Framework Convention on
Climate Change

Subsidiary Body for Scientific and Technological Advice 29 April 2021

Ocean and climate change dialogue to consider how to strengthen adaptation and mitigation action

Informal summary report by the Chair of the Subsidiary Body for Scientific and Technological Advice

I. Introduction

1. The ocean dialogue was mandated by the Conference of the Parties at its twenty-fifth session and took place on 2 and 3 December 2020. This was a year in which people around the world faced the global health crisis of the coronavirus disease 2019 pandemic. As we struggle with the wave of consequences of the pandemic, we must urgently consider moving forward in both greener and bluer ways in order to minimize the even larger consequences of climate change heading our way, consequences that will increasingly impact the sustainable development of many countries.

2. The ocean has long been our ally in addressing climate change and taken the brunt of the impact of human-made global heating. It has absorbed about 90% of the heat generated by rising greenhouse gas emissions trapped in the Earth's system and taken in 30% of carbon emissions. As outlined in the Intergovernmental Panel on Climate Change Special Report on the Ocean and Cryosphere, this has caused systemic changes, including ocean warming, acidification, deoxygenation, cryosphere melt and sea level rise, with devastating impacts on ocean and coastal life and coastal communities' lives and livelihoods.

3. The ocean dialogue highlighted the interest of Governments in strengthening understanding of and action on ocean and climate change adaptation and mitigation. It is clear from the discussion that silos, in terms of both process and practice, must be broken down. The divide between ocean and climate, ocean and biodiversity, and ocean and sustainable development is completely artificial: climate action equals ocean action, and vice versa.

4. For too long the ocean has been out of sight, out of mind, and largely absent from global policy conversations on climate change. But the tide is turning. We have the knowledge, policy tools and incentives required, and now is the time to act together.

5. Firstly, there is a rich scientific knowledge base on the ocean and climate change. This includes the reports of the Intergovernmental Panel on Climate Change, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, and the High Level Panel for a Sustainable Ocean Economy, and the World Ocean Assessments.

6. Secondly, there is an urgent need to reduce greenhouse gas emissions to limit the scale of climate change impacts on the ocean and cryosphere, and increase resilience to the impacts on, and risks to, ecosystems and the livelihoods that depend on them. The ocean must be considered as part of these solutions for both mitigation and adaptation action.

7. Thirdly, the ocean is considered in some of the activities and agenda items under the UNFCCC as well as mandates across the wider UN system. Many countries are considering increasing ambition in their nationally determined contributions and national adaptation plans, including ocean action, but more is needed. I encourage Parties to strengthen their ambition and financing for integrated ocean and climate action, and to enhance adaptation strategies and nature-based solutions that will increase ocean and coastal zone resilience, as

well as the resilience of ocean-dependent communities, to the current effects of climate change and to future risks.

8. The ocean dialogue offered a vital space for enhancing and strengthening learning, action and synergies. Participants called for this dialogue to be just the beginning of our work and to serve as a space for discussing options and ways forward in relation to strengthening ocean and climate adaptation and mitigation action. These options and opportunities are detailed in this summary report.

Contents

Abbreviations and acronyms

BBNJ Intergovernmental Conference	Intergovernmental Conference on an international legally binding instrument 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
COP	Conference of the Parties
COVID-19	coronavirus disease 2019
FAO	Food and Agriculture Organization of the United Nations
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	greenhouse gas
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
LDC	least developed country
LEG	Least Developed Countries Expert Group
MPA	marine protected area
NA	not applicable
NAP	national adaptation plan
NDC	nationally determined contribution
NGO	non-governmental organization
NWP	Nairobi work programme on impacts, vulnerability and adaptation to climate change
OA	ocean acidification
Ocean Panel	High Level Panel for a Sustainable Ocean Economy
R&D	research and development
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCF	Standing Committee on Finance
SIDS	small island developing State(s)
SROCC	Intergovernmental Panel on Climate Change Special Report on the Ocean and Cryosphere
TEC	Technology Executive Committee
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WIM	Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts

II. Key messages

The ocean is a fundamental part of the climate system and the global response to climate change.

Ocean action and climate action are intrinsically linked and must be strengthened through breaking down silos, integration and collaboration.

To date, the ocean has been a critical buffer against climate change but tipping points are being reached and ocean risk is increasing.

Science provides the basis for understanding the action needed and must be strengthened in parallel with action moving forward.

The ocean provides multiple untapped and powerful opportunities to mitigate and adapt to climate change, provided environmental and social safeguards are met.

Protecting and restoring nature is fundamental for resilience.

Action requires the participation of all voices.

Ways forward must incorporate strengthened action related to both process (under the UNFCCC and the UN) and practice (at the national level), as well as international financial support for strengthened action. In particular, future efforts should aim to:

A. Strengthen action under the UNFCCC

- Elevate and strengthen the profile and consideration of the ocean across existing UNFCCC processes
- Support action at the national level, including through ambitious NDCs
- Address gaps and needs in relation to ocean and climate knowledge and action under the UNFCCC process
- Include the ocean in the assessment of collective progress and in the global stocktake
- Catalyse action on and continue to include the ocean in activities under the UNFCCC, recognizing the ocean dialogue as a first step

B. Strengthen action across the United Nations

- Recognize and amplify synergies, complementarities and collective efforts across the UN
- Support mainstreaming of coherent action across biodiversity, ocean and climate change agendas
- Strengthen cooperation and linkages across relevant frameworks and agreements at the international and regional level
- Build ocean and climate change action as a cross-cutting element across the global regulatory framework
- Improve national coordination of action and reporting under processes and conventions across the UN system

C. Strengthen action at the national level

- Promote understanding that climate action equals ocean action and vice versa, especially in low-lying coastal areas and SIDS
- Invest in ocean science and monitoring
- Increase climate ambition inclusive of the ocean, including in NDCs and NAPs
- Develop and/or strengthen integrated national policies for ocean and climate action
- Strengthen leadership at the national, regional and local level

D. Strengthen finance and other cross-cutting support

- Align global finance to support ocean and climate action
- Mobilise understanding and resources to ensure climate investment includes ocean investment
- Invest in ocean and climate action that is biodiversity-neutral and, ideally, biodiversity-positive
- Overcome knowledge gaps to create coherent policies and invest in reforms at different geographical scales
- Facilitate engagement between the public and private sector
- Develop technical guidelines, criteria and/or practical guides for accessing finance
- Develop and implement approaches for innovative financing structures and instruments
- Increase cross-sectoral capacity-building

III. Background

9. The ocean and climate change dialogue to consider how to strengthen adaptation and mitigation action was convened by the SBSTA Chair on 2 and 3 December 2020 during the UNFCCC Climate Dialogues 2020.[1] This report provides an informal summary of the proceedings. The ocean dialogue and its summary report were mandated at COP 25.[2]

10. In advance of the ocean dialogue, the SBSTA Chair provided an information note that summarized current ocean and climate change action under the Convention and the Paris Agreement, and within the wider UN system. Furthermore, the information note summarized the 47 submissions received by the UNFCCC secretariat from Parties and non-Party stakeholders to inform the ocean dialogue and proposed an approach to it.[3]

11. The ocean dialogue provided a space to discuss how to strengthen adaptation and mitigation action, drawing on the knowledge and scientific findings in the IPCC SROCC[4] and the submissions from Parties and non-Party stakeholders.[5]

12. The SBSTA Chair ensured that the ocean dialogue was inclusive and participatory, with inputs from both Parties and non-Party stakeholders, including academia, subnational authorities, NGOs and youth organizations.

IV. Proceedings

13. Owing to the COVID-19 pandemic and related travel restrictions in 2020, the ocean dialogue was held virtually on 2 and 3 December 2020 during the Climate Dialogues.

14. It encompassed on the first day a high-level opening session, a plenary session on science, parallel breakout discussion groups 1 and 2, and a closing plenary summarising the outcomes of the breakout groups 1 and 2. The second day consisted of a plenary session on opportunities for action on mitigation and adaptation, parallel breakout discussion groups 3 and 4, and a closing plenary summarizing the outcomes of the breakout groups 3 and 4 and discussing the ways forward.

15. The four breakout groups were on:

(a) Strengthening action under the UNFCCC;

(b) Strengthening action across the UN;

(c) Strengthening action at the national level;

(d) Strengthening cross-cutting support for action.

16. The breakout groups were led by a moderator, supported by a rapporteur, and included four or five panellists. A Mentimeter live poll was used during each discussion group and in the final closing plenary to enable all participants to provide written input to the discussion.

17. The ocean dialogue was chaired by Stella Gama, SBSTA Rapporteur.

18. The programme for the ocean dialogue listing speakers and panellists, as well as the information note, event flyer, presentations and event recordings, are available on the dedicated web page.[6]

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[1] See https://unfccc.int/cd2020.

[2] Decision 1/CP.25, paras. 31 and 33–34.

[3] Available at https://unfccc.int/sites/default/files/resource/OD_InformationNote.pdf.

[4] IPCC. 2019. *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*. H-O Pörtner, DC Roberts, V Masson-Delmotte, et al. (eds.). Available at https://www.ipcc.ch/srocc/home.

[5] Available at https://www4.unfccc.int/sites/submissionsstaging/Pages/Home.aspx (type "ocean" in the search function).

[6] https://unfccc.int/event/ocean-and-climate-change-dialogue.

19. Over the two days, the ocean dialogue attracted a maximum audience of 287 registered participants, with an additional 188 participants watching the live broadcast. Thus, the total maximum participation in the event was 475 Party and non-Party stakeholders.

20. At the closing of the Climate Dialogues on 4 December 2020, the SBSTA Chair invited Parties and non-Party stakeholders to submit any additional inputs to the ocean dialogue by 31 December 2020, for his consideration in the preparation of this summary report. Seven submissions were received.[7]

21. This summary brings together the key concepts, options and opportunities to strengthen ocean and climate change action identified across the plenary and group sessions, as well as in the submissions received following the dialogue. The summary is not chronological, but rather synthesizes the discussions on strengthening action.

22. For a chronological summary of the event, see the visual artwork commissioned for the ocean dialogue in the annex, which also shows some of the speakers and highlights from the plenary and group sessions.

V. Cross-cutting considerations for strengthening action

A. The ocean is a fundamental part of the climate system and the global response to climate change

"The ocean must be an important part of the global response to climate change, and a central piece for the success of the Paris Agreement. As COP 25 Presidency, we have promoted the idea that all countries should increase collective blue ambition, including robust ocean components in NDCs." Andrés Allamand, Minister of Foreign Affairs, Chile

23. The ocean is our planet's largest ecosystem. It stabilizes the climate, stores carbon, nurtures unimaginable biodiversity and directly supports human well-being through food and energy resources, as well as by providing cultural and recreational services.

24. The ocean sits at the crossroads of all the major challenges we face today: climate change, biodiversity loss, food security, energy transition and threats to human health. The ocean is not just a global climate regulator or a victim of climate change, but also a place to implement science-based mitigation and adaptation action.

25. A number of countries have set the ocean as a priority in their work and work under the UNFCCC. The ocean dialogue follows in the wake of related initiatives, including the work under the Because the Ocean initiative and the Ocean and Climate Platform, and the designation of COP 25 as the "Blue COP" in 2019.

