CLIMATE ACTION PATHWAY

Ocean and Coastal Zones

Executive Summary

2020

Global Climate Action
United Nations Climate Change

Marrakech Partnership

VISION STATEMENT

The ocean and its coastal zones are regulating our climate – but for how long can this be sustained?

The ocean covers 71% of the earth's surface. However, being vast does not mean being resilient to stress. The ocean, its many organisms, habitats, ecosystems, resources and the key services it provides are under heightened pressure from multiple threats. First on the list are climate-change impacts, which are exacerbated by other human-induced stressors such as pollution, eutrophication, and over-exploitation of marine resources. With regard to climate change, the ocean is both a victim and part of the solution – making its role in the climate debate often a confusing and even neglected one.

Ocean warming, acidification as well as deoxygenation are some of the key climate change impacts that can be witnessed on a global as well as local scale. Coastal communities are already bearing the consequences of rising sea-level and eroding coasts, including from increased and more severe extreme weather events. The growing scientific understanding from ocean research, observations and modeling needs to play a central role in the formulation of global emission reduction targets.

Human interactions with the ocean, as well as coastal and marine ecosystems in particular, can form part of the solution to deploy an efficient science-to-policy approach. What is well known from land – the use of sustainable land and agricultural management – also applies to coastal areas. What they lose in global extent, coastal ecosystems gain in terms of efficiency as carbon sinks. Integrated coastal management in form of enhanced protection and restoration thus can actively contribute to climate mitigation efforts, and at the same time be the backbone for coastal adaptation actions. From sustainable fisheries to coastal protection, investing in coastal and marine conservation makes sense from a climate, biodiversity and sustainable development perspective.

On top of these so-called nature-based solutions, further climate solutions arising from and in the ocean include renewable energy as well as more sustainable shipping. Offshore renewables, as well as tidal wave energy, hold significant potential, but knowledge is limited and more science is required to explore potential economic opportunities and avoid negative environmental impacts. The challenge here will be to bring this potential in line with other global goals, such as on biodiversity conservation for example. Decisions need to be made on integrated and holistic spatial planning processes, including the set of stakeholders from policy, civil society and business.

Low-carbon transport will remain key to keep the world connected. Shipping will thus continue to be the main means of transporting goods. Transformative efforts and increased investment into

innovation and technology need to be made to bring down to a minimum the carbon footprint of the shipping industry.

The upcoming UN Decades of ocean science for sustainable development and ecosystem restoration (2021-2030) will allow for ALL stakeholders, from scientists to companies and civil society to produce new knowledge, co-design and implement new action, in order to jointly achieve the objectives of the Paris Agreement and 2030 Agenda. The ocean is at the crossroads of all the major challenges facing humanity today - climate change, biodiversity loss, energy transition, food security and health issues - and is one of the cornerstones of the sustainable world we must build.

SYSTEM TRANSFORMATION SUMMARY

The key levers of change for the Ocean and Coastal Zones (OCZ) pathway revolve around the need for an integrated climate, biodiversity and development agenda and related action plans starting at the local political level to global policies, applying to and by the business and private sector, as well as local communities and civil society. Enforcing related innovation and technologies to improve also depends on the funds made available to ocean science and public action to develop concrete adaptation and mitigation solutions.

For the conservation sector (Impact areas 1 & 2), the focus is put on Nature-based Solutions (NbS) to restore, protect, and sustainably develop ecosystems. NbS support climate change adaptation and mitigation (through protection of coastal blue carbon ecosystem for instance; ocean sediments, and the ocean itself as a reservoir of heat). However, if the ocean continues its role of taking up anthropogenic greenhouse gas emissions and excess heat from global warming, this comes at a great cost to its health (ocean warming, acidification, deoxygenation, etc.). Key levers could be to enhance the inclusion of NbS and especially coastal blue carbon ecosystems in nationally determined contributions (NDCs) for both their mitigation and adaptation components – to achieve policy recognition, and most importantly, pave the way for action and broad-scale finance. More concrete, evidence-based targets are needed, as shown by the IPCC Special Report on the Ocean and the Cryosphere in a Changing Climate (SROCC), in particular in nations holding a large percentage of the world's coastal blue carbon ecosystems. International initiatives such as the United Nations Decade on Ecosystem Restoration (2021-2030), which aims at a massive scale up of restoration efforts, or the United Nations Decade on Ocean Science for Sustainable Development (2021-2030) can help to provide information on what changes are needed from each type of actors. Knowledge gaps and uncertainties are to be explored and analyzed to reach a new innovative ocean science enabling progress for both climate change mitigation and adaptation. The UN Decade on Ocean Science for Sustainable Development mission is, among other points, to stimulate and empower interdisciplinary ocean research at all levels and support the delivery and access to information and knowledge for all. Enabling policy conditions are needed, along with showing how NbS can make investments more resilient and cost-effective, or the creation of partnerships between the conservation, engineering and investment community. The inclusion of local communities, as well as taking into account indigenous and local knowledge is essential to come to an effective implementation of sustainable

nature-based approaches to conservation, protection and restoration of coastal and marine ecosystems.

