Options for strengthening action on the ocean and coasts under the UNFCCC

October 2022

Boats in an Inlet in Indonesia. © Rod Mast

Earlier versions of this options paper have been published prior to SB 56 and COP 26. This updated version reflects the latest developments and opportunities under ongoing UNFCCC processes.

Executive Summary

The science is clear, and the findings are sobering—anthropogenic climate change is impacting the ocean, and ocean dependent communities, to an unprecedented degree. Sea levels are rising at alarming rates, ocean temperatures are the warmest since records began, marine heatwaves are becoming more frequent and intense, and increased carbon dioxide levels are absorbed by the ocean, causing acidification and harming life below water.[1]

This options paper summarizes some of the key entry points within existing UNFCCC processes and ongoing negotiations where management actions concerning coastal and marine ecosystems can play a productive role in climate action. The paper identifies specific steps and recommendations for advancing ocean action under the UNFCCC, in response to the invitation for "relevant work programs and constituted bodies under the UNFCCC to consider how to integrate and strengthen ocean-based action in their existing mandates and work plans and to report on these activities within the existing reporting processes, as appropriate" (1/CP.26).

The ocean holds a suite of solutions— both for mitigation and adaptation—if implemented coherently and sustainably. The relationship between ocean and climate was specifically referenced in the United Nations' Intergovernmental Panel on Climate Change (IPCC) Working Group II Sixth Assessment Report (AR6) published in February 2022,[2] which highlighted the current state of knowledge on the importance of coastal and marine

1 IPCC. (2021). "Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change." https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf.

2 IPCC. (2022). "Climate Change 2022: Impacts, Adaptation and Vulnerability." https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/.

ecosystems for climate adaptation and mitigation. The ocean has a critical role in regulating the Earth's climate, yet it is in jeopardy if we continue to ignore and misrepresent the impacts on the ocean due to climate change. Global cooperation to address and respond to the interlinked challenges within the ocean-climate nexus is more urgent than ever.

Despite advancements in recent years, there are still numerous opportunities to strengthen ocean-climate action at the national and international level. At COP 26, Parties requested that the Chair of the Subsidiary Body for Scientific and Technological Advice (SBSTA) hold an annual dialogue, starting at the fifty-sixth session of the SBSTA, to strengthen ocean-based action.[3]

Parties also invited the relevant work programs and constituted bodies under the UNFCCC to consider how to integrate and strengthen ocean-based action in their existing mandates and work plans. This outcome presents a key opportunity for Parties and partners to transition from 'making the case for' to 'how to deliver' concrete actions for coastal and marine ecosystems under the UNFCCC, and greater progress can be made at COP 27. Fully integrating and strengthening ocean-based action in existing UNFCCC mandates and work plans is critical to ensure that the interlinked challenges and solutions within the ocean and climate change nexus are not left secondary to other issues.

UNFCCC PROCESSES AND NEGOTIATIONS RELATED TO THE OCEAN

The following are existing areas within UNFCCC process and ongoing negotiations where countries may advance efforts to address ocean-climate challenges and opportunities:

Mitigation

- Nationally Determined Contributions (NDCs), Long Term Low Emission Development Strategies (LT-LEDS)
- Work Programme to Scale up Mitigation Ambition and Implementation (Mitigation Work Programme, MWP)

Adaptation

- Glasgow–Sharm el-Sheikh work programme on the global goal on adaptation
- Nationally Determined Contributions (NDCs), Long Term Low Emission Development Strategies (LT-LEDS)
- National Adaptation Plans (NAPs)
- Nairobi Work Programme (NWP) and its Thematic Expert Group on Oceans
- Adaptation Committee (AC)
- Least Developed Countries Expert Group (LEG)

Loss and Damage

- Warsaw International Mechanism for Loss and Damage (WIM)

Indigenous Peoples Knowledge and Engagement

- Facilitative Working Group of the Local Communities and Indigenous Peoples Platform (LCIPP FWG)

Finance

- New Collective Quantified Goal on Climate Finance (NCQG)
- Standing Committee on Finance (SCF)
- Green Climate Fund (GCF)
- Global Environment Facility (GEF)
- Adaptation Fund (AF)

Science

- Research and Systematic Observation (RSO)
- Intergovernmental Panel on Climate Change (IPCC)

Technology Mechanism

- Technology Executive Committee (TEC)
- Climate Technology Centre and Network (CTCN)

Capacity Building

- Paris Committee on Capacity-building (PCCB)

Transparency and the Global Stocktake

- Consultative Group of Experts (CGE)
- Biennial transparency reporting (BTR)
- Technical Expert Review (TER)
- Global Stocktake (GST) including the Technical Dialogue (TD) and Joint Contact Group (JCG) items

3 Glasgow Climate Pact, Decision 1/CP.26: https://unfccc.int/documents/310475.

Opportunities for Ocean-based Action

Ocean-based actions provide powerful opportunities, if implemented sustainably, for both adaptation and mitigation, but they remain mostly untapped. The first annual Ocean and Climate Change Dialogue at SB 56 (June 2022) focused on strengthening and integrating national ocean-climate action under the Paris Agreement, including in NDCs, and explored opportunities to enable ocean-climate solutions across UN bodies and at the national level. Parties requested that future dialogues allow for an in-depth discussion on specific sets of challenges and opportunities within the ocean-climate nexus, including the conservation and restoration of blue carbon ecosystems such as mangroves, tidal marshes, and seagrasses. This paper builds upon the first annual Ocean and Climate Dialogue at SBSTA 56 in June and upon the discussion for COP 27.

Parties have the opportunity at COP 27 to come together and agree on pathways to strengthen ocean-climate action in all relevant ongoing processes and negotiations under the UNFCCC, as well as call for increased national level action on the ocean-climate nexus. Drawing on Decision 1/CP.26[4] and the Ocean and Climate Change Dialogues held in December 2020 and in June 2022, this paper outlines in the sections below the most pressing and relevant action items Parties may wish to consider taking in the respective work programmes or existing agenda items.

