This Action Paper comprises three main parts: the Action Paper proper which is the present document; its Annexes (draft proposals such as terms of reference for subsidiary bodies); Addenda (relevant information available after the printing date of the Action Paper).

For each Agenda Item requiring specific decisions or actions of the Programme Group, relevant extracts (in italics) of existing documents, as well as ad hoc text and indications of the decisions or actions required of the Programme Group, are given.

Each of the substantive Agenda Items, but not sub-tens, nor the administrative items, starts on a new page.

The blank right-hand pages are to allow participants to make notes, if they so wish.
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1. **OPENING**

The Chairman, Dr. Aprilani Soegiaro, will open the Third Session of the Programme Group at 10.00 on Monday, 19 September 1983, in Townsville International Hotel, Townsville, Queensland, Australia. He will outline the achievements of the Programme Group and set the keynote for the present session. The Australian Minister for Science and Technology will welcome the participants. The Chairman of IOC, Prof. Inocencio Ronquillo, will respond on behalf of the Commission.

2. **ADMINISTRATIVE ARRANGEMENTS**

2.1 **ADOPTION OF THE AGENDA**

The Provisional Agenda (Doc. IOC/WESTPAC-III/1 prov.) was distributed with Circular Letters nos. 909 (to Member States of the Programme Group and other IOC Member States) and 910 (to International Organizations).

The Programme Group is requested to adopt the Agenda for the Session.

2.2 **DESIGNATION OF THE RAPPORTEUR**

The Programme Group is requested to designate a Rapporteur, under Rule no. 25.3 of the IOC Rules of Procedure.

2.3 **CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION**

The Programme Group is expected to work in Plenary. Ad hoc sessional groups on specific items may be set up, if required. The Assistant Secretary will propose a timetable for the Session (Doc. IOC/WESTPAC-III/1 Add. prov.) and will present the Provisional List of Documents (Doc. IOC/WESTPAC-III/4 prov.).

3. **REPORT ON INTERSESSIONAL ACTIVITIES**

The IOC Assistant Secretary, Mr. Ray C. Griffiths, will introduce the Report of the Secretary of IOC to the Programme Group (Doc. IOC/WESTPAC-III/6).

The Programme Group is invited to comment on this Report and to evaluate general progress since the Second Session.
4. OCEAN SCIENCE

4.1 ROLE OF THE PROGRAMME GROUP FOR WESTPAC IN THE STUDY OF OCEAN DYNAMICS AND CLIMATE

4.1.1 Ocean Dynamics and Continental Shelf Oceanography

The importance of a better understanding of the dynamics of the oceans cannot be over-emphasized, particularly in view of their major role in nearly all aspects of oceanographic investigations relating, for instance, to the transport and distribution of heat and related climatic changes, pollutants, sediments and nutrients, as well as of plankton, eggs and larvae.

The IOC Workshop on the Western Pacific (Tokyo, 19-20 February 1979), suggested that, in addition to a large-scale monitoring programme, the following could be WESTPAC programmes: "(i) a study of the structure of frontal systems which have important effects on both biological productivity and air-sea interaction; (ii) a study of vertical exchange processes at oceanic divergence zones and in the vicinity of islands; (iii) a study of meanders and eddy formation in strong currents, such as the Kuroshio, and their role in influencing the general circulation in the Western Pacific; and (iv) a study of the physical oceanography of the marginal seas and continental shelves of the Western Pacific."

The Programme Group, at its Second Session, created a Task Team on Ocean Dynamics in the Western Pacific. The Task Team's proposal is given in Document IOC/WESTPAC-III/8 Annex 1. These proposals should also be seen in the light of discussions under Agenda Item 4.1.2, below.

The Programme Group, at its Second Session, also created a Task Team on Coastal and Continental Shelf Oceanography, with two sub-groups; one to deal with Survey of Currents and Tides in the Nearshore Waters of the WESTPAC Region; the other to deal with Exchange Processes and Circulation in Coral Reefs. The Task Team as a whole was asked (Decision WESTPAC-II.2) to "... examine opportunities for embracing the objectives of other projects in IOC Workshop no. 24 within Project 1 and 2..." (mentioned above).

The Chairman of the Task Team as a whole and of Sub-group 1, Dr. Ron Heath (New Zealand) and the Vice-Chairman, responsible for Sub-group 2, Dr. J. Middleton (Australia) will present their proposals.

ACTION REQUESTED OF THE PROGRAMME GROUP

(i) To determine, as precisely as possible, its activities in the field of ocean dynamics, preferably limiting its choice to a few feasible projects. (ii) Particularly, to consider the development of a regional tide-gauge network, as a regional component of an IOC world-wide system, and the development of a region-wide study of coastal currents, not only in the context of ocean dynamics studies but also in that of dispersion of marine pollutants. (iii) After considering Agenda Item 4.1.2, to determine how approved projects can contribute to major global IOC programmes studies on the relationship between ocean variability and climate and as background for GIPME/MARPOLMON.
Delegates are particularly requested to indicate their respective countries' commitments, even if only in principle at this stage, to the agreed activities.

4.1.2 Regional co-operation in global projects

By IOC Resolutions XI-3 (IOC's Role in the Study of Climatic Changes and the Ocean) and EC-XIII.7 (Organization of Ocean Monitoring for the Purposes of the World Climate Programme and Long-range Weather Forecasting), and other actions of support expressed in related meetings of its subsidiary bodies, the Commission has committed itself to act as the intergovernmental body responsible for oceanographic aspects of the World Climate Programme (WCP) (ref. IOC Resolution XI-3, para 6. ii)).

The Chairman of the Pacific Ocean Climate Studies Panel, of the SCOR/IOC Committee on Climatic Changes and the Ocean, Dr Bruce Taff (USA), will outline the regional and global research projects relating to climate proposed by the SCOR/IOC Committee; these include: the World Ocean Circulation Experiment (WOCE); study of the interannual variability of the Tropical Oceans and the Global Atmosphere (TOGA); and the study of the Pacific Transport of Heat and Salt (PATHS). The Panel will have met (14-16 September 1983) to discuss TOGA in the Western Pacific, and its Chairman will present its proposals to the Programme Group.

ACTION REQUESTED OF THE PROGRAMME GROUP

(i) To determine the ways in which it could contribute to, and play an active role in, the implementation of these research projects, preferably within the framework of the activities agreed under Agenda Item 4.1.1.

(ii) To determine its role in the promotion and co-ordination of the relevant co-operative research investigation in the region.

4.2 IMPLEMENTATION OF PROJECTS IN OCEAN SCIENCE IN RELATION TO LIVING RESOURCES (OSLR) IN THE WESTERN PACIFIC

The IOC Assembly, at its Twelfth Session (Paris, November 1982), formally adopted (Resolution XII-1) a programme of Ocean Science in Relation to Living Resources, inviting FAO to co-sponsor it. It is outlined in Document IOC-XII/8 Annex 1a.

"The Director of the Unesco Division of Marine Sciences, Dr D.C. Krause, informed the Assembly that Unesco has many ongoing activities relevant to the proposed programme on OSLR, particularly on tropical, high-diversity marine ecosystems, and referred particularly to the Major Unesco Interregional Project on Training and Research, with a View to Integrated Management of Marine Coastal Systems (COMAR). He felt it appropriate, therefore, that the Division co-operate with the sponsoring organizations of this programme on appropriate activities. Should the Division's role become important, he believed the Division might propose at a later date that Unesco be considered also as a co-sponsor of specific parts (research and training components) of OSLR."
"The Assembly therefore recommended that first a small Group of Experts be formed by the Chairman of IOC to organize a workshop to develop the practical and the scientific details of the OSLR programme. It decided to establish a scientific Guiding Group of Experts, which would include leaders of OSLR, as well as representatives of SCOR, ACMRR and Unesco (OCE), and, when necessary, scientists who had been closely associated with the development of OSLR. The Guiding Group of Experts should be requested by the Secretary to submit a detailed implementation proposal, based on the results of the Workshop and other relevant elements, to the Seventeenth Session of the Executive Council."