For the natural resources management / fisheries and aquaculture sector (Impact areas 3 & 4), it has to be pointed out that fisheries and aquaculture have a relatively small overall carbon footprint compared to other land-based food production systems. Still, on the adaptation side, understanding how climate change impacts the food web is crucial for maintaining sustainable fisheries: changes in the ocean heat, acidification and oxygenation lead to changes in ocean circulation, having significant and geographically differential impacts on the availability, processing and trade of fish and fish products, making countries and fishing communities more vulnerable to risks. Knowledge gaps once more bring the need for improved scientific research, observation and access to information for all types of actors involved in the sector. This in turn would help adopting adaptive monitoring and management mechanisms ensuring sustainable deep sea fisheries, while maintaining a healthy, productive environment remains healthy and most of all, as resilient as possible to more abrupt changes such as extreme events or disasters. The United Nations General Assembly already called upon states and Regional Fisheries Management Organizations (RFMOs) to "take into account the potential impacts of climate change and ocean acidification in taking measures to manage deep-sea fisheries and protect vulnerable marine ecosystems". To this end, recommended tools and approaches are available for all actors evolving in this sector, as the FAO provides benchmark information and findings about the impacts of climatic changes on deep-sea ecosystems and fisheries, the SROCC emphasizes institutional adaptation, highlights the importance of Ecosystem-based Adaptation, the use of Marine Protected Areas as adaptation measures and proposes a specific adaptation framework for sea level rise (protect, accommodate, advance, retreat). It also advocates for participatory decision-making approaches for fisheries management to address climate change impacts, the use of traditional knowledge and the inclusion of other sectors to foster adaptation. Political commitment, stakeholder participation, technological innovation and behavioral changes are all necessary, essential even, to succeed.

The Shipping sector (Impact areas 5 & 6) would represent 10% of global GHG emissions by 2050 under a business-as-usual scenario and if other sectors of the economy reduce emissions to keep the global temperature increase below 2 degrees Celsius. Still, shipping could significantly reduce its emissions with more fuel efficient and alternative energy. It also contributes to climate change through emissions of Black Carbon, tiny black particles, produced by combustion of marine fuel, especially the combustion of heavy fuel oil. There are currently no regulations controlling black carbon emissions from shipping, hence new regulations in this regard could be an important key lever. The planning process for shipping lanes will become increasingly important as it needs to consider the climate-driven impacts to ecosystems, marine habitats, and marine mammals (in the new Arctic sea routes for instance). Greening the shipping industry also means investing in ship innovation and eco-design favoring energy-efficient and ocean-friendly navigation and propulsion modes (e.g. giving up heavy fuel oil, using liquefied natural gas as a transition fuel, and developing hydrogen, hybrid electric technology and sailing support).

The Energy sector (Impact areas 7 & 8) refers mainly to ocean energy production (wind, wave, tidal and ocean thermal energy) and energy use through shipping and fishing for example. Both the energy production and the energy use need to achieve zero emissions and a sustainable use of ocean resources. An improvement in the competitiveness of renewable energy technologies and an increased supply through innovation and supporting policies could benefit consumers and businesses. Cooperation between science, policy, investment and civil society would allow to establish the foundation of a renewable energy ecosystem. However, in the process of improving ocean energy production, all actors must consider its potential impacts on marine ecosystems, such as noise pollution, heat production and the destruction of the marine environment. Rigorous and concerted marine spatial planning will be needed when establishing MRE to avoid harming particularly sensitive habitats, species and ecological processes.

MILESTONES TOWARDS 2050

By 2021

- Blue Carbon (NbS to mitigation) and Ecosystem-based Adaptation (EbA) (NbS to adaptation) are incorporated in countries NDCs and implemented actions
- Engagement of the private finance community on NbS, ocean science and ocean change observation.
- Ocean recognized as a common good of humanity in the preamble of the High Seas Treaty.
- Include MPAs in ABNJs, fairly and equitably finance MPAs.
- End overfishing, IUU fishing, destructive fishing practices. Implement science-based management to restore fish stocks in the shortest time feasible.
- Decarbonization goals must be thoroughly socialized across stakeholders, clear roles and action set for policy makers, shipowners, ship operators, port authorities, renewable energy developers and utilities
- Explore how offshore RE could deliver co-benefits for ecosystems, biodiversity and society and apply rigorous EIAs.