Mitigation

Mitigation actions in the form of nature-based solutions (NbS),[5] as well as other human-based activities along the world's coastline and in the ocean, have a critical role in climate change mitigation, potentially providing 21% of the total GHG emission reductions per year needed to achieve the 1.5 °C target by 2050.[6] Ocean-based mitigation solutions include: (i) Ocean-based renewable energy, such as floating solar, offshore wind, wave, and tidal power (ii) Reducing emissions from ocean-based transport, including freight and passenger shipping; (iii) Conservation and restoration of coastal and marine ecosystems, including mangroves, tidal marshes, and seagrass beds; and (iv) Reducing GHG emissions in fisheries and aquaculture.

The role of coastal and marine ecosystems in mitigation was explicitly included in the Katowice Climate Package[7] (also known as the "Paris Rulebook"), which encourages countries to utilize the 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands.[8] This encouragement carries the expectation that countries, depending on their capabilities, will eventually account for greenhouse gas (GHG) emissions and removals from their coastal wetlands, in particular mangroves, tidal marshes, and seagrass beds. While applying the 2013 Wetlands Supplement in national GHG accounting is primarily a choice and responsibility of each country, there are additional opportunities and pathways for enhancing ocean-related mitigation actions under the UNFCCC.

The Work Programme to Scale up Mitigation Ambition and Implementation was mandated by Parties at COP26 (1/CMA.3) to address the critical need to limit warming below 1.5° C and increase national climate ambition. The programme offers an opportunity for further guidance, resources, and support in formulating and implementing ocean-based NbS in NDCs, NAPs, long term planning, and national policy planning.

4 Glasgow Climate Pact, Decision 1/CP.26 (paragraphs 58, 60 and 61): https://unfccc.int/documents/310475.

5 The Fifth Session of the United Nations Environment Assembly (UNEA-5) in its 'Resolution on Nature-based Solutions for Supporting Sustainable Development', formally adopted the definition of NbS as 'actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits.'

6 Hoegh-Guldberg, O., et al. (2019). "The Ocean as a Solution to Climate Change: Five Opportunities for Action." World Resources Institute. http://www.oceanpanel.org/climate.

7 UNFCCC. (2018). Decision 18/CMA.1. "Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement." https://unfccc.int/documents/193408.

8 IPCC. (2014). "2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands." https://www.ipcc-nggip.iges.or.jp/public/wetlands/pdf/Wetlands_Supplement_Entire_Report.pdf.

UNFCCC PROCESSES AND NEGOTIATIONS RELATED TO NBS IN COASTAL AND MARINE ECOSYSTEMS AND MITIGATION[9]

The following are actions within UNFCCC process and ongoing negotiations countries could take to advance NbS in coastal and marine ecosystems for climate mitigation:

Nationally Determined Contributions (NDCs) [Currently concluded agenda item]

- The primary guidance on the information that countries could include in their NDCs was finalized in 2018 under the "Katowice Climate Package." When countries discuss whether further guidance on NDCs is needed in 2024, Parties could request that this guidance encourage countries to apply sectoral guidance on the inclusion of blue carbon ecosystems—such as mangroves, tidal marshes, and seagrasses—in NDCs to aid countries' NDC updates, such as *Guidelines on Enhanced Action: A guide on how countries may include blue carbon in their Nationally Determined Contributions*.[10]
- Align NDCs with goals and targets from other international agreements such as The Ramsar Convention on Wetlands of International Importance and the Post-2020 Global Biodiversity Framework (under negotiation) to enhance ambition on mitigation and adaptation for coastal and marine NbS actions.
- Include, in future NDCs, links to principles and guidelines for incorporating wetland issues into integrated coastal zone management, as contained in the Ramsar Convention Resolution VIII.4, recognizing their values, functions and services, including their role in climate change mitigation and adaptation.

Work Programme to Scale up Mitigation Ambition and Implementation [CMA agenda item 4, SBSTA agenda item 8, SBI agenda item 7]

- In discussions on the development of the Work Programme scope, call for the inclusion of NbS, including coastal and marine NbS and blue carbon ecosystem conservation and restoration action. Discussions could also include other ocean-based mitigation solutions such as ocean-based renewable energy and reducing emissions from ocean-based transport, fisheries and aquaculture.
- Activities under the Work Programme could include knowledge exchange and capacity building for how to develop coastal and marine NbS commitments in NDCs. The Programme could be encouraged to work with UNFCCC financing bodies to develop support for linking NDC targets to implementation and finance.

Adaptation

As the negative impacts of climate change increase in frequency and intensity, adaptation is an urgent priority for ecosystems, coastal communities, and economies threatened by climate impacts, including those in Small Island Developing States (SIDS). Strengthening coastal and marine NbS can provide critical adaptation solutions and improve resilience against storm surges, sea level rise, ocean warming, and acidification. Changes in the productivity and distribution of global fisheries as a result of climate change will require new management strategies and advanced monitoring systems to ensure that these resources are utilized sustainably.

To accelerate global adaptation efforts, countries need clear strategies for addressing local and regional adaptation needs, accessing finance and capacity building. Countries presently identify, communicate and address their medium- and long-term adaptation needs and strategies in their NDCs, NAPs, and other adaptation communications. An increasing number of countries are focusing on ocean-related matters in their NAPs, such as building coastal flood defenses (including through NbS), designing coastal erosion protection techniques, and setting up advanced warning systems for cyclones and implementing adaptive fisheries management. The NAP process is also supported by several UNFCCC-based or associated institutions, including the Adaptation Committee (AC), the Least Developed Countries Expert Group (LEG), and the NAP technical working group.

9 This paper does not cover the emission reduction efforts and needs from the shipping sector, as they are addressed under the International Maritime Organisation (IMO).

