



Expert Panel on Ocean Acidification Bulletin

A Summary Report of the Expert Panel on Ocean Acidification

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EXPERT PANEL ON OCEAN ACIDIFICATION: 3 SEPTEMBER 2009

The Expert Panel on Ocean Acidification took place at UN Headquarters in New York on 3 September 2009. The event was organized by the UN Department of Economic and Social Affairs, the UN Division for Ocean Affairs and the Law of the Sea, and the UN Foundation.

The aim of the meeting was to increase awareness and highlight options to avoid adverse impacts of ocean acidification on marine life and ecosystems by bringing together key stakeholders working on oceans and seas, climate change and sustainable development. The panel included senior officials and experts, and the panel's presentations were followed by an interactive discussion focused on potential international cooperation, possible policies and actions by the international community, and steps to raise public awareness. The event was scheduled just weeks before the UN Secretary-General's High Level Event on Climate Change and also in the lead-up to the UN Climate Change Conference in Copenhagen, Denmark.

A BRIEF HISTORY OF OCEAN ACIDIFICATION

Oceans are a critical part of Earth's carbon cycle and much of the world's carbon dioxide is held in the oceans. However, recent research suggests that increased atmospheric concentrations of carbon dioxide due to human actions are having an adverse impact on the oceans. As the oceans absorb more carbon, ocean acidity increases, and it has risen by almost one-third since the Industrial Revolution.

While further research is needed on the impacts of acidification on ocean ecosystems, evidence to date suggests that dramatic impacts are already being experienced. These are affecting flora and fauna, as well as human activities such as the fishing industry.

In response to these concerns, the United Nations is engaged in an "assessment of assessments" aimed at developing a regular process for global reporting and assessment of the state of the marine environment, including socioeconomic aspects. This work was originally mandated by the General Assembly in resolution 57/141 of 12 December 2002 and recommended in the Johannesburg Plan of Implementation, which was adopted at the World Summit on Sustainable Development. Subsequently, the *Ad Hoc* Working Group of the Whole, which was established by the General Assembly in December 2008 in resolution 63/111, met in New York from 31 August to 4 September to review the recently completed "assessment of assessments" and recommend a course of action to the General Assembly. The Expert Panel on Ocean Acidification, which was scheduled to take place in parallel with this event, was designed to help move discussions forward.

REPORT OF THE EVENT

INTRODUCTION

The meeting began shortly after 1:00 pm. Melinda Kimble, Senior Vice President, UN Foundation, welcomed participants. She highlighted this issue as critical to oceans governance.

Patricio Bernal, Executive Secretary of the Intergovernmental Oceanographic Commission, said acidification was one of the most "invisible" issues relating to climate change, and that the profile of this topic needed to be raised. Noting that 25 million tonnes of additional carbon are added to the oceans every day, he stressed the oceans' role in preventing more extreme climate change by acting as a carbon sink.

EXPERT PANEL

The event was moderated by Thomas Lovejoy, Biodiversity Chair at the Heinz Center for Science, Economics and the Environment. He described ocean acidification as a critical issue facing both humans and ecosystems. He stated that temperature and acidity levels are crucial for marine organisms, and that both of these are being affected directly by climate change.

Ken Caldeira, Department of Global Ecology, Carnegie Institute for Science, applauded efforts to set up an assessment process on the state of the world's oceans, and said the scientific community is supportive of this process. He then presented a scientific overview of the impact of rising carbon dioxide levels on oceans. He explained the impacts at the molecular level, noting that carbon dioxide is having a major impact on ocean chemistry. He highlighted observed impacts of acidification on coral reefs, and likely impacts on other ocean ecosystems as organisms at the bottom of the food chain are directly affected. Warning that we will soon have ocean chemistry that has not existed for tens of millions of years, he recommended a significant reduction in carbon dioxide emissions in the short term. He suggested that this was not just a major economic issue for humanity, but also a moral one.



L-R: Patricio Bernal, Executive Secretary of the Intergovernmental Oceanographic Commission; Melinda Kimble, Senior Vice President, UN Foundation; Thomas Lovejoy, Biodiversity Chair at the Heinz Center for Science, Economics and the Environment; Dessima Williams, Permanent Representative of Grenada to the UN and current AOSIS chair; and Ken Caldeira, Department of Global Ecology, Carnegie Institute for Science

Harlan Cohen, Advisor on Ocean Governance, Global Marine Programme, International Union for Conservation of Nature (IUCN), observed that oceans are critical to life on Earth as they contain approximately 90% of the planet's biomass. He explained that ocean acidification will have a significant impact not only on marine biodiversity and ecosystems, but also on people's health, economic wellbeing, and food supplies.

He noted the IPCC's suggestion that limiting temperature rise to no more than 2°C will require restricting atmospheric levels of greenhouse gases to no more than 450 parts per million (ppm) carbon dioxide equivalent. However, even with significant reductions, he indicated that further ocean acidification is inevitable, and drew attention to coral scientists' recommendation that concentrations should be kept below current levels (387 ppm). In the short term, Cohen urged steps to promote healthy and resilient marine ecosystems. He supported environmental impact assessments and marine spatial planning, marine protected areas and reserves, and improved fisheries management. He also highlighted the role of the UN Convention on the Law of the Sea, the Food and Agriculture Organization, the Convention on Biological Diversity, regional fisheries management organizations and other fora and bodies. He urged full implementation of UN General Assembly resolution 61/105 on sustainable fisheries to protect vulnerable marine ecosystems from significant impacts of bottom fishing or not allow such fishing to proceed. Finally, he supported a strong commitment at Copenhagen in December and beyond to cut greenhouse gas emissions sharply.

