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EDITORIAL

Release of this issue of the WESTPAC Newsletter is later than planned. However, the delay has made it possible to include information on planning for the WESTPAC Symposium which is proceeding successfully. Member States of the Programme Group and scientists within its Task Team should also note that preparations for WESTPAC IV have begun. Accordingly, it is expected that National and Technical Coordinators will already be reviewing their activities for reporting to that meeting to ensure smooth progress into WESTPAC V. The Chairman of the Programme Group has already requested advice from the Secretary of IOC on needs for WESTPAC IV and will convey that information to those concerned as soon as possible.

WESTPAC SYMPOSIUM, 1986

In WESTPAC Newsletter No. 5 the possibility was announced of WESTPAC staging a major Symposium in 1986. The concept originated at the Task Team Coordinators meeting in January this year and received strong support at the IOC General Assembly.

After extensive consultations, the Chairman of WESTPAC established a small Steering Committee to both design the parameters of and handle the administrative arrangements for the Symposium. The Steering Committee comprises the Chairman and Dr. David Tranter, OSLR Task Team lead and member IOC OSLR Group of Experts, Dr. Peter Cook, Vice Chairman IOC Guiding Group of Experts on OSNLR, Dr. John Zillman, Australian representative to WMO Executive and Mr. Bob Harriss, Department of Science WESTPAC Liaison Officer.

The Steering Committee having prepared a draft Symposium outline, the Chairman, Dr. Bunt, convened a meeting in Cairns, 19-20 September, to consider the draft and to refine the concept. Invited to attend this meeting were the Steering Committee, all WESTPAC National Coordinators and a number of international experts with IOC, UNESCO and regional links.

The outcome of these well attended discussions is as follows:

Symposium Title: The WESTPAC Symposium 1986 :
The Indo-Pacific Convergence

Timing: 1 - 6 November 1986

Venue: Queensland, Australia

(These two important details will be finalised after discussion of all available options and consideration of the timing of other major scientific events).

Objectives of the Symposium

To consider how to direct scientific advance towards understanding the environment of the region and its living and non-living resources towards their effective management for economic and social development:

- (a) to review knowledge of the Indo-Pacific marine domain and to consider the importance of improving that knowledge;
- (b) to identify major areas of concern of marine science relevant to human needs;
- (c) to bring scientists working within the region into closer contact and to stimulate their interaction within and across disciplines for research of regional significance;
- (d) to assist resource managers and developers to consider the relevance of a sustained and well coordinated regional marine science endeavour;
- (e) to develop the competence of the regional marine science community and of those concerned in the application of discoveries in marine science.

Major Discussion Topics

- (i) Evolution of the Arc Complex
- (ii) Ocean Variability and the Links with Climate
- (iii) Speciation and interannual variability in marine communities
- (iv) Human influences on the marine environment

Identification of discussion items within the framework of the above four subjects is the responsibility of Study Group Leaders in association with the Steering Committee. Suggested items have been considered in the context of WESTPAC and IOC determined priorities and full details will be circulated in the first formal announcement. It is envisaged that perhaps 3 or 4 issues would be considered under each major item.

Format

It is proposed that the Symposium be structured along the following lines:

- Day 1 (am) Opening Session, including major address
- (pm) Plenary - addresses by keynote speakers in each of the four major discussion topics

Days 2 and 3 In four concurrent sessions; paper presentations and detailed discussion

Day 4 Plenary

Day 5 WESTPAC Task Team sessions

Note: Poster sessions to be conducted throughout the Symposium but highlighted on the evenings of Days 2 and 3.

Focus

The geographic focus of the Symposium is the archipelagic zone which can be loosely defined as the Indo-Pacific convergence. This is a region of immense scientific interest in all of the disciplines under consideration and a region whose research and management problems are common to the balance of the WESTPAC area.

The Chairman of WESTPAC is hopeful that this will be the first in a series of like Symposia initiated by the WESTPAC group over the new few years and believes that the identification of a geographic focus for this and subsequent symposia is a realistic approach to the development of regional expertise. Indeed, Korea has been invited to arrange a follow up Symposium on the Yellow and East China Seas in 1987 possibly in conjunction with the next Pacific Science Congress.

It is the intention of the Steering Committee that every opportunity be afforded developing country scientists to actively participate in all facets of the Symposium. To this end the Steering Committee intends approaching various funding agencies in an endeavour to raise sufficient funds to enable subsidisation of travel costs incurred by developing country participants.