B. To date, the ocean has been a critical buffer against climate change but tipping points are being reached and ocean risk is increasing

26. The ocean covers 70% of our planet and, to date, has captured about a third of the anthropogenic carbon dioxide emitted into the atmosphere and absorbed about 90% of the additional heat resulting from global warming. To date, the ocean has been a critical buffer against climate change, absorbing both heat and carbon emissions on a massive scale. As a result, the ocean bears the effects of warming, acidification, deoxygenation and sea level rise,

[7] From the International Coastal and Ocean Organization on behalf of Conservation International and its partners, the Global Ocean Forum, the Ocean Acidification Alliance, the Ocean Conservancy, the Sasakawa Peace Foundation, UNEP and the Women and Gender Constituency. Available at https://www4.unfccc.int/sites/submissionsstaging/Pages/Home.aspx (type "ocean" in the search function).

among other processes, creating many existential threats to nature, communities and livelihoods around the world.

27. Climate change is projected to influence extreme events and cause abrupt changes in the ocean and the cryosphere. These phenomena add to the impacts and risks associated with ocean warming and sea level rise. Abrupt changes can be tipping points, creating new conditions for the ocean and cryosphere, as well as their ecosystems, or for the whole climate system instead of reverting to the conditions prevailing before the abrupt changes occurred. For example, the IPCC SROCC reports that in some Arctic regions, tipping points may have already been reached such that adaptive practices can no longer work.

C. Ocean action and climate action are intrinsically linked and must be strengthened through breaking down silos, integration and collaboration

"Climate change and ocean change are inextricably linked and it's gratifying that SBSTA has recognized this. I trust that this linkage will now never be broken in our work ahead. Whatever our field of endeavour, everything is connected, human to human, human to nature, nature to climate, all into one healthy world." Peter Thomson, UN Secretary-General's Special Envoy for the Ocean

28. Discussions at the ocean dialogue repeatedly emphasized the connectivity between the ocean and climate both in terms of the impacts of climate change and the importance of considering this interconnectivity with regard to action.

29. The interconnectivity of ocean and climate should also be considered in the context of the interconnected nature of the Earth system itself, including connections between the ocean, climate and nature, and land and ocean.

30. There was recognition of the need to break down silos to enable meaningful action that reverses ocean decline and goes beyond repetitive rhetoric to encompass new forms of ambition and behaviour.

D. Science provides the basis for understanding the action needed and must be strengthened in parallel with action moving forward

"The contribution from science is critical, from the identification of a threat to the development of solutions. As this principle has been applied to the pandemic, so must the same principle guide our actions when facing climate change." Laurent Anselmi, Minister of Foreign Affairs and Cooperation, Monaco

31. Ocean science has played the primary role to date in strengthening understanding of climate change impacts and the action needed under the UNFCCC, the Paris Agreement and the 2030 Agenda for Sustainable Development. Ocean science tells us that climate change and ocean health are inseparable. However, as indicated in the World Ocean Assessment of 2016, humankind is running out of time to start managing the ocean sustainably.[8]

[8] See https://www.un.org/regularprocess/content/first-world-ocean-assessment.

1. Key messages from the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate

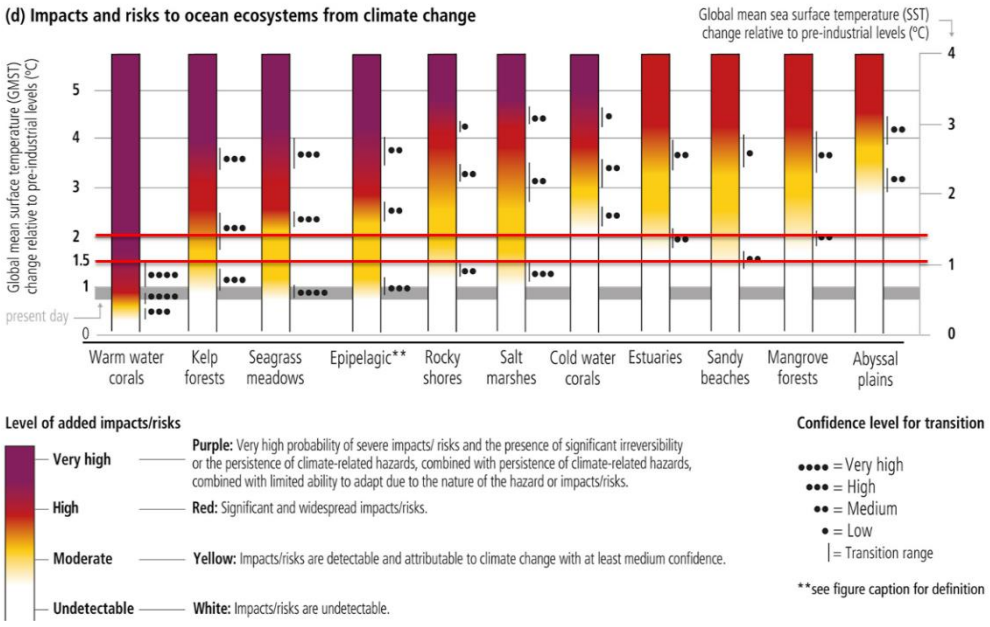
Every bit of warming matters
Each year matters…it's urgent
Each choice matters…closely following emission pathways to 1.5 °C matters
Political and societal will matters
Climate action cannot wait for research, they proceed in parallel…
Let us unite behind the science

32. Hans-Otto Pörtner and Elvira Poloczanska from the IPCC presented key messages from the SROCC on day 1 of the ocean dialogue. The SROCC provided the IPCC with the opportunity to, for the first time, assess the literature on climate change and the ocean and cryosphere, including impacts of climate change, projected risks and solutions in the context of these risks.

33. The ocean is suffering from multiple stressors. Ocean warming, ocean acidification and loss of oxygen (deoxygenation) are affecting life in the ocean from individual species to ecosystems, from the coasts to the open ocean to the deepest sea floor. Animals and complex plant life are the most vulnerable life forms on the planet, especially with respect to heat, and have evolved to survive within narrow temperature ranges. Increased ocean warming is leading to changes in biodiversity patterns across the ocean, with serious impacts on species richness and distribution and the function of ecosystems.

34. Figure 1 shows the impacts and risks to ocean ecosystems posed by climate change. One of the most vulnerable ecosystems is warm water coral reefs, which are already dying off as a result of climate change. An increase of 1.5 °C in global temperature will cause 70–90% of the warm water coral reefs that exist today to disappear. Losses will be up to 99% in the case of warming of 2 °C or more.

Figure 1
Impacts and risks to ocean ecosystems from climate change



Source: Slide 7 of the presentation by Hans-Otto Pörtner and Elvira Poloczanska.

Note: Assessment of risks for coastal and open ocean ecosystems based on observed and projected climate impacts on ecosystem structure, functioning and biodiversity. Impacts and risks are shown in relation to changes in global mean surface temperature relative to pre-industrial levels. For further information see SROCC figure SPM.3 (d).

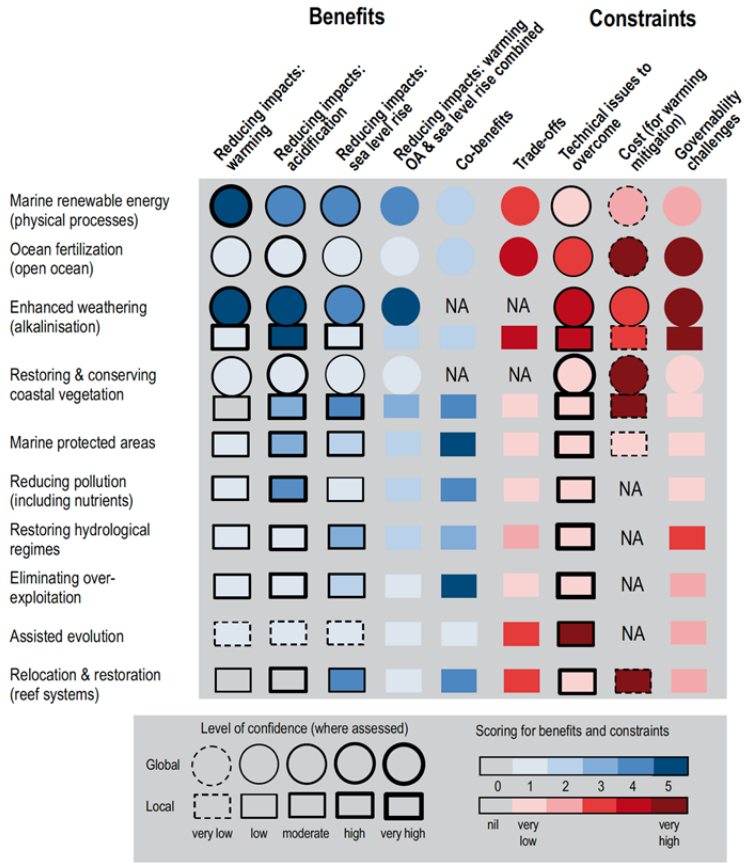
35. The negative impacts of climate change on species richness and ocean ecosystems translate to negative impacts on ecosystem services and sustainable development, undermining the food, livelihoods, and cultural and other services that these systems provide to people. For example, rising emissions will increasingly reduce the maximum fisheries catch potential, with serious effects on food security for many. People with the highest exposure and vulnerability are those with the lowest capacity for adaptation, such as small-scale artisanal fishers in developing countries.

36. Coastal communities worldwide, particularly those located in the Arctic, along low-lying coastlines and in SIDS, are exposed to multiple climate change hazards, including more powerful tropical storms, marine heat waves, ice melt, sea ice loss, sea level rise, inundation and flooding. The SROCC assessed the benefits and constraints of ocean-based risk reduction responses in the face of climate change (see figure 2). These included marine renewable energy, restoring and conserving coastal vegetation and blue carbon ecosystems, MPAs and reducing pollution. Risk reduction responses are possible at all levels.

37. In order to respond to climate change risks, the SROCC stresses the importance of having available a broad spectrum of adaptation and mitigation options. For example, blue carbon (coastal vegetation) ecosystems could provide climate change mitigation through increased carbon uptake and storage of around 0.5% of annual emissions globally, with significant impacts at the local level. Ecosystem-based adaptation is vital for coastal protection but will only be effective under the lowest levels of warming.

Figure 2

Summary of potential benefits and constraints of ocean-based risk reduction options using natural processes



Source: Slide 12 of the presentation by Hans-Otto Pörtner and Elvira Poloczanska.

Note: Summary of potential benefits and constraints of ocean-based risk reduction options using natural processes. For further information see SROCC figure 5.23.

38. Responses will be more effective if a range of voices, such as those of scientists, local communities and indigenous peoples, are included and consideration is given to local contexts, with the participation of relevant stakeholders. Governance is a critical element of the response at all levels, from local to national to international.

39. A current major risk that will worsen in the future is sea level rise. Low-emission scenarios in line with the agreed temperature limit of 1.5 °C set out in the Paris Agreement project that sea level rise will remain below 1 m, which already presents serious impacts and risks, particularly for atoll island and Arctic communities. Higher-emission scenarios are projected to lead to much higher sea level rise in this century and beyond.

