

## Accounting for Ocean Acidification within the UNFCCC Ocean and Climate Change Dialogue

*This document condenses key takeaways from the official submission made to the Ocean Dialogue by the [International Alliance to Combat Ocean Acidification](#) and is intended as a guide for Parties. This document reflects views of the Secretariat of the International Alliance to Combat Ocean Acidification (OA Alliance) and does not necessarily represent the views of all government or non-government members that have joined the OA Alliance.*

### Context:

There are multiple impacts of climate change to our ocean including ocean warming, acidification, deoxygenation, sea-level rise, more frequent and intense storms, marine heat waves, loss of marine life and habitat, climate variability, and changing circulation. Together, these impacts are causing harm by displacing people, damaging coastal ecosystems, communities and property, decreasing food security and sovereignty, impacting jobs and livelihoods and threatening cultural practices and traditions. Over the 21st century, the ocean is projected to transition to unprecedented conditions with increased temperatures, greater upper ocean stratification, further acidification, oxygen decline and altered net primary production. (IPCC, 2019)

### Synergies Across Existing Work of UNFCCC:

- Ocean acidification (OA) is a direct result of human-caused carbon dioxide (CO<sub>2</sub>) emissions and is altering the chemical balance of seawater that marine life depends upon for survival. Only by reducing anthropogenic CO<sub>2</sub> emissions can we directly mitigate ocean acidification, regardless of achieving temperature targets which will address warming, affirmed by the Paris Agreement.
- Ocean acidification is a direct threat to the climate system, as relevant to Article 2 of the Convention, which establishes the purpose of the Convention to “prevent dangerous anthropogenic interference with the climate system.”
- SBSTA has recognized ocean acidification as an emerging issue relevant to the UNFCCC and has outlined ocean acidification research as a priority need under the Convention. Ocean acidification has been acknowledged as a slow-onset event, by the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, relevant to loss and damage due to climate change. (Ellycia R. Harrould-Kolieb, 2016)

### What This Means:

- Only by explicitly including impacts of increasing acidification—and ocean change more broadly—within mitigation targets and adaptation strategies can the UNFCCC and Parties accurately assess the full suite of change and vulnerability directly caused by increasing anthropogenic CO<sub>2</sub> emissions.
- Ocean acidification can—and should—be considered as a relevant metric when assessing appropriate timelines and trajectories for action across the UNFCCC to “ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner” as called for by Article 2. (Ellycia R. Harrould-Kolieb, 2016)
- Many countries (including Annex 1) that have large ocean territories are not fully documenting the impacts caused by increasing CO<sub>2</sub> emissions to regional food security, ocean industries or marine economies. (Gallo et al. 2017)
- It’s critical that climate policy frameworks—in this case the UNFCCC—explicitly make clear that actions to protect coastal and marine resources, economies, communities and cultures from ocean change are essential elements of successful climate mitigation, adaptation and financing targets and strategies.



## Vehicles for Action on Adaptation and Mitigation:

### (1) Institutionalizing Ocean across UNFCCC:

- Increase ambition for achieving goals and targets of UNFCCC by incorporating ocean acidification and ocean change (warming, sea level rise and deoxygenation) as additional motivation for drastically reducing CO<sub>2</sub> emissions.
- Overarching frameworks for mitigating and adapting to climate change must establish an authorizing environment in which efforts to protect coastal and marine resources, economies, communities and cultures from ocean acidification and ocean change are equally weighted and understood as consequential to successful climate mitigation efforts, risk assessments, adaptation measures, compensation and financing decisions. This includes efforts to identify gaps, bridge and increase climate and ocean financing options. **(Relevant to Discussion Group 4.)**
- Call for a continuation of the Ocean and Climate Change Dialogue, including a pathway for implementing recommendations for next steps arising from the 2020 Dialogue, at and beyond COP26. The Summary Report of the 2020 Dialogue should be presented at COP26.

