

SYMPOSIUM n° 8

PROTECTION AND CONSERVATION OF THE REEF ENVIRONMENT,  
A GAMBLE ON THE FUTURE

PROTECTION ET CONSERVATION DES MILIEUX RECIFEAUX,  
UN PARI SUR LE FUTUR

CONCLUSION

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In reviewing all the papers presented in this symposium, a certain pattern emerges. There were many depressing reports of reef damage and destruction; not that this is particularly new or unusual, but the evidence was now more quantitative and world-wide in scope. Figures for damaged reefs such as the 80% of reefs surveyed around Okinawa, and 65% of the reefs visited in Tonga showed that these problems were not just limited to isolated localities, but may affect a major part of a country's reef resources. The new Directory of Coral Reefs being prepared by IUCN documented for the first time that such reef problems were widespread and that the situation was similar around the world.

Other contributions described some of the causes of reef damage, such as turbidity and sedimentation caused by construction, dredging and soil erosion on the land. Another frequently-cited cause was pollution by pesticides, chemicals, and nutrients causing eutrophication and the overwhelming growth of green algae. Overfishing and destructive fishing with explosives or by smashing corals were also considered important. Some of the mechanisms for these destructive effects were illustrated, including the variable long-term toxicity of certain pollutants, and the reactions of corals, including mucus secretion, various coral diseases, and the rapid shut-down or death of whole coral colonies. A few natural causes of coral destruction were described, including the effects of scoria from a volcanic eruption, and the abnormal ocean warming during the severe "el Nino" of 1983 which caused extensive coral death on the Pacific Coast of Central America, and total death of many corals in the Galapagos Islands. Occasionally there were surprises, as in the case of the thermal pollution from a Hawaiian power plant that actually encouraged coral settlement.

Much of the symposium was devoted to solutions to the problems described, such as the treatment or elimination of waste discharges in coral reef areas, requiring expensive control and monitoring programmes in some cases of heavily impacted coastal areas. The creation of marine protected areas, such as parks, reserves and

sanctuaries was also discussed, as were closures and other measures more directly intended for fisheries management. Frequent reference was made to the importance of public education in support of reef conservation, with examples cited from Australia, Sudan and the South Pacific. National legislation, regional conventions and international conventions such as CITES were also discussed, as were broad coastal or environmental management programmes with a coral reef component, such as the South Pacific Regional Environment Programme. The outstanding example of comprehensive management of a major coral reef area is the Great Barrier Reef Marine Park, and several papers described approaches there to zoning, public information and consultation, surveillance and monitoring. The question was raised in discussion as to how this example could be applied in developing countries with much heavier pressure on reef resources. New technologies such as remote sensing may well help to solve some reef management problems, but it was clear that there was still a lack of many solutions appropriate to the tropics.

A few papers on the results of reef protection and conservation measures provided some encouragement. While recovery of damaged reef areas may seem slow at first, the site of the classic example of reef eutrophication, Kaneohe Bay, Hawaii, showed extensive coral recovery six years after pollution inputs had been removed. Australian fishermen had even begun to request controls on their fishing activity in certain vulnerable areas. An economic evaluation of parks created to protect coral reefs show that, in some cases at least, the benefits from the park far outweighed the cost.

In the discussion following the papers, several Pacific Island participants regretted the lack of papers at the Congress concerning the impacts on coral reefs from radioactivity and nuclear tests.

The overall impression from this symposium on the protection and conservation of the reef environment was of the awesomeness of the problem and of how far we still have to go.