

# Ocean-Climate-Biodiversity Nexus

## *Why it matters and what this means for enabling ambitious change through policy and collaboration*

Summary of discussions from a workshop which brought together policy makers, practitioners and academics working in the fields of ocean, climate and biodiversity (July 2019)

### Key messages

- ❖ The international context over the next 18 months presents significant opportunities to secure a more integrated and effective approach to addressing ocean-climate-biodiversity issues and improving sustainable management and protection for the long term.
- ❖ The need for effective, collaborative action is urgent. We have enough evidence about the causes and impacts of key challenges to justify the need for greater action.
- ❖ We need ambitious international targets for marine protection and a realistic roadmap.
- ❖ More people should be involved in the conversation, including the public and business.

## 1. Background

- 1.1 The Calouste Gulbenkian Foundation (CGF) in collaboration with the UK Department for Environment, Food and Rural Affairs (Defra) hosted a two-day workshop in London in July 2019, facilitated by the Marine CoLABoration group - a network of marine conservation NGOs working on collaborative solutions
- 1.2 The purpose of the workshop was to build a common understanding of the current state of knowledge of the ocean-climate-biodiversity system, the challenges it faces and the enabling conditions for positive change. This was intended to inform holistic frameworks for marine policy and increase collaborative momentum to make the most of international negotiations in 2019-20.

## 2. The policy context

- 2.1 There are significant opportunities to influence the **international agenda in 2019-20** and secure tangible progress for ocean protection. These include negotiations for a new UN Global Ocean Treaty (for the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction), agreement of post-Aichi targets for the Convention on Biological Diversity (CBD), and a UN Ocean conference assessing progress on SDG14, the Sustainable Development Goal for life under the water.
- 2.2 The next **UN Climate Change talks**, [COP25](#), will take place in December 2019. The Chilean hosts have referred to this as the '**Blue COP**' and have made the ocean a central theme of their presidency. This is a key opportunity to secure a more **integrated and holistic approach** to addressing the links between the ocean, climate change and biodiversity.
- 2.3 The **UK Government** is championing an international commitment to '**30x30**', protection of 30% of the global ocean through Marine Protected Areas (MPAs) by 2030. It is calling for the **UN**

**Global Ocean Treaty** to be concluded in 2020. It is working with the Commonwealth Blue Charter Action Groups on **Ocean Acidification, Coral Reef Protection and Restoration, Ocean and Climate Change, MPAs and Mangrove Restoration**. It is leading the Commonwealth Clean Ocean Alliance with Vanuatu to boost global research into **marine plastic pollution**. It is **investing in coastal blue carbon habitats**, which offer Nature Based Solutions to combat the impacts of climate change. The UK remains strongly **opposed to commercial whaling** and fully committed to working through the International Whaling Commission to protect cetaceans.

2.4 Though not confirmed at the time of the workshop, it has now been announced that the UK, in partnership with Italy, will host **COP26 in the UK in 2020**.

### 3. Why the nexus – why the ocean?

3.1 A healthy ocean is fundamental to life itself and to the health and prosperity of all humanity.

3.2 The ocean is a system of interconnected habitats, species and processes that provides us with oxygen, carbon sequestration and climate regulation, food, livelihoods, opportunities for recreation, and for sustaining our health and well-being.

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*The ocean is intrinsically linked to global biodiversity and the climate system*

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3.3 The ocean is intrinsically linked both to global biodiversity and to the climate system. The ocean is a carbon sink, removing CO<sub>2</sub> from the atmosphere. Ocean currents help to regulate the climate and make the earth habitable by transporting warm water and precipitation away from the equator towards the poles. The **ocean is our buffer**, providing stability for the whole planet.

3.4 There is increasing recognition of the **connectivity** and **interdependence** across the ocean-climate-biodiversity nexus and of the **speed of change**. We see the impact of a changing climate on ocean acidification, deoxygenation, warming and sea levels.

### 4. Challenges facing the ocean

4.1 The health of the ocean is under threat from a diversity of impacts, often interlinked. This workshop took place before the publication of the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC) which confirmed the wide range of negative impacts climate change is having on the ocean. Discussion at the workshop focused on seven critical challenges: food web breakdown, habitat destruction, hypoxia (reduced oxygen levels in the water), loss of carbon sequestration, ocean warming, overfishing and pollution

4.2 The issues are complex and interconnected. There is a need to understand and deal effectively with **cumulative impacts** and interaction across the **land-sea interface**.

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*CO<sub>2</sub> is an underpinning challenge for the ocean*

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4.3 **CO<sub>2</sub> is an underpinning challenge**. We must consider its impact on the ocean and the role the ocean plays in carbon sequestration through an ecosystem lens and communicate these clearly. The impacts of coastal development, habitat destruction and climate change reduce the ocean's capacity to sequester carbon.