40. The SROCC provides an assessment of possible response options to reduce risk from sea level rise. Coastal communities face challenging decisions in crafting context-specific and integrated responses to sea level rise that balance the costs, benefits and trade-offs of available options and can be adjusted over time. Possible response options include green and grey coastal protection, accommodation (such as early warning systems and flood-proofing of buildings), ecosystem-based adaptation (conservation and restoration), and coastal advance and retreat (planned relocation or forced displacement).

41. The core issue and the core bottleneck for action is mobilizing the political and societal will to advance ambitious implementation. From the point of view of science, climate action cannot wait for further research. Research efforts to improve and enhance knowledge of solutions need to proceed in parallel with such action.

42. The SROCC indicates that a broad range of ocean-based solutions can support mitigation and adaptation efforts, but the ocean cannot do it all. Ambitious mitigation efforts in line with low-emission pathways to limit global temperature rise to 1.5 °C remain the primary contribution to achieve a stabilized climate system.

2. The science we need to strengthen action on adaptation and mitigation

"The Decade of Ocean Science for Sustainable Development enables a breaking down of silos and joining of forces to provide the scientific information and government engagement needed for more efficient adaptation and mitigation. To have the ocean we need for the future we want."
Vladimir Ryabinin, Executive Secretary, Intergovernmental Oceanographic Commission of UNESCO

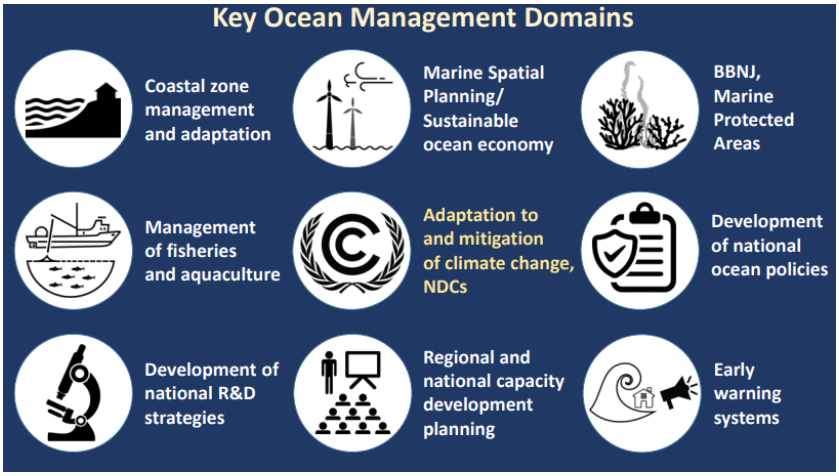
43. On day 1 of the ocean dialogue, Vladimir Ryabinin, Executive Secretary of the Intergovernmental Oceanographic Commission of UNESCO, gave a presentation on the science we need to strengthen ocean and climate action. While the ocean science presented in the SROCC is relatively mature in terms of diagnosing and explaining the impacts and risks of climate change on the ocean and cryosphere, more scientific evidence is needed. It is not possible to manage what we cannot measure. Despite advancements in ocean observations (mostly in terms of physical measurements such as those obtained through the Argo network), long-term, sustained and increased observations are needed, particularly in the fields of ocean biochemistry, ecology and biology. Further research is also needed on physical climate changes, such as the significant changes happening in the carbon balance of the ocean, as well as impacts on ecosystems.

44. Moving forward, research must focus on integrating society, economy, climate and biodiversity in order to provide science for solutions that leave no one behind. Scientific evidence must remain objective, which can be ensured through the provision of impartial data, and it must also be recognized by the appropriate authorities in order to be useful for decision-making, including in relation to the UNFCCC process.

45. There is an emerging understanding of and consensus around the importance of sustainably managing the ocean on the basis of scientific evidence. Ocean management domains are diverse and all require a range of scientific knowledge and data that can deliver

not only in terms of sounding the alarm but also by offering solutions and triggering actions. Adaptation and mitigation is just one ocean management domain among many (see figure 3).

Figure 3
Key ocean management domains

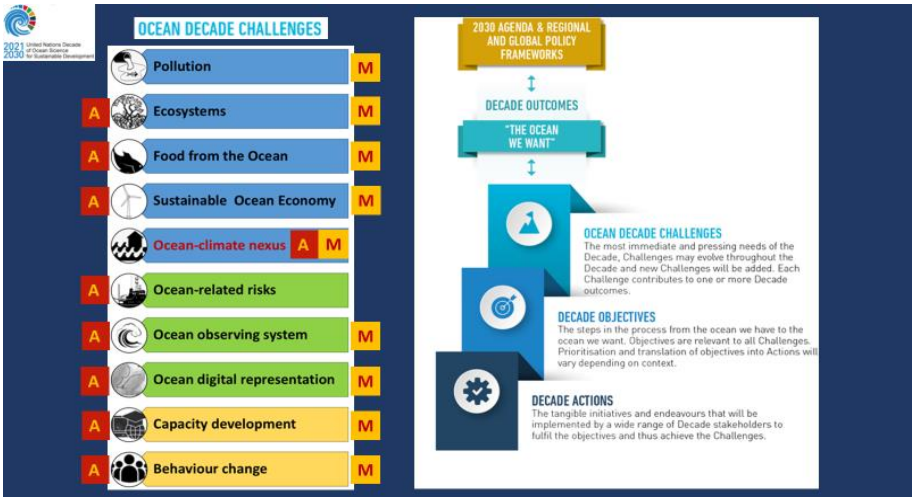


Source: Slide 7 of the presentation by Vladimir Ryabinin.

46. The *Global Ocean Science Report 2020*[9] indicates that ocean research is limited and underfunded, particularly in Africa. Moving forward, more observation and research is needed, particularly to increase support for ocean science in Africa, the LDCs and SIDS so that everyone can benefit.

47. Recognizing the need to strengthen ocean science that informs solutions for sustainable development, the UN General Assembly declared the Decade of Ocean Science for Sustainable Development (2021–2030).[10] The Intergovernmental Oceanographic Commission of UNESCO, along with its partners, developed an implementation plan for the Decade and identified 10 Ocean Decade Challenges. Addressing the Decade Challenges will strengthen adaptation and mitigation, while Decade Challenge 5 is specifically related to the ocean–climate nexus (see figure 4). The Ocean Decade Challenges will be achieved via Decade Actions that will be identified, implemented and resourced by a wide range of stakeholders.

Figure 4
UN Decade of Ocean Science for Sustainable Development: Ocean Decade Challenges



Abbreviations: A = adaptation, M = mitigation.

Source: Slide 10 of the presentation by Vladimir Ryabinin.

[9] IOC-UNESCO 2020. *Global ocean science report 2020: charting capacity for ocean sustainability*. Edited by K Isensee. Paris. Available at https://en.unesco.org/gosr.

[10] https://www.oceandecade.org.

48. Moving forward, as work on the Decade of Ocean Science advances, there is an opportunity to continue increasing our common understanding of the ocean-related dimensions of adaptation and mitigation through regular SBSTA ocean dialogues, which could in turn inform a process of co-designing the dedicated Decade of Ocean Science programme(s) on ocean and climate, and ocean management.

E. The ocean provides multiple untapped and powerful opportunities to mitigate and adapt to climate change, provided environmental and social safeguards are met

49. There are a range of ocean-related opportunities open to Governments to strengthen adaptation and mitigation action. These opportunities have been given prominence at the global level through the work of the Ocean Panel and via other activities ranging from high level to grassroots.

"There should be greater systemic incorporation of the ocean into the workings and outcomes of the UNFCCC. Ocean-based actions provide powerful but mostly untapped opportunities for both adaptation and mitigation." Jane Lubchenco, Co-Chair, High Level Panel for a Sustainable Ocean Economy

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50. On day 2, Jane Lubchenco, Co-Chair, Ocean Panel, presented the important messages and practical commitments of the Ocean Panel. The Ocean Panel has determined that effective protection, sustainable production and equitable prosperity go hand in hand. It commissioned over 250 experts, coordinated by a scientific expert panel, to synthesize knowledge on the state of the ocean and provide opportunities for action in a series of 16 blue papers and special reports.[11]

51. One of the resulting special reports, *The Ocean as a Solution to Climate Change: Five Opportunities for Action*,[12] quantified, for the first time, the mitigation potential of various categories of coastal- and ocean-based activities (see figure 5), including:

(a) Ocean-based renewable energy, including offshore wind and other energy sources, such as wave and tidal power;

(b) Ocean-based transport, including freight and passenger shipping;

(c) Coastal and marine ecosystems, including protection and restoration of mangroves, salt marshes, seagrass beds and seaweeds;

(d) Fisheries, aquaculture and dietary shifts away from emission-intensive land-based protein sources (e.g. red meat) towards low-carbon, ocean-based protein and other sources of nutrition;

(e) Carbon storage in the seabed.

52. The annual emission reduction potential of these five categories of ocean-based activities is 21% of the total GHG emission reductions that are needed to achieve the 1.5 °C target by 2050 (see figure 6). The experts deemed actions in the first four categories worth pursuing immediately. However, they cautioned that the fifth, carbon storage in the seabed, warranted more research and development to better understand its environmental impacts and long-term efficacy.

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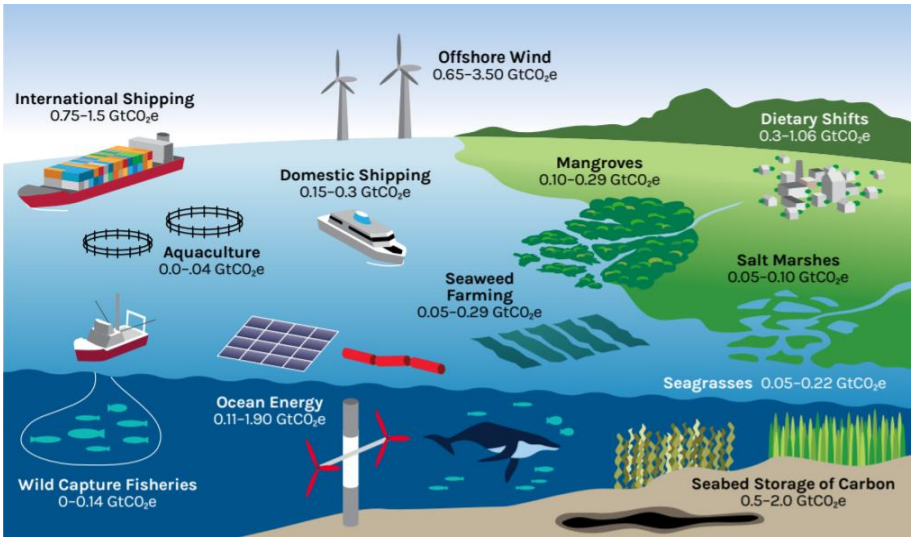
[11] Available at https://www.oceanpanel.org/ocean-science#reports.

