

PRESS RELEASE

Ocean acidification from CO₂ emissions causes substantial irreversible damage to ocean ecosystems

Copenhagen, 14 December 2009 – The Secretariat of the Convention on Biological Diversity released today a major study, *Scientific Synthesis of the Impacts of Ocean Acidification on Marine Biological Diversity*.

The launch of the study, which was prepared in collaboration with the UNEP World Conservation Monitoring Centre (UNEP-WCMC), is a major event to mark Oceans Day during the current climate change negotiations in Copenhagen and highlights the direct link between climate change, ocean health, and human well-being.

According to the study, seas and oceans absorb approximately one quarter of the carbon dioxide emitted to the atmosphere from the burning of fossil fuels, deforestation, and other human activities. As more and more carbon dioxide (CO₂) has been emitted into the atmosphere, the oceans have absorbed greater amounts at increasingly rapid rates. Without this level of absorption by the oceans, atmospheric CO₂ levels would be significantly higher than at present and the effects of global climate change would be more marked.

However, the absorption of atmospheric CO₂ has resulted in changes to the chemical balance of the oceans, causing them to become more acidic. It is predicted that by 2050, ocean acidity could increase by 150%. This dramatic increase is 100 times faster than any change in acidity experienced in the marine environment over the last 20 million years, giving little time for evolutionary adaptation within biological systems.

“Ocean acidification is irreversible on timescales of at least tens of thousands of years, and substantial damage to ocean ecosystems can only be avoided by urgent and rapid reductions in global emissions of CO₂. Attention must be given for integration of this critical issue at the global climate change debate in Copenhagen,” said Mr. Ahmed Djoghlaif, Executive Secretary of the Convention.

“This CBD study provides a valuable synthesis of scientific information on the impacts of ocean acidification, based on the analysis of more than 300 scientific literatures, and it describes an alarming picture of possible ecological scenarios and adverse impacts of ocean acidification on marine biodiversity,” he added.

Among other findings, the study shows that increasing ocean acidification will mean that by 2100 some 70% of cold water corals, a key refuge and feeding ground for commercial fish species, will be exposed to corrosive waters. In addition, given the current emission rates, it is predicted that the surface water of the highly productive Arctic Ocean will become under-saturated with respect to essential carbonate minerals by the year 2032, and the Southern Ocean by 2050 with disruptions to large components of the marine food source, in particular those calcifying species, such as foraminifera, pteropods, coccolithophores, mussels, oysters, shrimps, crabs and lobsters, which rely on calcium to grow and mature.

An emerging body of research suggests that many of the effects of ocean acidification on marine organisms and ecosystems will be variable and complex and will affect different species in different ways. Evidence from naturally acidified locations confirms, however, that although some species may benefit, biological communities under acidified seawater conditions are less diverse and calcifying (calcium-reliant) species absent.

Many questions remain regarding the biological and biogeochemical consequences of ocean acidification for marine biodiversity and ecosystems, and the impacts of these changes on oceanic ecosystems and the services they provide, for example, in fisheries, coastal protection, tourism, carbon sequestration and climate regulation.

Dr. Thomas E. Lovejoy, Biodiversity Chair of Heinz Center for Science, Economics and the Environment, in the Preface to the publication, noted: "This publication by the CBD on the impacts of ocean acidification on marine biodiversity is very timely and germane, as it confirms again how great the stakes of sustainability are in the climate change negotiations".

"It is expected that a continuing effort be made within CBD, in collaboration with relevant international organizations and scientific communities, to build upon this publication, further enhancing scientific research on ocean acidification, particularly its biological and biogeochemical consequences, including the accurate determination of sub-critical levels of impacts or tipping points for global marine species, ecosystems and the services and functions they provide," he added.

The CBD Technical Series No.46 is available at www.cbd.int/doc/publications/cbd-ts-46-en.pdf.

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The Convention on Biological Diversity (CBD)

Launched at the Earth Summit in Rio de Janeiro in 1992, the Convention on Biological Diversity is an international treaty for the conservation and sustainable use of biodiversity and the equitable sharing of the benefits from the utilization of genetic resources. With 192 members, the CBD has near-universal participation among countries committed to preserving life on Earth. The CBD seeks to address all threats to biodiversity and ecosystem services, including threats from climate change, through scientific assessments, the development of tools, incentives and processes, the transfer of technologies and good practices and the full and active involvement of relevant stakeholders including indigenous and local communities, youth, non-governmental organizations, women and the business community. The headquarters of the Secretariat of the Convention is located in Montreal.

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