10 The Blue Carbon Initiative. (2020). "Guidelines on Enhanced Action: A guide on how countries may include blue carbon in their Nationally Determined Contributions." https://www.thebluecarboninitiative.org/policy-guidance.

Most recently, Parties established the Glasgow–Sharm el-Sheikh work programme on the global goal on adaptation to enhance global adaptation actions and support national adaptation planning (7/CMA). Acting as a complement to the work of the Adaptation Committee, the programme provides a forum for Parties to exchange adaptation challenges and successes, and to receive guidance on enhancing and implementing national adaptation actions in NAPs, NDCs, and adaptation communications.

UNFCCC PROCESSES AND NEGOTIATIONS RELATED TO NBS IN COASTAL AND MARINE ECOSYSTEMS AND ADAPTATION

The following are actions within UNFCCC process and ongoing negotiations countries could take to advance NbS in coastal and marine ecosystems for climate adaptation:

Glasgow–Sharm el-Sheikh work programme on the global goal on adaptation [CMA agenda item 6 (c), SBSTA agenda item 4, SBI agenda item 14]

- Ensure coastal and marine NbS for adaptation are addressed in the different workshops under the GGA work programme through submissions that inform the themes of the workshops (methodologies, indicators, data and metrics, monitoring and evaluation, reporting, etc.)
- Call for programme activities to enhance the implementation of adaptation actions, including NbS in combination with built infrastructure, and strengthen synergies in coastal and marine ecosystems for adaptation, mitigation, and sustainable development. Adaptation actions with a synergistic approach will avoid maladaptation practices in local policy and decision-making and promote streamlined approaches to meeting adaptation, mitigation, and sustainable development goals.
- The work of the programme could consider the exchange of successful national adaptation policies, adaptation financing, and monitoring and evaluation lessons on coastal and marine NbS.

Nationally Determined Contributions (NDCs) [Currently concluded agenda item]

- Include coastal and marine ecosystems as part of national mitigation and adaptation goals. As of March 2022, only about 30% of parties identified ocean ecosystems as a priority area in their adaptation component of the NDC.[11]
- Submit an adaptation communication as part of NDCs, as it can maximize cross-cutting climate solutions that deliver both mitigation and adaptation benefits. Adaptation sections of the NDC can also clarify which actions contribute to mitigation co-benefits. When countries discuss whether further guidance on NDCs is needed in 2024, Parties could request that this guidance include information on how to communicate adaptation targets as part of NDCs.
- Incorporate the multiple benefits that coastal and marine NbS provide in updated NDCs, such as the climate mitigation, adaptation, biodiversity, and sustainable development benefits of blue carbon ecosystem action. Where feasible, align goals and targets across international policy processes.

National Adaptation Plans (NAPs) [SBI agenda item 13]

- Call for future guidance on the formulation of NAPs to encourage the inclusion of coastal and marine ecosystems as part of national adaptation goals, building on the new Guidelines for Integrating Ecosystem-based Adaptation into National Adaptation Plans.
- Developed country Parties, and other interested Parties, could mobilize additional finance for formulating and implementing NAPs, including through dedicated funding windows tailored to coastal and marine adaptation solutions.

11 UNFCCC. (2022). "Synthesis report for the technical assessment component of the first global stocktake." https://unfccc.int/sites/default/files/resource/GST_SR_23c_30Mar.pdf.

Nairobi Work Programme (NWP) and its Thematic Expert Group on the Ocean and Coastal zones

- The NWP Thematic Expert Group on the Ocean and Coastal zones could consider exploring what actions are needed to define a longer-term partnership with Parties, especially LDCs, to better support and ensure continued collaboration on ocean-climate actions.
- The work of the NWP on the ocean could be deepened through hosting joint engagements with the RSO/Research Dialogue on the dual function of mangroves, tidal marshes, and seagrass beds for climate change mitigation and adaptation, or other ocean adaptation issues such as coastal infrastructure, fisheries, biodiversity conservation, maritime transport, or ocean energy. A relevant example for Pacific SIDS is increasing access to tuna for domestic food security to offset a decline in the traditional supply of fish from coral reefs due to the impacts of ocean warming and acidification on these ecosystems.[12]
- The work of the NWP could be strengthened through collaboration with other expert groups to provide advice and guidance on coastal and marine restoration and conservation that focuses on the adaptation, ecological, social, and biological diversity benefits. The results of this work could support further discussions at the annual Ocean and Climate Change Dialogue on integrating benefits to meet targets across multiple policy processes.

Adaptation Committee (AC) [CMA agenda item 6(a), SBSTA agenda item 3, SBI agenda item 11]

- After considering the 2022 Report of the Adaptation Committee, and progress in implementing its flexible workplan (2022-2024), Parties could request the AC prioritize ocean and coastal issues, and include deliverables related to the ocean and coasts in the workplan. Parties could request the AC to work in collaboration with the NWP's Thematic Expert Group on the Ocean and Coastal zones to utilize its technical expertise by developing briefs on ocean issues, identified by Parties.
- The Adaptation Committee NAP Task Force will in 2023 contribute to the design and delivery of the AC dialogue at SB58 on closing capacity gaps in accessing adaptation funding, and to the preparation of action-oriented briefs or case studies to demonstrate how such capacity gaps could be closed. Parties could request that coastal and marine NbS be recognized and incorporated into the dialogue.
- The AC could invite submissions by Parties of case studies on monitoring and evaluating adaptation at the national and subnational level that include adaptation of coastal zones. Such submissions could then be considered in the draft technical paper on monitoring and evaluation of adaptation at the national and subnational level to be finalized at AC23. The case studies could also contribute to the evidence base for assessing the adequacy and effectiveness of adaptation and support provided for adaptation, thereby also informing the GST.