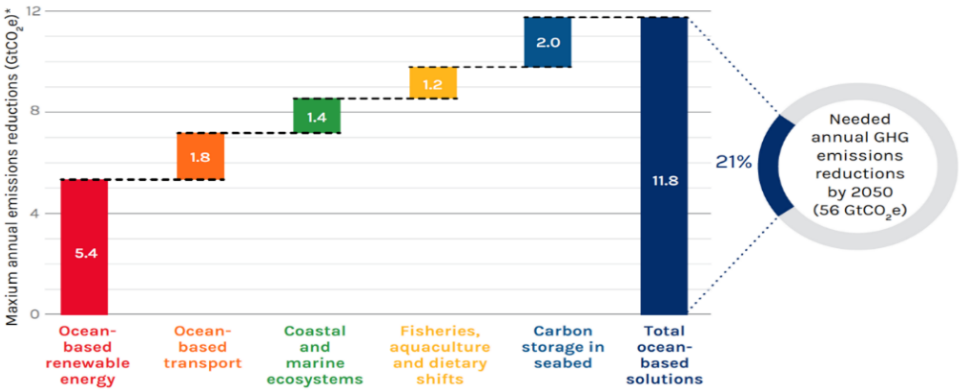
[12] Hoegh-Guldberg. O., et al. 2019. *The Ocean as a Solution to Climate Change: Five Opportunities for Action.* Report. Washington, DC: World Resources Institute. Available at http://www.oceanpanel.org/climate.

Figure 5
Mitigation potential from various ocean-based activities



Abbreviation: $GtCO_2e$ = gigatonne of carbon dioxide equivalent.
Source: Slide 8 of the presentation by Jane Lubchenco.

Figure 6
Potential annual greenhouse gas emissions reductions by 2050



Abbreviation: $GtCO_2e$ = gigatonne of carbon dioxide equivalent.
Source: Slide 8 of the presentation by Jane Lubchenco.

53. The Ocean Panel report *Ocean Solutions That Benefit People, Nature and the Economy* identifies adaptation solutions and, in this regard, highlights the importance of fully protected MPAs.[13] MPAs enhance the resilience of ecosystems in the face of environmental and climate changes.[14] Currently, MPAs that are fully or highly protected cover only 2.6% of the global ocean.

[13] Stuchtey M R et al. 2020. "Ocean Solutions That Benefit People, Nature and the Economy." Report Washington, DC: World Resources Institute. Available at https://oceanpanel.org/ocean-action/people-nature-economy-report.html.

[14] Blasiak, R., Wynberg, R., Grorud-Colvert, K. et al. 2020. The ocean genome and future prospects for conservation and equity. Nat Sustain 3, 588–596. Available at https://doi.org/10.1038/s41893-020-0522-9; and Oregon State University, IUCN World Commission on Protected Areas, Marine Conservation Institute, National Geographic Society, and UNEP World Conservation Monitoring Centre 2019. An Introduction to The MPA Guide. Available at https://www.protectedplanet.net/c/mpa-guide.

54. The Ocean Panel commitments are detailed in the document *Transformations for a Sustainable Ocean Economy: A Vision for Protection, Production and Prosperity*.[15] The next stage of the work of the Ocean Panel is a call to action to rally around special interest groups, including ocean renewable energy and global ocean accounts, to develop new partnerships that can bring different stakeholders together to strengthen action.

55. As part of adaptation and mitigation responses, the importance of precaution in the face of scientific uncertainty was noted. Action must be undertaken recognizing the need for appropriate environmental and social safeguards, ensuring the inclusion of traditional knowledge in understanding the locality-specific risks and the co-design of associated responses.

"We can responsibly deploy offshore wind and to scale, and in new geographies that can make a serious contribution to tackling the climate crisis that threatens our oceans. Deployment must be considered in the context of wider marine spatial planning for ocean economy and ecosystems." Benjamin Sykes, Ørsted and Co-Chair of the Ocean Renewable Energy Action Coalition

56. In discussion group 3, Benjamin Sykes from Ørsted and Co-Chair of the Ocean Renewable Energy Action Coalition explained that the Coalition was formed in response to the work of the Ocean Panel to bring together major players in the offshore wind energy sector. Use of offshore wind energy has grown by over 30% per year over the last decade. This growth is rooted in the clear ambition of Governments. The cost of generating electricity from offshore wind is now less than that of generating electricity from burning fossil fuels. The Coalition's vision is to have 1,400 GW ocean-based renewable energy generating capacity installed by 2050, to help achieve the potential outlined by the Ocean Panel of 10% of global emission reductions coming from offshore renewable energy.

57. Marine spatial planning is a vital tool for countries when considering how to set the targets needed to ensure that renewable energy is deployed in coordination with other ocean stakeholders and conserves nature, to protect the environment. The Ocean Renewable Energy Action Coalition published a guiding document, *The Power of Our Ocean*, to help countries accelerate development of ocean energies, such as offshore wind energy, and reap the socioeconomic benefits they can offer.[16]

F. Protecting and restoring nature is fundamental for resilience

"We are not separate from nature, this dichotomy of humans and nature is no longer defensible. We live in a social, local, ecological system that needs adaptive management to recognize multiple objectives. We will not fix nature by staying away from it and by managing our actions, and that includes the multinational systems working across all the UN." Manuel Barange, Food and Agriculture Organization of the UN

58. Nature is a fundamental part of ocean resilience to climate change. Protecting and restoring nature is critical to human well-being, ocean health and climate change. Nature-based solutions include preserving and restoring blue carbon ecosystems, establishing and maintaining climate-smart MPAs, supporting climate-smart fisheries and small-scale fisheries, ecosystem-based adaptation, sustainable natural resource management, and protecting and restoring coastal ecosystems.

[15] Ocean Panel 2020. "Transformations for a Sustainable Ocean Economy - A Vision for Protection, Production and Prosperity." Available at https://www.oceanpanel.org/ocean-action/transformations.html.

[16] The Ocean Renewable Energy Action Coalition 2020. 'The Power of Our Ocean.' Available at https://gwec.net/oreac/.

59. The ocean dialogue highlighted examples of actions to protect and restore nature and urged incentivizing further action to ensure a healthy ocean for the future of humanity, taking into account social, environmental and economic aspects and involving all voices in this work: Governments, businesses, NGOs, youth, local communities and indigenous peoples.

"The Resilient Reefs Initiative puts communities and their livelihoods at the heart of action of building climate adaptation so that their future can be protected in harmony with the protection of the marine area." Fanny Douvere, UNESCO

60. On day 2 of the ocean dialogue, Fanny Douvere from UNESCO outlined the work of UNESCO and the Resilient Reefs Initiative to protect 50 flagship marine protected sites included in the UNESCO World Heritage List. These sites comprise at least 21% of the global area of blue carbon ecosystems. The Resilient Reefs Initiative, launched in 2020, is a major, multi-million dollar, four-year initiative that is building climate adaptation strategies in a new way, focused on communities and livelihoods. A key part of the initiative is to recruit local chief resilience officers, who bring together various viewpoints from the community, scientists and other experts to empower local communities to own the future of their coral reef ecosystems.

"Supporting a sustainable ocean economy can be a source of inspiration to increase ambition and innovation to enhance climate action. But governments must undertake more ambitious methods and integrate oceans into their strategies to enable sustainable implementation and financing now." The Nature Conservancy and NGO partners

61. As highlighted in the video by The Nature Conservancy and its partners[17] presented on day 2 of the ocean dialogue, the opportunities and tools are available and accessible for countries to implement and strengthen ocean-based commitments and enhance ambition on nature-based solutions in their NDCs.[18]

62. Manuel Barange from FAO highlighted in discussion group 2 how FAO has been implementing adaptation programmes for several years in different regions, including the Caribbean, Latin America, Southern Africa and South-East Asia. These projects have shown that adopting fisheries and aquaculture practices which consider the effects of climate change will help implement the Paris Agreement, achieve Sustainable Development Goal 14 and complement the development objectives of several other UN agencies.

63. Science tells us that edible food production from the sea could increase significantly through policy reform, technological innovation and shifts in demand. At the same time, nutritionists tell us that aquatic systems have a key role in ensuring food security and nutrition. Full adaptation to climate change would increase fisheries yields by almost 40% and fish biomass by 50%, compared to a scenario with no adaptation. As the Ocean Panel has outlined, 100% ocean adequate management is the best conservation strategy and the only way to balance trade-offs and leave no one behind.

64. In discussion group 2, Ole Vestergaard from UNEP noted that UNEP is actively engaged in developing policy advice and practical solutions to enhance coastal resilience through unlocking the potential of blue carbon and enabling ecosystem-based adaptation in marine and coastal areas. The UNEP submission provided in support of the preparation of this summary report highlights relevant guidance documents and coastal and marine nature-

[17] Climate Advisors Incorporated, Conservation International, Global Mangrove Alliance, International Union for Conservation of Nature, Nature4Climate, Ocean Conservancy, Rare, SeyCCAT and World Resources Institute.

[18] For further information see https://nature4climate.org/oceanbasedsolutions.

based solutions and ecosystem-based adaptation projects implemented by its climate change adaptation unit in nine countries.

G. Action requires the participation of all voices

65. Strengthening ocean and climate change action requires many voices in order to provide co-produced, equitable solutions and people-centred action. The importance of engaging all relevant stakeholders, including holders of traditional knowledge and local communities, in ocean-related action was re-emphasized throughout the ocean dialogue. The importance of supporting small-scale fishers, particularly women fishers, and recognizing the innovations and practices of indigenous peoples and local communities was particularly noted. The ocean dialogue included a range of voices of all ages and from around the globe.

"Indigenous people and their knowledge need to be drivers to help co-production of knowledge on the basis of the ethical involvement of indigenous peoples." Dalee Sambo Dorough, Inuit Circumpolar Council

66. Dalee Sambo Dorough from the Inuit Circumpolar Council represented the indigenous peoples whose homelands occupy about 40% of the Arctic region. She highlighted that indigenous knowledge is complementary to science and that both knowledge systems are needed in order to co-produce new knowledge for adaptation and mitigation and protect marine ecosystems.

67. A recent Inuit Circumpolar Council collaborative project with the Governments of Greenland and Canada created the Pikialasorsuaq Commission in 2016. Consultations with Inuit communities on both sides of the open water polynya between Greenland and Canada, known as Pikialasorsuaq, led to an Inuit strategy for safeguarding, monitoring and managing its health for future generations. The Council continues to negotiate between the Government and Inuit of Canada to create MPAs that consider the rights of the Inuit people.

"You need to give youth a voice and a seat at the table, then you can count on them to advance action." Daniela Fernandez, Sustainable Ocean Alliance

68. Daniela Fernandez, Sustainable Ocean Alliance, stressed the importance of engaging with young people who are coordinating and mobilizing ocean action across the globe. International cooperation with youth is key to finding lasting solutions.

69. Members of the Sustainable Ocean Alliance spoke about their work in their communities on a range of issues, including raising awareness of the importance of ocean and climate action, reef and turtle protection, reducing marine pollution, carbon credit schemes, sustainable seafood and food businesses, and ecosystem protection.

70. The Sustainable Ocean Alliance advocates to give youth a voice and a seat at the decision-making table. They advocate for decision makers to set short-term (three–five year) goals to ensure actions take place that youth can hold leaders accountable for and for greater investment in research and development to advance and incentivize knowledge.

