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CONTRIBUTION TO THE 2022 OCEAN AND CLIMATE CHANGE (SBSTA 56)
Submitted by the Ocean & Climate Platform

With the support of: the Ocean Knowledge Action Network and the Friends of Ocean Action

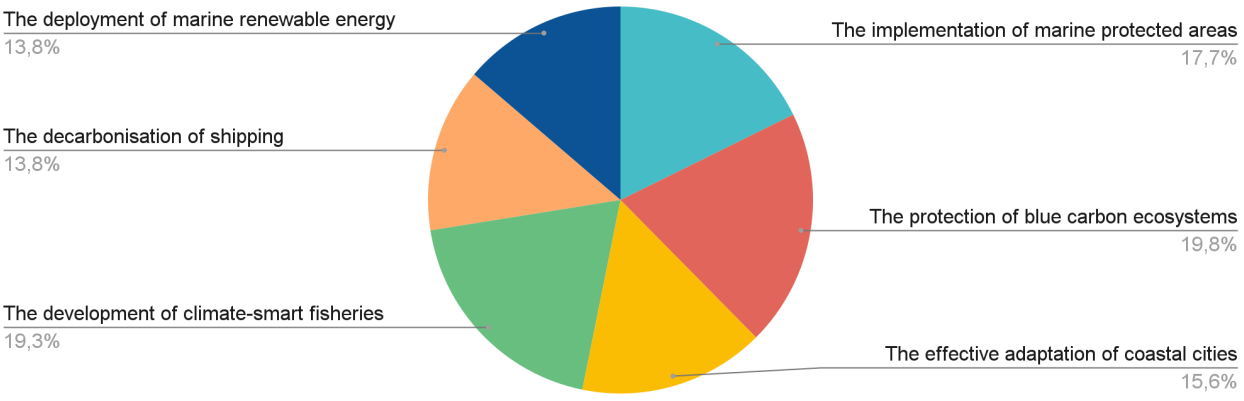
FRIENDS of OCEAN ACTION

1. Context

The Ocean & Climate Platform (OCP) brings together more than 95 organisations - including NGOs, research institutions, foundations, museums, private sector entities, national institutions and international agencies, and territorial collectivities - with the aim to promote scientific expertise and advocate ocean-climate-biodiversity issues to policymakers and the great public.

As an observer organisation to the UNFCCC, the Ocean & Climate Platform submitted in 2020 a contribution to the first SBSTA Dialogue on Ocean & Climate Change. The latter aimed at cross referencing the Platform's policy recommendations with possible ways forward under the UNFCCC in four specific areas: mitigation, adaptation, science and finance. It also considered opportunities to build bridges between UN conventions, in particular UNFCCC and CBD.

Pursuant to the decision 1/CP26 paragraph 61, and building on this first submission, OCP launched a consultation with its members in February 2022. With the aim of identifying priority topics, OCP shared a survey with its members to rank ocean-based climate actions to be addressed as part of the upcoming dialogue. As shown on the graph below, OCP members emphasised: (1) the protection of blue carbon ecosystems; (2) the development of climate-smart fisheries and aquaculture; (3) the implementation of marine protected areas; (4) the effective adaptation of coastal cities; (5) the decarbonisation of shipping; and lastly (6) the deployment of marine renewable energy.



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ACRONYMS

AR6	IPCC's 6th Assessment Report
BTO	Because the Ocean
CBD	Convention on Biological Diversity
EBSA	Ecologically or Biologically Significant Areas
FAO	Food and Agriculture Organisation
GHG	Greenhouse gases
GST	Global Stocktake
IMO	International Maritime Organisation
IPCC	Intergovernmental Panel on Climate Change
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
LULUCF	Land Use, Land Use Change and Forestry
MPA	Marine Protected Area
MP-GCA	Marrakech Partnership for Global Climate Action Agenda
MRE	Marine Renewable Energy
MSP	Marine Spatial Planning
MSY	Maximum Sustainable Yield
NAP	National Adaptation Plans
NbS	Nature-based Solutions
NBSAP	National Biodiversity Strategies and Action Plan
NDC	Nationally Determined Contribution
OCP	Ocean & Climate Platform
SBSTA	Subsidiary Body for Scientific and Technological Advice
SDG	Sustainable Development Goal
SROCC	Special Report on the Ocean and Cryosphere in a Changing Climate
SSF	Small-scale Fisheries

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2. Introduction

The conclusions of the Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report (AR6) are compelling: "*Anthropogenic climate change has exposed ocean and coastal ecosystems to conditions that are unprecedented over millennia*"[1]. Ocean warming, sea level rise, acidification, deoxygenation and increased extreme events are all climate change-induced phenomena, and they have growing impacts on marine ecosystems and the societies that rely on them[2]. Combined with human-induced stresses (e.g. coastal urbanisation, pollution, deep-sea mining, overexploitation of marine resources), they worsen the vulnerability of marine and coastal ecosystems, thus threatening their integrity, the many species they support and, as a result, their ability to sequester and store carbon.

Central to climate and biodiversity interactions, the ocean indeed plays a key role in regulating the climate system and in providing life support to all species on Earth. In 2019, the conclusions of the IPCC Special Report on the Ocean and Cryosphere (SROCC) clearly put forth the interconnection between the ocean, climate and biodiversity, specifically highlighting the crucial role marine ecosystems play in mitigating and adapting to the effects of climate change[3]. The very same year, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services' (IPBES) Global Assessment Report on Biodiversity and Ecosystem Services identified climate change as one of the five direct drivers of change in nature, noting that its effects "are accelerating in marine [...] ecosystems[4]" including, for example, coral reefs.

The recent IPBES-IPCC joint report further concluded that "the adaptive capacity of most ecosystems and socio economic systems will be exceeded by unabated anthropogenic climate change, and significant adaptive capacity will be required to deal with residual climate change even under ambitious emission reductions"[5]. A climate debt is currently building up in the marine environment and, with environmental and biological changes occurring on longer timescales below the ocean, the recovery of marine ecosystems will be prolonged.

It is crucial to jointly address the decline in ocean health, climate change and biodiversity loss to successfully overcome the greatest challenges of our time. A healthy ocean is fundamental to the sustainable world we must build as it ensures food security, human well-being, decent jobs, the energy transition, a fruitful economy and a protected climate[6].

Driving bold actions across sectors and around the globe is key to set the ocean on a path to recovery, requisite to jointly tackle ocean, climate and biodiversity challenges. It is our common responsibility to act ambitiously to strengthen ocean-based solutions and recognize the incredible potential of marine and coastal ecosystems for climate mitigation and adaptation. For instance, natural coastal ecosystems, such as coral reefs and salt marshes, have the ability to significantly reduce wave heights[7] - protecting coastal communities from tsunamis.

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[1] IPCC. (2022). Sixth Assessment Report. Impacts, Adaptation and Vulnerabilities. Working Group II. Summary for Policymakers.
[2] OCEAN AND CLIMATE. (2019). Ocean et climate change: new challenges. Focus on 5 key themes of the IPCC Special Report on the Ocean and Cryosphere. Ocean & Climate Platform, pp. 1-40.
[3] IPCC. (2019). Chapter 5: Changing Ocean, Marine Ecosystems, and Dependent Communities. Special Report on the Ocean and Cryosphere in a Changing Climate.
[4] IPBES. (2019): Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany.
[5] Pörtner, H.O., et al. (2021). IPBES-IPCC co-sponsored workshop report on biodiversity and climate change. IPBES and IPCC.
[6] OCEAN AND CLIMATE. (2021). Ocean of Solutions to tackle climate change and biodiversity loss. Ocean & Climate Platform, pp. 1-72
[7] Ferrario, F., et al. (2014). The effectiveness of coral reefs for coastal hazard risk reduction and adaptation. Nature communications, 5(3794), pp. 1-9.

