

Program Overview

The Coral Reef Targeted Research & Capacity Building for Management (CRTR) Program has been established to address fundamental information gaps in our understanding of coral reef ecosystems, so that management options and policy interventions can be strengthened globally.

Its goal is to:

"Build scientific capacity necessary to provide the information needed for management and policy, so that coral reef ecosystems under threat from climate change and multiple human stressors can be sustained for current and future generations".

Coral Bleaching & Local Ecological effects

Coral bleaching is rapidly developing into a major problem for the health of coral reefs worldwide. Developing a good scientific understanding of the phenomenon is important if management practices are to be effective in minimizing the impacts of coral bleaching.

Corals bleach in response to a range of environmental stresses. These stresses can be localised anthropogenic stress such as declining water quality, sediment runoff, nutrient runoff and changes in salinity and or pH) or global stresses such as climate change. While it is known that corals bleach when sea surface temperatures exceed their

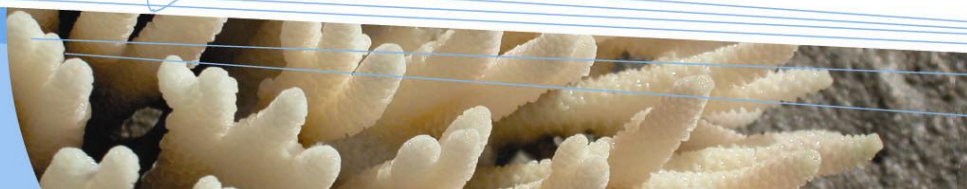
thermal tolerance levels, there is little information available on the mechanism of how a corals bleach.

Unraveling the relationships between the physiology of bleaching in corals and the differential tolerance of algal symbionts to heat and other forms of stress is essential to understanding current changes in coral diversity and hence reef community structures. With more information on bleaching we may be able to predict future changes that will occur in the under various scenarios of global change.

Objectives

The Bleaching Working Group (BWG) is chaired by Professor Ove Hoegh-Guldberg (The University of Queensland, Australia) has drawn together international experts to investigate these critical issues that surround the impact of global climate change on the world's coral reefs.

The objectives of the BWG are to address critical questions that surround the impact of global climate change on the world's coral reefs. The knowledge needed by management to be effective is by nature enormous and diverse. This project will deliver critical information that will enable management to better understand and predict the outcome of climate change on coral reefs. By doing so, it will focus on four key areas, representing the most urgent information gaps:



1. A more complete understanding of the susceptibility and tolerance of corals to rising sea temperatures.
2. A more accurate model of the impact of global climate change on coral reef ecosystems.
3. Management tools by which to identify and monitor stress on coral reefs.
4. Better scenarios of the socio-economic implications of global climate change on coral reefs.

Much of the BWG's plan focuses on climate change and its interactions with local ecological factors e.g. coral-symbiont responses to thermal stress; biomarkers of stress; organismal mechanisms to ecological outcomes, and; projections of change and socio-economic impact.

The plan encompasses a strategy to build expert knowledge and capacity for coral reef management in three developing regions (Mexican Caribbean, East Africa and the Philippines) in association with a fourth region (Australia) which contains the world's largest coral reef and a significant scientific capacity in this field. By linking these regions within an expert network the development and dissemination of knowledge, technological and theoretical capability across the globe, the overall long-term sustainability of the initiative will be strengthened. Further the project seeks to maximise the longer-term value of the intellectual and technological resources developed by the Program.

In achieving this, the Program's targeted research framework will systematically define information gaps of strategic importance.

Importance to Management & Policy

Understanding current and future impacts of global climate change on coral reefs is not well understood at present.

Increasing our understanding of coral reef responses to global climate variations will be critical for future planning and future planning is critical if we are to minimise degradation of coral reefs. The need for sustainable coral reef systems is based on the fact that the socio-economic benefits are essential to a larger part of the world's coastal communities. It is important to understand the cost of climate change, as this will be critical in assessing the pros and cons of different strategies.

Further Information:

Further information on the Bleaching Working Group and its activities can be obtained from:

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Membership

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CRTR Project partners include the Global Environment Facility (GEF), World Bank (WB), The University of Queensland (UQ), United States National Oceanic and Atmospheric Administration (NOAA), UNESCO-Intergovernmental Oceanographic Commission (IOC/UNESCO) and approximately 50 research institutes & other third parties around the world.

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