"The lack of ocean protection is a long-term pandemic. Dear leaders: be leaders. Stop stalling. Find, focus, finish: three words packed with power." Ruth Mthembu, WILDTRUST

71. Ruth Mthembu from WILDTRUST explained how the powerful, peaceful advocacy of the 256 members of the Youth 4 MPAs movement led to the Government of South Africa

declaring in 2018 an expansion of MPAs in the waters around South Africa from 0.4 to 5% in just two years.[19]

72. With a clear strategy, called "Find Focus Finish", and a growing membership, Youth 4 MPAs advocates for ocean protection to be central to decision-making and to be proactive rather than reactive. The movement is now focusing on increasing MPAs to cover 10% or more of national waters.

73. Voices from the frontline of action on ocean and climate change were also heard via three short documentaries shown as participants were finishing breakout discussions and returning to closing plenary sessions on both days (Box 1). These films were chosen to represent some of the impacts of climate change on the ocean, the challenges faced by members of coastal communities and research and action needed and/or being undertaken.

Box 1
Voices from the frontline of action on ocean and climate change

The Olympic Coast as a Sentinel by the United States National Oceanic and Atmospheric Administration and Washington Sea Grant[a]
A film about the challenges faced by the Quinault Indian Nation and the Hoh, Quileute and Makah tribes – known as the Coastal Treaty Tribes – in the face of ocean acidification and its impacts. The film describes research being undertaken to better understand the challenges faced and help protect the vital ecosystems on the brink on the Olympic Coast and the communities that depend on them.

Portraits of Change: Mexico by Environmental Defense Fund[b]
An account by Ernesto Gastelum, a shellfish fisherman, of the challenges he and his community face as a result of climate change. He speaks of the importance of strengthening understanding of climate change impacts and responses and providing a message that reaches all fishermen so "we can all add our grain of sand" to address the challenge.

Vida Manglar: A Blue Carbon Initiative in Colombia - A Global Example by Conservation International and partners[c]
The film highlights Colombia's Cispata blue carbon project as an example of a blue carbon action that can be replicated in other countries. It also describes how coastal blue carbon ecosystems can contribute to meeting national commitments to address climate change.

[a] Available at https://youtu.be/rMMokgE0Z_M.
[b] Available at https://youtu.be/rLSdCjfhy0E.
[c] Available at https://youtu.be/0VcyDQko8yc.

VI. Ways forward: options and opportunities for strengthening action

74. Over the two days of discussion, speakers and participants recognized the momentum provided by the ocean dialogue to strengthen ocean-related mitigation and adaptation action moving forward.

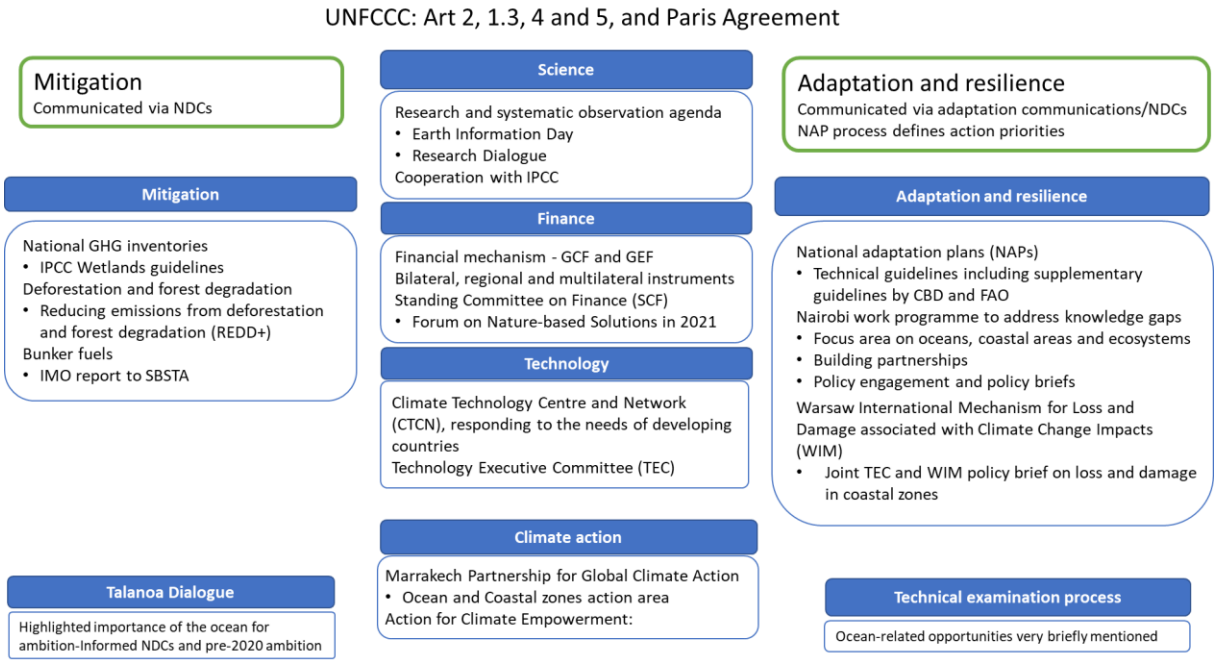
75. These options and opportunities are summarized below in terms of (1) process under the UNFCCC and (2) across the UN system, (3) practice at the national level and (4) finance and other cross-cutting support.

A. Options and opportunities for strengthening action under the UNFCCC

76. As described in the information note for the ocean dialogue, the ocean is already considered in some activities and agenda items under the UNFCCC (see figure 7). However, there remain many opportunities to break down silos across processes and strengthen action. These opportunities were discussed in discussion group 1 on day 1 of the ocean dialogue.

[19] https://www.onlythismuch.co.za.

Figure 7
Current support for ocean action under the UNFCCC



1. Elevate and strengthen the profile and consideration of the ocean across existing UNFCCC processes

"There are spaces for action under UNFCCC, but we need to break down silos, integrate ocean science, consider how to incorporate the ocean and build opportunities and dialogue."
Carlos Fuller, Alliance of Small Island States

77. Participants discussed the need to strengthen work that is currently under way and break down silos to provide an integrated approach to the ocean and climate change under the UNFCCC. This would enable better linkages between processes and enhance and clarify opportunities and knowledge on the ocean for decision makers. While the ocean is represented in these activities and agenda items, the degree to which ocean issues are practically and actively advanced varies significantly and is very limited in many instances.

78. Engagement on science-related issues, including under the research and systematic observation agenda,[20] should continue to identify gaps and encourage ocean observation and research that will drive action and provide support to the UNFCCC process; research and action must continue in parallel. Although there are spaces for integrating ocean science under other workstreams of the UNFCCC, there is a need to strengthen coordination between workstreams by building opportunities for technical engagement and understanding, and increasing integration of ocean science into relevant workstreams.

79. The activities under the UNFCCC on adaptation and resilience[21] must recognize and account for the value, importance and limits of nature-based solutions as a priority for coastal and ocean systems, including linkages with the CBD process. This includes consideration of the strong interface between land and ocean in action on nature-based resilience, which could be addressed during the NAP process.

[20] See https://unfccc.int/topics/science/workstreams/RSO.
[21] See https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/what-do-adaptation-to-climate-change-and-climate-resilience-mean.

80. The NWP expert group on oceans has supported the work under the NWP since 2019 to address adaptation knowledge gaps, particularly in the LDCs and SIDS, on the thematic areas of oceans, coastal areas and ecosystems.[22] Outputs and progress to date are summarized in the NWP annual progress report for consideration at SBSTA 52.[23] Ongoing collaborations between NWP stakeholders include preparation of a supplement to the UNFCCC NAP technical guidelines on considerations needed for developing country Parties to develop high-quality proposals on coastal adaptation nature-based solutions with the aim of facilitating access to and funding by the GCF.

81. The NWP expert group on oceans suggested that further opportunities for engagement could include joint work with UNFCCC constituted bodies to comprehensively address knowledge gaps. The expert group could also explore opportunities to include the role of the ocean and coastal zones as input into the global stocktake.

82. The SCF is preparing the first report on the determination of needs of developing countries in 2021. As countries increasingly highlight the role of the ocean in NDCs, NAPs and finance-related needs, ocean-related needs should be reflected and captured in future reports on finance needs for development. The next SCF Forum,[24] due to take place in 2021, will focus on financing nature-based solutions, considering both land and ocean. The SCF is also exploring how to strengthen collaboration across the constituted bodies on all relevant topics, which could include the ocean.

83. The TEC and the WIM Executive Committee recently published a policy brief on technologies for averting, minimizing and addressing loss and damage in coastal zones.[25] The TEC plans to continue its work exploring innovation in coastal and marine technologies. The WIM Executive Committee is planning a special journal on ocean-related slow onset events as part of its five-year rolling workplan.

2. Support action at the national level, including through ambitious NDCs

"The best way to integrate climate and ocean action is mainstreaming it through national budgetary and planning processes, prioritizing action through bilateral and multilateral dialogue." Fiona Gilbert, Standing Committee on Finance

84. Participants highlighted that national climate policies must include ocean action and national ocean policies must consider climate change. NDCs should be part of sustainable ocean stewardship. The UNFCCC process should support ambitious NDCs that include ocean action and nature-based solutions, recognizing also the links with ocean areas beyond those under national jurisdiction.

3. Address gaps and needs on ocean and climate knowledge and action under the UNFCCC process

The LEG is promoting a systems approach for countries developing NAPs, including across national boundaries if necessary. The full inclusion of system components that include the ocean is a basic minimum requirement," Choi Yeeting, Least Developed Countries Expert Group

[22] An overview of work on oceans under the NWP is available at https://www4.unfccc.int/sites/NWPStaging/Pages/oceans-page.aspx (the annual progress report for 2021 will be made available in May/June 2021).

[23] https://unfccc.int/process-and-meetings/bodies/subsidiary-bodies/subsidiary-body-for-scientific-and-technological-advice-sbsta/sbsta-chair-lobby#eq-7.

[24] See https://unfccc.int/topics/climate-finance/events-meetings/scf-forum/the-next-scf-forum-finance-for-nature-based-solutions.

[25] Available at http://www.unfccc.int/node/231688.

85. As referred to in section I, critical gaps remain in scientific observation and research on areas like blue carbon, ocean acidification and deoxygenation, seagrass, macroalgae and carbon in the sea floor, in order to manage the whole ocean. Gaps and opportunities on adaptation and mitigation could be identified under the UNFCCC process and could help drive the UN Decade of Ocean Science.

86. With regard to NDCs, NAPs, national communications, transparency reports and long-term GHG emission reduction strategies, when describing areas of work under the UNFCCC processes and with constituted bodies, relevant ocean-related gaps and needs should be identified and considered.

87. Developing countries preparing their NAPs have already identified ocean-related gaps that could be addressed through synergized support for ocean-related actions in NAPs, as follows:

(a) National planners often lack access to data on ocean processes, such as marine fisheries, global transportation, coastal ecosystems and ocean acidification, which are often part of global or regional research programmes, especially in the LDCs. These data must be downscaled and translated into actionable intelligence for use in NAPs;

(b) Many vulnerable islands and coastal areas have limited technical capacity to analyse future climate risk. There is a need to take a regional approach to risk analyses and adaptation assessments. In this regard, the LEG is promoting regional approaches through its Open NAP initiative.