Solutions are slowly emerging from a diverse range of sectors, providing key opportunities for concrete action and responding to policy requests and societal needs. Accessible, reliable, scalable and replicable ocean-based solutions exist, and provide a pivot from 'problem' to 'solution'. The state-led Because the Ocean (BTO) initiative's Ocean for Climate report[8,9] paved the way for ambitious transformative actions, sharing key examples of how to further integrate the ocean in climate strategies, while being mindful and respectful of biological diversity.

In addition to state action, civil society is widely mobilised to raise the status of the ocean in international climate negotiations. Most notably, the Marrakech Partnership for Global Climate Action (MP-GCA) has identified the "Ocean and coastal zones" as a key theme. At COP 26, where Nature took centre stage for the first time, the MP-GCA Ocean launched the "Ocean for Climate" Declaration[10] endorsed by more than 120 organisations to commit to accelerating the implementation of ocean-based climate solutions for a net-zero, resilient, equitable, and biodiversity-positive future.

This strong mobilisation paid off[11] and led to the ocean being mentioned in the preamble of the Glasgow Climate Pact[12], noting "the importance of ensuring the integrity of all ecosystems, including forests, the ocean and the cryosphere". Marine ecosystems were also recognised as "carbon sinks" in Article 21 of the final decision, which emphasised the importance of the conservation and sustainable use of marine ecosystems in climate strategies[13]. In light of such momentum, the newly mandated Ocean and Climate Change Dialogue, to be held annually under the SBSTA, must be a useful and effective tool to close the knowledge gaps on ocean-climate interactions, as well as provide insightful inputs on how to boost ocean-climate action under the UNFCCC.

3. Priority topics: Ocean-based solutions for climate action

Albeit strongly affected by human activities, the ocean and its ecosystems offer many solutions to meet current environmental and socio-economic challenges.

From this perspective, the role of science is central in identifying innovative solutions that meet the challenges of sustainability. Nature-based Solutions (NbS) make possible the reconciliation of mitigation, adaptation and biodiversity conservation objectives while providing multiple socio-economic benefits to local communities[14]. Besides, key solutions exist to ensure the implementation of sustainable practices in all industries that impact the ocean and coasts. For instance, the development of sustainable aquaculture and renewable marine energies are solutions for the future, promoting the transition to a net-zero carbon economy.

➡ To swim the talk, the Ocean & Climate Platform identified 6 priority areas to enhance ocean-based climate action for mitigation and adaptation, also mindful of marine biodiversity, thus addressing the decline in ocean health, climate change and biodiversity loss:

[8] Because The Ocean. (2019). Ocean for Climate. Ocean-related measures in climate strategies. Nationally Determined Contributions, National Adaptation Plans, Adaptation Communications and National Policy Frameworks.
[9] Because the Ocean. (2021). Third Because the Ocean Declaration. A plurilateral initiative in support of multilateral ocean outcomes at COP 26.
[10] The Ocean for Climate Declaration. (2021). A Healthy and productive ocean for a resilient, nature-positive and net-zero future.
[11] Ocean & Climate Platform. (2021). What came out of COP26, especially for the ocean?
[12] UNFCCC. (2021). Glasgow Climate Pact.
[13] ibid.
[14] Pörtner, H.O., et al. (2021).

1) The protection of blue carbon ecosystems

Coastal and marine ecosystems, which include marine living organisms and natural habitats, are essential for people and nature. These ecosystems offer a wide range of vital services to local populations, from livelihoods to coastline protection. The ocean protects millions of people, including by nurturing marine life, detoxifying land-based pollutants and supplying food, while contributing to climate mitigation and adaptation. The ocean and marine ecosystems are key to mitigate climate change by sequestering and storing greenhouse gases (GHG) emissions.

Blue carbon ecosystems (i.e., mangroves, seagrasses and salt marshes) act as carbon sinks, absorbing approximately one-fourth of the total annual anthropogenic emissions of carbon dioxide[15]. Ocean-based mitigation solutions include avoiding the loss and degradation of blue carbon ecosystems, and restoring them. For instance, it is estimated that mangrove habitats alone store around 6.4 billion tons of carbon at a global scale[16]. Therefore, coastal blue carbon ecosystems play a crucial role to deter long-term climate-induced ocean change (i.e., ocean acidification, warming and deoxygenation), and their irreversible impacts.

In addition, blue carbon ecosystems also provide essential adaptation solutions to reduce and cope with the adverse effects of climate change[17]. These ecosystems often serve as the first line of defence in protecting low-lying communities from extreme weather events, coastal erosion and rising sea-levels. As such, they foster the resilience of communities and ecosystems, acting as buffers against climate change impacts. Including local communities in the effective planning and implementation of national strategies is crucial to ensure a just and equitable transition towards a world in which coastal blue carbon ecosystems can continue to provide key services.

These mitigation and adaptation opportunities can result in multiple co-benefits that will contribute to achieving the sustainable development goals. Adopting and scaling-up NbS to protect and restore blue carbon ecosystems, can therefore act as a multi-purpose solution and contribute to ambitious climate action. Leading countries, such as Chile, Costa Rica, Fiji and Seychelles, have started to include blue carbon ecosystems protection into national climate strategies in view of achieving the Paris Agreement[18].

Key messages:

➡ Considering needs and opportunities for increasing capacity for blue carbon implementation, inclusion of blue carbon in nationally determined contributions (NDCs) and REDD+ strategies and strengthening technical and financial support for blue carbon accounting and reporting;

➡ Investigating the role of blue carbon as carbon sinks and resulting benefits;

➡ Inviting the IPCC, through the mechanisms allowed by its Principles, to review the carbon sequestration capacity of all coastal ecosystems and the impact of other anthropogenic activities on them, as well as consider including their impact into a future revision of the 2013 Supplement to the 2009 IPCC Guidelines for Wetlands[19];

[15] United Nations. (2016). The First Global Integrated Marine Assessment. Section B. II.
[16] Sanderman, J., et al. (2018). A global map of mangrove forest soil carbon at 30 m spatial revolution. Environmental Research Letters, 13(5), pp. 1-12.
[17] Conservation International. (2021). Blue carbon. Integrating Ocean Ecosystems in Global Climate Action.
[18] 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, Wetlands International and WWF, pp. 1-72.
[19] Because the Ocean. (2021).

➡ Promoting actions to protect other coastal ecosystems such as kelp and eelgrass, which can improve water quality locally and provide refuge for marine species from acidified and other stressful conditions elsewhere.

2) The development of climate-smart fisheries and aquaculture

While marine life is at the core of food and economic security issues, fish stocks around the world have fallen considerably[20]. The consequences of overfishing, in addition to the effects of climate change, have major impacts on marine resources and their spatial distribution, thus, affecting entire ecosystems and the populations that rely on them[21].

Close to 3.3 billion people depend on aquatic resources for sustenance. Fish products account for almost 20% of the overall amount of animal protein consumed across the world and are a major issue as far as food security is concerned, especially in many developing countries[22]. The fishing sector is also crucial from an economic and social point of view. The Food and Agriculture Organisation (FAO) estimates that close to 39 million people were employed in the sector in 2018, while the total number of fishing boats of all sizes was close to 4.6 million[23].

