

# Resilience and the Ocean-Climate Nexus

## Expert Workshop

13-14 April 2021 | 14:00-17:00 CEST



**The ocean and climate are inextricably linked**, with the ocean being both an important carbon sink and also a source of emissions through diverse ocean-based economic sectors. The Intergovernmental Panel on Climate Change<sup>1</sup> estimates that the global ocean has warmed unabated since 1970 and has absorbed more than 90% of excess atmospheric heat. The incidence of marine heatwaves has doubled and they are increasing in intensity. This process of heat absorption is changing the ocean's chemistry, resulting in ocean acidification and a loss of oxygen.

**Ocean industries contribute to GHG emissions that drive climate change.** For example, international shipping accounts for around 2% of total energy-related carbon dioxide (CO<sub>2</sub>) emissions, a proportion that was growing fast before COVID-19<sup>2</sup>. Climate change also significantly impacts ocean-based industries, such as fisheries, and the communities dependent on them. The IPCC warns that changes in the spatial distribution and abundance of some fish stocks are expected to have negative impacts for Indigenous and local communities dependent on fisheries.

**The ocean is a critical social and economic resource** with around 40% of the world's population, or around 3 billion people, living within 100km of the coast<sup>3</sup>, many of whom depend on the coastal zone and the ocean for their livelihoods. Seafood provides 3.3 billion people with 20% or more of their protein intake<sup>4</sup>. Previous OECD analysis projected a marked acceleration in a range of ocean economic activities by 2030<sup>5</sup>. Based on such growth, major pressures on the marine environment are expected to increase. National experiences on maritime spatial planning may play a role on this regard.

**Several potential climate tipping points are of direct relevance for the ocean.** Tipping points are thresholds whereby a small shift can result in an irreversible and sometimes rapid system change, some could be triggered with less than 2 °C of warming. These include runaway loss of ice sheets that accelerate sea level rise and the disabling of the ocean circulation system. These tipping points can form a cascade, with each one triggering others, creating an irreversible shift to a hotter world and with key implications for the global economy.

**Attention and research into this climate-ocean nexus has grown in recent years**, including Chile's "Blue" climate COP25 in 2019 (hosted in Spain), the Intergovernmental Panel on Climate Change (IPCC) 2019 [Special Report on the Ocean and Cryosphere \(SROCC\)](#), High-Level Panel on a Sustainable Ocean Economy (HLP) papers on [The Ocean as a Solution to Climate Change](#) and [The Expected Impacts of Climate Change on the Ocean Economy](#).

**Further research by the global policy community is needed** to better inform this nexus and further expand the knowledgeable audience to OECD policy-makers.

<sup>1</sup> IPCC (2019), "Summary for Policymakers", in H.-O. Pörtner et al. (eds.), *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*, [https://www.ipcc.ch/site/assets/uploads/sites/3/2019/11/03\\_SROCC\\_SPM\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/sites/3/2019/11/03_SROCC_SPM_FINAL.pdf)

<sup>2</sup> IEA (2020), *International Shipping – Analysis* - IEA, <https://www.iea.org/reports/international-shipping>.

<sup>3</sup> CIESIN (2012), "National Aggregates of Geospatial Data Collection: Population, Landscape, And Climate Estimates, Versio).", *Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC)*., <http://dx.doi.org/10.7927/H4F769GP>.

<sup>4</sup> FAO (2020), *The State of World Fisheries and Aquaculture 2020*, FAO, <http://dx.doi.org/10.4060/ca9229en>.

<sup>5</sup> OECD (2016), *The Ocean Economy in 2030*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264251724-en>.

# AGENDA

## Workshop Day 1

13 April, 14:00-17:00 CEST

14:00 Welcoming remarks from:

- **Rodolfo Lacy**, Director, OECD Environment Directorate
  - **Jorge Moreira da Silva**, Director, OECD Development Co-operation Directorate
  - **Ambassador Bernardo Lucena**, Permanent Representative to OECD, Portugal
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14:10 **Session 1: Climate impacts and resilience in the ocean context**

- What are the expected impacts of climate change on the ocean and what are the potential economic costs and social implications?
- How can the ocean – and the essential ecosystem services it provides – be made more resilient to impacts of climate change?
- What are the implications of ocean tipping points and non-linear effects for economic and social resilience?

Moderated by **Anthony Cox**, Deputy Director, OECD Environment Directorate

- **Helena Martins**, Science Communicator, Swedish Meteorological and Hydrological Institute
  - **William Hynes**, Senior Advisor and Co-ordinate of the OECD New Approaches to Economic Challenges Unit (NAEC)
  - **Hrönn Egilsdóttir**, Marine Biologist, Marine & Freshwater Research Institute of Iceland
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15:30 **Session 2: Sharing OECD country experiences on ocean climate impacts and resilience**

- Marine spatial planning as an instrument to combat climate change and improve resilience – the Portuguese experience.
- Tools to promote a sustainable and resilient blue economy – the experience of Norway in leading the High Level Panel for a Sustainable Ocean Economy;
- Sea-level rise in Nova Scotia, Canada: lessons learned.

Moderated by **Andrew Prag**, Special Advisor and Project Lead, OECD Environment Directorate

- **Vasco Becker-Weinberg**, Professor at NOVA School of Law, Lisbon, Portugal
- **Georg Børsting**, Policy Director for Ocean and Climate, Norwegian Ministry of Foreign Affairs
- **Kate Sherren**, Professor, Dalhousie University School for Resource and Environmental Studies, Canada

**Workshop Day 2**  
14 April, 14:00-17:00 CEST

**14:00**      **Session 3: Policy approaches for building economic and climate resilience in the ocean context post-COVID-19**

- What are key avenues for reducing emissions from ocean-related sectors?
- What policies can improve resilience of coastal communities to climate impacts?
- How can ocean-related policies and regulations contribute to economic resilience (e.g. through fisheries and aquaculture, tourism etc)?

Moderated by **Jorge Moreira da Silva**, Director, OECD Development Co-operation Directorate

- **Natalie Hilmi**, Chargée de Recherche - Economie Environnementale, Centre Scientifique de Monaco
- **Sveinn Agnarsson**, Professor, University of Iceland
- **Malik Duarte Lopes**, President of Board of Directors of Instituto do Mar, Cabo Verde

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**15:30**      **Session 4: Building resilience through nature-based solutions**

- How can nature-based solutions help to build coastal resilience while also contributing to emissions reductions?
- What solutions exist for scaling up sustainable financing for these initiatives?

Moderated by **Piera Tortora**, Project Co-ordinator, OECD Development Co-operation Directorate

- **Chip Cunliffe**, Director Sustainable Development, AXA XL, and Co-Chair, Ocean Risk and Resilience Action Alliance
- **Catherine Gamper**, Economist/Policy Analyst, Climate Change Adaptation, OECD Environment Directorate
- **Stephanie Ockenden**, Head of Ocean and Climate Change Policy & International Evidence, Department for Environment, Food and Rural Affairs, United Kingdom

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**16:50**      **Concluding remarks and next steps**

- **Anthony Cox**, Deputy Director, OECD Environment Directorate
- **Duarte Bué Alves**, Deputy Permanent Representative to the OECD, Portugal



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