88. Participants suggested that Parties could request the next SCF Forum, due to take place in 2021, which will be focused on financing nature-based solutions, to ensure a strong focus and outcome that explores opportunities and gaps for financing coastal and marine contributions to mitigation and adaptation action.

4. Include the ocean in the assessment of collective progress and in the global stocktake

89. Participants identified that the Global Climate Observing System global climate indicators[26] that relate to the ocean (ocean heat, ocean acidification, sea level and Arctic and Antarctic sea ice extent) and the scientific measure of the Earth's energy imbalance should be included in the ocean science inputs to the global stocktake.

90. Furthermore, Parties' ocean-related actions, which are identified in NDCs, reports and synthesis documents, should also be an important input to the global stocktake.

5. Catalyse action on and continue to include the ocean in activities under the UNFCCC, recognizing the ocean dialogue as a first step

91. Participants identified the importance of increasing awareness and knowledge among climate experts of the role of the ocean in mitigating and adapting to climate change, so that they understand the significance of ocean–climate action. The annual session of the COP could act as a momentum driver, elevating ocean knowledge and action under the UNFCCC.

92. An opportunity to strengthen action is to invite UNFCCC constituted bodies and participants in relevant workstreams, including the NWP, to consider:

(a) How to incorporate ocean science, knowledge and action in their work;

(b) Expanding their engagement to include relevant ocean stakeholders;

(c) Reporting relevant outcomes of such action through respective annual reports to the SBSTA and/or the Subsidiary Body for Implementation.

93. Parties could then consider the outcomes of this work and the information in the annual reports at a future ocean dialogue, and the COP could propose further action moving forward.

94. A number of dialogues and forums have already been established under the UNFCCC process, such as the research dialogue and the SCF Forum. Although the mandate for the

[26] See https://gcos.wmo.int/en/global-climate-indicators.

ocean dialogue was for a one-off event, most participants indicated that regular discussion specifically on the ocean and climate change is needed to address gaps, integrate approaches and strengthen action.

95. A recurring dialogue could also serve as a forum to take stock of how ocean–climate issues are being integrated across the UNFCCC and other bodies and to discuss how to strengthen ocean–climate action going forward. Future meetings or dialogues could bring together Parties, non-Party stakeholders, experts from other processes and mechanisms, and representatives of local communities from coastal habitats, among others, to continue an integrated knowledge-sharing approach.

96. The NWP expert group on oceans stated that it could expand its work in the future to provide technical support and a space to exchange information and best practices in a more prominent setting in order to strengthen action.

B. Options and opportunities for strengthening action across the United Nations

97. A large number of UN agencies and organizations have relevant mandates relating to ocean-related disciplines and sectors, including to collect data, generate knowledge, and pursue mitigation and adaptation goals and sustainable aquatic food production.[27] UN-Oceans brings 29 of these agencies together in an inter-agency coordination mechanism on oceans and coastal issues, of which the UNFCCC secretariat is a member. Parties recognize the importance of further exploring and strengthening synergies and action on the ocean and climate change across the UN.

1. Recognize and amplify synergies, complementarities and collective efforts across the UN

"It is imperative that we enhance and coordinate our collective efforts and pool our resources and experiences in order to maximize our chances at successful mitigation and adaptation action."
Alice Hicuburundi, UN-Oceans

98. Adaptation and mitigation measures for ocean systems should be aligned with ongoing action on measures and policies under other multilateral agreements, such as the 2030 Agenda for Sustainable Development, the post-2020 global biodiversity framework under CBD, the FAO Committee on Fisheries, the IMO London Protocol, regional seas conventions, the Samoa Pathway, the Antarctic Treaty System and the discussions related to the BBNJ Intergovernmental Conference and the International Seabed Authority.

99. UN-Oceans has the ability to provide an effective platform for such enhanced cooperation and coordination in support of the collective efforts of the UN. The UN must also support ongoing sector-based efforts, including those aimed at rethinking our interaction with the ocean after the COVID-19 pandemic.

2. Support mainstreaming of coherent action across biodiversity, ocean and climate change agendas

"We can see some bright spots where sound action is being taken on the ocean, biodiversity and climate change, but not at the scale and the scope needed and lacking the behavioural change required from major sections of society. Governments must build connection and synergy across

[27] A list of these organizations is provided in annex III to the information note on the ocean dialogue, available at https://unfccc.int/event/ocean-and-climate-change-dialogue.

100. An overarching UN strategy to mainstream biodiversity, ocean and climate change action would enable institutions and conventions to take a coherent, holistic approach. It would reduce confusion and duplication, help address gaps and help countries better report on UN processes and fulfil their responsibilities under them.

101. Opportunities identified at the ocean dialogue to facilitate such coordination across relevant institutions include:

(a) The UNFCCC subsidiary bodies could foster increased interaction across the UN system to bring the respective communities together to join forces to leverage and create aligned action and financing to achieve (identified) ocean solutions;

(b) IPCC and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services could establish closer synergies, including proposed aligning of their reporting cycles.

102. The CBD post-2020 global biodiversity framework presents a major opportunity to improve synergies across UN processes. It offers a whole-of-society framework that a broad range of stakeholders can feel ownership of, in particular stakeholders and actors that have not traditionally thought of biodiversity as an issue of concern, but whose actions are needed in order to implement the framework and achieve real transformative change for nature.

103. Across conventions, inter-agency coordination could:

(a) Support opportunities for nature-based solutions in NDCs and foster a better understanding of the interaction between mitigation measures and biodiversity protection, such as how to use marine spatial planning and integrated coastal zone management;

(b) Link action under the UNFCCC with the CBD post-2020 global biodiversity framework, such as through a joint work programme or joint liaison group, to provide an opportunity to enhance collective ambition through a new set of globally agreed biodiversity, ocean and climate change goals and targets that include action targets for nature-based solutions.

3. Strengthen cooperation and linkages across relevant frameworks and agreements at the international and regional level

104. Establishing strong linkages to and between relevant efforts can provide a continuing opportunity to boost scientific research, knowledge-sharing and cooperation in support of efficient adaptation and mitigation and thus the continuous work on ocean dimensions of the climate change agenda.

105. Participants identified the following ways to support, advance and strengthen the knowledge needs of ocean–climate action:

(a) Regional frameworks, including the regional seas conventions with regard to ecosystem protection, and regional fisheries management organizations;

(b) International frameworks, including the UN Convention on the Law of the Sea, in respect of the BBNJ Intergovernmental Conference, the IMO GHG Strategy[28] and the London Protocol;

(c) UN processes, including the Decade of Ocean Science for Sustainable Development, the Decade on Ecosystem Restoration, the Ocean Conference and the Food Systems Summit.

[28] See Resolution MEPC.304(72), available at https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MEPCDocuments/MEPC.304(72).pdf. Two member States reserved their position with regard to the adoption of the Initial Strategy.

4. Build ocean and climate change action as a cross-cutting element across the global regulatory framework

"Regulatory frameworks have a role not only to set specific global standards, but also, by doing so, can catalyse research and development, technological innovation and drive ocean action." Fredrik Haag, International Maritime Organization

106. Building ocean and climate change action across a global regulatory framework could help to secure a level playing field so no one is left behind. Such strengthened support should include a comprehensive and integrated system of international instruments to protect the ocean by focusing on maintaining and improving the integrity and condition of marine ecosystems, a critical aspect of their long-term stability, mitigation value and adaptation.

107. Harnessing the possibilities and opportunities in the existing and constantly developing global framework of regulations and standards offers opportunities to target capacity-building interventions and ensure that no one is left behind.

108. Ensuring a level global playing field is essential, and therefore, technical cooperation and capacity-building is key. Ensuring a diversity of stakeholders and knowledge is also vital, including traditional knowledge, innovations and practices of indigenous peoples and local communities.

5. Improve national coordination of action and reporting under processes and conventions across the UN system

109. Governments have invested political, technical and financial capital in a range of ocean and climate change related processes, which have resulted in specialized expertise and competence. However, with this specialization comes the risk of confusion, duplication and gaps. Governments, especially those with limited human resources, are often unable to fulfil reporting commitments under all of the different UN processes, let alone meet their obligations. The same risk of confusion is often the case for non-governmental stakeholders and civil society.

110. Providing operational steps to align reporting cycles and align indicators of action/progress, could help optimize responses to different multilateral agreements. In this regard, nature-based solutions are a perfect example of where the benefits of mainstreaming – to mitigation, adaptation, food security and livelihoods – can be highlighted.

111. Regional coordination could also help support national coordination. Provision of funding and guidance tools would also encourage understanding and action among local governments.

C. Options and opportunities for strengthening action at the national level

"There is a critical opportunity for countries to include much more ambitious ocean-related mitigation and adaptation strategies in their NDCs. Such revised NDCs could pave the way to action and broad-scale finance for protecting, conserving and restoring marine systems and coastal areas." Patricia Espinosa, UNFCCC Executive Secretary

112. Ocean dialogue discussions included a focus on how to strengthen national action on the ocean and climate. In particular, participants highlighted the need for Parties' national response under the UNFCCC to strengthen understanding, synergies and integrated action on adaptation and mitigation. The importance of investing in climate–ocean action was also referenced in the discussions and is covered in the section below. The theme of strengthening action at the national level was explored in discussion group 3 on day 2.

1. Promote understanding that climate action equals ocean action and vice versa, especially in low-lying coastal areas and SIDS

113. Discussions stressed the importance of Governments recognizing the need to incorporate action on the ocean and ocean biodiversity into climate change action, and to incorporate climate change action and biodiversity into ocean policies in order to optimize sustainable development efforts.

114. This approach is already being taken by some Pacific SIDS. For example, the Pacific Community is supporting actions by member States that integrate issues of ocean, climate, law, human rights, sovereignty, food security and economic development.

2. Invest in ocean science and monitoring

115. Long-term and sustainable funding is needed in ocean observation and research is needed to help evaluate the impacts of climate change on the ocean and ocean ecosystems, address the needs of the most vulnerable countries, and help assess options and opportunities for adaptation and mitigation action. Examples of needs raised in the discussion group include:

(a) Evaluating and quantifying the broad range of benefits provided by coastal and marine ecosystems in order to strengthen the ability to account for them in NDCs and NAPs and in efforts to leverage financial support;

(b) Increasing observation and research of the impact of climate change on ecosystems and marine areas involved in mitigation and adaptation, including the effects of pollution;

(c) Increasing observation and understanding of sea level rise;

(d) Enhancing ocean and coastal monitoring, for example, providing remote sensing products and related technologies for developing countries.

116. The UN Decade of Ocean Science is an opportunity to develop integrated ocean–climate initiatives, and the UNFCCC could facilitate sharing of scientific information emerging from this work.

3. Increase climate ambition inclusive of the ocean, including in NDCs and NAPs

"Going forward, there needs to be an ambitious and impactful approach to increase NDC ambition to include ocean-based mitigation and adaptation solutions as part of enhanced national action." Anne Merwin, Ocean Conservancy

117. Although a few countries' NDCs include ocean-related elements, and these commitments are an encouraging sign of leadership, there remains significant room to scale up sustainable ocean–climate ambition as more countries submit their NDCs.