By 2025

- Strengthen and revise NDCs to include coastal and marine NbS to adaptation and mitigation.
- Policies to be reformed on other direct or indirect stressors to coastal conservation (marine pollution as old fishing gear, plastics...).
- Improved understanding of market and non-market financing options for blue carbon ecosystems.
- Increased ocean literacy and ocean curricula in education, improving global understanding of ocean science.
- International Legally Binding Instrument (ILBI) on BBNJ under UNCLOS ratified. Include ABMTs and EIAs.
- Increasing resilience and adaptive capacity of ocean-dependent coastal communities (fisheries and aquaculture), conduct national or regional vulnerability assessments to identify the risks posed by changing ocean conditions to marine resources and economics.
- Foster the competitiveness of ocean renewable energy production.
- Strengthening and application of Marine Special Planning (MSP) by coastal countries.

By 2030

- Continued support as in the ambition mechanism in the Paris Agreement, to strengthened and revised NDCs including OCZ NbS to climate adaptation and mitigation.
- Coastal and marine natural resources policies include ecosystem-based management.
- Support measures to address the displacement of coastal and island populations because of climate change;
- 30% of fully and highly protected MPAs are designated and implemented.
- Targets of SDG14 are achieved.
- ILBI on BBNJ under UNCLOS entered into force and implemented.
- Increase the deployment and implementation of MSP, ICZM at national and regional levels.
- Support the UN Decade of Ocean Science for SD to develop new innovative strategies and methodologies.
- Ensure a stable market of carbon-zero fuels.
- Better modeling of changing marine mammal distributions.
- Push innovation in ocean RE, maintain high EIA standards.

By 2040

- Continued support to strengthened and revised NDCs including OCZ NbS
- Expand Institutional Capacity Development (ICD) to all developing countries: enable direct development and adaptive management of actions, projects and programs for EbA and mitigation.
- 40% MPAs designated and implemented (many climate-smart MPAs).
- Network of observations of ocean changes and carbon sinks, plus innovative tech for long-term observation in ABNJ.
- ILBI on BBNJ under UNCLOS entered into force and implemented.
- Marine biological diversity of ABNJ conserved and sustainably used.
- Increased number of States parties to UNCLOS.
- Access to Financing for MPAs has been achieved, successful impact full funding of MPAs in ABNJ.
- Achievement of IMO GHG target.
- Foster the deployment of renewable energies to meet the increasing demand.

PROGRESS

Non-exhaustive list of current progress to achieve previously mentioned milestones:

Currently 7.56% of the ocean are y marine protected areas, representing 27,389,788km2 in total. National waters represent 39% of the global ocean and at present, 17.86% of these waters are designated as protected areas

On the other hand only 1.18% of areas beyond national jurisdiction, which makes up the remaining 61% of the global ocean, has been established as protected areas.

In 2020 around 70 countries have marine spatial planning strategies developed and/or implemented.

Since 2014 the European Union spent € 71 million to foster blue economy. These funds were used to co-finance projects with national funding, to provide loans, guarantees and grants, as well as to support procurement. Further the EU allocated €75 million to equity investment fund for the blue economy in 2020.

Outside of Europe, China invested US$ 2.7 billion in Madagascar to support the blue economy, in 2019 the World Bank Board approved a US$20 million credit to support Grenada's transition to a resilient blue economy. Furthermore, the World Bank's active Blue Economy portfolio in 2018 was approx. US$5 billion and since 2019 they are partnering with Credit Swiss in a US$ 28.6 million 5-year Sustainable Development Bond on Blue Economy.

According to the OECD a total of USD 13 billion was invested in the sustainable ocean economy through philanthropy and Overseas Development Assistance over the past 10 years.

In 2015 28 countries' NDCs include a reference to coastal wetlands in terms of mitigation and 59 countries include coastal ecosystems and the coastal zone into their adaptation strategies.

Further a lot of progress was made with respect to the conservation and restoration of coastal blue carbon ecosystems. Below a few numbers:

- *Mangroves*
    - *Over 160 mangrove restoration efforts worldwide covering 2,000km2*
    - *Worldwide there are some 2500 protected areas of mangrove forests. These include some 54,000 km^2, or over 39% of the world's remaining mangroves*
    - *Number of mangrove restoration and rehabilitation projects worldwide has nearly tripled in the last 20 years. The majority of these projects have been in Southeast Asia and Brazil.*
- *Seagrasses*
    - *Global numbers for seagrass restoration and conservation do not exist*
    - *Regional example: Virginia's Coastal Zone Management Program— restored eelgrass from zero acres to 9,000 acres in 18 years.*

- *Seagrass restoration has been conducted since 1947, however often these are projects at the small scale (<0.5 ha). The only open coast large-scale, non-experimental restoration has been attempted in Western Australia".*

- *Saltmarshes*
  - *Global numbers for saltmarsh restoration and conservation do not exist*
  - *Regional examples: In 2017, the North Carolina Coastal Federation broke ground on a salt marsh restoration project in Williston Creek, located at the 6,000-acre North River Wetlands Preserve in Otway. The project will restore and create approximately 8.8 acres of salt marsh. Since 1990, more than 35 salt marsh restoration projects covering over 150 acres have been constructed on properties belonging to NYC Parks*

CLIMATE ACTION TABLE - STRUCTURE