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## Oceans and Law of the Sea

### Contribution from the United Nations Framework Convention on Climate Change

#### I. Introduction

1. The United Nations Framework Convention on Climate Change (UNFCCC) secretariat (“the secretariat”) seeks to contribute to the draft United Nations General Assembly resolution entitled “Oceans and the law of the sea” (document A/77/L.36), of 30 November 2022 for the report entitled “Oceans and the law of the sea” on developments and issues relating to ocean affairs and the law of the sea, in particular “*New maritime technologies: challenges and opportunities*”.

2. Parties to the UNFCCC have recognized the importance of protecting the ocean and its ecosystems in the Convention and Paris Agreement:

(a) In the [Convention](#) Parties agreed to protect the climate system (Article 2), defined as the totality of the atmosphere, hydrosphere, biosphere and geosphere and their interactions (Article 1.3);

(b) In the [Paris Agreement](#), Parties noted the importance of ensuring the integrity of all ecosystems, including oceans, and the protection of biodiversity, recognized by some cultures as Mother Earth.

3. At COP 25, the [Chile Madrid Time for Action](#) 2019, governments recognized the need to strengthen the understanding of, and action on, ocean and climate change under the UNFCCC. COP 25 mandated the first [Ocean and climate change dialogue](#), drawing upon the knowledge and scientific findings from the IPCC [Special Report on the Ocean and Cryosphere in a changing climate](#).

#### II. Adoption of and update on the mandate on ocean-based climate action

4. At COP 26, in the [Glasgow Climate Pact](#) 2021, building on the outcomes of the first ocean and climate change dialogue in 2020, **governments permanently anchored the inclusion of strengthened ocean-based action under the UNFCCC multilateral process**. Parties invited the relevant work programmes and constituted bodies under the UNFCCC to consider how to integrate and strengthen ocean-based action in their existing mandates and workplans and to report on these activities within the existing reporting processes. Parties also invited the SBSTA Chair to hold an annual ocean and climate change dialogue (see section III below).<sup>1</sup>

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<sup>1</sup> See <https://unfccc.int/topics/ocean>.

5. At COP 27/CMA 4, in 2022, the COP [Sharm el-Sheikh Implementation Plan](#) (Decision 1/CP.27) and CMA [Sharm el-Sheikh Implementation Plan](#) (Decision 1/CMA.4) continued to strengthen ocean-based action under the process and encouraged Parties to consider, as appropriate, ocean-based action in their national climate goals and in the implementation of these goals.

6. In regard to the ocean and climate change dialogue, COP 27 welcomed the outcomes and key messages from the ocean and climate change dialogue 2022 and decided that future dialogues will, from 2023, be facilitated by two co-facilitators, selected by Parties biennially, who will be responsible for deciding the topics for and conducting the dialogue, in consultation with Parties and observers, and preparing an informal summary report to be presented in conjunction with the subsequent session of the Conference of the Parties.

### **III. Relevant outcomes from the Ocean and climate change dialogue 2022**

7. The [Ocean and Climate Change Dialogue 2022](#) highlighted the vital importance of the ocean to livelihoods and biodiversity and as a fundamental component of the climate system, while also highlighting the need, options and opportunities for greater ocean-related climate action.

8. Discussions were centred around how to strengthen and integrate national ocean climate action under the Paris Agreement and how to enable ocean climate solutions and support, including financial support. The role of maritime technologies, both challenges and opportunities, was an important part of the discussion and highlighted in the [summary report from the dialogue](#).

9. A number of key messages and points highlighted include:

#### ***Green shipping corridors***

Green shipping corridors can spur early and rapid adoption of fuels and technologies that, on a lifecycle basis, deliver low- and zero-emissions across the maritime sector, placing the sector on a pathway to full decarbonization (see further information below in section VI);

#### ***Fisheries and aquaculture***

(a) The latest [FAO analysis](#) shows that Parties under the UNFCCC have recognised the importance of adaptation of fisheries and aquaculture to climate change with over 70% of the new or updated NDCs containing these components. On the ground, adaptation is already happening at the community level with fishers, fish farmers and fish workers who are modifying their practices or trying to do so with the means that they have, such as to fish or farm new species, use different gear or technologies, or adapt to shifting seasons;

#### ***Renewables***

(a) Parties can promote clear and long-horizon policy frameworks for offshore renewable energy. For mature technologies such as fixed-bottom offshore wind, the lack of transparent goals and fit-for-purpose regulation are the primary obstacles to investment and project development. For earlier-stage technologies such as floating solar photovoltaics (PV) and wave or tidal energy, long-term policy targets also increase trust in the possibility to commercialise these innovative technologies. Examples of innovations for offshore energy which need further research and development include larger turbines in deeper waters, green hydrogen generation, floating foundations, and artificial islands.

(b) Parties can access updated information on offshore renewables development such as cost competitiveness, best practices in policy and regulation, resource potential and environmental impact assessments by participating in international initiatives such as the [IRENA Collaborative Framework on Offshore Renewables](#) and the [Global Offshore Wind Alliance \(GOWA\)](#). Whilst the [Global Ocean Energy Alliance](#) (GLOEA) is an initiative focussed on addressing the needs of SIDS and coastal developing countries, particularly LDCs, to access ocean energy technology, finance and expertise.