Alerting on the future of oceanic species, the IPCC SROCC estimates that the warming of the world's ocean and changes to primary production in the latter part of the twentieth century have resulted in an overall reduction in the capacity of fish stocks to renew themselves by approximately 3% per decade[24]. Faced with rising sea temperatures, numerous mobile marine species are modifying their native range in search of oceanic environments to which they are acclimatised[25]. This spatial redistribution, generally in the direction of the poles and the deep sea, encourages the tropicalization of species assemblages, in other words, the shift of warm-water species to higher latitudes[26].

If we are to tackle the impacts fishing and climate change have on the ocean and its resources, fishing activities must be managed and controlled at international levels. Any fisheries management must be founded on scientific information so that catches can be tailored to what the ecosystems can sustainably produce. To do this, numerous tools for assessing fish stocks exist; however their application on a global scale is still far from systematic. Acknowledging the true value of the benefits provided by healthy ecosystems is indispensable to the emergence of a common and ambitious political resolve founded on sustainability. In addition to a reassessment of ecosystem benefits, the notion of the fishing sector's resilience must be central to any management strategy.

Additionally, the notion of marine ecosystem resilience is crucial in the context of climate change and should inspire all fisheries management policies. It involves restoring ecosystems to good health by preserving habitats and marine biodiversity in all its specific, genetic and functional components. This approach requires putting an end to legal and illegal overfishing permanently,

[20] FAO. (2020). The State of World Fisheries and Aquaculture 2020. Sustainability in action. Rome.

[21] Quesnay, Z., et al. (2020). Impacts of fishing and climate change on life below water: what challenges for the future?. Policy Brief, Ocean & Climate Platform, 8p.

[22] FAO. (2020).

[23] ibid.

[24] IPCC. (2019).

[25] ibid.

[26] Cury, P. (2019). Biodiversité marine exploitée et changement climatique. Ocean & Climate Platform.

promoting ecosystem-based fisheries management, and placing the Sustainable Development Goals (SDGs) at the heart of the sector's governance[27].

Small-scale fisheries (SSF) tend to be firmly rooted in local communities, traditions and values. Source of food and nutrition security, SSF provide fish for direct consumption, within households or communities. Small-scale fisheries offer multiple socio economic benefits, including livelihoods and employment — since it is now employing more than 90% of the world's capture fishers and fish workers[28]. In addition, SSF are increasingly squeezed by industrial fishing fleets, large-scale aquaculture, no-fishing zones in MPAs, coastal development, seascapes industrialisation or mineral extraction[29]. Overlooked and climate vulnerable, SSF and their communities must be empowered and participate in management decision-making at all levels[30].

Favouring SSF over large-scale fishing, which are responsible for major CO_2 emissions, could also contribute to achieving emission reduction goals. One of the least cost-effective methods of fishing, bottom trawling, not only gear contact with carbon-rich seabed habitat[31], but also burns fossil fuels to catch, transport and process seafood[32,33,34]. Total annual CO_2 emissions from fuel burnt by industrial vessels may be as high as 159 million tonnes[35]. Overall, food production is responsible for a quarter of anthropogenic GHG emissions globally, and this includes emissions from the global fishing industry (e.g. vessels, cold chain, packaging, retail)[36]. Meeting the Paris Agreement's goals will be impossible without the sector doing its part to tackle climate change.

Key messages:

➡ Transforming the global food system to decrease its carbon footprint, including by reducing CO_2 emissions from fishing vessels and their impacts on marine life;

➡ Assessing and promoting the role of aquatic food productions (i.e. fisheries and aquaculture) in building a more sustainable food system;

➡ Implementing and enforcing an ecosystem approach to fisheries which respects biodiversity and is socially and economically fair, in order to strengthen the resilience of marine ecosystems and fishing activities as they deal with the impacts of climate change;

➡ Encouraging a high standard of environmental exigency beyond that of the current management model of maximum sustainable yield (MSY);

➡ Intensifying efforts to eradicate illegal, unreported and unregulated fishing;

➡ Eliminating subsidies that contribute to legal and illegal overfishing;

➡ Safeguarding the customary sustainable use of Indigenous peoples and local communities on fishery resources and lands, while enhancing the contribution of small-scale fisheries to global food security and nutrition in line with the FAO Voluntary Guidelines for Securing Sustainable Small-Small Fisheries (2015).

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[27] Quesnay, Z., et al. (2020).
[28] FAO (2015). Voluntary Guidelines for Securing Sustainable Small-Small Fisheries..
[29] Cohen, P. J., et al. (2019). Securing a Just Space for Small-Scale Fisheries in the Blue Economy. Front. Mar. Sci., 6(171), pp. 1-8.
[30] DESA. (2022). Summary report. Global Online Stakeholder Consultation for the Concept Papers of Interactive Dialogues. United Nations Ocean Conference.
[31] Atwood, R. B., et al. (2020). Global Patterns in Marine Sediment Carbon Stocks. Front Mar. Sci. 7. 165.
[32] Hilborn, R. et al. (2018) The environmental cost of animal source foods. Frontiers in Ecology and the Environment 16, 329-337.
[33] Parker, R. W. et al. (2018). Fuel use and greenhouse gas emissions of world fisheries. Nature Climate Change, 8, pp. 333-337.
[34] Parker, R. W. et al. (2015). Fuel consumption of global fishing fleets: current understanding and knowledge gaps. Fish and Fisheries
[35] Greer, K. et al. (2019). Global trends in carbon dioxide (CO2) emissions from fuel combustion in marine fisheries from 1950 to 2016. Marine Policy 107, 103382.
[36] Parker, R. W. et al. (2018).

3) The implementation of Marine Protected Areas (MPAs)

Marine Protected Areas (MPAs) provide long-term protection of important marine and coastal ecosystems that offer a wide range of benefits, including natural solutions to climate impacts through mitigation, adaptation, and resilience, thus complementing critical efforts to reduce GHG emissions[37]. Healthy ecosystems mean healthy trophic webs, which are more resilient to climate change.

MPAs are an area-based management tool with biodiversity conservation as the primary objective. In addition to restoring fish abundance and biomass[38], they provide a wide range of other long-term ecological and socioeconomic benefits, such as habitat protection, export of eggs, larvae and adults in fishing grounds and increase in fishing yields[39]. As such, MPAs play a key role in rebuilding marine populations and habitats, which contribute to the resilience of both marine populations and coastal communities to climate change[40].

In addition, MPAs have the potential to act as effective coastal management measures and tools. In these protected areas, uses and activities can be even further limited and regulated to protect coastal and marine ecosystems. A restricted number of activities (e.g. small-scale fishing practices and ecotourism) may be authorised to enhance local livelihoods and sustainable development of coastal communities, while enabling healthy ecosystems for coastal resilience. Healthy ecosystems can act as natural buffers against climate impacts (i.e. extreme weather events, coastal erosion, sea level rise). For example, coral reefs reduce wave heights during coastal storms and tsunamis by reducing wave energy by an average of 97%[41].

Increasingly being advocated as coastal NbS for adaptation, MPAs can also protect carbon pools, either by enhancing carbon stocks of previously exploited ecosystems or by avoiding future emissions from healthy ecosystems[42,43]. As such, MPAs have the potential to contribute to carbon sequestration, which must be further explored and clarified for MPAs to be integrated as actionable mitigation measures in national and international climate policies.

In addition to increasing the surface area of MPAs (i.e. achieving the "30by30" objective), it is also crucial that MPAs reach a certain level of quality standards to avoid turning into "empty shells". What conservation really lacks is effectiveness, the ability to exercise good resource management, protection of threatened habitats and control of misuse.