The Programme Group approved three projects in the field of marine biology and living resources, at its Second Session:

(i) Identification and characterization of the major biological communities (higher priority being given to those of major importance for human use) for the assessment of their inherent productivity in coastal regions of WESTPAC, including investigations of the taxonomy, biogeography and natural history of relevant species and processes important in sustaining harvestable products.

(ii) Delineation and assessment of zones of high pelagic and plankton productivity in the WESTPAC region, with investigations of the taxonomy, biogeography and natural history of key species, characterization of their communities and of environmental and biological processes that maintain resources of value to man.

(iii) Assessment of the deleterious effects of man's activities on the environment, and on the living marine resources that are or may be utilised by human populations throughout the WESTPAC region."

Of these, the first two appear to be closely related to the objectives of OSLR (Document IOC-X/8 Annex 1a); the third relates also to marine pollution research and monitoring.

The Representative of the Unesco Division of Marine Sciences will inform the Programme Group on the implementation of the Unesco Training and Research Pilot Programme on the Mangrove Ecosystem of Asia and the Pacific, and on Coral Reef Survey Assessment and Research, and indicate its relevance to OSLR. He will also report on the main relevant outcomes of the Pacific Science Congress (Dunedin, 31 January to 11 February 1983).

At the Pacific Sciences Congress, there was a special Unesco/IOC Session on the Productivity of Island Marine Ecosystems and Future Marine Science Co-operation in the Pacific. Six projects were recommended to Unesco and IOC for support in their implementation of which four are relevant to OSLR in a general sense:

(i) Determination of primary, consequent and related productivity at a mangrove site.

(ii) A study of the effect of atolls and seamounts on the productivity of ocean waters in the Pacific.
(iii) Assessment of black coral resources.

(iv) Exchange of scientists and information on Pacific coral-reef studies.

Other topics can be better considered under other items (environmental assessment, TEMA, etc) or come under the purview of other organizations (e.g., fishery studies - FAO/IPFC), or be of a general nature (use of remote sensing).

**ACTION REQUESTED OF THE PROGRAMME GROUP**

(i) To propose specific research projects to be carried out as WESTPAC in the region, in the framework of OSLR. (ii) To consider the desirability of establishing an ad hoc Task Team to co-ordinate the regional component of OSLR and to interact with the IOC Guiding Group of Experts on OSLR in its role of overall, global co-ordination. (iii) To convey its views to the IOC Workshop on the IREP component of the IOC Programme on Ocean Science in Relation to Living Resources (OSLR) (Halifax, N.S., 26-30 September 1983). (iv) To determine how it could assist the Unesco Division of Marine Sciences in the implementation of the above-mentioned regional Pilot Programme on Mangrove Ecosystem and how it could assist likewise in implementing the relevant recommendations of the Pacific Science Congress.

**4.3 IMPLEMENTATION OF PROJECTS IN OCEAN SCIENCE IN RELATION TO NON-LIVING RESOURCES (OSNLR) IN THE WESTERN PACIFIC**

An IOC Consultant, Dr Peter Rothe, will outline the proposal for an OSNLR programme given in Document IOC-XII/8 Annex 2a, and adopted by the IOC Assembly, at its Twelfth Session, by Resolution XII-2.

Extracts of the discussions which took place at the Assembly on this topic are given below:

"The President of SCOR mentioned the various mineral deposits being worked at present and the possibilities for the next decade or two with respect to deposits such as polymetallic nodules, phosphorites, metalliferous muds and the sulphides near the hydrothermal vents. He cautioned, however, against over-emphasis of the benefits of exploitation of some of the sea-floor minerals."

"The representative of the United Nations (OETB) acknowledged the interest of his organisation in joining IOC as a co-sponsor of OSNLR and offered some valuable assistance in the preparatory phase of the programme."

"The representative of Unesco indicated that the Division of Marine Sciences was also interested in co-operating in the OSNLR programme on specific activities."

"The Assembly was unanimous in its appreciation of the high quality of the document presented and the usefulness of the programme proposed for the Member States of the Commission, and recommended its adoption as a programme of the Commission. It emphasised the idea that implementation should take into account regional requirements and trends in the marine sciences."

"The Assembly recognised that the OSNLR programme, if well implemented would open up new possibilities for developing countries. It recommended that TEMA activities in support of the OSNLR programme be given high priority, as indicated in Chapter 2.7 of document IOC-XII/8 Annex 2a."
In Resolution XII-2, the IOC:

"Recalling the endorsement by the Executive Council in Resolution EC-XIV.19 of collaboration between the IOC and the United Nations in the OSNLR Programme,

Noting that in preparation for OSNLR such collaboration has been initiated between the IOC and the Ocean Economics and Technology Branch (OETB) of the United Nations Department of International Economic and Social Affairs in the field of data on non-living resources, through the IOC Working Committee on International Oceanographic Data Exchange (IODE),

Noting further that a number of ongoing and planned activities of the United Nations (OETB) are directly relevant to components of the OSNLR Programme,

Invites the United Nations to co-sponsor the programme;

Requests the United Nations (OETB) to report to the Economic and Social Council on this programme;

Accepts with appreciation the offer of the Unesco Division of Marine Sciences to co-operate in specific components of the OSNLR Programme;

Establishes a Guiding Group of Experts on the Implementation of the OSNLR Programme, with terms of reference contained in the annex to this resolution;

Requests the group to report on progress to the Executive Council at its Seventeenth Session;

Requests the regional subsidiary bodies of the Commission to examine the OSNLR Programme with a view to identifying relevant components and to take measures for its implementation.

An ad hoc consultation of regional experts is also being arranged to take place immediately prior to this Session of the Programme Group, with a view to providing advice on needs for marine geological/geophysical research in the Western Pacific region and to identify specific research projects falling within the scope of OSNLR to be promoted and co-ordinated by WESTPAC.

Dr P. Rothe will also report the results of an expert consultation (Paris, 6-8 April 1983) on the implementation of the OSNLR Programme.

ACTION REQUESTED OF THE PROGRAMME GROUP

(i) To determine which marine geological/geophysical research projects it wishes to carry out, complementing the activities agreed in the framework of present co-operation with CCOP (through SEATAR, see Agenda Item 4.3.1, below) and CCOP(SOPAC) (see Agenda Item 4.3.2, below). (ii) To consider the desirability of establishing an ad hoc Task Team to oversee its work in the field of marine geological and geophysical research, to co-ordinate the regional component of OSNLR, and to ensure liaison, as appropriate, with other relevant activities undertaken in the region with co-operating organizations.
4.3.1 Implementation of projects adopted by the CCOP-IOC Joint Working Group on South East Asian Tectonics and Resources (SEATAR)

The IOC Assistant Secretary, Dr J.R.E. Harger, will inform the Programme Group of the outcome of the Eighth Session of SEATAR (Document CCOP-IOC/SEATAR-VIII/3) and of the Nineteenth Session of the Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas (CCOP) (Tokyo, 29 November-10 December 1982). If possible, these reports will be made available to the Programme Group.

Two reports dealing with previously suggested priority areas for further work in the framework of SEATAR were distributed to SEATAR Member States; these were: Report of the Economic Advisory Panel on Mineral and Hydrocarbon Resources (Document CCOP-IOC/SEATAR-VI/2), and Technical Support for Regional Offshore Prospecting in East Asia, issued by the CCOP Project Office in 1981. They were issued with a request to develop a revised set of priorities based on assessment work done to date, and with a view to making programme analysis and priority definition the main subject of the Ninth Session of SEATAR (to be held with the Twentieth Session of CCOP).

ACTION REQUESTED OF THE PROGRAMME GROUP

(i) To identify research projects presently being undertaken in the context of SEATAR that could be regarded as contributing to OSNLR.
(ii) To determine how to enhance the implementation of such projects by Member States, bearing in mind the advice to be provided by the expert consultation mentioned under Agenda Item 4.3, above.