(c) Opportunities for Parties include supporting collaboration and exchange of experiences in ocean governance, environmental impacts and technical standards given that one of the main challenges that these technologies face today is the difficulty in securing funding due to high perceived risks, Parties could identify and promote innovative financing and de-risking mechanisms, including, but not limited to, capital investment support (grants, equity, loans, etc.) and revenue support mechanisms (technology-specific auctions, fiscal measures, quotas, etc.).

***Marine technology and marine and coastal nature-based solutions should be integrated to ensure that action is more robust, comprehensive and cost-effective than when using either solution alone***

This was one of the ten key messages from the dialogue:

(a) Recent work by the Technology Executive Committee (TEC), Nairobi work programme Expert Group on Oceans, IUCN, and Friends of EbA (FEBA) shows that integrated technology and nature-based solutions offer the potential to be more robust, comprehensive, and cost-effective than either solution alone, as detailed in the policy brief on [Innovative approaches for strengthening coastal and ocean adaptation - Integrating technology and nature-based solutions](#).

(b) Solutions include early warning systems for extreme events, hybrid approaches such as restoration of coastal vegetation alongside engineered seawalls to reduce the impacts of storm surges and sea level rise, investments in nature-based infrastructure, new technologies to reduce harmful fishing practices, ecosystem-based marine spatial planning with coherent networks of marine protected areas, and coastal hazard mapping.

(c) Parties can pair offshore renewable technologies with adaptation strategies (for example mangrove protection with wave energy) and create synergies by protecting the lives and rights of coastal and marine communities at risk.

(d) Parties can build cross-sectoral partnerships, including with the private sector, to exchange knowledge and ideas, develop innovative technologies, and bolster the business case for integrated adaptation solutions.

***Funding for ocean-climate action needs to increase and access to funding must be supported***

This was another of the ten key messages from the dialogue:

(a) Parties highlighted that SIDS are often the source of ocean-climate solutions that can serve as models for the rest of the world. Efforts to realise and develop these solutions must be accelerated and scaled up to achieve this, requiring work to close science and knowledge gaps, to secure finance and technology, and to build capacity to catalyze such actions and efforts.

(b) The tools and expertise of the Nairobi Work Programme's thematic expert group on the ocean, including the recent NAP Technical Supplement providing [guidance on accessing finance for the implementation of coastal and marine nature-based solutions](#), can be used to help meet Parties' goals for adaptation and resilience. The supplement aims to enhance access to funding opportunities by providing considerations for governments to consider when developing high-quality NbS proposals to the GCF and outlining practical tips for proposal development.

10. Participants also highlighted, which is now the case following the outcomes from COP 27, that a mandate for the inclusion of ocean-based action in national action, such as NDCs, should help to accelerate national level action and cross-country policy and technology transfer.

#### **IV. Ocean action in Nationally determined contributions**

11. As presented in the latest [NDC synthesis report](#), 26 October 2022, an increasing number of Parties (40 percent) are targeting ocean-based climate action. Some Parties (26 percent) include an ocean-based climate target, policy or measure. Ocean-related measures

reported in the NDCs relate more often to adaptation than to mitigation and there has been an increase in adaptation measures identified related to fisheries and aquaculture. Relatively few Parties mentioned offshore renewable energy as a mitigation solution.

## V. Opportunities for engagement through the UNFCCC: collaboration between the Technology Mechanism and the knowledge delivery work of the Nairobi Work Programme on ocean and climate change

12. The [Joint Work Programme of the UNFCCC Technology Mechanism for 2023–2027](#) Activity C.4.1 on Innovative Ocean Climate Solutions shall be building on the Technology Executive Committee’s previous work on innovative technological and ecosystem-based approaches to strengthen ocean and coastal adaptation and analyse the contributions of innovative solutions and technological innovations for ocean-based actions, including how technology can help address issues related to marine protected areas and achieve the SDG 14. This shall include participation in the UNFCCC Ocean and Climate Change Dialogue.

13. This builds on previous collaborative work that has generated a number of relevant documents including the paper mentioned above on [Innovative approaches for strengthening coastal and ocean adaptation - Integrating technology and nature-based solutions](#) and the TEC and the [Executive Committee of the Warsaw International Mechanism for Loss and Damage](#) joint policy brief on [Technologies for Averting, Minimizing and Addressing Loss and Damage in Coastal Zones](#). The latter policy brief provides information on an array of technologies – hardware, software, and orgware – currently available to assess risks, reduce risks, recover and rehabilitate from the impacts of climate change in coastal zones. It also highlights challenges and opportunities of these technologies where improvements can be made to help countries prepare better to deal with adverse impacts of climate change in coastal zones.