The effectiveness of MPAs at delivering positive outcomes is mitigated by various drivers. MPAs' level of protection, management, age and size play key roles[44,45]. In particular, bigger and older[46,47]

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[37] Rankovic, A., et al. (2021). Protecting the ocean, mitigating climate change? State of the evidence and policy recommendations. Policy Brief, Ocean & Climate Platform, pp1-6.
[38] Lester, S. E., et al. (2009). Biological effects within no-take marine reserves: a global synthesis. Mar. Ecol. Prog. Ser., 384, pp. 33-46.
[39] Di Lorenzo, M. et al. (2020). Assessing spillover from marine protected areas and its drivers: A meta analytical approach. Fish and Fisheries, 21(5), pp. 906-915.
[40] Roberts, C. M., et al. (2017). Marine reserves can mitigate and promote adaptation to climate change. PNAS, 114(24), pp. 6167-6175.
[41] Ferrario, F. et al. (2014).
[42] Rankovic, A., et al. (2021).
[43] Jacquemont, J., and Claudet, J. (2021). Bringing clarity in how marine protected areas can operationally be used to tackle climate change mitigation and adaptation. In preparation.
[44] Edgar, G. J., et al. (2014). Global conservation outcomes depend on marine protected areas with five key features. Nature, 506, pp. 216-220.
[45] Claudet, J., et al. (2008). Marine reserves: size and age do matter. Ecology Letters, 11, pp.481-489.
[46] Edgar, G. J., et al. (2014).
[47] Claudet, J, et al. (2008).

and those being fully or highly protected[48,49] are the most effective. MPA effectiveness will also be affected by future ocean conditions. Climate-smart MPAs should be designed in ways to cope with future climatic conditions. This is achieved for example by choosing the MPA's location based on climate vulnerability criteria, or by creating networks of MPAs which account for future changes in the ocean's connectivity and migration corridors[50,51].

Implementing such designs requires increased funding, but also improved dialogue between the scientific community, policymakers and local stakeholders, including Indigenous and local knowledge holders. Additionally, MPAs serve as an invaluable source of information by providing a reference to how marine ecosystems react to climate change in the absence of human disturbance. By phasing out additional anthropogenic pressures, they can be used by the scientific community as "sentinels of climate change, laboratories to monitor the effects of climate change and areas where to develop new management tools"[52].

Key messages:

➡ Supporting the objective to conserve at least 30% globally of sea areas under national jurisdiction, especially areas with blue carbon ecosystems (including EBSAs, Ecologically or Biologically Significant Areas), through ecologically representative, well-connected, equitable and effective networks of protected areas — with at least a third of highly and/or fully protected areas — or other effective area-based conservation measures;

➡ Supporting research on sediments, and new or updated IPCC guidelines for including sediments and other marine carbon pools into national GHG accounting to help making MPAs more actionable in climate change mitigation and including them into NDCs;

➡ Better understanding and quantifying the mechanisms through which MPAs can protect carbon pools and enhance carbon sequestration, as well as the magnitude of these effects for MPAs to be integrated as actionable mitigation measures in policies;

➡ Supporting a direct quantification of the effect of MPAs on carbon sequestered in mangroves, seagrass and tidal marshes, as well as the better understanding of the variation of carbon stored in sediments according to depth, sediment type, oceanographic conditions and latitude, and the proportion of carbon from sediments which ends up released in the atmosphere when disturbed;

➡ Including MPAs with blue carbon ecosystems in mitigation chapters of updated NDCs, when sufficient data is gathered to prove additionality, and in a complementary fashion alongside other economy-wide emissions reduction in line with the Paris Agreement;

➡ Ensuring the recognition and protection of Indigenous Peoples', local communities' and traditional resource users' title, tenure, access, and resource rights to the ocean, and prioritising locally-led or collaborative governance and management systems, to make sure the implementation of MPAs is equitable and effective.

[48] Zupan, M., et al. (2018). Marine partially protected areas: drivers of ecological effectiveness. Front. Ecol. Environ, 16(7), pp. 381-387.
[49] Horta e Costa, B., et al. (2016). A regulation-based classification system for Marine Protected Areas (MPAs). Marine Policy, 72, pp. 192-198.
[50] Wilson, K. L., et al. (2020). Incorporating climate change adaptation into marine protected area planning. Global Change Biology, 26(6), pp. 3251-3267.
[51] McLeod, E., et al. (2009). Designing marine protected area networks to address the impacts of climate change. Frontiers in Ecology and the Environment, 7(7), pp. 362-370.
[52] Ocean & Climate Platform. (2019). High-Level Scientific Conference: From COP21 towards the United Nations Decade of Ocean Science for Sustainable Development (2021-2030). Conference Report. Paris, France.

4) Coastal adaptation: Effectively adapting coastal cities and territories to sea level rise

As a direct consequence of global warming, sea level rise has accelerated over the 20th century and "the likely global mean sea level rise by 2100 is 1.01 m under the very high GHG emissions scenario"[53]. This phenomenon is irreversible and is expected to continue over the coming centuries and millennia. However, its speed and the associated risks of erosion and submersion, loss of coastal habitats and ecosystems, and land salinisation will be considerably slowed down as warming levels are kept below 1.5°C.

The coastlines and their populations are all the more vulnerable given the rapidity of this change and ongoing urban developments. Indeed, coastal areas are dynamic territories that are drawing more and more people and activities. According to the IPCC AR6[54], sea level rise could directly affect more than one billion people by 2050, and be between 7 to 14 trillion dollars worth of coastal infrastructure by 2100. For some Arctic communities and small island states, their very existence is at stake.

Nonetheless, the consequences are not merely local. The potential for cumulative and cascading effects on a global scale is high. For example, as goods and services supply is heavily dependent on global shipping, the entire chain could be seriously disrupted by potential damage to port infrastructure[55].

In light of this, transformative and urgent adaptation strategies are needed to prevent maladaptation, understood as actions that could exacerbate exposure and vulnerability. Until now, the predominant approach has been to build dikes and barriers in reaction to extreme events. However, these measures tend to reinforce the vulnerability of people and ecosystems by creating sediment imbalances, damaging coastal ecosystems and failing to discourage communities from settling in exposed areas. Indeed, many coral reefs, mangroves and seagrass beds have suffered significant damage and could be depleted. In the long term, their loss could weaken the natural defences of the coastline and further expose human societies[56].

The difficulty lies in designing adaptation strategies in a context of uncertainty about the extent and rate of sea level rise, and in the light of the great diversity of local physical and socio-economic environments. In this regard, the IPCC emphasises the relevance of sequencing and mixing adaptation responses using "adaptation pathways"[57]. In other words, planning a portfolio of interventions that can be adjusted in response to climatic and non-climatic drivers and according to economic, environmental, socio-cultural, institutional or technical objectives. These interventions can be both protection (i.e., dikes, re-silting, mangrove restoration), accommodation (raised infrastructure, early warning, draining systems), advancing (land reclamation) or managed retreat (e.g., relocation of activities and housing inland), and can be combined and altered over time and space.

With the impacts of climate change already visible and expected to intensify with every additional degree, this second report of the IPCC's AR6 underscores the urgency to find sustainable adaptation solutions that are "effective, feasible, […] conform to principles of justice" and capable to reduce risks for both societies and ecosystems[58]. Since the Fifth Assessment Report, there has

[53] IPCC. (2021). Sixth Assessment Report. The Physical Science Basis. Working Group I. Summary for Policymakers.
[54] IPCC. (2022). Sixth Assessment Report. Impacts, Adaptation and Vulnerabilities. Working Group II. Summary for Policymakers.
[55] Because the Ocean. (2019).
[56] ibid.
[57] ibid.
[58] IPCC. (2022). Sixth Assessment Report. Impacts, Adaptation and Vulnerabilities. Working Group II. Full Report.

been growing evidence of adaptation in all sectors and across the world, with 170 countries currently incorporating adaptation into their climate policies. Yet, the IPCC warns that a considerable gap remains between the current means of adaptation and those that will be needed in the future. While adaptation policies are often deployed in reaction to extreme events and incrementally, such policies will reach technical, institutional and socio-economic limits.