118. Discussions emphasized the important role of the UNFCCC in encouraging this ambition and maximizing inclusion of ocean-based solutions in the NDCs, NAPs and other UNFCCC processes, and facilitating the sharing of best practices and provision of technical support. This will ensure Parties are able to build on each others work and achieve benefits for frontline communities most at risk.

119. For example, Costa Rica's updated NDC includes initiatives to protect and preserve wetlands and nature-based solutions, including protecting and restoring marine and coastal ecosystems, as a cost-effective means of addressing climate change and protecting biodiversity. Costa Rica will also account for coastal wetlands GHG fluxes in its GHG inventory.

120. As mentioned earlier in this report, the ocean and coastal areas offer underutilized opportunities and innovations that countries should consider sustainably including and

implementing when enhancing their national climate ambition and actions to ensure the goals of Paris Agreement are met.

121. A number of policy briefs and guidelines to strengthen ocean-related elements of NDCs were mentioned at the ocean dialogue, including:

(a) *Enhancing nationally determined contributions: opportunities for ocean-based climate action*, World Resources Institute;[29]

(b) *Policy brief on the ocean: scaling up adaptation actions and cooperation to build climate resilience of the ocean, coastal areas and ecosystems*, NWP;[30]

(c) *Building resilience with nature: maximizing ecosystem-based adaptation through National Adaptation Plan processes*, International Institute for Sustainable Development;[31]

(d) *Impacts of climate change on fisheries and aquaculture: synthesis of current knowledge, adaptation and mitigation options*, FAO;[32]

(e) *Blue Carbon and Nationally Determined Contributions: guidelines on enhanced action*, Blue carbon Initiative.[33]

4. Develop and/or strengthen integrated national policies for ocean and climate action

122. Coordinated governance across ministries will significantly increase efficiency in terms of planning and decision-making on ocean and climate change action.

123. Actions to support development and strengthen national policies include:

(a) Assessing the risks to coastal and marine resources, ecosystems and economies caused by ocean warming, acidification and loss of oxygen, including an analysis of all human activities in marine areas and land–ocean interactions, in order to create policies and an integrated plan;

(b) Considering all adaptation and mitigation options available (such as those described by the IPCC and the Ocean Panel). A vital consideration for countries is marine spatial planning and/or integrated coastal zone management as a means to consider how to set the targets needed to ensure the deployment of renewable energy, food security, and protection of the environment, lives and livelihoods;

(c) Mainstreaming ocean, climate and biodiversity action;

(d) Building synergies and strengthening understanding between different sectors, for example between the fisheries, tourism and energy sectors to enable them to coexist in a supportive manner, protect biodiversity and manage its various uses through joint decision-making and opportunities for empowerment between stakeholders;

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[29] Northrop, E.S. et al. 2020. Enhancing nationally determined contributions: opportunities for ocean-based climate action. Working Paper, Washington, DC: World Resources Institute. Available at https://www.wri.org/publication/enhancing-nationally-determined-contributions-opportunities-ocean-based-climate-action.

[30] UNFCCC 2020. Policy brief on the ocean: scaling up adaptation actions and cooperation to build climate resilience of the ocean, coastal areas and ecosystems. Nairobi work programme. Available at https://unfccc.int/documents/266434.

[31] Terton A. and Greenwalt J. 2021. Building resilience with nature: maximizing ecosystem-based adaptation through National Adaptation Plan processes. Guidance Note. International Institute for Sustainable Development. Available at https://napglobalnetwork.org/resource/building-resilience-with-nature.

[32] FAO Technical Paper 627, 2018. Impacts of climate change on fisheries and aquaculture: synthesis of current knowledge, adaptation and mitigation options, Barange et. al (eds.). Available at http://www.fao.org/inland-fisheries/topics/detail/en/c/1147089.

[33] Blue carbon initiative 2020. Blue carbon and nationally determined contributions: guidelines on enhanced action A guide on how countries may include blue carbon in their Nationally Determined Contributions. Available at https://www.thebluecarboninitiative.org/policy-guidance.

(e) Integrating gender-responsive, and rights- and ecosystem-based action that takes into account vulnerable coastal and marine communities and the behaviour change needed for sustainable change;

(f) Identifying entry points to coordinate the inclusion of the private sector in sustainable action, such as robust data collection and incorporating the private tourism sector.

124. It is important for decision makers to have a clear understanding of the centrality of food from the sea, primarily to meet global food security needs, but also to reduce GHG emissions. The Ocean Panel has addressed how aquatic foods can be an important low-carbon source of animal protein. Under the UN and more widely, there must be an established link among food security, fisheries, policy and food systems. In this regard, making fisheries climate resilient will be greatly important, and investing in local fishing communities and institutions will be key to meeting current and future food security and nutrition needs.

125. SIDS and coastal States are vectors for solutions, and the sustainability of their adaptation efforts will serve as a barometer for the success of global mitigation efforts. SIDS can be positive laboratories for solutions that can be scaled up and out for the benefit of local communities and global populations.

5. Strengthen leadership at the national, regional and local level

"Regional leadership is important. To take up this challenge, it's going to take global commitment and global ambition but, due to the unique challenges faced in each region, the practical work must be owned and led by those that are within each region." Cameron Diver, Pacific Community

126. The discussions emphasized the importance of national, regional and local leadership for strengthening action on the ocean and climate change. Leadership can take many different forms including:

(a) Recognizing and joining the call to action of the Ocean Panel;

(b) Submitting NDCs or NAPs with strengthened ocean–climate ambition;

(c) Actors within each region owning and leading practical work in line with their unique regional circumstances to effectively implement action at the local level;

(d) Engaging at the regional transboundary level, given that several marine resources and ecosystems are not limited to national boundaries.

D. Options and opportunities for strengthening finance and other cross-cutting support

"There is no pathway to net zero that does not involve massive efforts to protect and restore nature. So through our COP 26 Presidency, we are determined to greatly increase both public and private finance for nature."
Zac Goldsmith, United Kingdom

127. Options and opportunities exist for strengthening and improving the effectiveness of the mechanisms already in place for providing support, particularly financial support, as well as technology transfer and capacity-building. This includes blue finance and funding, as well as joining up the finance and funding agendas for climate change and ocean action. The theme of strengthening cross-cutting support for action was explored in discussion group 4 on day 2 of the ocean dialogue.

1. Align global finance to support ocean and climate action

"We need to deepen understanding, improving policy coherence and reorienting implementation mechanisms around a common narrative. We need to focus global attention on the importance of the ocean as a source of food, in its role in tackling climate change and shift to climate resilient solutions." Janine Felson, Belize

128. The real opportunity to support ocean and climate finance is not through mobilizing finance for conservation, but through aligning global finance with conservation objectives that have multiple benefits: biodiversity, protection of assets along coastlines, food security, national security, livelihoods for local communities, etc.

129. Actions must break down silos and build a common language as well as a complex cooperative regime that builds capacity and delivers the financing to address the biodiversity and climate crisis in time and at scale, integrating public and private finance sources, partnerships and innovative solutions.

130. It is important to focus on deepening understanding, improving policy coherence and reorienting implementation mechanisms around a common narrative.

131. Finance must specifically earmark funding to support women. Finance must integrate gender considerations into solutions to empower women and girls as powerful agents of change.

2. Mobilise understanding and resources to ensure climate investment includes ocean investment

"The Green Climate Fund is open for business for proposals that bring resilient and low-emissions and sustainable development for the ocean and coastal environment." Keith Alger, Green Climate Fund

132. The ocean dialogue re-emphasized the urgent need for adequate financial resources to ensure that climate finance includes finance for ocean and climate action, so that countries are able to fulfil their international and national commitments.

133. The financing gap remains a big concern in terms of mobilizing resources to support ocean and climate action. NDCs are a powerful way for countries to signal their interest in taking action and this could also help guide investors towards closing the financing gap.

134. Climate investment vehicles, including the GCF, should be central to support the ocean economy and to deliver food from the sea sustainably. There is opportunity to expand the GCF portfolio on ocean-related climate activities.

135. For example, Belize was among the first countries to seek GCF readiness financing with a focus on climate-resilient fisheries. Belize intends to scale up actions in line with its NDC, which will also address new coastal wetlands targets. It is also one of six countries collaborating on a proposal to the GEF for a large marine ecosystem project in the Caribbean to promote blue economic priorities through integrated coastal zone management, mainstreaming biodiversity across sectors, and catalysing climate-resilient fisheries.

136. The GCF emphasized that it is open for business for low-emission proposals that apply resilient development to the ocean environment. A number of proposals have been approved in the western Indian Ocean region, such as the project Blue Action Fund: GCF Ecosystem Based Adaptation Programme in the Western Indian Ocean (Madagascar, Mozambique, South Africa, United Republic of Tanzania), and the GCF encourages submission of more such proposals.

137. As UNFCCC Parties begin to discuss the 2025 goal for climate finance, conservation and restoration of nature has to be considered as a significant investment opportunity for both mitigation and adaptation action.

3. Invest in ocean and climate action that is biodiversity-neutral and, ideally, biodiversity-positive

"A suite of investment options are emerging to catalyse the protection and sustainable management of coastal ecosystems and protect biodiversity. There is a real opportunity here not to look at this through the lens of financing for conservation, but at aligning global finance with conservation objectives for multiple benefits – climate, nature, food and national security." Chip Cunliffe, AXA XL and Co-Chair, Ocean Risk and Resilience Action Alliance

138. The ocean dialogue identified the importance of climate investment in ocean and climate action being biodiversity-neutral, or, ideally, having a positive impact on nature.

139. Existing standards and requirements for financing have been developed for land-based initiatives and are often not applicable to ocean–climate actions, which presents obstacles to accessing climate finance in this area.

140. Opportunities identified in the discussion include:

(a) Blue (green) and grey infrastructure, bringing together private and public actors and blended finance;

(b) Inclusion of blue natural capital into cost–benefit analyses;

(c) Adaptation and food security benefits from investing in sustainable and resilient wild fisheries and small-scale fisheries.

141. For example, AXA XL is engaged in developing a task force on nature-related financial disclosures, which aim to standardize metrics and provide greater transparency on nature-related impacts, dependencies and risks. It is important to reorient financial flows for net positive biodiversity outcomes and identify a new pipeline of products.

142. Opportunities include the IUCN Blue Natural Capital Financing Facility, which is helping to develop investable blue natural capital projects. The Ocean Risk and Resilience Action Alliance, launched in 2019, aims to drive USD 500 million worth of investment into coastal nature-based solutions by 2030. The Alliance is working with the public, private and not-for-profit sectors to pilot finance and insurance solutions that will safeguard mangroves, coral reefs and other ecosystems through the use of insurance, coastal resilience bonds, blue carbon and resilience credits, financial literacy, microinsurance and other tools. AXA XL is also developing a Coastal Risk Index, which is designed to quantify the protective benefits of coastal ecosystems and incorporate them into insurance risk models in order to assist local policymakers in mapping their own liabilities.

