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INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

REPORT OF THE UNEP-UNESCO-IOC-WMO-IUCN-SPREP-SCOR-CARICOMP-PACICOMP WORKSHOP
TO ORGANIZE A CO-ORDINATED NETWORK OF TROPICAL MARINE LABS
TO MONITOR REEF RESPONSES TO GLOBAL CHANGES

HELD IN CONJUNCTION WITH
WITH THE 7TH INTERNATIONAL CORAL REEF SYMPOSIUM
22-26 JUNE 1992

The Workshop took place on Thursday afternoon, 25 June 1992 under the Co-chairmanship of Professors W.J. Wiebe and B. Salvat, President of the International Society for Reef Studies.

In opening the Workshop Professor Wiebe referred to the earlier session on Tuesday afternoon during which the various activities of international agencies and programmes in the field of coral reef monitoring had been presented. He suggested that the workshop set itself the following goals:

- (i) Deciding whether a co-ordinated network was indeed necessary and of potential benefit;
- (ii) Seeking agreement to co-ordinate existing and planned regional and other activities;
- (iii) Seeking agreement to co-operate within the framework of the UNEP-IOC-WMO-IUCN proposed long-term global monitoring of coral reefs; and,
- (iv) Seeking expressions of support and agreement in principle to participate in the pilot phase activity of coral reef monitoring proposed under the UNEP-IOC-WMO Long-Term Global Monitoring System for Coastal and Near-Shore Phenomena Related to Climate Change.

Professor Salvat emphasized the need for co-operation at all levels and suggested that the report of the workshop prepared by Dr. Pernetta as Workshop Rapporteur for UNEP-IOC-WMO-IUCN be taken as a report to the other agencies co-sponsoring the workshop. This was agreed by the Rapporteur.

The Co-chairs called on Dr. Pernetta, the Representative of IOC, and rapporteur for the Workshop, to amplify the nature of the proposed global monitoring system and to address some of the concerns of individuals and institutions which had been raised in discussion both inside and outside the sessions.

Dr. Pernetta emphasized that the International Agencies were not funding bodies and that their primary role was to facilitate International Co-operation at a Government level. Once Governments had, through their participation in the governing bodies of organizations such as UNEP, IOC and WMO approved a programme or activity such as the pilot phase activity to monitor coral reefs in relation to climate change, then the sponsoring agencies provided a mechanism to stimulate the provision of support at national level.

Once a government has made a commitment to such a programme or activity then they are committed to providing sufficient financial and other support to ensure its adequate implementation.

A second important role for the international agencies lies in facilitating the transfer of expertise, funds and equipment from developed country partners to developing countries to enable them to participate in the agreed programme or activity. The IOC programme for example covers support for training, education and mutual assistance to countries where the capacity to participate in agreed programmes is limited by the restricted capacity and capabilities in marine science.

The proposed pilot phase activity provides a framework for inter-regional comparison and although the proposed monitoring protocols had been deliberately kept simple nevertheless they provided a mechanism through which comparison of the results from more sophisticated monitoring programmes based on differing methodologies applied in different areas at different times, could be compared. He drew the analogy with the development of meteorological services from simple data collection systems on a local or sub-regional basis to large co-ordinated data collection networks which provide the possibility to model and predict both climate and weather.

Dr. Pernetta emphasized that the proposed pilot phase activity does not subsume nor replace existing programmes but merely provides a framework within which closer inter-regional co-operation might become possible. In this regard he outlined the experience of agencies such as IOC and WMO, in international data management, quality control, handling, storage and exchange and indicated that the basic principle on which such systems work is that organizations and governments which contribute data to the systems obtain access to much larger data sets and products.

The Representative of IUCN, Dr. Elder, pointed out that although his organization was generally considered to be a Non-Governmental-Organization it had in fact some 60 state members and that through its networks of members and commissions could mobilize a considerable volume of ecological expertise. He stated that his interest in the present proposal was in part related to the possibility of using marine Parks and Protected areas as long-term monitoring sites and hence that the current work of IUCN in developing management guidelines for such areas might include consideration of long-term monitoring as a management objective.

The Representative of UNESCO, Dr. Harger, emphasized the need to monitor the status of coral reefs not merely in pristine areas but in areas where such systems were subject to other forms of stress or degradation. This led to some discussion of the nature of the monitoring objectives which the Representative of UNEP's Earthwatch programme, Dr. Dahl, suggested needed to be clarified. He emphasized that the present proposal was essentially concerned with data collection on decadal time scales hence the nature of the sites selected for initial inclusion was critical, sites which were degrading at rapid rates would be unlikely to provide the long-term continuity required to meet the objectives of the present proposal.

Considerable discussion of problems of signal to noise and the extent of other sources of anthropogenically induced stress in reef systems took place and the attention of the workshop was drawn to the relevant sections of the report of the UNEP-IOC-WMO-IUCN Meeting of Experts on a Long-Term Monitoring System of Coastal and Near-Shore Phenomena Related to Climate Change, Pilot Projects on Mangroves and Coral reefs, held in Monaco 9-13 December 1991, which make reference to the need for global, regional and national sites spanning the range of levels of stress currently operating in reef ecosystems.