According to the IPCC, a genuine paradigm shift is needed towards "transformational changes, backed by ambitious mitigation"[59]. The range of solutions is substantial and can combine resilience-building strategies with management measures of inevitable changes. In this respect, developing ecosystem-based adaptation can deliver significant co-benefits. In addition to acting as buffers to protect coastlines from storm surges and flooding, coastal ecosystems provide valuable habitats for a variety of species and can contribute to carbon sequestration.

These transformative and urgent changes call for new governance frameworks and additional resources. Reforming decision-making towards greater transparency and inclusion of people, while considering vulnerable ecosystems, is essential for the development of adequate and equitable strategies. Meanwhile, strengthening research and improving scientific knowledge and its diffusion are necessary conditions for raising awareness and informing decision-makers and citizens. It is also crucial to strengthen the access to financial resources, notably by involving the private sector and building local economic capacities. In this respect, the IPCC calls for the enhancement of "partnerships between science and decision-makers, but also with the most vulnerable communities", particularly Indigenous peoples, to "integrate at every step [...] those who suffer the most from the consequences of climate change and maladaptation"[60].

Key messages[61,62]:

➡ Closing knowledge gaps to implement tailored and informed adaptation strategies to tackle sea level rise, including through systemic and localised evaluations, and systematic and innovative feasibility assessments, supported by frameworks and guidelines for monitoring and reporting;
➡ Strengthening the financial and governance frameworks to facilitate dynamic and hybrid adaptation models, adjusting the scientific, human, financial, institutional and socio-cultural capabilities of cities;
➡ Increasing public funding and private investments for adaptation to sea level rise;
➡ Using rigorous and concerted marine spatial planning (MSP), including public participation as a legal requirement for environmental projects in line with the Aarhus Convention, to make both marine and human communities more resilient;
➡ Improving the engagement of stakeholders throughout the entire adaptation process (i.e. from risk and vulnerability assessment, planning and implementation to monitoring) to shape resilient coastal cities, including by:

- *identifying and representing all the relevant actors through time (transgenerational) and space (coastal areas and hinterland) with special care on the most vulnerable and traditionally under-represented communities (e.g. Indigenous peoples)*
- *informing decisions with accessible knowledge and using innovative communication*

[59] Ibid.
Ocean & Climate Platform. (2021). IPCC Report: urgent adaptation needed to address rising impacts of climate change on the ocean and populations.
[60] ibid.
[61] Palazot, S., Bongarts, T. & Deprez, A. (2021). Adapting Coastal Cities And Territories To Sea Level Rise. Policy brief, Ocean & Climate Platform.
[62] The Sea'Ties Declaration. (2022). The Mayors and Governors' Forum Cities and their Territories Tackling Sea Level Rise. *One Ocean Summit, Brest, France.*

- *supporting early, often and long-term mobilisation by notably creating new opportunities from adaptation responses and enhancing local capacities.*

5) The deployment of Marine Renewable Energy

Marine Renewable Energy (MRE) have the potential to support the transition to low-carbon economies. Unlike fossil fuels, converting marine energy does not result in CO_2 emissions and does not generate toxic waste[63]. Therefore, and as stated by the IPCC in Paragraph C2.5 of the SROCC, MRE can support climate change mitigation[64]. Policies aiming at promoting the implementation of MRE are thus promising mitigation measures, which can act as a lever to reduce dependence on fossil fuel consumption, especially for coastal and island communities[65].

The ocean provides many sources of alternative energy, ranging from offshore wind turbines to wave energy[66], which are expected to generate economic opportunities[67]. If technologies such as ocean currents energy, ocean thermal energy conversion and the salinity gradient are still at their infancy, they have a significant potential which should be investigated[68].

However, the need to decarbonize economies and societies must not be at the expense of marine biodiversity, and the ecosystem services it provides to human communities. Controversial, these technologies risk jeopardising the integrity and connectivity of coastal and marine ecosystems. The development of blue energy must therefore be mindful of the environment, reconciling uses of coastlines and protecting seascapes and marine species.

In that regard, a better understanding of these ecosystems, and how they are impacted by climate change and human activities, is essential to develop MRE that are respectful of the environment. In addition to the improvement of scientific knowledge, supported by innovation, technology transfer and knowledge sharing, the precautionary principle must guide the implementation of MRE to limit its impacts on local biodiversity.

Moreover, the planning of MRE must be concerted, and requires mobilising different users of the coastlines (e.g. fishermen, local associations, residents). With the objective of social acceptability and reconciliation of uses, it is indeed essential to develop an integrated approach that involves all stakeholders throughout the planning process[69]. The development of MRE must be done with the ambition to democratise the issues of energy transition and encourage citizen participation by improving the transparency and clarity of the consultation.

Key messages[70]:

➡ Ensuring that the impacts of MREs on physical and biological systems are fully understood, and that strong precautionary measures are adopted to prevent environmental harm, thereby securing adequate ocean protection;

[63] BPI France. (2021). Energies renouvelables : plongée dans l'énergie bleue.
[64] IPCC. (2019).
[65] Because The Ocean. (2019).
[66] ibid.
[67] IPCC. (2019).
[68] Because The Ocean. (2019).
[69] Virtanen, E. A., et al. (2022). Balancing profitably of energy production, societal impacts and biodiversity in offshore wind farm design. Renewable and Sustainable Energy Reviews, 158, pp. 112087.
[70] Surfrider Foundation Europe. (2020). Views on the EU Strategy for Offshore renewable energy.

➡ Prioritising floating systems, since they are less harmful for marine life than fixed installations, as well as recyclable materials;
➡ Consider and address questions of end-of-life and obsolescence, especially since they are more rapid in marine installations than in terrestrial ones;
➡ Ensuring that opportunities for smart use (i.e. co-benefits of biodiversity and productivity) of seas around MREs are carefully considered, and that the development of MREs is coherent with the overall Maritime Spatial Plans for a considered territory;
➡ Developing a detailed plan to reduce energy consumption when deploying new MRE installations, allowing the territory to reduce its carbon footprint;
➡ Adopting an integrated approach that involves all stakeholders throughout the planning process, integrating the different users of the coastlines in the decision making;
➡ Decentralising MRE production and encouraging the emergence of citizens' and/or local authorities' cooperative, thereby enhancing citizens' empowerment and cohesion among local communities.

6) The decarbonisation of the shipping and navigation sector

Maritime transport and services are at the heart of our economic system: today, 90% of goods transit by sea, allowing access for the greatest number of people[71]. The sector, regulated by the International Maritime Organisation (IMO), currently accounts for more than 94,000 maritime transport and service vessels[72]. According to the 4th IMO report on GHGs, the sector is estimated to be responsible for 2.89% of emissions worldwide, which represents approximately 1 100 to 1 200 MtCO2 per year[73]. While the sector is growing rapidly, with greater and faster global trade, GHG emissions are also increasing: at this rate, GHG emissions from shipping could increase by 90-130% by 2050 compared to 2008 levels[74].

As such, decarbonisation of the maritime sector is a real challenge in the fight against climate change and although some solutions exist today, no breakthrough-solution available on a large scale is currently able to respond to the diversity of the sector[75]. Research and innovation remain crucial in order to be able to envisage decarbonisation for the entire maritime sector. The climate emergency does not allow the energy transition of the maritime sector to be postponed, and the solutions, like the players involved, will necessarily be multiple and inter-sectoral. In this respect, hybridisation may prove to be an effective alternative.

