of UNFCCC's relevant constituted bodies and work programmes, and to promote synergies with other relevant UN and non-UN initiatives and processes?

Strengthening synergies	Enhance synergies by inviting IPCC and other scientific bodies to work with UNEP, IPEBS, and DOALOS to develop protocols for monitoring MPAs within and beyond national jurisdictions, ensuring consistent data collection and accurate assessments using the best available science and traditional knowledge. Emphasize synergies with other relevant UN initiatives, such as the SDGs and the CBD, to promote a holistic approach to ocean conservation and climate resilience. Consider Regional Seas Conventions and Action Plans as a relevant body within the UN system to create synergies and effectively address ocean and biodiversity. Engagement with other UN frameworks, like the CBD, is recommended to support identified solutions including engaging with partnerships to drive finance and action towards coastal ecosystems. Support synergies for coastal and marine NbS across international policy processes. Transit to integrated methodologies across policy processes and conventions to enhance ambition, expedite implementation, and yield high-quality outcomes for coastal and marine ecosystems. Recognize the 30x30 target as an effective tool for climate change mitigation and adaptation. Engage with the Brazilian G20 presidency’s Oceans20 initiative. Communicate dialogue outcomes to UN Climate Week, and the G20 summit.

	To enhance synergies and coordination among national and regional policies it is recommended to strengthen collaboration with relevant UN frameworks and MEA's.
	Coordinated approach addressing climate change, biodiversity loss, and pollution, stressing the importance of the BBNJ Agreement and the KMGBF's 30x30 goal.
	Forge clear connections between ocean health and climate action by strengthening targets in current NDCs.
Integrating ocean within the UNFCCC constituted bodies and work programmes	Improve collaboration among UNFCCC bodies such as the Adaptation Committee, Mitigation Work Programme, to ensure integration of ocean-related actions in their workstreams.
	Support ocean-related actions through the Loss and Damage Fund and Santiago Network, addressing the specific needs of SIDS.
	Continue integrating ocean-related activities within the UNFCCC and other UN processes, as per the Glasgow Climate Pact.
	Keep the ocean dialogue informed of relevant activities under the UNFCCC and involve these activities and constituted bodies in the dialogue, to strengthen synergies between the UNFCCC and other UN processes, such as the FAO and the informal consultative process on Oceans and the Law of the Sea, ensuring coordinated and comprehensive discussions.
	Have action-oriented summary report, clearly and succinctly capturing good practices and identifying gaps, to enable Parties and work programmes to use the information for further actionable steps as needed.
	Align national and regional policies with global processes like the GST, Global Goal on Adaptation, and Loss and Damage mechanism.
	Formally recognize the ocean's crucial role in climate regulation within UNFCCC strategy documents.
	Establish a dedicated Oceans Working Group within the UNFCCC to coordinate and report on ocean-related actions.
Technology development and transfer, capacity-building, and ocean literacy	Use the approach of the implementation of the Technology Mechanism as a positive example to enhance the effectiveness of the dialogue in supporting mitigation and adaptation under the UNFCCC.
	Promote technology transfer and capacity-building for marine research and conservation.
	Elevate the ocean's importance on the global negotiating agenda by educating government leaders on its role and vulnerability.

VIII. Closing and next steps

111. Cecilia Kinuthia-Njenga, Director of Intergovernmental Support and Collective Progress made closing remarks. Thanking the participants for their engagement, she noted that the dialogue had set the stage for stronger collaboration for inclusion of ocean-based measures in national plans and strategies, including the NDCs and NAPs.

112. The next steps will be reporting back on the dialogue during the COP 29 opening plenary. Additionally, we shall convene a UNFCCC side event at COP 29 to present the conclusions and recommendations of this summary report, and to hear from experts and

Parties on the way forward. Further information on the side event shall be made available in due time on the UNFCCC ocean and climate dialogue webpage.

Annex I

Moderators and rapporteurs of breakout groups

	Moderator	*Rapporteur*
Topic 1		
1	Matt Frost, Plymouth Marine Laboratory	Marine Lecerf, Ocean & Climate Platform
2	Valentina Germani, UN DOALOS	Luz Angélica Gil, The Nature Conservancy
3	Pauli Merriman, The World Wide Fund for Nature	Katie Thiessen, YOUNGO
4	Miriah Kelly, RINGO	Jessie Turner & Inken Dressler, Ocean Acidification Alliance
5	Thomas Pye, International Ocean Climate, Department for Environment, Food and Rural Affairs, United Kingdom	Gail Sant, Nippon Foundation - University of Edinburgh Ocean Voices Programme
Topic 2		
1	Joanna Post, IOC-UNESCO	Whitney Berry, Ocean Conservancy
2	Stephen Minas, TEC	Carl Dudek, Département des Relations Extérieures et de la Coopération, Monaco
3	Ambrosio Yobánolo del Real, TEC	Niels Peters Williams, The United Nations Office on Drugs and Crime
4	Elise Murphy, International Climate Negotiations and Engagement Branch Department of Climate Change, Energy, the Environment and Water, Australia	Patrycja Enet, European MSP Platform, European Commission
5	Andrew McMaster, Fisheries and Oceans Canada	Tarub Bahri, Food and Agriculture Organization

Annex II

List of Parties and non-Party stakeholders who provided oral and/or written statements for the plenary session on ways forward and further strengthening ocean-based action

Parties and groups of Parties	*UN organizations, observers and non-Party stakeholders*
Australia	Carbon to Sea Initiative
Canada	Children and Youth Constituency of the UNFCCC
Chile	Climate Action Network
Colombia	Deep Ocean Stewardship Initiative
Conservatoire du littoral (French Coastal Agency)	Diverse International Group of Ocean Climate Research
European Commission on behalf on the European Union and its member states	Food and Agriculture Organization of the United Nations
Fiji on behalf of Alliance of Small Island States (AOSIS)	Global Campaign to Demand Climate Justice on behalf of the environmental non-governmental organization (ENGO)
Ghana on behalf of the African Group (AGN)	Hands Off Mother Earth Alliance on behalf of ENGO
Indonesia	IUCN
Japan	Ocean and Climate Platform
Monaco on behalf of the Environmental Integrity Group (EIG)	Ocean Conservancy
Palau	Ocean Visions
Panama	SilverLining
Peru	The Nature Conservancy
Singapore	University of Southampton
United Kingdom	Wetlands International on behalf of the Global Mangrove Alliance
United Stated of America	Women and Gender Constituency
	World Wildlife Fund