At the working level it is proposed that a number of poster sessions be held during the course of the Symposium to enable young researchers to display and discuss their recent work. In addition Group leaders will be identifying paper presenters and discussion panel leaders in all sessions and have been asked to ensure broad regional representation in all categories.

You will note also that the Symposium is structured to enable WESTPAC Task Teams to meet at the conclusion of the Symposium so as to facilitate discussion of the week's outcome and, in addition, to plan the direction of the Task Teams throughout 1987/88 taking account of the decisions of WESTPAC IV, IOC Executive Council and the Symposium.

The Symposium is intended to be the major WESTPAC IV-V intersessional activity and all persons interested in WESTPAC are encouraged to make all necessary arrangements to participate in it.

It is expected that a formal announcement in the form of a detailed circular will be available by early December.

FORTHCOMING EXECUTIVE COUNCIL

February/March 1986

As readers will be aware the elections to the present IOC Executive Council were conducted at IOC Assembly XIII in Paris earlier this year and resulted in a reasonable level of WESTPAC member state representation on Council (Newsletter No. 5 p6 has details).

The next session of the Executive Council is to be held in Paris in February/March 1986 and the Chairman is aware from recent discussions with IOC Secretary, Dr. Mario Ruivo, that documentation for the session is in preparation. All National Coordinators are encouraged to take an active interest in the documentation when it becomes available and, where possible, to brief national representatives to Executive Council to be supportive of programs and initiatives designed to benefit further WESTPAC development.

The Chairman of WESTPAC is planning to attend the meeting of the Executive Council and will take that opportunity to visit a number of WESTPAC Member States for detailed discussions on the needs of the Programme Group. He is especially anxious to consult with those who will be involved shortly afterwards in WESTPAC IV.

WESTPAC IV

Advice from the IOC Secretariat indicates that Thailand has agreed to host WESTPAC IV and that timing for the meeting in the period April/May 1986 at Phuket is likely. To assist the Secretariat, Australia has offered to assist with documentation for the meetings should that be necessary. It is expected that a tentative agenda will be available shortly for comment.

The Island States of the Pacific

Towards an expansion of WESTPAC services within the region, the Chairman recently communicated WESTPAC objectives and interests to the South Pacific Commission and is hoping to hold discussions with Commission representatives on route back to Australia following attendance at the meetings of the Executive Council early in 1986.

CORAL CORE RESEARCH AT THE AUSTRALIAN INSTITUTE OF MARINE SCIENCE

New Programme established at the Australian Institute of Marine Science to study weather and climate records in massive corals.

A new Paleoenvironments/Coral Chronologies Group has been set up at AIMS to take advantage of recent discoveries in acquisition and interpretation of weather records in long lived massive corals. The group, consisting of Dr. Peter Isdale, (Co-ordinator), Ted Daniel and two soon-to-arrive postdoctoral

fellows, calls on the expertise of scientists from other programmes at the Institute to provide the innovative thinking that has proved to be essential in what is really a pioneering effort. The inputs from Dr. David Barnes, Dr. Bruce Chalker and Dr. Kevin Boto have helped to identify and decipher the various records that exist in the corals, and will develop and standardize the methodology during the next twelve months. This in turn should lead to the establishment of an Applications Centre whose function will be to provide the climatic sequences to end users such as the Bureau of Meteorology and water resources agencies.

The development of a new underwater drilling apparatus at the Australian Institute of Marine Science, Townsville, has enabled the acquisition of long (6.0 metres) solid cores from enormous living colonies of the massive coral *Porites* in the Great Barrier Reef Province. These fine-gained corals may grow to a thousand years old, and new X-radiographic methods of analysis of the cores enables the corals' growth to be dated with great accuracy (to about ten day resolution). Superimposed on a seasonal density cycle in the coral skeletons are interannual changes in density. The latter's most recent expressions correspond to historical El Nino occurrences. In the western Pacific, El Nino periods correspond to dry or poor wet seasons. The corals contain analogues of Australian droughts for many centuries past.

Cores taken from massive *Porites* corals growing in inshore areas on the Great Barrier Reef contain bands which exhibit bright yellow-green fluorescence when irradiated with long-wave ultraviolet light. The bands occur in the high density part of the skeleton which is deposited in the summer or monsoon season. They occur almost every year, and vary in intensity from very bright to dull. All other parts of the coral show a dull blue fluorescence under the same ultraviolet light.

