

MARINE BIODIVERSITY: CAUSES AND CONSEQUENCES

A meeting on *Marine biodiversity: causes and consequences* was held in York on 30 August – 2 September 1994, organized by the Marine Biological Association and the Scottish Association for Marine Science and supported by the World Wildlife Fund for Nature, the Natural History Museum and the Marine Conservation Society. The following 16 papers were first presented at this meeting.

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INTRODUCTION

Marine environments and ecosystems cover the greater part of the earth's surface, and the phyletic diversity of living organisms present in the oceans exceeds that to be found on land. But marine biodiversity has received only a fraction of the attention accorded terrestrial environments. Even within marine research there is great disparity between what is known about various systems. The increasing rate of human exploitation and impact upon the marine environment is prompting concern that much of this diversity may be lost before we are able to fully understand either its extent or its significance.

This meeting was called to bring together researchers working in a wide range of marine fields who possessed a common interest in the origins and functions of the biological diversity apparent within various environments. Research presented at the meeting illustrated both the scope of current marine research relevant to questions of biodiversity, and the concern of many marine biologists regarding the widespread degradation of the inshore marine environment. Researchers present were involved in research on environments ranging from the deep ocean to the intertidal, and from tropical reefs and mangroves to the polar seas. Yet with surprising frequency the same observations and issues emerged.

Trends in species diversity with latitude or longitude were frequent, apparent among both coral reef fishes and deep sea benthos. Yet it was emphasized that not all faunal groups are more diverse in the tropics than in polar regions and benthic diversity in high latitudes may be very much higher than previously appreciated. Studies often showed that the extent of species diversity must be greater than hitherto described; in particular the question of the true extent of species diversity in the deep sea. The rate of discovery of new species in new samples that deep benthic diversity must be higher than currently known, yet it was clear that simple extrapolations from the existing small samples could be very misleading.

Several studies also described how unrecognized species or sub-species may be present among marine populations; for example of tropical macroalgae and temporal intertidal molluscs. New molecular genetic tools promise to be of enormous value in clarifying the status of populations and are also being used to investigate the origin of species. Mechanisms permitting or promoting within-habitat diversity were also discussed. Habitat complexity or variations seemed to be a common correlation, and disturbance another.