Least Developed Countries Expert Group (LEG) [SBI agenda item 12]

- Provide technical guidance and support to Least Developed Countries to incorporate coastal and marine NbS approaches into the formulation and implementation of NAPs, including by encouraging the utilization of the Guidelines for Integrating Ecosystem-based Adaptation into National Adaptation Plans.
- Identify opportunities to utilize the *Technical Supplement to the NAP Technical Guidelines on Coastal Adaptation and NbS for the Implementation of NAPs: Considerations for GCF Proposal Development* that was developed in collaboration with the LEG and the NWP Expert Group on Oceans.

Loss and Damage

The concept of loss and damage refers to irreversible harm to communities, and economies caused by anthropogenic climate change, such as sea level rise, ocean warming, and ocean acidification. The Warsaw

12 GCF Concept Note "Adapting tuna-dependent Pacific Island countries to climate change". https://www.greenclimate.fund/document/adapting-tuna-dependent-pacific-island-communities-and-economies-climate-change

International Mechanism for Loss and Damage (WIM), created in 2013, seeks to strengthen international cooperation and expertise to understand and reduce loss and damage associated with the adverse effects of climate change, including extreme weather events and slow-onset events. The Executive Committee of the WIM guides the implementation and the function of the mechanism.

In 2019, Parties agreed to create the Santiago network for "averting, minimizing and addressing loss and damage associated with the adverse effects of climate change" to catalyze the technical assistance of relevant organizations, bodies, networks, and experts for the implementation of relevant approaches at the local, national, and regional level in developing countries that are particularly vulnerable to the adverse effects of climate change.[13] The UNFCCC Secretariat has since created a Santiago Network Portal calling for inputs from Parties concerning their needs for technical assistance.

Most recently, in 2021, Parties established the Glasgow Dialogue on Loss and Damage to discuss funding needs and arrangements. It will take place in the first sessional period of each year of the Subsidiary Body for Implementation (SBI), starting at its 56th session and concluding at its 60th session (June 2024).

UNFCCC PROCESSES AND NEGOTIATIONS RELATED TO NBS IN COASTAL AND MARINE ECOSYSTEMS AND LOSS AND DAMAGE

The following are actions within UNFCCC process and ongoing negotiations countries could take to advance NbS in coastal and marine ecosystems related to Loss and Damage:

Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM) [CMA agenda item 7, SBSTA agenda items 5 and 6, SBI agenda items 15 and 16]

- Request that the WIM encourage inputs to the Santiago Network Portal on types and magnitudes of losses (for habitats, communities, and economies), damage, and resilience measures, with a specific focus on ocean issues, namely marine biodiversity loss, climate-driven fish redistribution and productivity changes resulting in revenue losses among ocean-based economies, sea-level rise, flood and coastal storm damages and risks, ocean warming and acidification, and relevant resilience strategies that include climate-smart management approaches that are scaled appropriately.
- Through the Executive Committee of the WIM, strengthen the focus on coastal and marine NbS to enhance resilience to climate change impacts on the ocean, including sea-level rise, ocean acidification, coral bleaching, changes in fisheries abundance that affect food security, livelihoods and economic development, and others.
- Provide technical guidance and support to Least Developed Countries to incorporate coastal and marine NbS approaches into the formulation and implementation of NAPs, including by encouraging the utilization of the Guidelines for Integrating Ecosystem-based Adaptation into National Adaptation Plans.
- Through the Executive Committee of the WIM and in cooperation with the Standing Committee on Finance, improve the understanding of the costs of loss and damage and the scale of finance required to enhance coastal habitat and coastal community resilience, and adaptive management of fish stocks.
- Expand the Warsaw International Mechanism's Roster of Experts and its terms of reference[14] to target resilience solutions and include expertise on coastal and marine NbS.
- Continue collaborative work with other Convention bodies and develop a continuous cross-body workstream with the AC and the Technology Executive Committee (TEC) on resilience through coastal and marine NbS to concentrate knowledge, identify and inform Parties of global best practices, connect negotiators with international experts, and develop technology transfer platforms.

13 UNFCCC. (2019). Decision 2/CMA.2. "Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts and its 2019 review." https://unfccc.int/documents/210477.

14 UNFCCC. (2022). "Terms of reference for the expert groups, subcommittees, panels, thematic advisory groups or task focused ad hoc working groups of the Executive Committee of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts."https://unfccc.int/sites/default/files/resource/TOR%20general%20_expert%20groups_ver_22_Mar%20formatted.pdf.

Indigenous Peoples Knowledge and Engagement

The Paris Agreement explicitly recognizes the rights of Indigenous Peoples and local communities in the context of climate action. Parties agreed to develop the Local Communities and Indigenous Peoples Platform (LCIPP) as a first step to formally recognizing their contributions to addressing climate change. Under the UNFCCC, countries agreed to formulate a Facilitative Working Group (FWG) to undertake the work of the LCIPP with representation from countries, Indigenous Peoples and representatives of local communities, upon recognition of the local communities' constituency.

At COP 26, the FWG prepared a three-year workplan for activities between 2022 and 2024, extended the mandate of the FWG with its current composition (seven Indigenous peoples and Party representatives each), and considered the potential addition of three representatives from both local communities and Parties.

UNFCCC PROCESSES AND NEGOTIATIONS RELATED TO NBS IN COASTAL AND MARINE ECOSYSTEMS AND INDIGENOUS PEOPLES

The following are actions within UNFCCC process and ongoing negotiations countries could take to advance Indigenous Peoples' knowledge and engagement as it relates to the ocean-climate nexus:

Facilitative Working Group of the Local Communities and Indigenous Peoples Platform (LCIPP FWG)

