



## *Preface*

This double issue of *Coral Reefs* is focussed on the process of physical disturbance, and its effects on coral reef dynamics. Recurrent natural disturbances (such as hurricanes, floods and El Niño events) have profound long-term influences on the biology and geology of reefs. For example, disturbances are central to non-equilibrium theories of the community structure of coral reefs and to an understanding of population dynamics, life histories, and reef growth. From a management perspective, it is important to quantify natural changes on coral reefs to improve our understanding of the scope and effect of human disturbances.

Many of these aspects of disturbance are explored in this special issue. Karlson and Hurd provide a comprehensive review of the ecological theory of disturbances as it relates to coral reef assemblages. Rogers addresses non-equilibrium models of reef succession and the role of hurricanes in the maintenance of reef diversity. Aaronson and Bythell et al. document the influence of hurricanes on mobile and sessile fauna, respectively. Massel and Done provide an interesting interdisciplinary study which combines coral population dynamics with hydrodynamic modelling. Andres and Rodenhouse use computer models to examine the resilience of coral populations following recurrent hurricanes. Jokiel et al. describe impacts of flooding in Hawaii; Simpson documents a case of natural eutrophication from Western Australia, while Gleason summarizes her work on bleaching in French Polynesia. Scoffin and Dollar provide interesting longer-term perspectives, on the important geological effects of storms and hurricanes.

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I hope that this special issue of *Coral Reefs* will focus attention on processes affecting the biology and geology of coral reefs. Coral reef science to date has been largely descriptive, asking "what are the patterns?". It is time to seek out further why these patterns occur, by exploring the processes and mechanisms involved, through hypothesis testing, experimentation and modelling.

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