4. Overcome knowledge gaps to create coherent policies and invest in reforms at different geographical scales

143. It is important to address and overcome knowledge gaps in ocean–climate finance requirements to enable better understanding of where to invest. Opportunities and gaps for finance around coastal and marine mitigation and adaptation actions need to be further explored, including under the SCF. Development of sector-specific pathways to support sustainable oceans may help.

144. The pioneering work of SIDS investments in green and blue infrastructure, blue carbon and climate-resilient management of fisheries offers important lessons.

145. For example, Seychelles has taken the lead in pursuing innovative financing solutions for conservation and climate adaptation through a debt-for-nature swap and a sovereign blue bond. This work includes ecosystem-based adaptation through supporting MPAs and making

key investments in the fishery sector while engaging local communities. Seychelles is now undertaking ambitious cutting-edge scientific work to map seagrass meadows across its exclusive economic zone.

5. Facilitate engagement between the public and private sector

146. The ocean dialogue recognized the need for the public sector to enable de-risking of opportunities for private sector engagement, which could be supported by joint public–private partnership approaches.

147. Greater awareness is needed that lack of action on the ocean and climate is not good business; taking action actually is financially wise; and thus action needs to be strengthened moving forward.

148. For example, from the reinsurance perspective, particularly in terms of risk and investment, finance will only happen through the public–private partnership approach, and there are a number of barriers in this regard. These include an underdeveloped project pipeline, the lack of data to quantify the risk in the investments, and the need to enable the policy environment and provide profitable returns on investments. The sustainable blue finance principles provide a framework for banks, insurers and investors to finance a sustainable blue economy.

149. The GCF, as highlighted in its strategic plan 2020–2023,[34] is looking for programmes to bring together the private and public sector to use the full range of accredited entities to enable collaboration and scale action leading to transformative and paradigm-shifting projects. For example, the GCF has recently joined forces with Pegasus Capital Advisors and IUCN on the Global Subnational Climate Fund, which is an innovative bundling of public–private financing for blue and green subnational climate initiatives in 42 countries.

6. Develop technical guidelines, criteria and/or practical guides for accessing finance

150. There is currently limited information available on investment opportunities and options for ocean and climate change solutions. Participants discussed the need to develop a practical guide to ocean and climate financing to inform the UNFCCC, facilitate financing where it is needed and support matchmaking between project needs and available financial resources. It was suggested that this could be an outcome of the SCF Forum on financing nature-based solutions.

151. The COP could support development of technical guidelines and criteria, including on investment in nature-based solutions and coastal and marine environments. This would help the GCF and the GEF to drive investment in projects that incorporate nature-based solutions in these areas.

152. The GCF indicated its availability to work with Parties and develop guidelines to help advance more work in the ocean and governance space. Further work is needed to bring together multi-instrument, multi-country and multi-direct access entity partners, facilitate financing and support matchmaking between project needs and available financial resources.

153. Participants also recognized the need for mechanisms to bring private sector and international negotiators together to understand each other's "language". For example, while the private sector talks about risk and return on investments, negotiators talk about mobilization of resources, capacity-building and technology transfer.

7. Develop and implement approaches for innovative financing structures and instruments

154. The GCF could increase the resources being channelled to support ocean and climate action. The latest independent evaluation report on the GCF investments in SIDS[35] recommends that the GCF secretariat develop approaches for innovative financing structures and instruments and for engagement with micro, small and medium-sized enterprises

[34] Available at https://www.greenclimate.fund/sites/default/files/document/updated-strategic-plan-green-climate-fund-2020-2023.pdf.

[35] Available at https://ieu.greenclimate.fund/evaluation/sids2020.

operating in constrained environments. Such approaches should also include intermediary models that combine lines of credit with technical assistance for subproject preparation, or suites of options to support the private sector to build resilience in specific sectors, such as tourism, fisheries, local traders and local private transport providers.

8. Increase cross-sectoral capacity-building

"There is still a large need for capacity-building with local communities to help them understand the impacts of climate change and how to respond in a sustainable manner." Han Han, China Blue Sustainability Institute

155. Participants identified the need for capacity-building that integrates different aspects of ocean and climate governance at different levels (global, regional, national), including technology transfer (e.g. for shipping).

156. There is a growing number of States that have developed an ocean policy and/or have established mechanisms for coordination, such as inter-agency or interdepartmental working groups. Requests for capacity-building in that regard could be supported by UN-Oceans members.

157. Other cross-cutting support for action identified includes:

(a) Chile's platform on science-based ocean solutions, launched at COP 25, which could offer a forum to encourage integration of ocean action in climate strategies;

(b) Curated dialogues with businesses and solution or technology providers that could address incorporation of the ocean in NDCs and implementation of relevant action.

VII. Conclusion

"This dialogue should lead to a general road map on the way forward and enable a strong call to COP 26 to take action toward the recognition and stronger inclusion of the ocean–climate nexus under the UNFCCC." Haydée Rodríguez Romero, Costa Rica

158. The ocean dialogue provided an opportunity for Parties and non-Party stakeholders to discuss how to strengthen action on the ocean and climate change related to adaptation and mitigation. The ocean dialogue highlighted the interest of Governments in strengthening understanding of and action on ocean and climate change adaptation and mitigation.

159. The scientific findings in the SROCC assessed the impacts of climate change, projected risks and solutions in the context of these risks. The Ocean Panel presented opportunities that the ocean offers for strengthening climate action. Indeed, the Ocean Panel countries have promised to integrate ocean action and climate action and invite others to join in this endeavour.

160. Participants recognized that although the mandate for the ocean dialogue was for a single event, it should be a first step towards catalysing further ocean–climate action.

161. Going forward, there needs to be a breaking down of silos across both process and practice and better understanding of the ocean, climate change and biodiversity as inseparable issues that must be considered together.

162. The ocean provides multiple untapped and powerful opportunities to mitigate and adapt to climate change. The tools are available to generate multiple benefits that go beyond climate benefits. Collaborative action is needed to move forward with the work of leveraging those tools in a sustainable and environmentally and socially sound manner.

163. Ocean-based solutions must be integrated into the NDCs, NAPs and other UNFCCC processes, including Parties' reporting on action, the global stocktake, sharing of best practices and the provision of technical support.

164. Resources should be mobilized from the private and public sector for investment in coastal and marine ecosystems, particularly nature-based solutions, to mitigate risk and accelerate resilience and adaptation.

165. Both mitigation and adaptation require an increase in cooperation and collaboration from all Party and non-Party stakeholders, bringing as many voices as possible to the climate action table and practising inclusive multilateralism. A road map to address the needs of ocean work under the UNFCCC could be developed.

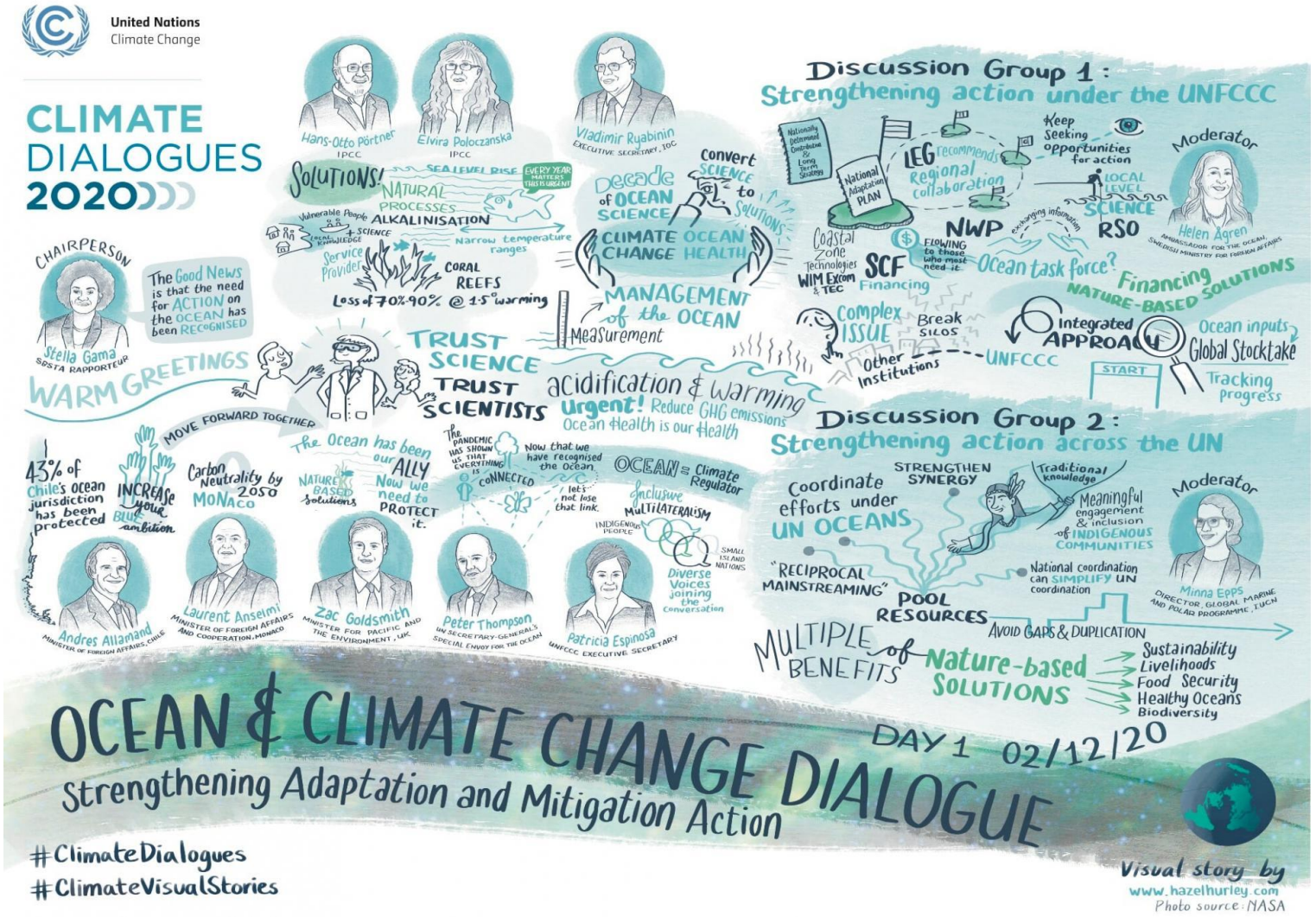
166. This summary report provides suggestions for possible elements of the road map, including recognition by Parties of the interconnectedness of the ocean, climate change and biodiversity and the need for increased ambition that includes strengthening ocean action and ocean finance. There are opportunities under the UNFCCC for workstreams and constituted bodies to strengthen understanding and inclusion of the ocean in relevant aspects of their work, and for continued dialogue to build understanding and strengthen action. There are also opportunities to link to other processes under the UN and wider practices that support national action.

167. The broader context remains the connectivity between the existential crises of declining ocean health, nature loss and climate change that we face today. Urgent integrated action is needed to respond to climate change and protect and restore nature, and with that, to secure our health, our ocean's health and our planet's health.

"So, last message: [a] healthy ocean is the planet's greatest nature-based solution, so we should think about it as one ocean for one climate for one planet."
Cameron Driver, Pacific Community

Annex

Visual artwork day 1



Visual artwork day 2