4.3.2 Co-operation with the Committee for Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas (CCOP-SOPAC)

At the Twelfth Session of the IOC Assembly, special attention was devoted to the consideration of the proposal received from CCOP-SOPAC that the IOC "co-sponsor a Joint Working Group on South Pacific Studies of Tectonics and Resources (STAR), as an analogous group to the CCOP/IOC Joint Working Group on South East Asia Tectonics and Resources (SEATAR)."

"Regarding the CCOP-SOPAC proposal, the Secretary reminded the Assembly of the long-standing collaboration between IOC and CCOP, and CCOP-SOPAC, and the fact that CCOP-SOPAC had indicated its intention to seek IOC co-sponsorship of STAR over a year ago; the Assembly should, he believed, keep this in mind if it wished to give an unequivocal indication to CCOP-SOPAC as it had done, and continues to do, with CCOP. The IOC's efforts to consolidate and develop its activities in geological and geophysical ocean mapping would greatly benefit from such collaboration, as far as the WESTPAC region was concerned, such an arrangement would also provide opportunities for implementation of OSNLR in the region."

"The Assembly expressed a strong continuing interest in co-operation between the IOC and the CCOP-SOPAC. It noted, however, that the proposal submitted by CCOP-SOPAC contained only a very general statement of the proposed functions of the Group and only one brief Term of Reference."

* to create a joint (CCOP-SOPAC)-IOC Working Group on South Pacific Tectonics and Resources (STAR); see Agenda Item 4.3.2.1
"The Assembly instructed the Secretary to work with the Secretariat of CCOP-SOPAC to prepare detailed Terms of Reference and a more detailed and careful analysis of the programme and the related financial implications over the Medium-Term, with a view to submitting a revised proposal to the Seventeenth Session of the Executive Council. It also instructed the Secretary, in consultation with the Programme Group for WESTPAC, to identify, in the interim, specific projects of CCOP-SOPAC and WESTPAC in which IOC could collaborate closely with CCOP-SOPAC within the currently available budget, whether regular programme or extra-budgetary funds."

A Joint UNU/CCOP(SOPAC)/IOC Workshop on Mineral Resources in the South Pacific will be held in Suva, Fiji, from 3 to 7 October 1983. The main purposes of the Workshop are: (i) to discuss the importance of scientific research for the assessment and evaluation of mineral and hydrocarbon resources; (ii) To update the findings of the CCOP(SOPAC)/IOC Second International Workshop on Geology, Mineral Resources and Geophysics of the South Pacific (Noumea, 9-15 October 1980); (iii) To assess the regional implications of the OSNLR programme. (iv) To provide inputs to the development of the work programme of the CCOP(SOPAC) Working Group on South Pacific Tectonics and Resources (STAR).

ACTION REQUESTED OF THE PROGRAMME GROUP

(i) To identify a small number of specific projects that could be carried out in co-operation with CCOP(SOPAC), bearing in mind the advice of the ad hoc expert consultations mentioned under Agenda Item 4.3, above, and the outcome of discussions under Agenda Items 4.3.2.1 and 4.3.2.2, below. (ii) To provide input to the UNU/CCOP(SOPAC)/IOC Workshop on Mineral Resources in the South Pacific (Suva, 3-7 October 1983).

4.3.2.1 Establishment of a CCOP(SOPAC)-IOC Joint Working Group on South Pacific Tectonics and Resources (STAR)

The CCOP(SOPAC) invitation to IOC to form a Joint Working Group (STAR) was not considered to be detailed enough (as to Terms of Reference, resources etc.). The views of the IOC Assembly at its Twelfth Session, are given in the Background to Agenda Item 4.3.2, above. A proposal for such a Joint Working Group is given in Document IOC/WESTPAC-III/8 Annex 3.

In considering this matter, the Programme Group should bear in mind the discussion under Agenda Items 4.3 and 4.3.2 (preceeding) and 4.3.2.2 (following).

ACTION REQUESTED OF THE PROGRAMME GROUP

To make a recommendation to the IOC Executive Council on the Terms of Reference for a Joint Working Group and on the main thrusts of its activities, bearing in mind the fact that the Twelfth Session of CCOP(SOPAC) is scheduled to take place in Tonga, 11-20 October 1983.
4.3.2.2 Preparation of a bathymetric chart of the South Pacific

In connection with a mission of Dr G. Giermann, on behalf of IOC, to the Secretariat of CCOP(SOPAC) the possibility of initiating the preparation of a bathymetric chart for the region was discussed with the Secretary of CCOP(SOPAC).

The basic idea was to take advantage of the proposed formation of a joint IOC/SOPAC(STAR) group to initiate such project, on a similar basis as IBCM, provided that sufficient support by Member States will be made available, particularly regarding the printing of such chart.

**ACTION REQUESTED OF THE PROGRAMME GROUP**

To provide advice on the preparation of a bathymetric chart of the South Pacific, with the collaboration of CCOP(SOPAC).

4.4 MARINE POLLUTION RESEARCH AND MONITORING IN THE WESTERN PACIFIC

Acting upon recommendations arising from the Second Session of the Programme Group, the IOC Secretariat initiated actions in January 1982 to develop activities which would address the use of commercially exploited shellfish as determinants for marine pollution. These actions were for the most part conducted through the IOC GIPME Group of Experts on Methods, Standards and Intercalibration (GEMSI), and has culminated in a training workshop recently at the Marine Science Laboratories in Queenscliff. The organization and execution of this training workshop took particular note of planned duplicative activities of UNEP in the ASEAN Region, and through COBSEA, the IOC Secretariat expended considerable effort in catering to the needs of the Member States of this sub-regional group in the WESTPAC Region (see Agenda Item 8 for further information concerning such co-operation).

The IOC Assistant Secretary, Dr Rodger Dawson, will further introduce the item and report on the outcome of the IOC Training Workshop on the Use of Marine Organisms in Marine Pollution Monitoring (Queenscliff, Australia, 20 August-11 September 1983), and on IOC activities relevant to the UNEP Action Plan for East Asian Seas, including the results of the Fifth Session of the IOC GIPME Group of Experts on Methods, Standards and Intercalibration (Document IOC/GGE(MSI)-V/3).

The Assembly, at its Twelfth Session, "expressed its approval and strong support of the GIPME Action Plan and for its need to be made operational, at the global level, on the basis of its regional components to be developed in the framework of the regional subsidiary bodies of the Commission."

The Programme Group, at its Second Session, also decided "to reconsider, at its next Session, the need for a Group of Experts to replace the ad hoc Task Team."

Regarding collaboration with UNEP, bearing in mind discussion of collaboration with COBSEA (Agenda Item 8.1), the Programme Group, also at its Second Session, requested "the Secretary of IOC to inform UNEP that the Programme Group for WESTPAC offers to collaborate with UNEP in the execution of its Action Plan for the East Asian Seas, specifically in the field of..."
marine pollution research and monitoring, and to consider doing so with respect to the determination of total pollutant inputs from the land to the sea, directly or indirectly."

ACTION REQUESTED OF THE PROGRAMME GROUP

To determine how to develop further its marine pollution research activities (bearing in mind Agenda 4.4.1) in the Western Pacific.

4.4.1 Promotion of the regional component of the IOC Marine Pollution Monitoring System (MARPOLMON)

The IOC Assistant Secretary, Dr Rodger Dawson, will inform the Group of recent advances in the development of the System and its regional component in the Western Pacific. The background for Agenda Item 4.4 is also relevant here.

"Regarding the Marine Pollution Monitoring Programme (MARPOLMON), the Programme Group felt that MARPOLMON as a global programme of the IOC did not require a separate regional project; it urged all Member States of the Region to participate actively in MARPOLMON and therefore to respond effectively to invitations from the Secretary IOC to participate. Although MARPOLMON is presently restricted to petroleum in seawater, other pollutants and environmental media (including organisms other than shellfish) would be progressively incorporated. The need for a special WESTPAC Officer for MARPOLMON was considered essential for the effective development of the programme in the region."