All the players in the maritime sector must be involved in the transition effort to overcome the decarbonisation challenge. They are all necessary: industrialists (for research and development), players in the logistics chain (charterers, shippers, etc.), ports which provide equipment, and the world of NGOs whose federating role makes it possible to initiate discussions and bring them to the political level. Although technological levers are crucial, political ambitions must also support and accelerate the low-carbon transition of the maritime sector.
In addition, shipping is an activity responsible for a range of different pressures affecting the marine environment[76], including underwater noise, ship strikes, oil spills and the introduction of invasive

[71] Because The Ocean. (2019).
[72] United Nations Conference on Trade and Development. (2019). Review of Maritime Transport.
[73] International Maritime Organisation. (2020). Fourth IMO GHG Study. Executive Summary.
[74] Ibid.
[75] OCEAN ET CLIMAT. (2020). Transformer l'économie maritime : Comment poursuivre une décarbonation du transport maritime post-Covid 19 ? Policy Brief, Plateforme Océan & Climat.
[76] Ytreberg, E., Aström, S., Fridell, E. (2021). Valuating environmental impacts from ship emissions - the marine perspective. Journal of Environment Management, 282, pp.11958.

species. Millions of marine species live in the ocean, and are endangered by shipping activities. In that regard, climate emission reduction strategies and biodiversity conservation objectives can go hand in hand. For instance, a 2019 study concluded that a modest 10% speed reduction could reduce the overall ship strike risk by around 50%, thereby complementing current efforts to reduce collision risk through small changes in routing[77].

Key messages[78]:

➡ Prioritising and encouraging operational measures, such as speed optimisation and optimised port manoeuvres, that limit atmospheric GHG emissions;

➡ Reflecting on the impacts of the introduction of technologies and the use of alternative fuels such as hydrogen, bio-based fuels or fuels produced using renewable energies, use of exhaust gas cleaning systems, dual-fuel propulsion (battery and diesel), ship-to-shore power, wind or wind-assisted propulsion, etc;

➡ Encouraging nations to include measures relating to energy efficiency of vessels and energy transition in ports into their NDCs;

➡ Promoting a clean, safe, intelligent and energy-efficient ship of the future, with the ambition of building eco-responsible ships, to reduce the environmental footprint from ship construction to dismantling, as well as during ship operation;

➡ Encouraging the implementation of international standards for the regulation of ocean noise, and supporting research to effectively reduce underwater noise from ships;

➡ Making waters safer for marine mammals, particularly cetaceans, and stopping vessel strikes by equipping ships operating with collision avoidance devices to access real-time information about cetaceans and ensure they are taking a safe route.

7) Additional topics to explore

In addition to drastically reducing GHG emissions, building a sustainable future will require putting an end to overexploitation of natural resources. Eliminating overexploitation means ensuring the sustainable use of living resources to maintain biologically-safe limits and ecosystem function, as well as of non-living resources (e.g., sand, minerals) to avoid irreversible ecological damages[79]. Eliminating overexploitation, including of marine resources, is a well-suited solution to locally reduce risks to ecosystems and ecosystem services[80]. In addition to overfishing, the major cause of marine biodiversity decline[81], overexploitation of marine and coastal resources also include offshore drilling activities, most notably oil and gas extraction and sea-bed mining.

→ *Deep-sea mining:*

Deep-sea ecosystems are already facing multiple environmental stressors from pollutants, plastics and climate change-related impacts[82,83]. Despite widespread concerns from the scientific

[77] Leaper, R. (2019). The Role of Slower Vessel Speeds in Reducing Greenhouse Gas Emissions, Underwater Noise and Collision Risk to Whales. Front. Mar. Sci., 6, pp. 505.
[78] OCEAN & CLIMAT. (2020).
[79] Magnan, A. K., et al. (2018). Ocean-based measures for climate action. IDDRI, Policy Brief N°06/18.
[80] ibid.
[81] IPBES (2019).
[82] Song, X., et al. (2021). Large plastic debris dumps: New biodiversity hot spots emerging on the deep-sea floor. Environmental Science & Technology Letters, 8(2), pp.148-154.
[83] Morato, T., et al. (2020). Climate-induced changes in the suitable habitat of cold-water corals and commercially important deep-sea fishes in the North Atlantic. Global Change Biology, 26(4), pp. 2181-2202.

community, the industry is lobbying hard for commercial mining, and there is a real possibility that the deep ocean could be opened to mining as early as mid-2023.

There is a growing concern about the impacts that deep-sea mining would have if it were to be undertaken at a commercial scale (e.g. destruction of species, ecosystems and habitats, sediment disruption, wastewater, noise and light pollution)[84]. Largest biome on Earth, many scientific experts consider that deep-sea mining may cause significant environmental and ecological impacts, with biodiversity loss being inevitable and likely irreversible[85].

Scientists also warn that deep-sea mining could risk disturbing some of the largest carbon sinks on the planet, impacting carbon sequestration dynamics and deep-ocean carbon storage[86]. Making up 90% of the marine environment, the deep-sea plays a vital role in regulating our planetary systems[87]. Studies have shown that even after small-scale experimental deep-sea mining events, carbon cycling in the deep has not recovered after 26 years[88,89,90].

Key messages:

➡ Supporting commitment and investment in identifying alternative approaches to providing for societies' needs, in particular in transitioning to a decarbonized future;

➡ Assessing the significant environmental and economic risks deep-sea mining poses, including the impacts of noise, light pollution, and probable hydraulic leakage from mechanical ore hoists on deep-sea ecosystems;

➡ Supporting increased transparency in the field of deep sea mining, promoting easier access to relevant data and information for all interested stakeholders;

➡ Reflecting on the possibility of a moratorium on deep-sea mining, including the adoption of regulations for exploitation, the issuing of exploitation and new exploration contracts, in line with the work of the International Seabed Authority;

➡ Ending incentives for and investments in deep-sea mining and metals.

→ Oil and gas extractive activities:

In 2018, 89% of global CO_2 emissions came from fossil fuels and industry[91]. As such, achieving net-zero emissions will inevitably require a huge decline in the use of fossil fuels[92]. Yet, offshore oil and gas exploration and production activities have considerably grown over the last few decades[93]. In 2015, offshore production represented one-third of the global crude oil output and one-fourth of global gas production[94] - a major role in the world's energy supply.

The construction of roads, pipelines, and buildings due to extractive activities could all negatively affect habitats, migratory pathways, and biodiversity (e.g. chemical pollution, seismic noise, disturbance in food webs, habitat destruction). In addition, these activities go hand in hand with

[84] ibid.
[85] Deep Sea Conservation Coalition. (2022). Deep-sea mining: the science and potential impacts. Factsheet 2.
[86] ibid.
[87] ibid.
[88] De Jonge, D.S.W., Stratmann, T., et al. (2020). Abyssal food-web model indicates faunal carbon flow recovery and impaired microbial loop 26 years after a sediment disturbance experiment. Progress in Oceanography, pp. 1-24.
[89] Simon-Lledó, E., et al. (2019). Biological effects 26 years after simulated deep-sea mining. Scientific reports, 9(1), pp.1-13.
[90] Jones, D.O.B., Amon, D.J. and Chapman, A.S.A. (2018). Mining Deep-Ocean Mineral Deposits: What are the Ecological Risks?. Elements, 14, pp. 325-330.
[91] ClientEarth. (2022). Fossil fuels and climate change: the facts. ClientEarth Communications.
[92] IAE. (2021). Net Zero by 2050: A Roadmap for the Global Energy Sector, pp. 1-223.
[93] Chabason, L., et al. (2018). Why vulnerable marine areas must be protected from oil and gas activities. Blog post. IDDRI.
[94] McGlade, C. and Ekins, P. (2015). The geographical distribution of fossil fuels unused when limiting global warming to 2 °C. Nature, 517, pp. 187-190.

increased shipping in sensitive areas[95], meaning more noise pollution, potential for collisions with marine mammals and a greater possibility of oil or fuel spills[96].