- 4.4 The problem of **hypoxia** in the ocean is growing and we need urgent action to address this.
- 4.5 **Food web breakdown** is caused by sea surface temperature rise, acidification and overfishing, affecting for example egg survival, larval growth, and the density and make up of biodiversity. The impacts include reduced food for predators, trophic mismatch, decalcification, thinning shells, loss of biodiversity (marine and birdlife) and the collapse of fish stocks.
- 4.6 The effects of **ocean warming** due to climate change include deoxygenation, changes in solubility, polar melt, extreme weather events, increases in disease and invasive species, coral bleaching, and shifts in species range and seasonality. All impact on human systems and ocean resilience.
- 4.7 Lack of regulation, transparency and governance, poor enforcement, perverse subsidies and market forces all contribute to the problem of **overfishing** and reduce the ocean's resilience in the face of climate change. Overfishing leads to ecosystem imbalance, biodiversity loss and food security issues.
- 4.8 There is increasing public awareness and political action to tackle the challenge of **plastic pollution** in the ocean. There has been less attention paid to other forms of pollution including **chemical** (for example, fertiliser from agricultural run-off) and **noise**.

## 5. Priority interventions, ideas and solutions

- 5.1 We need to prioritise **carbon sequestration** and **decarbonisation globally and in the UK**. There is a need to act on solutions include tackling consumption and increasing investment in renewable energy to limit warming to 1.5°C as recommended by the IPCC.
- 5.2 We should explore **Nature Based Solutions** for carbon sequestration and resilience. Methods for assessing 'climate smart' Marine Protected Areas (MPAs) exist and should be shared and built upon. Assessment of the UK sea shelf for 'blue carbon' suitability would be a useful contribution. Globally, we could prioritise and invest in **sustainable, participatory management** for the triple win of carbon sequestration and storage, biodiversity, and livelihoods.

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*We need urgent and meaningful marine protection*

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- 5.3 We need **urgent and meaningful marine protection**: effective implementation of existing regulation (for example to limit overfishing) and ambitious targets that address emerging threats. The UK could lead the way in developing and sharing a roadmap for moving from the current state of ocean protection to where we need to be.
- 5.4 We can build on existing **MPAs** to ensure a robust network at national and international levels, with the right protection, in the right place, based on science. There is an immediate opportunity to contribute to the MP Richard Benyon's review for Defra of [Highly Protected Marine Areas](#).
- 5.5 There is a strong case for **reducing pressures on deep sea areas** known to sequester carbon, and effectively manage deep sea mining to protect the seabed, sediment and sea life. The deep sea includes some of the least mapped or understood areas on the planet, and more research is needed into resource use from deep sea elements.
- 5.6 We need to make the case for **investment in ecosystem restoration** and 'Blue Natural Capital' to restore the ocean to health. We need a literature review of research on how to improve the climate change resilience of the ocean through ecosystem restoration and identify the gaps. There is momentum in the rewilding agenda. Can we harness this for the ocean?

5.7 We need to improve **ocean** (and more broadly, environmental) **literacy**: public understanding of the ocean-climate nexus, how the ocean works and why it matters. Messaging should ‘join the dots’ and explain the ecological effects of anthropogenic activities like overfishing and mining. Marine and climate change subject areas should be included in school curricula. We can amplify and grow the UK-based ‘We Are Ocean’ ocean literacy network and successful initiatives like Plastic Free Schools (Surfers Against Sewage) and the World Ocean Day for Schools campaign.

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*We need a PR campaign for the ocean*

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5.8 We need a ‘**PR campaign for the ocean** (and MPAs) at local and national levels: a clear and compelling narrative that speaks to a wider range of ocean benefits and connects with a broader audience and their values. We should explore new perspectives and build on communications research, including framing.

5.9 We can **harness the power of collaboration** and a collective voice across government, business and civil society on key policies like the government’s 30x30 MPA commitment. A more **holistic approach** across government departments and across the ocean-climate nexus would help to develop climate and ocean smart policies. Examples could include promoting environment smart infrastructure planning or agreeing fisheries management within the context of climate action plans and not just food production.

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*We can harness the power of collaboration and a collective voice*

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5.10 There is a need **to engage academia** more effectively on policy issues and identify gaps in applied research and direct funding towards it. Academia and civil society can support government in showcasing the wealth of UK expertise in ocean science for example at the forthcoming ‘Blue’ COP25.

5.11 We should identify clear pathways to impact for effective inclusion of **social and cultural evidence** in future projects so that we develop policies that can effectively engender change.

5.12 Shifts in the **finance system**, including taxes and subsidies, are important levers for change. We need to involve more people in the nexus conversation, including those who will pay for the impacts of climate change, for example, the insurance industry.

5.13 We need to foster a long-term view and systems thinking across government and society that transcends generations. For example, The Netherlands has a 1000-year approach to addressing climate change and sea-level rise.

## 6. Follow up

6.1 There will be ongoing engagement throughout 2019 and 2020, with wide ranging stakeholders, to ensure positive outcomes for the ocean and the UK.

6.2 [Notes from the workshop, curation of workshop outputs](#) and this summary have been compiled by the Calouste Gulbenkian Foundation with support from the Marine CoLABoration group. Please contact [info@gulbenkian.org.uk](mailto:info@gulbenkian.org.uk), if you have any comments or suggestions on the material.