However, it should be stressed that the very essence of this MARPOLMON System is comprised of various regional activities. In fact, the recent completion of the Training Workshop at Queenscliff represents the first phase of such a regional activity in the WESTPAC Region concerning marine pollution. In this regard Dr Dawson will explain in detail a two year prospectus for such activity, which by its very nature must include collaboration with other bodies in this region.

ACTION REQUESTED OF THE PROGRAMME GROUP

(i) To provide guidance on the implementation of an IOC Marine Pollution Monitoring (MARPOLMON) component in the WESTPAC region with respect to petroleum hydrocarbon and to non-petroleum contaminants. (ii) To provide guidance on IOC's collaboration with the Co-ordination Body for the Seas of East Asia (COBSEA) and other relevant regional bodies (see also Agenda Items 8.1, 8.2 and 8.3), in this field.
5. OCEAN SERVICES

5.1 IOC/WMO INTEGRATED GLOBAL OCEAN SERVICES SYSTEM (IGOSS) IN THE WESTERN PACIFIC

The IOC Assistant Secretary will report on the outcome of the Third Session of the IOC/WMO Working Committee for IGOSS (Document IOC-WMO/IGOSS-III/3) as it relates to the Western Pacific; he will also outline the proposals contained in the Report of the IOC/WMO Co-ordination Implementation Meeting on IGOSS in WESTPAC and NORPAX regions (Document IOC-INF-493).

The recommendations of the Joint WMO/IOC Regional IGOSS Implementation Co-ordination Meeting in the WESTPAC and NORPAX Regions (Tokyo, 9-13 November 1981; Document IOC-INF-493) were adopted, with only one slight amendment, by the IOC Assembly at its Twelfth Session, as follows:

"(a) Member States in the region are invited to follow the regional guidelines for the preparation of IGOSS products;

(b) Member States in the region are encouraged to insert onto the GTS late BATHY/TESAC reports up to 30 days after observation;

(c) The IGOSS implementation in the region should be extended to cover the whole of the Pacific Ocean:

(i) The extended Pacific-wide implementation programme be discussed at a future meeting with the additional Member States in the south-eastern Pacific region;

(ii) An implementation co-ordination meeting for the extended Pacific region should be convened in early 1983;

(d) A series of actions is recommended in the field of the IGOSS Observing System;

(i) Development of appropriate code forms for reporting single parameters—sea-surface temperature, salinity and sea level;

(ii) Fisheries oceanographic community to be encouraged to make available to IGOSS subsurface temperature data from fishing vessels;

(iii) Routine oceanographic surveys of the Kuroshio and East Australian Current and in the Western Pacific;

(e) Member States concerned to ensure that designated coastal radio stations accept and adequately handle the BATHY/TESAC data from the Pacific Ocean basin;

(f) Designation of at least four specialised oceanographic centres for IGOSS in the Pacific region."
ACTION REQUESTED OF THE PROGRAMME GROUP

(i) To provide guidance on the implementation of relevant aspects of IGOSS in the Western Pacific, particularly regarding the use of ships-of-opportunity in the implementation of the IGOSS Observing System and of the sea-level pilot project being developed under IGOSS. (ii) To consider the establishment of an ad-hoc Task Team on IGOSS Implementation in the Western Pacific or of an institutional network for the implementation of IGOSS in the region.

The Delegates are invited to indicate their potential national commitments to IGOSS in the region.

5.2 INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE (IODE) AND MARINE INFORMATION MANAGEMENT IN THE WESTERN PACIFIC

5.2.1 Development of RNODCs and NODCs

The Representative of the WESTPAC RNODC (Japan National Oceanographic Data Centre) will inform the Programme Group on the work of the RNODC and the evolution of the National Oceanographic Data Centres (NODCs) in the region, under IODE, including the contents of the "WESTPAC Data Management Guide".

The IOC Assembly, at its Twelfth Session, by Resolution XII-6, called upon Member States:

"to submit to the Secretariat, on a more regular and timely basis, information on Declared National Programmes/National Oceanographic Programmes;

to submit data to the WDCs (Oceanography) in accordance with the provision of the IOC Manual on International Oceanographic Data Exchange (IOC Manuals and Guides No. 9), in order to accelerate the data flow into the IODE network;

to use IODE General Format 3 (GF-3) in their National Oceanographic Data Centres (NODCs) for exchange of data;

to submit data file descriptions of their data holdings, through NODCs or Designated National Agencies (DNAs), to the Marine Environmental Data Information Referral System (MEDI);

to develop their NODCs to serve as additional RNODCs in order to assist the WDCs (Oceanography) by providing various necessary services for international programmes and projects co-ordinated by the Commission, or conducted by it in co-operation with other international organizations;"

ACTION REQUESTED OF THE PROGRAMME GROUP

To provide advice on the steps to be taken to strengthen oceanographic data exchange in the region, and how this need might best be met.
5.2.2 Development of marine information services in the framework of ASFIS

The IOC Assistant Secretary, Mr Ray C. Griffiths will outline the development of the FAO/IOC/UN(ceb) Aquatic Sciences and Fisheries Information System (ASFIS), and inform the Programme Group of the relevant recommendation (19) of CASTASIA-II on the development of a scientific and technical information network in Asia (ASTINFO). He will also inform the Programme Group of the results of the SEAFDEC-IDRC Seminar on Fishery Information Science in Southeast Asia (Bangkok, August 1982) and of the ad hoc Informal Planning Meeting on Future ASFIS Development and Support (Paris, 31 May-3 June 1983).

**ACTION REQUESTED OF THE PROGRAMME GROUP**

(i) To provide advice on steps to be taken in the framework of ASFIS, to strengthen marine information services in Member States and as a common service for the region, and how this need might best be met, including steps to be taken to mobilize support under IOC-VAP and from international funding agencies, e.g. UNDP, UNFST, SIDA.  
(ii) To determine regional needs for a possible network to facilitate access to hard copy and for a training course in information management.
6. TRAINING, EDUCATION AND MUTUAL ASSISTANCE IN THE MARINE SCIENCES (TEMA) IN SUPPORT OF THE SCIENTIFIC PROGRAMMES AND SERVICES

6.1 REVIEW OF NEEDS IDENTIFIED UNDER OCEAN SCIENCE (AGENDA ITEM 4) AND OCEAN SERVICES (AGENDA ITEM 5), AND SETTING OF PRIORITIES

TEMA is a common element of virtually all IOC programmes, services, and other activities. The success of a particular project, programme or other activity often depends on the early identification of TEMA needs and their satisfaction. The role of TEMA in IOC programmes is given in Document IOC-XII/8 Annex 11.

ACTION REQUESTED OF THE PROGRAMME GROUP

(i) To review the needs identified under Agenda Item 4 (Ocean Science) and Agenda Item 5 (Ocean Services) and to determine the priorities. Delegations are requested to come prepared to indicate the training opportunities they can provide in 1984-85 to marine scientists and technicians from other Member States in the region, with as much precision as possible, and to identify the types of training opportunities they need to enable them to participate as effectively as possible in IOC (global) and WESTPAC programmes.

(ii) To indicate its support for Unesco (OCE) activities in building up the national marine science infrastructure of Member States in the region.

Delegates are also requested to come with the names of institutions having university marine science curricula at the level of, or leading to, a BSc. degree.