The yellow-green bands are only found in corals growing in the inshore regions of the Great Barrier Reef Province. Cores taken from colonies growing more than about 30 nautical miles from shore exhibit only the blue background fluorescence. Analysis of the yellow-green bands shows that they are highly correlated in intensity and timing with adjacent river runoff. The bands are composed of organic compounds derived from decaying plant material which is introduced into the marine environment by rainfall washing it from terrestrial soils into rivers. The substance is taken up by the corals during growth and absorbed onto the aragonite crystals in the skeleton, where it cannot be altered or changed. The largest of these colonies have been growing for many centuries, and a new analytical instrument, also designed and constructed at the Australian Institute of Marine Science, allows a temporal resolution of less than 20 days when discriminating between runoff events in the rivers. The way in which the skeleton is deposited in the huge old colonies also ensures that stable isotopes in the surrounding seawater are immutably locked away at that time. Measurements of these isotopes will provide a good record of monthly sea surface temperatures for most areas of the world's tropical oceans.

These factors, and the wide distribution of these huge *Porites* colonies throughout the tropical oceans mean that an enormous repository of climatic and hydrologic history stretching back for centuries is available to most Indo-Pacific countries.

The underwater drilling rig used by AIMS divers to extract cores from coral was designed and built by the technical and workshop staff at the Institute. The device is the first of its kind in the world. It has proved to be amazingly successful, recovering cores several meters long from many large, dome-shaped colonies. The rig is modular, and is "built" in three stages underwater, and firmly anchored to the coral dome. Setting up takes about 20 minutes, and experienced divers can drill out 6 metres of continuous core in about one hour. (Six metres of core may contain up to 800 years of weather history!). Constructed of anodized aluminium and stainless steel, it is light yet robust. Its portability is demonstrated by the fact that, when dismantled and packed with all its trappings, it fits in a station wagon. The 3.5 HP air drill requires 40 litres of air per second to drive the cutting bit at 300 rpm. It can recover 10 metres of coral core from colonies growing in water as deep as 20 metres.

ASEAN PROGRAM

ASEAN-AUSTRALIA COOPERATIVE PROGRAMS ON MARINE SCIENCE PROJECT II : Living Resources in Coastal Areas with Emphasis on Mangrove and Coral Reef Ecosystems.

A comprehensive series of workshops held at the Australian Institute of Marine Science between August and October 1985 represented the commencement of the actual field component of this ASEAN-Australia program. The five year program, funded by the Australian Development Assistance Bureau, has a total budget of A\$3.2m.

The objectives of the program are:-

- a) to provide baseline information about representative coastal and continental shelf ecosystems to provide a standard reference data set for the purposes of coastal zone management;
- (b) to establish an effective information exchange network and regional database; and
- (c) to develop further scientific and technical expertise within the ASEAN region

Dr. Kevin Boto of the Australian Institute of Marine Science is Chief Technical Advisor to Project II. He will be attending the Management Planning Meeting for the Program in Penang, December 3-6. WESTPAC Task Team Members in the region at that time may care to take the opportunity to liaise with Dr. Boto about their common interests.

BAKAWAN

For readers who may not yet be aware of its availability, attention is drawn to the excellent Newsletter "BAKAWAN", prepared by the Regional Mangrove Information Network for Asia and the Pacific. Information on this publication may be obtained from:

National Mangrove Committee/Natural Resources
Management Center
Triumph Building, 1610 Quezon Ave.,
P. O. Box AC-493,
Quezon City PHILIPPINES

The Executive Editor is P.M. Zamora.

OSNLR

Dr. P. Cook, Vice-Chairman of OSNLR recently forwarded a letter from his Chairman, Dr. Michel Vigneaux advising on activities of that group. Dr. Vigneaux's letter is reproduced here in full to indicate the scale of OSNLR activities within IOC and the importance attached to its work within WESTPAC.

Dear Colleagues,

Seven months have elapsed since our meeting in Paris and, the time appears ripe for me to inform you, in consultation with the Secretary of IOC, of results achieved and developments in the OSNLR Programme.

One of the important events since our meeting was the Thirteenth Session of the IOC Assembly (Paris, 12-28 March 1985), to which I presented a resume of results obtained, and outlined the principal developments we envisage. The Recommendations formulated by us were strongly endorsed by several Delegations, some of which expressed the wish that training and mutual assistance should, in the framework of OSNLR, be accorded special priority.

