Interactive dialogue 3: Minimizing and addressing ocean acidification, deoxygenation and ocean warming

10:00AM-1:00PM, 29 June 2022

Key points

by H.E. Hon. Matthew Samuda, Minister without Portfolio in the Ministry of Economic Growth and Job Creation, Jamaica

The third interactive dialogue of the 2022 United Nations Oceans Conference on "Minimizing and addressing ocean acidification, deoxygenation and ocean warming" was held on 29 June 2022. The Dialogue was co-chaired by H.E. Mr. John Kerry, Special Presidential Envoy for Climate, USA, and H.E. Honorable Matthew Samuda, Minister without Portfolio in the Ministry of Economic Growth and Job Creation, Jamaica. Mr. Stephen Widdicombe, Deputy Chief Executive and Director of Science at Plymouth Marine Laboratory; Co-Chair of the Global Ocean Acidification Observing Network Executive Council, Plymouth, UK, served as Moderator.

Presentations were made by Mr. Mariano Grossi, Director-General, International Atomic Energy Agency, Vienna; Mr. Johan Stander, Director of Services, World Meteorological Organization, Geneva; Ms. Jessie Turner, Director of the International Alliance to Combat Ocean Acidification, USA; and Mr. Hans-Otto Pörtner, Co-Chair of the IPCC Working Group II and Head of the Integrated

Ecophysiology Section, Alfred Wegener Institute, Bremerhaven, Germany. Ms. Inti Keith, Senior Marine Biologist and Specialist in Invasive Species, Charles Darwin Foundation, Galapagos, Ecuador; and Ms. Loreley Picourt, Executive Director, Ocean Climate Platform, were the Lead Discussants for the Dialogue.

Eighteen participants made interventions during the Interactive Dialogue, including from States, intergovernmental organizations and other stakeholders. Concluding remarks were made by the panelists, discussants, moderator and co-chairs.

Participants discussed the current scientific understanding of ocean acidification, deoxygenation and climate change, stressing that a healthy ocean is essential for a healthy planet. The ocean absorbs 90% of excess heat from greenhouse gas emissions and 25% of carbon dioxide. The ocean has greatly slowed the rate of climate change, but at a cost. The high rate and pace of climate change threatens the ocean's ability to support life on Earth, impacting ocean biology, ecosystem services and human societies.

Impacts are already visible in many countries, and participants noted heat waves, severe storms, sea-level rise, king tides, erosion and flooding. Reef-building corals have already been severely impacted, and movement of species from tropics to more northern areas has been observed. Together, the impacts result in reduced biodiversity and productivity, with risks to human health, well-being, quality of life, food security, cultures and livelihoods. For SIDS, there are risks of economic decline, adverse impacts on lives and livelihoods, loss of biodiversity and key marine and coastal ecosystems and risks to food and water security. The impacts of climate

change combined with other anthropogenic impacts, such as unsustainable fishing and marine pollution, make response measures more complex.

Most participants stressed the need for urgent action. While there are still gaps in science, there is sufficient knowledge and information to develop an appropriate response. Ocean acidification, deoxygenation and warming are due to a single culprit: carbon dioxide and other greenhouse gas emissions. Thus, reducing greenhouse gas emissions by shifting to a clean energy economy, including by rapidly accelerating the development of ocean renewable energy, is an urgent first step. New technologies to reduce emissions are also being developed.

Secondly, ocean ecosystems and species, as well as the human communities dependent on them, will need to be given a chance to adapt. This will require the removal of other anthropogenic pressures such as pollution from land-based sources, destructive practices, and unsustainable exploitation. Participants cited a number of specific response strategies that include undertaking vulnerability assessments to develop locally-relevant response strategies; nature-based solutions; blue carbon; climate-smart marine protected areas; marine spatial planning to create optimized protected spaces for species migration and corridors; aquaculture techniques to mitigate against corrosive and harmful conditions; use of vegetation for buffering; and sustainable seaweed farming.

There is also potential for integrating policies and leveraging existing frameworks for ocean-climate action, including the United Nations Convention on the Law of the Sea, which contains measures to prevent, reduce and control pollution of the marine environment, including through the atmosphere. Successes within the UNFCCC include the Glasgow Pact and the annual ocean and climate

change dialogue. The ocean should also be at the heart of national climate change polices and strategies, such as National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs). Locally, scientists, Indigenous Peoples, local communities and governments must co-create to develop appropriate response strategies.

Science is fundamental to climate action. We cannot take action if we do not understand the problem. And we cannot understand and manage what we cannot measure. It is important to make the investment to improve ocean measurements and to cover gaps in ocean observations. There is a need for further data collection, modelling and infrastructure for tracking ocean carbon, as well as for more ocean acidification science and training. Several initiatives already exist, as detailed in the concept note for the Interactive Dialogue. With global ocean observing systems delivering critical services to society, it is important to make them more sustainable and coordinated over the long term.

Overall, ocean science should take a more integrated systems approach to holistically consider the planet as a whole, including linkages between the atmosphere, the ocean and the hydrosphere. Going forward, nuclear and isotopic techniques to study ocean acidification, multi-platform observing systems, and development of artificial intelligence technology and supercomputing will help better understand and manage the ocean. Clear communication of complex issues and response options should also be a priority.

Capacity to observe ocean acidification and deoxygenation remains limited and there is a need to democratize ocean observation through capacity building, new technologies, infrastructure and data sharing, with no one left behind. Many

countries indicated the need for more capacity and financing for ocean observation and science, as well as for effective partnerships with a range of stakeholders to develop context-specific solutions.

Several commitments were announced. Sweden announced a commitment to reach 100% renewable electricity production by 2040, including by increasing offshore wind energy production. Sweden also commited to contribute the equivalent of 400,000 USD in 2022 to IOC-UNESCO for the UN Decade of Ocean Science to advance work on SDG 14 target 3. The United States and Jamaica announced that they will be joining the International Alliance to Combat Ocean Acidification.