6.2 SUBREGIONAL PROJECTS UNDER THE COMPREHENSIVE PLAN FOR A MAJOR ASSISTANCE PROGRAMME TO ENHANCE MARINE SCIENCE CAPABILITIES OF DEVELOPING COUNTRIES

The rationale of the Unesco/IoC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries (Document IOC/EC-XV/8 Annex 5) is based on the following arguments (Document IOC/EC-XV/8 Annex 5 rev. pp. 4, 5.):

"a) Extended maritime jurisdiction by coastal states has created a situation where self-reliance in marine science is needed to ensure that their new rights, especially to control resource exploration and exploitation, and the conduct of research, can be exercised and that they can benefit from this new situation for socio-economic development.

b) Diversification of ocean uses and the evolution of national goals in marine affairs call for flexibility in the use of available national facilities and skills in order that they are able to respond to an array of problems.

c) Increasingly, effective scientific input to development activities calls for multidisciplinary and interdisciplinary research with multiple applications."
d) Negotiations concerning access by others to zones of national jurisdiction make it in the interests of both developing coastal states and researching industrialized states wishing for access that there be competent scientific bodies on both sides. A similar argument applies to the transfer of marine technology.

e) While improvements have been made in recent years, helped especially by the efforts of Unesco through IOC and the Division of Marine Sciences — as well as by other UN organizations members of ICSPRO through development projects, scientific research and in the training of marine scientists and technologists, the number of specialists, available in the majority of countries are still small, often below the level needed for self-reliance (in all relevant disciplines) and not self-renewable in the sense that universities and research institutions are not sufficiently diversified or experienced to provide adequate specialized education and research training.

f) Although far more facilities and skilled personnel are now available in many developing countries than 10 years ago when the UN invited IOC to develop and to co-ordinate a Long-term and Expanded Programme of Oceanic Exploration and Research (LEPOR), the infrastructures in those countries remain in many cases weak, so that it is not always easy to make full and effective use of available research capacity, nor to seek guidance and to judiciously apply assistance in strengthening that capacity.

g) Increasingly countries will, again as a result of juridictional changes in the ocean regime, find it necessary to take active part in bilateral and multilateral arrangements to ensure effective use and conservation of shared resources and to deal with major oceanic phenomena having bearing upon their economies.

h) Countries are faced at the political level with the need to formulate marine policies for development and management of large new areas of territory under state control, and this calls for substantial inputs of scientific information and oceanographic data and thus for proper formulation of national marine science policy."

The Plan enhances but in no way replaces the IOC programme of Training, Education and Mutual Assistance in the Marine Sciences. Rather, it deals with some of the fundamental problems some Member States have in building up infrastructure and capabilities in the marine sciences, whereas TEMA approaches the problem mainly through the training of individuals called on by Member States to participate in IOC scientific and technical activities.

At its Twelfth Session, the IOC Assembly, (para. 170-172)

"considered that the Plan was timely, in view of the adoption of the United Nations Convention on the Law of the Sea, which is expected to be signed in December 1982."

and

"... also recognised that the strengthening of national capabilities is essential for the improvement of regional co-operation, particularly in the regional activities of the Commission, and noted the important role to be played by the regional subsidiary bodies of the Commission in the formulation of project proposals under the Plan."
"The Assembly (also) believed that the success of the Comprehensive Plan and of the regional and subregional projects to be developed as part of it would be directly related, on one hand, to the priority that the Member States accord to marine science as an important element in the use and management of the marine resources and the protection of the marine environment, and, on the other, to the acceptance and support that it receives from the multilateral and bilateral funding agencies. It recognized that there is an important link between aid to development in general and aid to the development of marine scientific and technological capacities of developing countries."

The IOC Assembly adopted, by Resolution XII-8, the Modalities of Implementation of the Comprehensive Plan (Document IOC-XII/8 Annex 10). In the Resolution the Assembly:

A

Adopts the Comprehensive Plan, as well as the guidelines provided in the document on modalities for its implementation (document IOC-XII/8 Annex 10);

Invites the Director-General of Unesco to take any actions that he deems appropriate to enhance the promotion and implementation of the Comprehensive Plan and in particular to:

(i) place it before the Executive Board and the twenty-second session of the General Conference of Unesco;

(ii) mobilize needed extra-budgetary financial and other resources required for its preparatory phase;

(iii) bring to the notice of the bilateral and multilateral international funding agencies, and subsequently to host a high-level consultation to provide them with information on the concept and content of the Plan and to identify, so far as possible, ways and means by which they can assist in its implementation.

B

Requests the TEAM ad hoc Group for Implementation and Co-ordination, supplemented as necessary by advisers from donor Member States and with the collaboration of appropriate units of Unesco, in particular the Division of Marine Sciences (OCE), to assist as required with preparations for the proposed consultation referred to in section A (iii) above;

Decides to proceed with the implementation of those elements of the Comprehensive Plan, as part of the TEMA activities of the Commission, for which budgetary and administrative resources can be made available, and to prepare, on a trial basis, a limited number of Marine Science Country Profiles, in consultation with appropriate United Nations and other international organisations.

C

Urges the Member States of the Commission:

(i) to establish and maintain appropriate mechanisms for the formulation of national marine science policies;
(ii) to improve or establish, as required, National Oceanographic Commissions or equivalent bodies, composed, as appropriate, of representatives of interested government departments, universities and research institutions actively involved in marine science and technology and other related aspects of ocean affairs; to maintain liaison with national users of the results of marine scientific research; to work closely with other national institutions and international organizations concerned with this multidisciplinary field; and to develop and support marine science activities, using the mechanisms proposed in the Comprehensive Plan, ensuring the close involvement of their national scientific community;

(iii) to give priority to the marine sciences as an essential element in the development of socio-economic activities and to take the initiative of applying to UNDP, the United Nations Financing System for Science and Technology for Development (UNFSSSTD) and other sources of funding in support of projects to be developed under the Comprehensive Plan."

**ACTION REQUESTED OF THE PROGRAMME GROUP**

(i) To note the adoption of the Comprehensive Plan and of the Modalities of Implementation, and to provide preliminary guidance to the Secretariat and its promotion through subregional projects, to be submitted for extrabudgetary funding, by which the marine science capabilities (as well as common ocean services and facilities) of developing countries, including small Pacific island States, could be significantly enhanced.
(ii) To consider and recommend the establishment of National Oceanographic Commissions, where these or similar mechanisms do not exist, as called for in the Comprehensive Plan, or to provide guidance on the strengthening of such bodies as already exist, as called for in IOC Resolution XII-8.
7. STRUCTURE AND BUDGET

7.1 FUTURE STATUS OF THE PROGRAMME GROUP

At its Second Session, the Programme Group, through Decision WESTPAC-II.6 considered that:

"the establishment of an IOC Sub-Commission for WESTPAC offers the potential for strengthening in the long-term, organisational arrangements for the planning, promotion, implementation and co-ordination of ocean sciences and related services in the Western Pacific, ..."

and believed that, pending further study:

"... it is appropriate to continue to function under its present Terms of Reference as a Programme Group."

The Programme Group agreed to study the evaluation of IOCARIBE (Document IOC/INF-495) and the IOC Secretariat's analysis of the sub-commission concept.

At its Twelfth Session, the IOC Assembly agreed that:

"a proposal on the establishment of a regional IOC Subcommission for WESTPAC must come from the Programme Group itself. The Assembly noted that the Programme Group had expressed a wish to study the Evaluation of IOCARIBE (document IOC/INF-495) before giving further consideration to the idea of an IOC Subcommission for WESTPAC, and instructed the Secretary to include this document (IOC/INF-495) in the documentation for the Third Session of the Programme Group."

Regarding the concept of sub-commissions as a new kind of subsidiary body of the Commission, the Assembly decided

"to adopt the text given in document IOC-XII/8 Annex 15 rev. as the Guidelines for the Structure and Responsibilities of the Regional Subcommissions with minor amendments to the title; also the titles of sections 1 and 2 were adjusted to conform with existing guidelines for other subsidiary bodies of the Commission." ...

agreed that

"since it was an internal matter of the Commission, there was no need for a resolution on the creation of this new category of subsidiary body, since the decision to create was reflected in Resolution XII-16 on the creation of an IOC Regional Subcommission for IOCARIBE" ...

and instructed the Secretary

"to incorporate these Guidelines into the Summary Report of the present Session (See Annex V) and into the IOC Manual, Part I, Section V."