Dessima Williams, Permanent Representative of Grenada to the UN and current chair of the Alliance of Small Island States (AOSIS), stressed that oceans are critical to sustaining life, but that human activity is violently and rapidly destroying the health of ocean ecosystems. She urged restricting temperature rise to no more than 1.5°C and reducing atmospheric concentrations to 350 ppm. She also called on developed countries to commit to 40% reductions in emissions by 2020 and 85% by 2050. Finally, she urged all people to cut their individual carbon footprint.

GROUP DISCUSSION

A representative of the CBD Secretariat highlighted a new draft report, the *Scientific Synthesis on the Impacts of Ocean Acidification on Marine Biodiversity*, and invited comments on the draft. She highlighted acidification as a key risk to biodiversity.

Thomas Lovejoy raised the question of geoengineering, noting interest in removing carbon dioxide from the atmosphere. Ken Caldeira responded that it does appear to be technically feasible to withdraw greenhouse gases and inject them underground, but it remains an expensive option and should not be considered as an alternative to reducing emissions, but rather as an additional measure.

Reacting to a question on how to link parallel work on this issue by the IPCC and elsewhere, Caldeira said steps were being taken to avoid duplication of work.

One participant raised the issues of adaptation and ecosystem resilience, suggesting that the focus should not just be on mitigation. Another participant highlighted the importance of raising public awareness, urging steps to reach out to the public through the media, schools, and religious and community groups.

CLOSING REMARKS

Harlan Cohen commented on the importance of raising awareness on ocean acidification, noting that IUCN is working through its member organizations to help spread the message, and was publishing a report on climate change and oceans.

Ken Caldeira said it would take only a few percent of global GDP to "squeeze carbon out of our economies." He suggested that it was not logical to seek a slight increase in GDP if it resulted in ocean acidification, melting ice caps, and other major risks resulting from climate change.

Dessima Williams stressed that the South will be a responsible partner on efforts to move towards carbon neutrality.

Patricio Bernal stressed the need to reach out to the media and the educational system. He supported turning sound science into good policies, and the role of education.

Melinda Kimble said the meeting in Copenhagen was an important step in a very long road to achieve global carbon neutrality. She supported spreading the word about ocean acidification beyond the scientific community and certain policy makers who recognize the urgency of the issue, and taking the matter to a much wider group. In this regard, she emphasized communication as critical in ensuring that the average citizen can take ownership of the issue and become part of the solution.

Thomas Lovejoy thanked everyone for participating, noting that we "have plenty to do" to move forward on this matter. The meeting closed at 2:50 pm.

UPCOMING MEETINGS

EXPERT WORKSHOP ON SCIENTIFIC AND TECHNICAL GUIDANCE ON THE USE OF BIOGEOGRAPHIC CLASSIFICATION SYSTEMS AND IDENTIFICATION OF MARINE AREAS BEYOND NATIONAL JURISDICTION IN NEED OF PROTECTION:

This event, which is taking place under the authority of the Convention on Biological Diversity, is being held from 29 September to 2 October in Ottawa, Canada.

Internet: <http://www.cbd.int/doc/?meeting=EWBCSIMA-01>

HIGH-LEVEL EVENT ON CLIMATE CHANGE: On 22 September 2009, UN Secretary-General Ban Ki-moon will host an all-day high-level event on climate change for Heads of State and Government at UN Headquarters in New York. This is taking place one day before the opening of the general debate of the sixty-fourth session of the General Assembly.

Internet: <http://www.un.org/wcm/content/site/climatechange/lang/en/pages/2009summit>

31ST SESSION OF THE IPCC: This meeting will take place from 26-28 October 2009 in Bali, Indonesia. Prior to the meeting, Working Groups I, II and III will approve their respective outlines for the Fifth Assessment Report. For more information contact: the IPCC Secretariat; tel: +41-22-730-8208; fax: +41-22-730-8025; email: ipcc-sec@wmo.int; Internet: <http://www.ipcc.ch>

FIFTEENTH CONFERENCE OF THE PARTIES TO THE UNFCCC AND FIFTH MEETING OF THE PARTIES TO THE KYOTO PROTOCOL: UNFCCC COP 15 and Kyoto Protocol COP/MOP 5 are scheduled to take place from 7-18 December 2009 in Copenhagen, Denmark. These meetings will coincide with the 31st meetings of the UNFCCC's subsidiary bodies. Under the "roadmap" agreed at the UN Climate Change Conference in Bali in December 2007, COP 15 and COP/MOP 5 are expected to finalize an agreement on a framework for combating climate change post-2012 (when the Kyoto Protocol's first commitment period ends). For more information contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; Internet: http://unfccc.int/meetings/unfccc_calendar/items/2655.php?year=2009