- Advocate for the inclusion of community-led coastal and marine NbS, and opportunities to strengthen the knowledge, technologies, practices, and efforts of local communities and Indigenous Peoples related to ocean-climate action, in ongoing FWG discussions and processes, including the 8th meeting of the FWG, youth roundtable, Indigenous curricula dialogue, and training workshop for Parties and stakeholders at COP27.
- Throughout the implementation of the second 3-year work plan, Parties could work to ensure that coastal and marine ecosystems and NbS, and Indigenous knowledge pertaining to these ecosystems and solutions, are considered and incorporated.
- As part of LCIPP functions, the Platform could be accompanied by an effective program to build the capacities of its constituencies at different levels, which could also be inclusive of coastal and marine ecosystems and NbS. This may help IPLCs to fully participate in ocean-climate-related processes at the international and national levels, including updates of NDCs and NAPs.
- Request further dialogues between the IPCC, GEF, AC, LEG, PCCB, TEC, and other relevant bodies to enhance synergies across processes for the inclusion of Indigenous and local communities in decision making and national-level actions to promote land and community resource rights, including for coastal and marine ecosystems.
- In discussions to advance the new three-year workplan, ensure that community-led coastal and marine NbS are included, and that any efforts to advance NbS in coastal and marine ecosystems includes full, informed, and inclusive participation of all relevant actors and regions, such as traditional knowledge holders, women, Indigenous Peoples, and local communities.
- Advocate for collaboration with other relevant bodies under the Convention and in other international policy processes to strengthen connections on local and indigenous community issues relevant to natural resource rights, land tenure, access to fisheries resources, and promoting the exchange of information relevant to national level policy, including for coastal and marine ecosystems.

Finance

In Paris, countries agreed that developed countries would continue their existing collective finance goal—mobilizing US$ 100 billion annually from public and private sources—through 2025. Recent estimates demonstrate that while

climate finance contributions towards the US$ 100 billion target are increasing, they still fall short of the global target,[15] with the shortfall estimated at 30% or greater.[16] The disparity is even greater when it comes to nature-based solutions. Science shows that nature can provide at least 30% of the mitigation needed by 2030,[17] but nature only receives about 3% of global climate finance.[18]

To help deliver climate finance for both mitigation and adaptation efforts, the Convention has established a Financial Mechanism, which operates under the guidance of the COP and works through specific international entities, including the Global Environment Facility (GEF), Green Climate Fund (GCF), Special Climate Change Fund (SCCF), Least Developed Countries Fund (LDCF), and Adaptation Fund (AF).

The Financial Mechanism is also supported by the Standing Committee on Finance (SCF), created in 2010, which provides financial resources to developing countries. The SCF Forum that was held in 2021 (part 1) and continued in 2022 (part 2) was dedicated to "Financing Nature-based Solutions," and presented an opportunity to address why funding levels for NbS (including the ocean) still do not match their mitigation and adaptation potential, as well as how to increase financial flows.

Both market and non-market mechanisms are important vehicles for driving investment in mitigation actions, including NbS. Article 6 of the Paris Agreement establishes a broad framework for voluntary cooperation among Parties in delivering climate action. It sets out three approaches through which Parties may interact: 1) bilateral or regional cooperative approaches via internationally transferred mitigation outcomes (ITMOs); 2) a centrally governed UNFCCC mechanism to contribute to mitigation and support sustainable development; and 3) non-market approaches.[19] Encouraging the transfer of high-quality emission reductions generated in all sectors, including coastal and marine ecosystems, as appropriate, can drive needed flows of finance to climate actions addressing both sources and sinks and generate opportunities for increased ambition, particularly in developing countries. As the guidance for implementing Article 6 was adopted in Glasgow, countries must now turn to operationalizing Article 6 at the national level.

15 Independent Expert Group on Climate Finance. (2020). "Delivering on the $100 Billion Climate Finance Commitment and Transforming Climate Finance."

16 Yeo, S. (2019). "Where Climate Cash Is Flowing and Why It's Not Enough." Nature. www.nature.com/articles/d41586-019-02712-3.

17 Griscom, B. et al. (2019). "National mitigation potential from natural climate solutions in the tropics." Phil. Trans. R. soc. B 375: 20190126. https://royalsocietypublishing.org/doi/pdf/10.1098/rstb.2019.0126.

18 Climate Policy Initiative. (2019). "Global Landscape of Climate Finance 2019." https://climatepolicyinitiative.org/publication/global- climate-finance-2019/.

19 UNFCCC. (2015). "Paris Agreement." [Article 6, Paragraphs 2, 4, and 8, respectively.] https://unfccc.int/sites/default/files/english_paris_agreement.pdf

UNFCCC PROCESSES AND NEGOTIATIONS RELATED TO NBS IN COASTAL AND MARINE ECOSYSTEMS AND FINANCE

The following are actions within UNFCCC process and ongoing negotiations countries could take to increase finance flows for NbS in coastal and marine ecosystems:

Ad Hoc Work Programme on the New Collective Quantified Goal on Climate Finance [CMA agenda item 8 (e)]

- Parties could propose technical expert dialogues to discuss finance for scaling-up conservation and restoration actions for ocean and coastal ecosystems, especially for ecosystems that provide multiple co-benefits such as adaptation, mitigation, sustainable development, and biodiversity protection, such as blue carbon ecosystems.
- Call for future ad hoc work programme activities to include a focus on finance for ocean-climate action, including capacity building to promote national-level action and financial opportunities across the public and private sectors.

Standing Committee on Finance (SCF) [CMA agenda item 8 (a)]

- The SCF Forum on Financing Nature-based Solutions further strengthened ocean-climate action, such as blue carbon, with a strong focus on coastal and marine ecosystems in addition to forests, grasslands, and other ecosystems. The outcomes and/or the report from the Forum could be welcomed at COP.
- Request the SCF prepare an Information Note exploring coastal and marine NbS climate finance flows, gaps and opportunities. SCF Forum reports are presented annually to the COP and used to inform the COP guidance for the Green Climate Fund and Global Environment Facility.

Green Climate Fund (GCF) [CMA agenda item 8 (b)]

- In the COP's guidance to the GCF, call for new or elaborated programmes with additional dedicated funding for "Resilient, Blue Infrastructure," "Blue Carbon and Results-Based Finance" and/or "Resilient Coastal Communities."