Regarding Secretariat support for the work of the Programme Group, the Group, by Decision WESTPAC-II.6, recommended that the IOC Secretary pursue negotiations to enable ROSTSEA to provide secretariat services to WESTPAC.
In his address to the Twelfth Session of the IOC Assembly, the Assistant Director-General for Science, Prof. Abdul-Razzak Kaddoura, speaking on behalf of the Director-General, stated that:

"Unesco will continue to make every possible effort to strengthen the Commission and to provide support to its work through the Division of Marine Sciences and through the mobilization of other units, such as the Regional Offices for Science and Technology (ROSTS) and the Operational Programmes Division (OPS)." ...

He also added that:

"Besides the Marine Science Officer attached to ROSTSEA, who is also formally assigned the functions of IOC Assistant Secretary for WESTPAC, similar arrangements will shortly be made for the ROSTs in Nairobi, Doha and Montevideo. They are part of the measures taken by the Director-General to increase Unesco's support to the Commission and to develop a more integrated approach to the implementation of the marine science programmes of Unesco."

The Programme Group, with a view to enhancing the co-ordination of the actions of its Member States, has created the concept of Technical Co-ordinators/Correspondents and several have been nominated by Member States. Their roles vis-à-vis the role of the IOC Secretariat in Paris and in ROSTSEA, require clarification in order to increase the effectiveness of co-ordination.

ACTION REQUESTED OF THE PROGRAMME GROUP

(i) To take note of the Evaluation of IOCARIIBE (Document IOC/INF-495), as well as the relevant sections of the Summary Report of the Twelfth Session of the Assembly (Document SC/MD/73). (ii) To consider the preparation of an evaluation of WESTPAC, analogous to that for IOCARIIBE. (iii) To formulate a recommendation to the Executive Council on its future status, particularly as regards the establishment of an IOC Sub-Commission for WESTPAC. (iv) To assess the usefulness of Technical Co-ordinators in the implementation of WESTPAC activities.

7.2 GUIDANCE ON PROGRAMME AND BUDGET FOR 1984-85

The general form of the IOC Programme and Budget for 1984-85 is contained in that of Unesco (Document Draft 22C/5). There remains, however, a need for more detailed proposals on activities in the Western Pacific for the elaboration of the detailed IOC Programme Activity Details for 1984.

ACTION REQUESTED OF THE PROGRAMME GROUP

(i) To provide guidance to the Secretary on its requirements for the 1984-85 biennium, within the framework of the Unesco draft programme and budget for 1984-85 (Document 22C/5; programmes X.4 and X.5) and the guidelines laid down by the governing bodies of IOC. (ii) To forecast its needs for the 1986-87 biennium. (iii) To identify the required subsidiary bodies that it believes will be necessary to carry out its agreed activities.
7.3 EXTRA-BUDGETARY FUNDING IN SUPPORT OF WESTPAC AND REGIONAL ACTIVITIES

The IOC Assistant Secretary, Dr J.R.E. Harger, will recall the requirements for such funding particularly in connection with the needs for implementation of the science programmes and ocean services activities of WESTPAC, as well as of related TEMA activities.

ACTION REQUESTED OF THE PROGRAMME GROUP

To determine how its Member States could, through contributions to the IOC Trust Fund, or by direct funding of WESTPAC activities, support the implementation of specific projects of marine scientific research or the provision of particular ocean services in the region, and assist with the initiation of the preparatory phase (e.g., missions) of the Comprehensive Plan.
8. CO-OPERATION WITH OTHER REGIONAL ORGANIZATIONS

8.1 CO-ORDINATING BODY ON THE SEAS OF EAST ASIA (COBSEA)

The IOC Assistant Secretary, Dr J.R.E. Harger, and Dr Rodger Dawson, attended the Second Session of COBSEA. COBSEA indicated a strong interest in participating in the IOC Training Workshop on the Use of Marine Organisms in Marine Pollution Monitoring (see Agenda Item 4.4, above) and requested that UNEP approach the IOC to discuss possibilities of providing support. Subsequently, the IOC noted the requests from COBSEA and made provisions for attendance of participants common to both COBSEA and WESTPAC programmes. UNEP acted upon COBSEA's request by contacting IOC for the purpose of informing IOC of this request and invited IOC to submit a draft Project Document for consideration of support. However, due to the advanced stage of IOC planning for the Training Workshop, both technically and logistically, and keeping in mind the interests of all WESTPAC Member States and the fact that the Commission considered its present plan the most efficient mechanism under the circumstances, the IOC decided to extend its own resources to ensure proper involvement in the activity of the ASEAN countries. COBSEA further agreed to back a Unesco/UNEP Workshop on Coral taxonomy.

The IOC has further materially assisted COBSEA in the implementation of its oil pollution project through technical assistance to LEMIGAS, the Indonesian national oil company, which is the lead institution in the project.

ACTION REQUESTED OF THE PROGRAMME GROUP

To provide guidance, for the benefit of the Member States concerned, on co-operation with COBSEA, bearing in mind COBSEA's subregional nature, relative to WESTPAC, and its responsibility for the implementation of the UNEP Action Plan for East Asian Seas.

8.2 SOUTH EAST ASIAN FISHERIES DEVELOPMENT CENTRE (SEAFDEC)

The IOC Assistant Secretary, Dr J.R.E. Harger, will inform the Programme Group of negotiations so far with SEAFDEC, with particular reference to the organization of an IOC-SEAFDEC Training Course in Fishery Oceanography.

ACTION REQUESTED OF THE PROGRAMME GROUP

To provide guidance to the IOC on co-operation with SEAFDEC, bearing in mind SEAFDEC's specialized functions and structure.

8.3 OTHERS

In the present period of economic crisis, and budgetary stringency, the need to improve co-ordination of actions and co-operation amongst international organizations concerned with marine affairs is particularly urgent. While the mandates of the concerned organizations should be respected, and special attention paid to avoid overlapping, there is a need to identify fields in which co-operation could help to optimize the ways and means available, especially since, in certain fields, the same scientists and technicians are often called upon to serve (through national activities) two or more international organizations or programmes.
ACTION REQUESTED OF THE PROGRAMME GROUP

The Programme Group is requested to indicate which other regional organizations it would be mutually beneficial to collaborate with or collaborate more closely with (e.g., FAO/IPFC, SPC, SPEC, ICLARM) in the implementation of activities of common interest, and provide forms of co-operation.

9. ELECTION OF THE CHAIRMAN AND VICE-CHAIRMAN

Pursuant to the IOC Guidelines on the Role and Responsibilities of Subsidiary Bodies (Document IOC Manual Pt I, Section 5), the Programme Group is required to elect its Chairman and Vice-Chairman.

ACTION REQUESTED OF THE PROGRAMME GROUP

To elect a Chairman and a Vice-Chairman, bearing in mind "the need to give all Member States interested and active in the work of the Programme Group the opportunity to provide the Chairman and/or Vice-Chairman".

10. DATES AND PLACE OF THE FOURTH SESSION

ACTION REQUESTED OF THE PROGRAMME GROUP

To determine, if possible, the dates and place of its next Session.

Potential host countries are requested to determine first the basic requirements and likely costs before extending a formal invitation; the appropriate information can be obtained from the Secretary of IOC.

11. ADOPTION OF THE SUMMARY REPORT

ACTION REQUESTED OF THE PROGRAMME GROUP

To adopt the Summary Report of its Third Session, including the Recommendations thereof, during the Session.

12. CLOSURE

The Chairman is requested to close the Session by 1800 on 24 September 1983.
This document presents the activities in the Western Pacific region between August 1981 and August 1983 by the Division of Marine Sciences in co-operation with the Regional Office for Science and Technology for Southeast Asia in Jakarta. References to several planned activities are also included.
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Activities in the Western Pacific region between August 1981 and August 1983 by the Division of Marine Sciences in co-operation with the Regional Science and Technology Office in Jakarta; including references to several planned activities.

