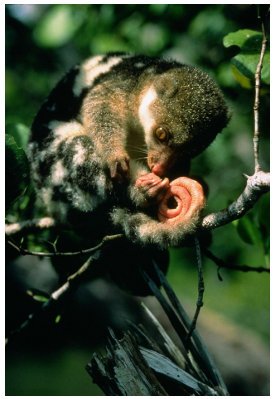
Biodiversity in Melanesia

As the epicenter of marine biodiversity in the world and home to some of the most diverse terrestrial ecosystems on the planet, Melanesia is highly vulnerable to habitat degradation and species loss. Effective conservation strategies are essential to preserve Melanesia's rich natural resources for years to come. In order for these conservation strategies to be effective they must adapt to new threats and changes in environmental conditions, otherwise, efforts to conserve will be futile. One of the most critical threats facing biodiversity today is climate change and its effects have a devastating potential to harm life on earth.



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Melanesia

For the purposes of this study, Melanesia includes Fiji, Vanuatu, New Caledonia, Solomon Islands, Papua New Guinea and the Indonesian province of Papua.

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http://www2.bishopmuseum.org/ccbm/

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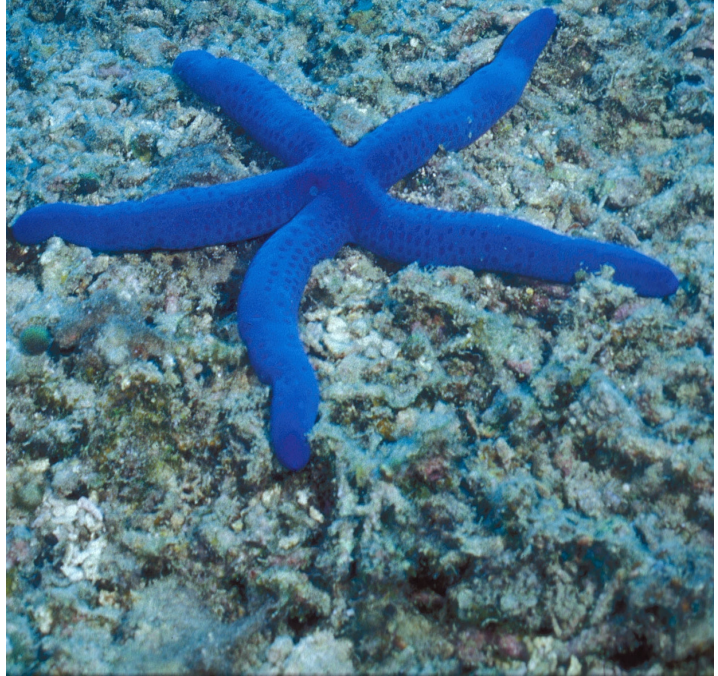


Climate Change & Biodiversity in Melanesia:

Assessing Vulnerability of Marine and Terrestrial Ecosystems to Projected Climate Change

The Bernice P. Bishop Museum and the Pacific Regional Environment Programme (SPREP) are undertaking an expert-led study to assess the vulnerability of biodiversity and island ecosystems in Melanesia to climate change. This project is one of eight grants from the MacArthur Foundation to identify the implications of climate change in the regions where the Foundation funds conservation efforts and to develop conservation and management approaches that address these threats. Other studies are addressing similar issues in Madagascar, Africa and the Caribbean.

The CCBM study carried out by Bishop and SPREP is in close collaboration with the Pacific Science Association (PSA), the Indo-Pacific Conservation Alliance (IPCA) and the Pacific Biodiversity Information Forum (PBIF). The project will largely focus on climate impacts on marine systems but will include those on terrestrial areas as well.

Image courtesy of NASA

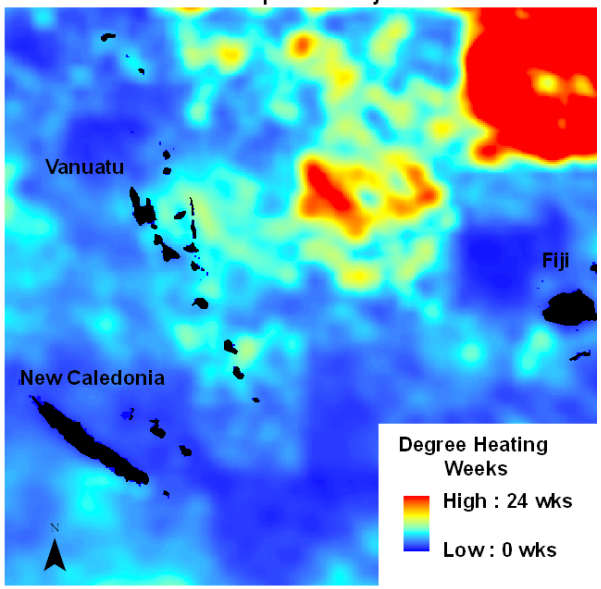
BISHOP MUSEUM

SPREP

IPCA

PACIFIC SCIENCE ASSOCIATION

Projected number of Degree Heating Weeks per year for 2080 - 2090 for New Caledonia, Vanuatu, and parts of Fiji



Source: Timmermann 2007
(Average of downscaled IPCC models)

Three Main Components of the CCBM study:

Component One: Assess the current scientific understanding of the impacts of climate change and other biogeochemical processes (ex. ocean acidification) on island and marine ecosystems in Melanesia. The objective is to facilitate and document the best state-of-the-science consensus on the implications of these anthropogenic processes on current and future conservation strategies, planning, and policies. Lead Institution: Bishop Museum.