Global Environment Facility (GEF) [CMA agenda item 8 (c)]

- In the COP's guidance to the GEF, call for new or elaborated programmes with additional dedicated funding for "climate-smart coastal zone management," "trans-boundary ocean-climate management" and/or "sustainability and resilience for coastal communities."

Adaptation Fund (AF) [CMA agenda item 8 (d)]

- Call for the continued financing of projects and programmes aimed at strengthening coastal and marine ecosystem resilience, including through NbS.

Science

Science is the underpinning of sound policymaking. With the Intergovernmental Panel on Climate Change (IPCC), the UNFCCC has a dedicated body to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks, as well as to put forward adaptation and mitigation options. With both the 2021–2030 United Nations Decade of Ocean Science for Sustainable Development and the 2021–2030 United Nations Decade on Ecosystem Restoration, strong allies for increased ocean and climate knowledge, including traditional ecological knowledge, and coastal and marine ecosystem restoration have emerged. Additional and continued guidance on these processes, and the funding opportunities under each Decade available for ocean-climate action, would be valuable.

UNFCCC PROCESSES AND NEGOTIATIONS RELATED TO NBS IN COASTAL AND MARINE ECOSYSTEMS AND SCIENCE

The following are existing actions within UNFCCC process and ongoing negotiations countries could take to advance coastal and marine ecosystem issues related to science:

Research and Systematic Observation (RSO) [SBSTA agenda item 10 (a)]

- Continue to propose research questions to SBSTA's dialogue on Research and Systematic Observation on ocean-related mitigation and adaptation questions, such as ocean-related resilience and the role of major ocean currents such as the Gulf Stream and the global impacts of their potential collapse.[20]
- Propose research questions on increasing national capacity to measure the threats to ocean and coastal ecosystems, such as external threats to mangrove or blue carbon ecosystems resulting from deforestation, coastal development, pollution, or climate change. Questions can also include how to better measure national actions and approaches to coastal threats and changes.
- Request discussion on existing scientific and technical capacity to monitor high-carbon storing coastal ecosystems through ecosystem mapping, measurement of above- and below-ground carbon stocks, and historical fluxes from loss and/or degradation of these ecosystems. An extension of this discussion can be conducted as a workshop at the SBSTA.
- Expand scientific research to i) better predict and track the impacts of climate change on the distributions of pelagic fish such as tuna and reduced productivity of fisheries; ii) understand potential threats to domestic food security, livelihoods, and economic development; and iii) identify effective shared management by all stakeholders of such resources to avoid overfishing and the associated negative impacts on ecosystems, communities, and economies.
- Other topics could include recent scientific research on other potential blue carbon sinks and sources, such as macroalgae production and storage and their readiness for the revised IPCC Wetlands Supplement.

Intergovernmental Panel on Climate Change (IPCC) [UN bodies and intergovernmental organizations that cooperate with the UNFCCC]

- Call for the development of practical accounting tools for strengthening ocean-climate action, such as a below-tide area proxy tool (similar to the managed land proxy tool).
- Call for the IPCC to develop and update GHG inventory guidance for coastal wetland ecosystems based on the best available and most recent peer-reviewed science for the next revision of the Wetlands Supplement. The IPCC could also consider including additional coastal ecosystems, such as kelp (and associated sediment carbon stores) and other marine and coastal ecosystems currently not included, if and when additional scientific evidence demonstrates the role of these ecosystems for mitigation and satisfactory carbon accounting methodologies are available. This additional guidance would promote the inclusion of such ecosystems into NDCs and NAPs, as well as ensure consistency and comparability among the information provided through the Enhanced Transparency Framework (ETF).[21]
- Continue to examine the synergies and trade-offs between biodiversity protection and climate change mitigation and adaptation, as done by the joint IPCC and Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) workshop.[22] This could include review and assessment of the need for climate resilient infrastructure, including green-gray infrastructure and the role of NbS in biodiversity conservation.

20 Carrington, D. (2021). "Climate crisis: Scientists spot warning signs of Gulf Stream collapse." The Guardian. https://www.theguardian.com/environment/2021/aug/05/climate-crisis-scientists-spot-warning-signs-of-gulf-stream-collapse.

21 Diz, D. et al. (2021). "Blueprint for a LivingPlanet: Four Principles for Integrated Ocean-Climate Strategies." WWF International. https://wwfeu.awsassets.panda.org/downloads/wwf_blueprint_for_a_living_planet_2021.pdf.

22 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. (2021). "Launch of IPBES-IPCC Co-Sponsored Workshop Report on Biodiversity and Climate Change." https://ipbes.net/events/launch-ipbes-ipcc-co-sponsored-workshop-report-biodiversity-and-climate-change.governance frameworks to manage carbon in shelf seas." Nat Commun 11, 4599. https://doi.org/10.1038/s41467-020-18242-w.

Technology Mechanism

To date, only 20% of the ocean has been mapped and explored, so there is a significant need to better understand the ocean and its systems. As climate impacts accelerate, the ocean will face new pressures, which will require better and more accessible technology to find suitable solutions. The Technology Mechanism (TM) has the mandate to foster collaboration among "climate technology stakeholders.[23] As such, it is one of the few institutionalized platforms within the UNFCCC to facilitate direct interaction between public and private entities. It is composed of two bodies, the Climate Technology Centre and Network (CTCN) and the Technology Executive Committee (TEC). The CTCN seeks to engage national, regional, sectoral and international technology centres, networks, organizations, and private sector entities,[24] and the TEC is the policy component of the Technology Mechanism to facilitate enhanced actions of Parties on climate technology development and transfer.