1. **Introduction**

The basic development strategy of the Division of Marine Sciences (OCE) is to integrate national marine science infrastructure development, manpower development and programme development in a mutually supportive system. The strategy further uses Unesco activities to catalyze the establishment of extra-budgetary (e.g. UNDP funded) marine science development projects which are seen as a larger scale implementation phase.

During the Unesco programme and budget triennium 1981-1983, the activities of the Division of Marine Sciences are carried out under the following four themes:

- Dissemination of information on the marine sciences;
- Development of the scientific basis for the understanding and management of the marine environment especially coastal, and its resources;
- Development of national and regional infrastructures in the marine sciences;
- Education and training in the marine sciences.

After the 1979 UN Conference on Science and Technology for Development, Unesco decided to establish several major projects in science and technology in order to concentrate activities and to strengthen catalization of extrabudgetary funding. Thus was created the Division's Inter-regional Project on Research and Training leading to the Integrated Management of Coastal Systems (COMAR). COMAR consists of several regional components and a global component. While being carried out under the second of the above-mentioned themes, COMAR derives support from the rest of the Division's programme, and in turn provides strength to the other parts. The project is interdisciplinary orientated and has been developed through extensive co-operation with the scientific community.

Overall information on the Division's regular and extrabudgetary programme of activities for 1982 and 1983 and the mechanisms used to execute it are described in MARINF/42,
which was provided to the IOC at its Twelfth Assembly (Paris, November 1982), together with MARINF/42 Add. which gives details on the Division's 1984/85 programme proposals. In this respect it may be noted that the Division's COMAR project is the main instrument of action for the 'new' programme on 'management of coastal and island regions'.

Details are given here below on the activities carried out from August 1981 to August 1983 in the Western Pacific region, in co-operation with the Unesco Office for Science and Technology for Southeast Asia, Jakarta (ROSTSEA). Activities outside the region, but of direct relevance to scientists in the Western Pacific or in which scientists from the region participated are presented as well. These activities can be considered as a contribution to the objectives of WESTPAC from Unesco as an agency of ICSPRO (Inter-Secretarial Committee on Scientific Programmes Relating to Oceanography).

While the activities have been subdivided under various headings, their strong interlinkage and interdependence referred to above, is noted here again.

2. Dissemination of Knowledge in the Marine Sciences

(a) International Marine Science Newsletter (IMS)
Seven issues of the IMS Newsletter were distributed to over 400 addresses (both institutes and individual scientists) in the Western Pacific region.

(b) Unesco reports and technical papers in marine sciences series
Thirteen issues in these series were distributed to over 200 addresses in the Western Pacific region. Titles include: - Coral reef management in Asia and the Pacific, some research and training priorities; - Marine and coastal processes in the Pacific: ecological aspects of coastal zone management; - Fishery science teaching at the university level; - Coastal lagoon research, present and future; - International oceanographic tables; - Background papers on the practical salinity scale; - Background papers on the international equation of state of seawater.

(c) Unesco Monographs on Oceanographic Methodology and other publications
'Mathematical models in biological oceanography' was published as Monographs No. 7. A monograph on Mangrove Ecosystem Research is in print as No. 8 of the same series. A bibliography on mangrove research covering the period from 1600 to 1975 was published as a special publication. Various other texts are under preparation, such as on coral reef management (see 3b below) and a mangrove handbook for coastal area managers.
Major Inter-regional Project on Research and Training leading to the Integrated Management of Coastal Systems (COMAR)

(a) Mangroves

The Unesco/UNDP Training and Research Pilot Programme on the Mangrove Ecosystems of Asia and the Pacific became operational at the end of 1982. The present duration of the project is three and a half years.

The major goal of the project is to provide support and training to scientists and managers and to awaken public and governmental awareness to the importance of mangroves and the serious dangers of wanton destruction that endangers coastline stability, the productivity of both captive and free fisheries, and production of many important natural resources (firewood, timber, charcoal, tannin, alcohol, acetic acid, construction material, and several chemicals). In addition to training scientists and to establishing guidelines for the management of mangroves, the project also aims at establishing a strong and well organized network of mangrove research, survey, training and information that will continue in the years to come.

The project has an official means of communication, thanks to the offer made by the Philippine National Mangrove Committee of space to disseminate project news in its Newsletter, Bakawan, which is published in Manila.

The following two major activities have taken place:

- The First Meeting of the Regional Task Force was held at the National Research Council of Thailand, Bangkok, from February 28 to March 2, 1983. The meeting approved the final version of the Project Document, made several recommendations to the Chief Technical Adviser (CTA), approved the Work Plan and recommended new activities to be organized, provided additional sources of funds could be located.

- The First Introductory Training Course on Mangrove Ecology, hosted by the Thai National Mangrove Committee, under the National Research Council, was held from March 2 to 30, 1983. A major part of the course, attended by 25 trainees from eight countries, was devoted to field work carried out in the South-East coast of Thailand at Chantaburi, South Thailand, at Ranong on the Gulf of Thailand and at Phuket on the Andaman Sea.

The next specialized training course will deal with mangrove productivity and will be held from September 25 to October 15, 1983 at the Universiti Sains Malaysia, Penang, and at its field station at Muka Head. The WESTPAC Pro-
gramme Group is invited to consider supporting a few additional participants to the course.

The meeting in Penang will be followed by a workshop to establish rapport among scientists, mangrove managers and decision makers, and by a Sub-Regional Task Force Meeting to discuss, among other matters, the content and terms of reference of the 'Guidelines for Mangrove Management'.

(b) Coral reefs

Under the research and training programme for coral reef management in Asia and the Pacific, several activities and preparations for future ones took place. The Regional Workshop on Coral Reef Survey, Management and Assessment Methods was held at the Phuket Marine Biological Station from 13 to 17 December 1982. The workshop, co-sponsored by UNEP, responded to a recommendation made by the Unesco Workshop on Research and Training Priorities for Coral Reef Management (Manila, May 1981). The major part of the workshop at Phuket was devoted to field activities at Phi Phi Island to allow the participating scientists from six Western Pacific countries to compare methods of sampling and assessment used in coral reef surveys in their respective countries. Additionally, all participants obtained experience in applying the 'point quarter method' for coral reef sampling. The results of the workshop including recommendations are published in the Unesco reports in marine science No. 21.

The above-mentioned Unesco workshop in Manila in May 1981 also discussed and recommended the preparation of a 'coral reef management handbook' for middle and upper-level managers in South Asia, Southeast Asia and the Pacific. The coordination to prepare and edit the handbook was commissioned to the Great Barrier Reef Marine Park Authority (Australia). A number of authors are contributing to the handbook. Draft texts were reviewed by specialists at ad hoc meetings held during the World National Parks Congress (Bali, Indonesia, October 1982) and during the Fifteenth Pacific Science Congress (Dunedin, New Zealand, February 1983). The handbook text is presently finalized. (It may be noted that the preparation of a complementary text on the human activities causing coral reef degradation is co-sponsored under the Major Project together with the IUCN and the French Government).

During early 1984 a regional field workshop on coral reef taxonomy will be organized at the Phuket Marine Biological Station, while a second field workshop on coral reef survey, assessment and management methods is planned for the 1984/85 biennium. Besides providing training to the participants, these field workshops are designed to increase the scientific knowledge of the site where the field activities are located.
Productivity of island marine ecosystems

A Unesco/IOC special session on this theme was held in conjunction with the Fifteenth Pacific Science Congress in Dunedin, New Zealand, February 1983, with the aim to identify possible activity areas for project development in the Pacific marine environment. Eight invited scientific papers were presented at the meeting on various aspects of productivity of island and marine ecosystems. Developing countries were represented by participants from Kiribati, Papua New Guinea, Fiji and Tonga. Representatives from major marine science institutions in New Zealand, Australia, French Polynesia, the U.S.A. and related dependencies were also present together with observers from UNEP and the South Pacific Regional Environment Programme. As many as 65 people attended each of the two subsequent business meetings. The activity areas that received greatest endorsement for project development include: mangrove primary, consequent and related productivity; effects of atolls and seamounts on productivity of ocean waters; exchange of scientists and information on Pacific coral reef studies; the assessment of black coral resources; mechanisms to assess environmental risk from shoreline developments; and training and education in the marine sciences. Various institutions in the region expressed interest in contributing to several of the priority projects. The outcome of the meeting is published together with the presented papers as Unesco reports in marine science No. 27.