Component Two: Assess the institutional and socioeconomic adaptive capacity of Melanesian countries to effectively respond to climate change impacts including legislation, policies and capacity assessment. Lead Institution: SPREP.

Component Three: Develop an integrated assessment of the vulnerability of Melanesia's biodiversity to climate change, based on Components One and Two. Lead Institutions: Bishop and SPREP.

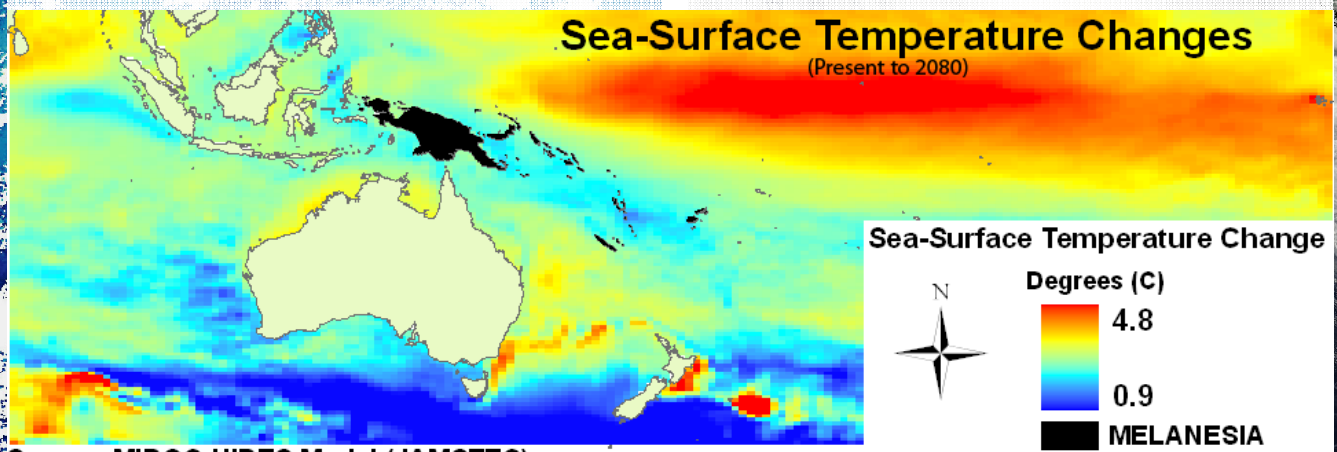
Background images courtesy of NASA

All information, data, expert advice and white papers will be synthesized into a consensus report which will be prepared and presented in draft form at the 8th Pacific Islands Conference on Nature Conservation and Protected Areas in Papua New Guinea in October 2007. Researchers, managers and stakeholders attending the conference will be encouraged to provide feedback, additional information and recommendations. This input will be incorporated into the consensus report to produce the final vulnerability assessment report in 2008. This final report will specify where additional research is needed, detail the current understanding and predictions of how climate change will impact the region's development and conservation and list suggestions for adapting conservation efforts to the changing world.

Component Two will assess the institutional and socioeconomic capacity in Melanesia to adapt resource management practices, programs, policies and legislation to mitigate the impacts of climate change. In order to perform this assessment SPREP will document all current management policies and programs and identify impediments and opportunities for successful biodiversity conservation and management that moderates the effects of climate change. Additionally, the study will evaluate the consequences of climate change on two important economic sectors, such as coastal fisheries and tourism, and examine how conservation practices can be used to assess the impacts of climate change on those sectors.

After completing the two component assessments, Bishop, SPREP, and partners will integrate the two reviews into a Final Integrated Vulnerability Assessment Report with a set of recommendations for policymakers and managers to use in designing development, resource management, conservation policies that reflect an adequate and appropriate understanding of projected climate change. The final assessment will be incorporated into future revisions of the Action Strategy for Nature Conservation, the Pacific Islands Framework for Climate Change and other conservation plans and strategies. This report will also be used to develop a range of communication products for a variety of audiences in Melanesia and beyond.

These final results and products will provide conservationists and resource managers in Melanesia with the information and tools they need to develop conservation approaches that can successfully address the influence of climate change on biodiversity and social welfare. Additionally, the products will supply the MacArthur Foundation and other grant-making organizations with the information they need to determine which proposals effectively address the impacts of climate change and merit funding. Efforts like this assessment are an essential step in ensuring that conservation efforts succeed in the climate of today and in the climate of tomorrow.



Source: MIROC-HIRES Model (JAMSTEC)