### (2) Key actions within NDCs:

#### Increase Mitigation and Adaptation Through Nature Based Solutions

- Nature-based solutions for sequestering carbon in our ocean are called “Blue Carbon” solutions. Blue Carbon sequestration can be achieved through some types of aquatic vegetation ecosystems like mangroves, salt marshes and some seagrasses.
- However, even actions such as protecting and restoring kelp and eelgrass —ecosystems with root systems that may not be ideal for long-term carbon sequestration — can still improve water quality locally and provide refuge for marine species from acidified and other stressful conditions elsewhere.
- In some cases, aquatic habitats have been shown to remediate or buffer against impacts of acidification in nearshore coastal waters—raising the pH level within the submerged ecosystems—and potentially improving the growth and survival of species that are sensitive to ocean acidification. (Unsworth et al., 2012; Chan et al., 2016- Original Submission)
- Aquatic vegetation offers multiple benefits relevant to remediating climate impacts to coastal communities. Therefore, restoration and conservation of these ecosystems should be understood as climate-ocean relevant—and generate the potential for new financing mechanisms in addition to those exclusively created for Blue Carbon sequestration. **(Relevant to Discussion Group 4.)**

### Call for Vulnerability Assessments Outlining the Impacts of Ocean Change at the Local and Regional Levels to Further Inform Needed Adaptation Measures

- It is critical countries develop a more comprehensive stocktake of regional vulnerabilities and risks associated with CO<sub>2</sub> emissions and ocean change related impacts:
  - This will help governments prioritize research and studies that will inform adaptive potential and improve local interventions to climate change impacts including those that concurrently address ocean acidification, warming, oxygen decline and habitat loss.
  - This will also help UN bodies develop a more granular picture of ocean change impacts—including as called for by the UN Decade of Ocean Science for Sustainable Development. **(Relevant to Discussion Group 2.)**

Countries can accomplish this by:

- Establishing local pH monitoring sties that can measure local variability and establish trends in ocean and coastal carbon chemistry.
- Contributing to global monitoring networks that are supporting the ocean acidification-specific indicator as established by UN Sustainable Development Goal 14.3.1 “Average marine acidity (pH) measured at agreed suite of representative sampling stations.” **(Relevant to Discussion Group 2.)**
- Conducting a nationwide or regional vulnerability assessment to identify the risks that ocean warming, acidification and loss of oxygen together pose to coastal and marine resources and economies. This should include improving knowledge of biological impacts to marine species and ecosystem functioning within the region, along with recommendations for unique adaptation actions or interventions.

### **(3) National Implementation:**

In addition to reducing CO<sub>2</sub> emissions, there are actions that governments can and should be taking now that will allow for increased adaptation and resilience of vulnerable ecosystems and bolster some species’ ability to cope with future changes.

Outside of the UNFCCC, it is increasingly important that national climate policies and management frameworks are reflective of changing ocean conditions and are adequate to advance the mitigation and adaptation strategies that will be necessary to address them. Ocean warming, acidification, and loss of oxygen—broadly, climate related ocean change—are multi-sectoral issues and relevant to climate mitigation and adaptation, ocean and land management, biodiversity maintenance, food security, reef resilience, aquaculture and fisheries, economies and livelihoods. Therefore, it is essential that there is a high-level of national and regional coordination between coastal, ocean and climate scientists, experts, negotiators and policy implementers.

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## References:

Ellycia R. Harrould-Kolieb, Ocean Acidification and the UNFCCC: Finding Legal Clarity in the Twilight Zone, 6 WASH. J. ENVTL. L. & POL'Y 612 (2016).

<https://digitalcommons.law.uw.edu/wjelp/vol6/iss2/13>

Gallo, D. G. V. a. L. A. L. (2017). Ocean Commitments Under the Paris Agreement. *Nature Climate Change*, 3422.

IPCC, 2019: Summary for Policymakers. IPCC Special Report on the Ocean and Cryosphere in a Changing Climate [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)].

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[https://www4.unfccc.int/sites/SubmissionsStaging/Documents/202003301601---OA%20Alliance-%20Submission%20to%20the%20Ocean%20Dialogue%20at%20SBSTA%2052%20\(Final\).pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/202003301601---OA%20Alliance-%20Submission%20to%20the%20Ocean%20Dialogue%20at%20SBSTA%2052%20(Final).pdf)