During a mission carried out to South America, the potentiality of this area in so far as OSNLR is concerned, was evident, not only because of the number of quality of the scientists but also the well defined alternatives to apply the priorities set by the Guiding Group. Thanks to the effective contribution and assistance of Prof. L. Martins (Brazil) and Prof. C. Urien (Argentina), I was able to have fruitful discussions, during which the development of OSNLR in the Southwest Atlantic was studied. A regional working group is at present being set up and the Secretary of the Commission is examining modalities of organizing a Group of Experts responsible for the formulation, the promotion and co-ordination of a research project(s) in the region.

Dr. P. Cook, Vice-Chairman of our Group, in collaboration with Prof. N. Nasu at the same time, undertook a joint activity which I feel deserves special mention. In agreement with Dr. J. Bunt, Chairman of WESTPAC, a section of the Working Groups's meeting (Phuket, Thailand, April/May 1986) will focus on

SETMY. In this way, activities planned under OSNLR will be introduced to the forthcoming session of WESTPAC. In a more general context, at the 12th International Sedimentological Congress (Canberra, Australia, 24-30 August 1986), proposals should be formulated so as to take advantage of this important event in order to enhance the development of OSNLR. The secretariat of IOC, the Vice-Chairman of the Guiding Group and myself are at present examining how to derive the most benefit from this opportunity to promote OSNLR and ensure its development.

An IOC-Unesco Workshop on Regional Co-operation in Marine Science in the Central Indian Ocean and Adjacent Seas and Gulfs was organized in Colombo (Sri Lanka) from 8-13 July 1985. The recommendations of our Group were strongly supported during this Workshop and it was decided that they constituted a fully satisfactory basis for regional projects of OSNLR to be implemented in the framework of the IOC Programme Group for IOCINDIO, the first Session of which is scheduled to be held in Pakistan during the last quarter of 1986. With IOCINDIO-I in mind, the help of Dr. B. Haq and Prof. H.N. Siddique in promoting OSNLR activities in that region would be invaluable.

Follow-up of Recommendations relevant to OSNLR of the First Session of the IOCARIBE Sub-Commission (Curacao, N.A. August 1984) is also receiving attention, particularly as regards possibilities of pilot projects in shoreline stability and coastal dynamic, including associated workshops and training components.

Concerning co-operation with other programmes, which was deemed indispensable by our Group, many possibilities have been explored, with a view to complementarity while simultaneously trying to avoid duplication with activities undertaken in other ongoing initiatives. In this respect, preliminary contacts were established with IGCP by the Secretariat of IOC and by Dr. P. Cook, concerning Projects 156 (phosphorites) and 200 (sea level changes). In this context, emphasis has been placed on participation of scientists from developing countries in the various activities relating to or of direct interest to OSNLR.

All of the above projects have budgetary implications. However, as you certainly are aware, the regular programme of Unesco has been affected by many budgetary constraints with consequent repercussions on IOC's activities. Because of this, our goals have to be moderate up to the end of 1985. An improvement in the situation is foreseen during the next biennium. May I nevertheless suggest that, with a view to improving matters, the members of our Group do all they can to mobilize funds and other means of support to complement those at the disposal of the Commission.

In spite of these financial problems, in my view a satisfactory development of OSNLR is under way. To keep you informed, I am attaching a table indicating the approximate situation of recent, present or future activities. This table does not claim to be exhaustive but can constitute a working document to be

completed or modified in light of elements you may be able to supply.

In a general manner, I should appreciate it if our communications could represent a network to exchange any information or suggestions which appear likely to enhance OSNLR development.

Lastly, I have pleasure in informing you that, in agreement with the French authorities, and thanks to a contribution of France to the IOC Trust Fund, the services of Dr. C. Latouche have been retained on a part-time basis as an IOC Consultant for the OSNLR Programme.

I hope that the exchange of information I suggest will be beneficial to our endeavours to develop OSNLR, and thank you in advance for your active participation.

Michel Vigneaux

OSLR

Dr. David Tranter, the Technical Coordinator of OSLR in WESTPAC has advised that Dr. D. Kinsey of Australia has agreed to serve as Chairman of OSLR Study Group 3 (Land/Sea Interface). Until now, this Study Group has lacked such a focus and it is certain Dr. Kinsey will bring considerable energy to the progress of this important area of regional activity. Dr. Kinsey may be contacted at:

Great Barrier Reef Marine Park Authority,
G. P. O. BOX 1379,
Townsville, Q., 4810
Australia.

IGOSS MEETINGS

Cdr. I.J. Bofinger, IGOSS Task Team Coordinator, is currently in Geneva attending two meetings of interest to WESTPAC member states.