UNFCCC PROCESSES AND NEGOTIATIONS RELATED TO NBS IN COASTAL AND MARINE ECOSYSTEMS AND TECHNOLOGY

The following are existing actions within UNFCCC process and ongoing negotiations countries could take to advance coastal and marine ecosystem issues related to the Technology Mechanism:

Technology Executive Committee (TEC) [SBI agenda item 17 (a), SBSTA agenda item 11]

- In cooperation with the WIM and Adaptation Committee, continue to expand the 2020 policy analysis[25] on technologies for averting, minimizing and addressing loss and damage in coastal zones, putting specific emphasis on disaster risk reduction and coastal and marine NbS.
- Build on the recommendations of the joint TEC, NWP, IUCN and FEBA guidance to further strengthen cross-sectoral collaboration and knowledge sharing on integrating NbS and technology for climate adaptation, such as through the establishment of an ad hoc working group on integrated adaptation approaches in coastal and ocean settings.

Climate Technology Centre and Network (CTCN) [SBI agenda item 17 (a), SBSTA agenda item 11]

- Design technology needs assessments[26] (TNAs) and provide technical expertise on coastal and marine needs, gaps, and coastal resilience solutions. Handbooks and guidance documents could benefit from an update to address ocean issues.
- Upscale technical assistance on integrated coastal zone management along with the creation of a dedicated technical assistance window on coastal zone planning within the TNA process.

Capacity Building

Accelerating mitigation and adaptation efforts and increasing resilience to climate change will require significant capacities at the local, national, and international levels; many countries and stakeholders require dedicated capacity-building support to implement existing and future climate goals. The Paris Committee on Capacity Building (PCCB) addresses current and emerging capacity gaps and needs for fully implementing the Paris Agreement.

23 UNFCCC. (2016). "Mapping climate technology development and transfer activities and initiatives under and outside the Convention relevant to the implementation of the Paris Agreement." https://unfccc.int/resource/docs/2016/sbsta/eng/inf09.pdf.

24 UNFCCC. (2021). "About the Climate Technology Centre and Network (CTCN)." https://www.ctc-n.org/about-ctcn.

25 Executive Committee of the Warsaw International Mechanism for Loss and Damage. (2020). "Policy Brief: Technologies for Averting, Minimizing and Addressing Loss and Damage in Coastal Zones." https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/2020_coastalzones/

26 UNFCCC. (2021). "Technology Needs Assessment: Pathways for climate tech implementation." https://unfccc.int/ttclear/tna.

UNFCCC PROCESSES AND NEGOTIATIONS RELATED TO NBS IN COASTAL AND MARINE ECOSYSTEMS AND CAPACITY BUILDING

The following are actions within UNFCCC process and ongoing negotiations countries could take to advance coastal and marine ecosystem issues related to capacity building:

Paris Committee on Capacity-building (PCCB) [CMA agenda item 11, SBI agenda item 19]

- Include specific sessions on ocean and coastal environments, where appropriate, in capacity-building cycles and support to countries on inventories, NDC accounting, and transparency.
- Encourage timely and clear communication of short- and long-term financial, capacity building and technology transfer needs for ocean-climate actions via NDCs and other relevant communications to the UNFCCC.[27]
- Provide guidance on using similar datasets, methodologies, and research scope on coastal and marine ecosystems for monitoring and reporting across UNFCCC processes.

Transparency and the Global Stocktake

Transparency underpins the entire Paris Agreement, as accurate monitoring, reporting and verification are essential to understand our progress toward achieving the goals of the Paris Agreement, as well as where improvements are needed. Country commitments under the Paris Agreement are expected to increase in ambition every five years, in line with national circumstances and capabilities. Preceding this step to "ratchet up" ambition is a recurring Global Stocktake—the process through which countries formally assess the collective progress made to reach the goals of the Paris Agreement, with a view towards enhancing the next round of national climate commitments and international cooperation. With the first GST planned for 2023 (and recurring every five years thereafter), Parties have an opportunity to ensure that ocean issues are incorporated into this assessment to reflect the ocean's contribution to achieving the goals of the Paris Agreement.

27 Diz, D. et al. (2021). "Blueprint for a Living Planet: Four Principles for Integrated Ocean-Climate Strategies." WWF International. https://wwfeu.awsassets.panda.org downloads/wwf_blueprint_for_a_living_planet_2021.pdf.

UNFCCC PROCESSES AND NEGOTIATIONS RELATED TO NBS IN COASTAL AND MARINE ECOSYSTEMS AND TRANSPARENCY

The following are actions within UNFCCC process and ongoing negotiations countries could take to advance NbS in coastal and marine ecosystem related to transparency and the Global Stocktake:

Consultative Group of Experts (CGE)

- Revise guidance documents—including the CGE's Reference Manual for the Enhanced Transparency Framework under the Paris Agreement—to highlight both the relevance and the viability of applying the 2013 Wetlands Supplement (and the 2019 Refinement).

Biennial transparency reporting (BTR) [SBSTA agenda item 15]

- In preparation for the BTR, provide options and guidance for reporting relevant ocean and coastal issues. Parties could consider extending their inventory reporting boundaries to the continental shelf edge,[28, 29] while still remaining within their national boundary and within the scope of the UNFCCC mandate.
- While not mandatory, Parties should provide ocean-related information on climate change impacts and adaptation in their BTRs. This information in turn will inform the Global Stocktake.

Technical Expert Review (TER) [SBSTA agenda item 15]

- Include assessment of countries' application of the IPCC 2013 Wetlands Supplement as part of the TER under Article 13 of the Paris Agreement.
- In considering options for conducting voluntary reviews of information related to climate change impacts and adaptation (decision 18/CMA.1, annex, chapter IV), and training courses to facilitate the voluntary reviews, consider ocean and coastal aspects, in terms of the expertise needed for reviews, as well as the modalities.

Global Stocktake (GST) [SBSTA agenda item 9, SBI agenda item 8]

- Call for guiding questions relevant to the ocean and coasts to be adopted as part of the GST process in the remaining phases, and for the continued inclusion of coastal and marine NbS in the NDC 5-year increased ambition cycle.
- Submit inputs or updates of inputs three months before the Technical Dialogues that occur before the 2023 GST, such as the TD1.3 (March 5, 2023).
- Call for the Secretariat to include an assessment of progress on coastal and marine issues within future Synthesis Reports.

