

## Coral reefs face bleak future – but “lifeboats” may help them survive

**Nairobi, 24 May 2016** – It has been a bad year for coral. There has been unprecedented coral bleaching on the northern and central Great Barrier Reef, one of the world’s most iconic reefs and a world heritage site. Bleaching in the central Indian Ocean is also severe, in the Maldives, Sri Lanka and in the Lakshadweep islands of India, where up to 100 per cent of corals are bleached in some locations. Many will not survive.

The bleaching is caused by an unusually strong El Nino and the background global warming from human greenhouse gas emissions.

However, a new tool and a report being launched today at the second United Nations Environment Assembly (UNEA-2) in Nairobi outlines ways to protect these threatened coral reefs.

A dataset by the United Nations Environment Programme (UNEP), National Oceanic and Atmospheric Administration (NOAA), World Wildlife Fund (WWF), and the Pacific Islands Climate Science Center of the USGS provides a new tool to prioritize reef management in the face of climate change. By downscaling climate model projections for coral bleaching conditions, the time when severe bleaching conditions can be expected at a frequency of twice per decade, and when bleaching can be expected annually, has been identified, for all the world’s coral reefs, at a resolution of 4km.

Meanwhile, a new report shows that coral ecosystems that live in low light conditions come to the rescue in some situations. *Mesophotic Coral Ecosystems A lifeboat for coral reefs?* examines what we know – and don’t know – about these important submerged reefs.

Bleaching is chief among the threats of climate change to coral reefs. When bleaching occurs frequently, reefs become more vulnerable to erosion, they lose their structure, which in turn means their productivity and provision of ecosystems services diminish. This will have wide-ranging impact on coastal dwellers in more than 100 countries (including most Small Island Developing States), affecting in particular people who depend on reefs for income or food, as well as industry sectors developed around reefs, such as tourism.

As the global climate heats up, shallow coral reefs will experience increasing levels of catastrophic bleaching and mortality. Worryingly, even if emission reduction committed to by countries in the Paris Agreement are achieved, more than three quarters of all the world’s reefs will experience bleaching conditions annually within this century.

UNEP Executive Director Achim Steiner said, “Humans have left an indelible mark on the marine environment that has led to almost 20 per cent of coral reefs disappearing. But coral reefs are an

invaluable natural asset we can't afford to lose. To give them a fighting chance, we need early and effective action on climate change. ”

However, there is also a glimmer of hope in the great variation within and among countries.

“Many reefs are projected to experience annual bleaching conditions more than 10 years later than reefs within the same country or territory” says Dr. Ruben van Hooidonk, NOAA Atlantic Oceanographic and Meteorological Laboratory.

“These ‘relative refugia’ are coral reef conservation priorities, and can be found within 16 of the 20 countries with the greatest reef area in the world, including e.g. Indonesia, the Philippines, Malaysia and Australia.

“Until now we have not been able to identify such refugia on reefs because the spatial scale of climate models is too coarse. This dataset provides an important resource in prioritizing reef management, including establishment of marine protected areas and reduction of direct human stresses to support ecosystem resilience.”

Available through a newly developed coral reef theme on UNEP Live, the data can be freely downloaded and used for management or adaptation planning as well as outreach.

To buy coral reefs more time and to support recovery of reefs that have bleached severely, some researchers are looking deeper for answers. They are studying submerged, light-dependent reefs to see if they may serve as lifeboats for nearby, connected shallow reefs that have been damaged by repeated bleaching. Mesophotic coral reefs are one of the few remaining ecosystems on earth to remain largely unexplored.

“While they are deeper and more remote than shallow coral ecosystems, mesophotic reefs are still subject to some of the same effects such as bleaching and habitat destruction,” Steiner said. “We are just beginning to understand them, but in some locations they may resist the most immediate impacts of climate change, and may be able to help re-seed damaged or destroyed surface reefs and fish populations.”

“We need to know more about mesophotic reefs, and we need proper ways to manage the seas in which they’re located”, says Peter Harris, Managing Director of GRID-Arendal and one of the editors of the report.

“The fact that we don’t know where many of these reefs are means we could be wrecking them already – from pollution, poor fishing practices or other activities. For that reason, mesophotic reefs should be included in management and conservation plans.”

The lifeboat report’s main recommendations are: to locate where mesophotic reefs exist, with a priority in the equatorial Indo-West Pacific and eastern Atlantic; to increase our understanding of how they are connected to shallow reefs in order to understand the extent to which they can be used as a refuge for, or to reseed, shallow reefs; and to raise awareness amongst managers and policy makers of the importance of their ecosystem service values and encourage measures to protect them.

These tools may support implementation of the proposed UNEA-2 resolution on coral reefs.

“There is truly no time to waste, and UNEA-2 is an opportunity to accelerate action on safeguarding our planet,” said Steiner

## **NOTES TO EDITORS:**

### **About UNEA**

The United Nations Environment Assembly (UNEA) is the world’s most powerful decision-making body on the environment, and responsible for tackling some of the most critical issues of our time. The assembly holds the power to dramatically change the fate of the planet and improve the lives of everyone, impacting everything from health to national security, from the plastic in our oceans to the trafficking of wildlife. Thanks to UNEA, the environment is now considered one of the world’s most pressing concerns alongside other major global issues such as peace, security, finance and health.

This year, hundreds of key decision makers, businesses and representatives of intergovernmental organizations and civil society will in May gather at UNEA-2, taking place at the United Nations Environment Programme headquarters in Nairobi, for one of the first major meetings since the adoption of the 2030 Agenda for Sustainable Development and the Paris Climate Agreement. The resolutions passed at UNEA-2 will set the stage for early action on implementation of the 2030 Agenda, and drive the world towards a better future, more-just future. UNEA-2 is also inclusive, with [myunea.org](http://myunea.org) allowing citizens to feed their concerns into the meeting and take personal ownership of the collective challenges we face.

<http://web.unep.org/unea>

### **About UNEP**

UNEP, established in 1972, is the voice for the environment within the United Nations system. UNEP acts as a catalyst, advocate, educator and facilitator to promote the wise use and sustainable development of the global environment. UNEP work encompasses: assessing global, regional and national environmental conditions and trends, developing international and national environmental instruments and strengthening institutions for the wise management of the environment.

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