The first, 6-8 November, is a meeting of experts on IGOSS Specialised Oceanographic Centres (SOCS) and the second, 11-20 November, is the 4th Session of the Joint IOC/WMO Working Committee for IGOSS.

The outcome of discussions at the IGOSS Session will be of particular relevance to the region and to the development of IGOSS within WESTPAC. Cdr. Bofinger will prepare a report for inclusion in a future newsletter.

It is hoped that an IGOSS study tour of the WESTPAC region will be undertaken in the near future and members will be kept informed of progress in this regard.

RNODC

RNODC Newsletter for WESTPAC, No. 4, December 1984 has been issued by the Japan Oceanographic Data

Center. As usual, it is essential reading for all involved in the work of the Programme Group with information on relevant international conferences, particular-expeditions such as Snellius II, as well as cruise and data reports and scientific literature of concern within WESTPAC.

WESTPAC POLLUTION RESEARCH

A national 'MUSSEL WATCH' project will begin in the USA in 1986. This program will determine the concentrations of trace metals and organic contaminants in mussels and other bivalves in adjacent sediments from about 150 sites. In addition, bivalves will be examined for histopathological disorders. This effort will be complementary to the Benthic Surveillance project that was begun in 1984. This project is conducting similar analyses in livers of benthic feeding fish from 50 sites in the USA.

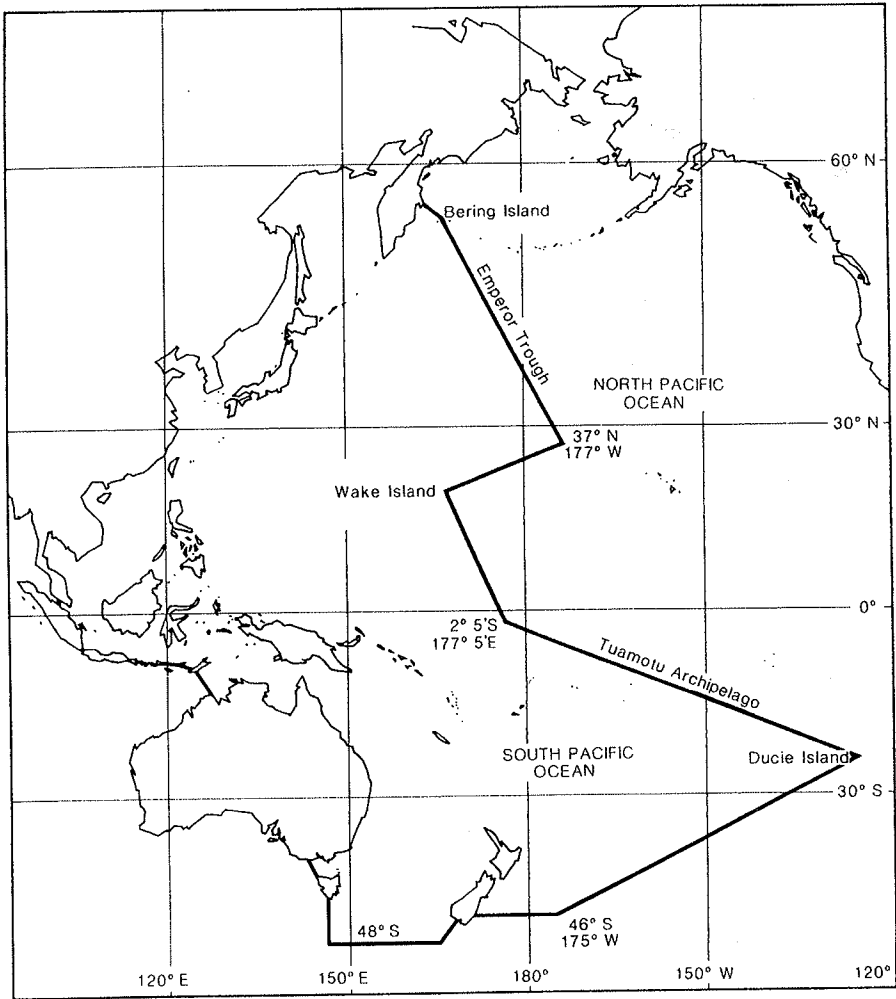
For more information write to:

Manager
National Status and Trends Program
NOAA
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ROCKVILLE
Maryland 20852 U.S.A.

Both of these projects are part of the National Status and Trends Program for Marine Environmental Quality which is funded by the National Oceanic and Atmospheric Administration.

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The WESTPAC region