Despite their protected status and conservation objectives, offshore drilling is still currently permitted in a great number of MPAs. Likewise, and in spite of its increased vulnerability, it is also allowed in Arctic waters[97]. With ice melting accelerating and ice-free summer ocean extending[98], open waters will make offshore oil and gas drilling easier and companies are eyeing the Arctic. In the expectation of an offshore exploitation prohibition, such activities could be prevented in most vulnerable areas, and EBSAs could be used as a useful tool to identify what areas to protect.

Key messages:

➡ Establishing a scientifically-based planning for offshore oil and gas exploitation to preserve and protect most vulnerable ecosystems, ceasing exploitation by 2050;

➡ Phasing out offshore oil and gas exploration and production activities, including by reducing overall energy production and consumption;

➡ Ending fossil fuel subsidies and other form of incentives immediately;

➡ Developing marine renewable energy, while ensuring ecosystem preservation and limiting the impacts of these technologies (e.g. underwater noise, oil spills).

→ *Geoengineering strategies:*

The so-called geoengineering strategies also raise many questions, as to their environmental risks, and the scientific community is still divided on these risks[99]. Also subject to ethical and political debates, limits need to be defined[100]. Conducting environmental impact assessments of these planned or undertaken strategies within the ocean will be key to avoid any harmful change to the marine environment. In the meantime, the precautionary principle must guide political decision-makers in order to protect the environment, security and public health[101].

Key messages:

➡ Adopting the precautionary principle with geoengineering strategies to mitigate environmental risks and protect human health;

➡ Conducting systematic environmental impact assessments of geoengineering planned or undertaken strategies, considering impacts on the marine environment;

➡ Reflecting on the ethical and regulatory framework for the implementation of geoengineering strategies in order to anticipate and limit their resulting impacts;

➡ Reflecting on the fair and equitable sharing of knowledge, technology and cooperation related to geoengineering between developed and developing countries.

[95] WWF. (2022). Oil and Gas Development.
[96] Cordes, E., et al. (2016). Environmental Impacts of the Deep-Water Oil and Gas Industry: A Review to Guide Management Strategies. Frontiers in Environmental Science, 4(58), pp. 1-26.
[97] ibid.
[98] Jansen, E. et al. (2020). Past perspectives on the present era of abrupt Arctic climate change. Nature Climate Change 10.
[99] Bowler, M., et al. (2021). Géo-ingénierie de l'océan: nouvelle frontière des débats scientifiques, politiques et éthiques dans la lutte contre le changement climatique. Plateforme Océan & Climat.
[100] ibid.
[101] IISD. (2020). The Precautionary Principle. Brief, pp. 1-8.

4. General considerations: key enablers for ocean-based action

The Glasgow Climate Pact recently reaffirmed in Section 4 "the long-term global goal to hold the increase in the global average temperature" and recognised that "limiting global warming to 1.5°C requires rapid deep and sustained reductions in global greenhouse gas emissions"[102]. Limiting GHG emissions remains the utmost priority to mitigate ocean changes and related climate change-induced impacts such as sea level rise and destruction of sensitive ecosystems[103]. Emission reductions are essential to stop the decline in ocean health, and maintain its climate functions. The dialogue should therefore emphasise the urgency of reducing GHG emissions to limit the scale of climate change impacts on the ocean and the services it provides.

➡ To achieve this objective, the Ocean & Climate Platform has identified 3 key enablers:

- Science:

  ➡ The Dialogue must be guided and built on the latest scientific available knowledge, particularly the SROCC and AR6, as well as traditional and local knowledge.
  ➡ In line with the UN Decade of Ocean Science, the Dialogue should emphasise the role of science, and the importance of enhancing observation and research to address knowledge gaps and support the design and implementation of solutions.

- Justice and equity:

  ➡ The Dialogue should address climate justice issues (e.g. disparities in the repartition of financial resources, transfer of technologies, knowledge gaps), while supporting the empowerment of local communities to drive the ocean-climate-biodiversity agenda.
  ➡ The Dialogue should take adequate considerations to ensure recognition and protection of Indigenous Peoples', local communities' and traditional resource users' title, tenure, access and resource rights to the ocean.
  ➡ The Dialogue should provide an opportunity to share the experiences and lessons learned from coastal communities to better understand the climate impacts felt daily and demonstrate their important stewardship and knowledge of natural resources.

- Finance:

  ➡ The Dialogue should emphasise the need to end all harmful subsidies, as well as other forms of harmful incentives, to successfully stop exhausting natural resources and degrading global ecosystems[104].
  ➡ The Dialogue should explore options to further increase public funding and private investment for ocean-based climate action, including by enhancing the role of the private sector and developing innovative tools, approaches and partnerships.
  ➡ The Dialogue should consider opportunities to improve the effectiveness of existing mechanisms in prioritising access to finance for most vulnerable communities, including Small Island Developing States and coastal Least Developed Countries.

[102] UNFCCC. (2021). Glasgow Climate Pact.
[103] OCEAN AND CLIMATE. (2019).
[104] Koplow, D., & Steenblik, R. (2022). Protecting Nature by Reforming Environmentally Harmful Subsidies. The Role of Business. Earth Track.

Logistics and Technical Recommendations

The Ocean & Climate Platform suggests to organise the dialogue around thematic-focused sessions (e.g., coastal and marine Nature-based Solutions, sustainable blue economy, finance for ocean-climate action), during which Parties, expert organisations, and representatives of existing UNFCCC mechanisms can discuss how to reinforce ocean-based climate strategies.

➡ Topics should be addressed in breakout groups as discussion subjects, with reporting back in plenary. A facilitator and rapporteur in each group could refer to a pre-established list of guiding questions in order to assist with guiding the discussion and reporting outcomes after the dialogue. To be more effective, the dialogue should give priority to discussions and exchanges, rather than presentations and statements.

➡ Discussions should be based on the latest available science, including from the IPCC and IPBES. As such, it would be interesting to explore options and recommendations for ocean-based mitigation and adaptation from the IPCC's AR6.

➡ Within each thematic-focused session, considerations should include how the ocean can be further included in UNFCCC processes, and in climate strategies to achieve the goals of the Paris Agreement. In that regard, leads of the different processes (e.g. Standing Committee on Finance, Nairobi Work Programme, Warsaw Mechanism) could give short presentations/statements on the opportunities they see for including the ocean within their process, and how/if the wider ocean and climate community could help to realise these.

➡ The Dialogue should be structured to generate clear outputs, including an informal report drafted by the SBSTA Chair to summarise the key discussion points and recommendations made during the dialogue. This informal report should be presented either during a ministerial segment or a plenary session at COP27, and its conclusions should be considered and addressed in the final decision of COP27. The objective is to clearly highlight next steps for ocean-climate action under all relevant UNFCCC mechanisms, bodies and processes.

➡ The conclusions of the informal report should indeed feed into other UNFCCC mechanisms and processes, such as the Global Stocktake (GST) and updating NDCs, to enhance efficiency and accelerate concrete actions. This informal report could also support the development of a roadmap of concrete actions for Parties to strengthen ocean-based climate strategies under the UNFCCC.

