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# Coral Reefs

Journal of the  
International Society  
for Reef Studies



Plenary papers from the Eighth  
International Coral Reef Symposium  
Panama, 1996

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Springer

## Preface

# The Year of the Reef—Special Issue—Plenaries from the Eighth International Coral Reef Symposium, Panama

Plenary talks have been a feature of the International Coral Reef Symposia since the meetings held in Miami in 1997. For the Eighth ICRS we continued and expanded this tradition, with 15 plenaries scheduled across the five-day meeting. The goal was to allow attendees to be informed of major developments across the broad array of fields encompassed by the meetings without frustrating their natural desire to hear contributed papers and symposia in their specialized areas of interest. Needless to say, the success of this strategy hinged upon the quality of the plenary presentations. In this respect we were very fortunate, and for this reason we have gathered the papers together in a special volume of *Coral Reefs*, both to extend their dissemination and to celebrate, with their publication in 1997, the Year of the Reef.

The meetings were held in Panama City, Panama, on the shores of the tropical Eastern Pacific. Many coral reef scientists are unfamiliar with the reefs of the region, despite their importance both as examples of marginal habitats for corals and as a source of records for past El Niño events. Thus the first plenary in this issue, by Jorge Cortes, reviews the biology and geology of these structures.

The next two plenaries review areas of basic biology central to any informed discussion of reef ecology and evolution. The first, by Bette Willis and colleagues, discusses the implications of mass spawning and reproductive biology of corals for our understanding of the fundamental unit of biodiversity, the species. The next, by Mark Hay, summarizes the contest between seaweeds and their herbivores, whose grazing activities are essential for coral survival.

Three plenaries dealing with the concepts of connectedness and communities follow. Bruce Hatcher reviews how ecosystem approaches can be used to understand how reefs function, while Stephen Hubbell draws on theoretical ecology to develop a model for predicting patterns of biodiversity in tropical rain forests and coral reefs. In the third plenary of this group, Robert Warner shows how long distance larval dispersal shapes the evolutionary options of many reef organisms.

Larval dispersal leaves its trace in DNA, and Stephen Palumbi in the next plenary shows how molecular studies of genetic patterns in space can be used to infer biological history. Coral skeletons and the volcanic foundations they grow on also reveal much about the past. Rick Grigg in his plenary uses them to explore the history of the Hawaiian archipelago, and what it tells us about

paleoceanography of the Pacific Ocean over the last 70 million years. Richard Fairbanks and colleagues then review the central role that corals can play in recovering the history of tropical climates and world climate generally.

History is the record of change or disturbance. The next three plenaries discuss the nature of several types of disturbance to reefs and the role that man might be playing. Jeremy Jackson reminds us that old books may be as useful as genes and coral skeletons in recovering history and discusses the early and massive changes to Caribbean community structure from hunting following the arrival of Columbus. Joseph Connell compares various studies of more recent disturbances to reefs and their patterns of recovery, or the failure thereof, that these studies document. Barbara Brown in her review of coral bleaching relates disturbance to the fundamental relationship underlying all coral reefs, that of the symbiosis between coral animals and their photosynthetic dinoflagellates.

The current trajectory of disturbance and decline of coral reefs suggests that human intervention will be required to save these most beautiful and diverse of marine ecosystems. This is the subject of the final three plenaries. Edgardo Gomez discusses the difficulties of management in developing nations, where most reefs are situated. John McManus examines the particular problem of overfishing on reefs in an ever hungrier world. Ian Dight and L.M. Scherl outline the importance of political and social partnerships for saving reefs and the role of the International Coral Reef Initiative in supporting these efforts.

The plenary papers represent a small fraction of the full proceedings of the Eighth International Coral Reef Symposium. Two volumes comprising over 2000 pages contain over 350 reviewed articles based on presentations made during the symposium. These contributions plus the plenary papers published in this issue of *Coral Reefs* mark the state of knowledge of many important areas of reef research. We look forward to gauging the progress made, both in understanding reefs and in their protection and conservation, when the 9th International Coral Reef Symposium takes place at the beginning of the new Millennium.

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