Specific recommendations regarding the GST and ocean mitigation and adaptation issues are provided in the report: Unpacking the UNFCCC Global Stocktake.[30] Further opportunities for the inclusion of the ocean and coastal zones in the GST are identified in the submission: Identifying and accounting for ocean specific topics in the Global Stocktake.[31]

28 Luisetti, T. et al. (2020). "Climate action requires new accounting guidance and governance frameworks to manage carbon in shelf seas." Nat Commun 11, 4599. https://doi.org/10.1038/s41467-020-18242-w.

29 Smeaton C, Hunt CA, Turrell WR and Austin WEN (2021) Marine Sedimentary Carbon Stocks of the United Kingdom's Exclusive Economic Zone. Front. Earth Sci. 9:593324. doi: 10.3389/feart.2021.593324.

30 Schindler Murray, L. et al. (2021). "Unpacking the UNFCCC Global Stocktake for Ocean-Climate Action." IUCN, Rare, Conservation International, WWF, and Ocean & Climate Platform. https://www.iucn.org/sites/dev/files/content/documents/2021/the_ocean_and_the_unfccc_gst.pdf.

31 Joint submission by the Ocean & Climate Platform on behalf of IUCN, CI, WWF, TNC, and Plymouth Marine Laboratory. "Identifying and accounting for ocean specific topics in the Global Stocktake) https://unfccc.int/documents/461577

Conclusion

As the above sections illustrate, there are numerous areas within UNFCCC processes, bodies, and ongoing negotiations where countries may advance efforts to address ocean-climate challenges and strengthen recognition of the role of coastal and marine NbS in addressing climate change. However, the opportunities outlined in this paper are non-exhaustive.

Parties can use the 2023 Ocean and Climate Change dialogue, and subsequent annual dialogues, to develop and prioritize concrete steps they wish to take to strengthen ocean-climate action and incorporate ocean-climate issues into scientific process under the UNFCCC. In addition to the options presented in this paper, Parties may wish to consider the other options and opportunities discussed at the 2022 Ocean and Climate Change dialogue and the previous 2020 dialogue, including strengthening action across the United Nations, strengthening action at the national level, and strengthening finance and other cross-cutting support.

Annex

Key Terminology

The definitions below are adapted from the provisional analysis, Coastal and Marine Ecosystems as Nature-based Solutions in New or Updated Nationally Determined Contributions.[32]

NATURE-BASED SOLUTIONS

Nature-based Solutions are actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience, and biodiversity benefits. (UNEA, March 2022 [UNEP/EA.5/Res.5])

NATURE-BASED SOLUTIONS IN COASTAL AND MARINE ECOSYSTEMS

Nature-based Solutions in coastal and marine ecosystems (coastal and marine NbS) refer to actions that protect, sustainably manage and restore coastal and marine ecosystems in ways that address societal challenges effectively and adaptively.

"Coastal ecosystems" refers to ecosystems at the coastline and extending to the continental shelf edge. "Marine ecosystems" refers to ecosystems beyond the continental shelf edge. The role of coastal wetlands (including mangroves, tidal marshes and seagrass beds) in sequestering and storing "blue" carbon from the atmosphere and the ocean (and hence contributing climate mitigation), is increasingly recognized by governments in nationally determined contributions (NDCs) and greenhouse gas inventories and by non-state-actors who are expanding efforts to conserve and restore these ecosystems. Coastal and marine nature-based mitigation solutions do not include carbon dioxide removal (CDR) options such as geoengineering or bioenergy production with carbon capture and storage (BECCS). Globally, countries and non-state actors are now recognizing the value of numerous coastal and marine ecosystems for their capacity to provide a broad range of (ecosystem-based) adaptation and resilience benefits for communities globally.

OCEAN-BASED CLIMATE SOLUTIONS

Ocean-based climate solutions are the opportunities offered by and related to the global ocean to sustainably contribute to mitigate climate change and/or adapt to its impacts. They include restoring coastal blue carbon ecosystems, developing marine renewable energy, sustainable and climate-smart fisheries management and aquaculture, and increasing fuel efficiency in the shipping sector. While coastal and marine NbS aim to achieve multiple socioeconomic benefits, the sole objective of ocean-based climate solutions is climate mitigation and adaptation.

BLUE CARBON ECOSYSTEMS

"All biologically-driven carbon fluxes and storage in marine systems that are amenable to management can be considered as blue carbon." [33] Blue carbon ecosystems (such as mangroves, seagrasses and tidal marshes) sequester and store large quantities of blue carbon. In addition to climate mitigation benefits, these ecosystems provide a multitude of other services such as climate adaptation, fisheries and biodiversity benefits. At this time, only mangroves, seagrass and tidal marsh have IPCC approved guidance (the 2013 Wetlands Supplement) as to the a multitude of other services such as climate adaptation, fisheries and biodiversity benefits. At this time, only mangroves, seagrass and tidal marsh have IPCC approved guidance (the 2013 Wetlands Supplement) as verifiable extent to which ecosystem protection or restoration can contribute to a country's emission reduction efforts.

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32 Lecerf, M., et al. (2021). "Coastal and marine ecosystems as Nature-based Solutions in new or updated Nationally Determined Contributions." Ocean & Climate Platform, Conservation International, IUCN, GIZ, Rare, The Nature Conservancy and WWF https://ocean-climate.org/wp-content/uploads/2021/06/coastal-and-marine-ecosystem-2806.pdf.

33 The Blue Carbon Initiative. (2021). "Guidelines for Blue Carbon and Nationally Determined Contributions." https://www.thebluecarboninitiative.org/policy-guidance. specific topics in the Global Stocktake) https://www4.unfccc.int/sites/ /SubmissionsStaging/Documents/202202281809---GST%20ocean%20submission_final.pdf.

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