➡ This informal report can be used as a useful tool to follow-up on the key discussion points and recommendations made by each Dialogue, from one year to the other in order to ensure consistency and continuity. In addition, an evaluation could be conducted at the end of each Dialogue to take stock of advances and remaining gaps. Given the recurrence of the dialogue, it will be key moving forward to highlight opportunities for action.

➡ With the aim of making its outcomes available and accessible to the general public, the UNFCCC Secretariat could draft a short non-technical article summarising the key messages and conclusions of the Dialogues, and publish it on its new 'Ocean' webpage.

5. Strengthening the Ocean-Climate Action under UNFCCC

At the heart of the climate system, the ocean needs to be better considered and integrated under the UNFCCC. There are numerous areas within UNFCCC processes, bodies and negotiations where Parties can further reflect ocean issues[105]. The upcoming Ocean and Climate Change Dialogue will provide an opportunity to collectively reflect on how to shift from problem to action, delivering concrete actions to set the ocean on a path to recovery.

➡ In that regard, the Ocean & Climate Platform wishes to highlight most relevant UNFCCC processes for ocean integration in climate action, policy and finance:

- *National climate strategies: Nationally Determined Contributions and National Adaptation Plans (NAPs)[106]*

  ➡ Further integrating ocean-based climate solutions for mitigation and adaptation in NDCs and NAPs, including coastal and marine Nature-based Solutions — in line with biodiversity strategies (i.e. National Biodiversity Strategies and Action Plans "NBSAPs");
  ➡ Encouraging countries to submit a national adaptation communication as part of their NDCs to maximise the co-benefits resulting from mitigation and adaptation measures;
  ➡ Supporting future guidance on the formulation of NAPs to encourage the inclusion of coastal and marine ecosystems as part of national adaptation goals.

- *The Paris Agreement's ambition mechanism: the Global Stocktake [107,108]*

  ➡ Sharing knowledge on the role of the ocean in the GST in the context of its information and collection, identifying and highlighting additional capacity needs;
  ➡ Reflecting on the importance of the ocean-climate-biodiversity nexus for climate mitigation and adaptation, risk information and finance mobilisation ahead of the GST technical assessment phase;
  ➡ Supporting the development of guiding questions relevant to the ocean and marine ecosystems to be adopted as part of the GST process, and for the continued inclusion of coastal and marine Nature-based Solutions in the NDC 5-year increased ambition cycle in accordance with SBSTA agenda item 9.

- *National GHG inventories and other UNFCCC accounting mechanisms*

  ➡ Encouraging countries to utilise the 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands, to account for GHG emissions and removals from their coastal wetlands, in particular blue carbon ecosystems;
  ➡ Discussing and reflecting on the opportunities and challenges coming from the integration of Article 6 on market and non-market approaches[109];

[105]Conservation International. (2021). Building on the Ocean-Climate Dialogue. Options for strengthening action on the ocean under the UNFCCC. Blue Carbon Initiative, Conservation International, Environmental Defence Fund, IUCN, Ocean & Climate Platform, Ocean Conservancy, Ocean Kind, Ocean Unite, Rare, The Nature Conservancy, Wetlands International, WWF.
[106]Lecerf, M., et al. (2021).
[107]Schindler Murray, L., Romero, V., and Herr, D. (2021). Unpacking the UNFCCC Global Stocktake for Ocean-Climate Action. IUCN, Rare, Conservation International, WWF, and Ocean & Climate Platform, p.1-24.
[108]Conservation International. (2021).
[109]The Nature Conservancy. (2021). ARTICLE 6. Q&A on what was decided and next steps after COP26.

➡ Considering the development of a new tool and guidance for measuring the impact and benefits of ocean-based climate action, similar to the LULUCF, for maritime activities which would include counting CO_2 emissions from fishing and shipping vessels.

- *Non-state actor mobilisation: the MP-GCA Ocean*

➡ Supporting increased collaboration amongst national governments and non-state actors, including private sector representatives, to achieve transformative change;
➡ Encouraging the broadening of the participation in the MP-GCA Ocean of non-Party stakeholders from all sectors and regions to increase diversity among participants.

➡ In addition, the Ocean & Climate Platform aligns with the views and suggestions expressed in the Joint Submission to the 2022 UNFCCC Ocean and Climate Change Dialogue, submitted by Conservation International on behalf of IUCN, Rare, The Nature Conservancy, WWF, Ocean Conservancy, Ocean & Climate Platform and the Marine Conservation Society.

Conclusion: Enhancing synergies between the UNFCCC and relevant processes, bodies and fora

Achieving emission reduction targets is the utmost priority but it cannot be done to the detriment of marine species and ecosystems. Climate and biodiversity strategies must go hand in hand, with biodiversity-positive climate action and climate-smart biodiversity action[110]. The dialogue should consider the importance of Nature in the fight against climate change, taking into account the integrity, protection and resilience of marine and coastal ecosystems.

Given their cross-cutting nature, coastal and marine Nature-based Solutions have the ability to provide significant co-benefits for the climate, nature and people[111,112]. They can address multiple goals with a single policy measure to maximise synergies and limit trade-offs. The dialogue could also reflect on opportunities to accelerate and scale-up the implementation of coastal and marine NbS, building bridges with the Convention on Biological Diversity (CBD).

Despite great compatibility and strong potential for complementarity from the outset, cooperation mechanisms between the UNFCCC and its sister convention, the CBD, remain fairly weak and insufficient[113]. There is still no common vision or long-term strategy between the climate and biodiversity regimes. However, a movement has emerged over the last couple of years to bridge these gaps and overcome this lingering tendency to work in silos.

Notwithstanding those positive signals, serious challenges remain. Building synergies among the climate and biodiversity regimes will be a decisive move towards effective and holistic environmental governance, and the ocean, at the heart of the life-supporting system, clearly has a

[110] Ocean & Climate Platform. (2022). Integrating further the ocean-climate-biodiversity nexus into the Post-2020 Global Biodiversity Framework. Ocean & Climate Platform, CNRS, OPRI, 8p.
[111] Narayan, S., et al. (2016). The Effectiveness, Costs and Coastal Protection Benefits of Natural and Nature-Based Defences. PLoS ONE 11(5): e0154735.
[112] Seddon. N, et al. (2020). Understanding the value and limits of nature-based solutions to climate change and other global challenges. Philosophical Transactions of the Royal Society B, 375(1794), pp. 20190120.
[113] Picourt, L., et al. (2021). Swimming the talk: How to strengthen collaboration and synergies between the Climate and Biodiversity Conventions?. Policy Brief, Ocean & Climate Platform, p.1-14.

key role to play in this reconciliation.[114] Currently under negotiation, the Post-2020 Global Biodiversity Framework, which is intended as a framework for all, could help further integrate the ocean-climate-biodiversity nexus, including through the setting up of its indicators[115].

Transformational change is necessary to address the decline in ocean health, biodiversity loss and climate change, and requires action across all relevant UN bodies (e.g. IMO, the International Seabed Authority, Regional Fisheries Management Organisations, Ramsar Convention on Wetlands). The Dialogue should consider how to increase cooperation between the UNFCCC and relevant Conventions and bodies, reflecting on ways to move from information sharing to effective coordinated action. In line with the "collect one use many times" approach, the Dialogue should also seek synergies by bringing together the different reporting exercises, thus limiting the burden of reporting. The Dialogue should emphasise the importance of this integrated approach to achieve not only SDG14 but also the other goals of the 2030 Agenda.

[114] ibid.
[115] Ocean & Climate Platform. (2022).