## VI. Emerging technologies and research

14. The Subsidiary Body for Scientific and Technological Advice (SBSTA) regularly considers emerging science and research under the Research and Systematic Observation agenda item, including emerging maritime technologies, with potential to contribute to achieving the long-term temperature goal of the Paris Agreement and the goals of the UNFCCC.<sup>2</sup>

15. The SBSTA has repeatedly identified through its consultations the need to further strengthen support for sustained systematic observations of the ocean, and to address systematic observation gaps for the ocean.<sup>3</sup> In recognising the vital importance of Earth observation systems for climate action, the SBSTA has welcomed<sup>4</sup> the 2022 Global Climate Observing System Implementation Plan<sup>5</sup> and the 2022 Global Climate Observing System essential climate variables requirements,<sup>6</sup> which include both a detailed description of the components of the ocean system whose observations are critical for understanding and responding to climate change and guidance on the required methodologies and in-situ and satellite technologies to observe these components.

16. The ocean has also been identified by experts as a space for carbon dioxide reduction and renewable energy generation. Experts at the thirteenth meeting of the research dialogue reported that the High-Level Panel for a Sustainable Ocean Economy identified that ocean-based mitigation options could reduce global GHG emissions by about 4 billion tonnes of

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<sup>2</sup> See <https://unfccc.int/topics/science/workstreams/RSO>.

<sup>3</sup> See FCCC/SBSTA/2022/L.20, para 8 and 10, available at [https://unfccc.int/sites/default/files/resource/sbsta2022\\_L20E.pdf?download](https://unfccc.int/sites/default/files/resource/sbsta2022_L20E.pdf?download).

<sup>4</sup> See 22/CP.27. AUV available at <https://unfccc.int/documents/624131>.

<sup>5</sup> See WMO. 2022. The 2022 GCOS Implementation Plan. Geneva: WMO. Available at [https://library.wmo.int/doc\\_num.php?explnum\\_id=11317](https://library.wmo.int/doc_num.php?explnum_id=11317).

<sup>6</sup> See WMO. 2022. The 2022 GCOS ECVs Requirements. Geneva: WMO. Available at [https://library.wmo.int/doc\\_num.php?explnum\\_id=11318](https://library.wmo.int/doc_num.php?explnum_id=11318).

CO<sub>2</sub> equivalent per year in 2030 and by over 11 billion tonnes per year in 2050, reducing the emissions gap between current global emissions and levels required to achieve the goals of the Paris Agreement by up to 21% on a 1.5°C pathway, and by around 25% on a 2°C pathway.<sup>7</sup> Ocean-based renewable energy and technological improvements in ocean-based transport were estimated to contribute over half of these emission reductions.

17. Parties to the UNFCCC increased momentum on reducing emissions in the shipping sector during the 2021 Glasgow Climate Change Conference by signing the Clydebank Declaration for green shipping corridors, pursuing efforts to accelerate the decarbonisation of the shipping sector and its fuel supply through green shipping corridor projects.<sup>8</sup> Signatories recognise that fully decarbonised fuels or propulsion technologies should have the capability to not add additional GHGs to the global system through their lifecycle, including production, transport or consumption. Over 20 initiatives under the project have so far been initiated, with these and further tracked by the Global Maritime Forum with its Annual Progress Report on Green Shipping Corridors.<sup>9</sup>

18. The SBSTA has considered marine technologies for the mitigation of climate change, including marine carbon dioxide removal (CDR). At the twelfth, thirteenth, and fourteenth meetings of the SBSTA research dialogue,<sup>10</sup> experts emphasised that knowledge of the ocean carbon sink and ocean carbon cycle is not yet sufficient to inform evidence-based decision making on the possible impacts and potential of marine CDR or enhanced marine carbon sequestration.

19. The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) Working Group 41 highlighted its reported findings that no coordinated frameworks are in place to plan and assess marine climate interventions, adding that governance should be an important element of future assessment and research.<sup>11</sup> Experts in subsequent research dialogues reported that marine CDR is attracting substantial investment and that understanding on its potential is catalysed by the ongoing UN Decade on Ocean Science for Sustainable Development. Despite this, CDR options, policy and market implications remain as research gaps, and CDR has been assessed as having limited potential in contributing to some impacts of climate change, such as Antarctic ice-sheet loss. In 2022, the SBSTA encouraged Parties and relevant organizations to strengthen research and research capacity and to address related research needs including on the potential opportunities, risks and costs of carbon dioxide removal technologies and options.<sup>12</sup>

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<sup>7</sup> See <https://oceanpanel.org/publication/the-ocean-as-a-solution-to-climate-change-five-opportunities-for-action/>.

<sup>8</sup>See <https://www.gov.uk/government/publications/cop-26-clydebank-declaration-for-green-shipping-corridors/cop-26-clydebank-declaration-for-green-shipping-corridors>.

<sup>9</sup>See <https://www.globalmaritimeforum.org/publications/annual-progress-report-on-green-shipping-corridors>.

<sup>10</sup> See <https://unfccc.int/topics/science/events-meetings/research-dialogue>.

<sup>11</sup> See <http://www.gesamp.org/publications/high-level-review-of-a-wide-range-of-proposed-marine-geoengineering-techniques>.

<sup>12</sup> See FCCC/SBSTA/2022/6, para 62 available at [https://unfccc.int/sites/default/files/resource/sbsta2022\\_06E.pdf](https://unfccc.int/sites/default/files/resource/sbsta2022_06E.pdf).