Some discussion took place concerning the nature of the monitoring and the methods which had been adopted for implementation under the pilot phase. It was generally recognized and agreed that the methods employed by any monitoring programme were subject to change with time and that the focus of the present workshop was the establishment of the networks and obtaining an agreement between those present to co-operate at all levels in achieving the common objective of monitoring the status of coral reefs. It was agreed that the workshop should not become bogged down in discussing methodological detail, but should seek general agreement on co-operation based on the commonality of programmes rather than on their differences.

It was anticipated by the workshop that considerable investment in planning the data management and handling systems would need to occur during the initial phase of development of the system, and that this should take place early on during the pilot phase. The attention of the workshop was drawn to the current development of a proposed coral reef database (Reefbase) by ICLARM and it was suggested that this system might constitute an appropriate mechanism for data handling in the framework of co-ordinated monitoring of coral reefs.

It was noted that some 5-10 laboratories world-wide were capable of very sophisticated monitoring and analysis and some programmes are now operational. Although such laboratories and programmes might provide an indication of trends and changes there was an obvious need for a more extensive network which enables wider

participation, particularly if global trends were to be identified. Several speakers noted that simple data collection methods had their place within the overall framework and that these should be linked with more sophisticated systems through simultaneous operation. Professor Salvat noted in this regard that implementing the proposed methods of the UNEP-IOC-WMO-IUCN as a "one-off" operation would involve no more than three days of time within the current French Polynesia monitoring research programme. Such an investment was a small price to pay for initiating collaboration and developing the first phase of the network.

The need for a recognizable structure for the network was also discussed, and it was recognized that the more institutions which agreed to co-operate in a pilot phase activity the more likely it was that the International Agencies and their member governments would recognize both the need for such a system and the potential benefits which might derive from active support for its development. The UNEP Representative, Dr. M. Gerges, indicated that as far as the four agencies were concerned, IOC was the operational Secretariat for the pilot phase and that IOC had accepted responsibility for implementation of the programme on behalf of the co-sponsoring agencies; hence it provided a single focus for system development.

At this point the Co-Chairs, noted that there was clearly unanimous agreement concerning the need for co-ordination and collaboration at all levels and they sought expressions of support or otherwise from representatives of various programmes for the proposal that the UNEP-IOC-WMO, long-term global system be used in this regard.

The Representative of SPREP, Mr. Holthus, expressed support on behalf of his organization for the UNEP-IOC-WMO-IUCN proposal and offered the assistance of his organization in support of network development in the Pacific.

The Co-Chairs of CARICOMP, Dr. E. Jorgan D. and Dr. J. Ogden, expressed support for sharing of information for the pilot phase and for the desirability of CARICOMP laboratories to participate, but indicated that it would be necessary for the matter to be referred to the CARICOMP Steering Committee in order to seek their formal approval.

The Chairman of the ASEAN-Australia living resources project, management committee, Dr. Sudara, then expressed the support of that programme to the proposed development and agreement to participate in the pilot phase.

At this stage of the workshop the issue of methods and data management were again raised. The UNEP Representative, Dr. M. Gerges, informed the workshop that the methods manual including reporting format was under preparation and that immediately it was completed it would be mailed to all individuals, institutions and organizations expressing an interest in participating in the pilot phase to enable them to collect at least one set of data as a "one-off" exercise in co-operation.

The Co-chairs then asked that any individual or representative of an organization willing to participate in the pilot phase provide the rapporteur with their details and a listing of these expressions of interest is annexed to this report.

Conclusions:

The workshop was extremely successful and although minor doubts were expressed concerning the detail of the proposal there was unanimous support for achieving the goals outlined by the Co-Chairs at the commencement of the workshop and for the implementation of the proposed UNEP-IOC-WMO-IUCN coral reef monitoring pilot phase activity.

The workshop agreed:

1. on the need for a co-ordinated network;
2. that existing and planned monitoring programmes would co-operate inter-regionally;
3. that the UNEP-IOC-WMO-IUCN coral reef monitoring pilot phase would be used as the vehicle for co-operation; and,
4. that all institutions and organizations be encouraged to participate in the implementation of the pilot phase.

ANNEX

**LIST OF INDIVIDUALS & ORGANIZATIONS
EXPRESSING INTEREST IN PARTICIPATING IN THE PILOT PHASE ACTIVITY
TO MONITOR CORAL REEFS**

7th International Coral Reef Symposium,
Guam, 22-26th June 1992.

All ASEAN Countries:

c/o Dr Suraphol Sudara, Chairman Management Committee
Department of Marine Science
Chulalongkorn Univ.
Bangkok 10330, Thailand

CARICOMP participating institutions, subject to steering committee approval:

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SPREP-PACICOMP participants:

c/o Mr P. Holthus
SPREP Secretariat
Apia
Western Samoa

Dr. D.K. Atwood, Director
NOAA Atlantic Oceanographic and Meteorological Laboratory
Ocean Chemistry Division
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Prof. Chuck Birkeland
Marine Laboratory
University of Guam
Mangilao
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Al Khod
Sultanate of Oman

Dr. Pat Colin
Coral Reef Research Foundation
Chuk
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Délégation Environnement
Government Polynésie Française
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Mr. John F. Furey & Mr. Joaquin P. Villagomez
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