Coastal systems interactions

Built on experiences in other regions (e.g. the Caribbean) and as indicated in the 1984/85 Unesco programme, it is planned under COMAR to address the question of coastal systems interaction in terms of exchange of energy and materials to arrive at a better understanding of the basic conditions of the productivity of those coastal systems in the Western Pacific.

Recruitment in high diversity marine systems

The IABO/Unesco Workshop on 'The Mechanics of Recruitment in High Diversity Marine Systems' will take place from 7 to 10 September at Roscoff, France. The meeting is organized in the context and in support of the Programme on Ocean Science and Living Resources (OSLR) in accordance with the discussions during the Twelfth Session of the IOC Assembly about the report of SCOR Working Group 67 and the corresponding Resolution XII-1. The meeting's aims include the identification of field experiments on the mechanisms that control species recruitments in high-diversity ecosystems and that govern productivity of small-scale traditional fisheries, notably in developing countries.
As a follow-up on this workshop, Unesco under its COMAR project envisages to use the continuing activities of the Regional Mangrove Ecosystems Project to develop specific pilot projects on the recruitment strategy in the mangrove and related coastal systems. The WESTPAC Working Group is invited to co-operate in developing such specific projects in various countries of the region as contribution to OSLR.

(f) **Traditional Management**

A regional working group meeting on traditional management of coastal systems will be held in Jakarta early December 1983. Following an ad hoc planning meeting on the subject (Paris, 5-8 July 1983), this regional meeting will examine the various aspects of traditional management of the coastal resources and environments in Asia and the Pacific.

4. **Development of National and Regional Infrastructures in the Marine Sciences**

Activities include the exchange of scientists and promotion of co-operative research through the provision of travel and study grants; provision of equipment; consultant and staff member advice.

(a) Travel and study grants were provided to the following scientists:

- Mr. Mickmin Charuchinda of Thailand to present a paper at the XVth Pacific Science Congress, Dunedin, New Zealand.

- Mr. Sanit Aksornkoae of Thailand to participate in the Symposium on Ecology of Wet-Dry Tropics, Darwin, Australia, and to subsequently visit the Darwin Laboratories of the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO) in order to further his understanding of mangrove ecosystems.

- Five Chinese scientists to participate in the 'Second International Workshop on the Malacofauna of Hong Kong and Southern China', held in Hong Kong.

- Drs. M. Martinez and E. P. Ortega of the Philippines, Dr. P. M. Sivalingam of Malaysia and two scientists from outside the region (India, Tanzania) to participate in the XII International Seaweed Symposium, held in Qingdao, China.

- Prof. Guan Bingxian and Mr. Hua Mao Sen of China to participate in the Second Japan and East China Seas Workshop at Tsukuba University, Japan, and the 9th Symposium of the International Cyanophyte Research in Zurich, respectively.

- Mr. Dang Ngok Thanh, and Mr. Le Trong Phan, Viet Nam to make a study tour of marine science institutions in India.
Dr. Sulistiyo of Indonesia to participate in the International Conference on Development and Management of Tropical Living Aquatic Resource, Serdang, Malaysia.

Mrs. Pensi Boonruang of Thailand, to obtain specialized training in Norway, Sweden and Denmark on the taxonomy of phytoplankton from the west coast of Thailand.

Dr. Twesukdi Piyakarnacha of Thailand, Dr. Heung-Jae Lie of the Republic of Korea and Prof Senquiang of China to attend the Joint Oceanographic Assembly in Halifax, Canada, among the seventeen participants sponsored by the Division of Marine Sciences and the IOC to JOA.

Mr. Sahala Hutabarat of Indonesia, to visit Chulalongkorn University, Thailand, to familiarize himself with the use of the Open University U.K./Unesco audio-visual course in marine science.

Dr. Jin Hwan Lee, Republic of Korea, to participate in the Advanced International Phytoplankton Course in Oslo, Norway.

Drs. Jih-Ping Chao, Bingrong Xu and Jiayi Zhou of China to participate in the 18th General Assembly of the International Union of Geodesy and Geophysics, Hamburg, Federal Republic of Germany.

(b) Equipment

- Srinakharinwirot University in Thailand was given a grant for the purchase of marine monitoring equipment.
- The Hydrometeorological Service of DPR Korea was provided with a minicomputer for processing oceanographic data.
- The Oceanographic Institute in Nha Thrang, Viet Nam, was provided with seawater pumps.

(c) Advice

- At the request of the authorities, a consultant visited the People's Democratic Republic of Korea to advise on the status and development of the country's capabilities in the marine sciences. From this mission and a subsequent staff member's visit resulted a draft project proposal for the strengthening of the scientific and technical basis of the oceanographic research institutions of the PDR Korea.
- Visits to the majority of the Member States in the Western Pacific were made by Unesco marine science staff members for programme execution and preparation, and to participate in meetings, workshops, etc. Advice was provided if and when required during these missions on the development of national infrastructures and programmes in the marine sciences.
5. **Training and education**

The main relevant activities under general training and education included (i) provision of fellowships for specialized training abroad; (ii) strengthening of university teaching, through introduction of the Open University U.K./Unesco audio-visual oceanography course into local curricula; and (iii) information and guidelines on ocean engineering education at the university level through a global survey and a workshop.

(a) **Fellowships were provided to the following scientists:**

- Mr. Arief Dharma and Mr. Deddy Setiapermana of Indonesia to carry out physical and marine oceanography studies, respectively, at the Netherlands Institute of Sea Research in the framework of preparation for the Snellius II expedition.

- Mrs. Liu Rumei and Ms. Rongping Zhao of China to participate in the six-month Marine Pollution Chemistry Course at the University of Liverpool, U.K.

- Mr. Porfirio M. Alino of the Philippines to attend the Graduate Research and Training Programme in Coral Reef Population Biology at the Hawaii Institute of Marine Biology, University of Hawaii.

(b) **Open University U.K./Unesco oceanography course**

Besides the Chulalongkorn University in Thailand, the Open University U.K./Unesco oceanography course materials were provided during the period of the present report to the University of the Philippines, Philippines, and the University of Diponegora, Indonesia. The interdisciplinary course consisting of textbooks, films or video tapes, audiotapes, broadcast notes, assessment questions, etc. is used to strengthen local university teaching in the various subfields of marine science. Teacher guidance for the use of the course is also provided. (A supplementary teaching unit on tropical marine environments is presently being developed by Unesco and the Open University).

(c) **Ocean engineering education**

The Unesco/IOC/ECOR Workshop on Advanced University Curricula in Ocean Engineering and Related Fields was held at Unesco, Paris, in October 1982. Among the fourteen invited expert participants were Prof. Wen-Fa Lu of China and Prof. Keuck Chun Kim of the Republic of Korea. The workshop was convened to provide guidelines to those who are charged with establishing university teaching in ocean engineering. The report of the workshop is published as Unesco reports in marine science No. 25, and includes example curricula for offshore structural engineering, coastal and nearshore engineering, ocean instrumentation, fisheries engineering. A global survey and analysis of postgraduate university in ocean engineering and related fields served as the main workshop document and is published as Unesco reports in marine science No. 26. A regional workshop on ocean engineering teaching at the university level in Asia and the Pacific is planned to be held during the 1984/85 biennium. The WESTPAC Programme Group is invited to consider how it could co-operate in this activity.
(d) **Survey of undergraduate marine science education**

A trend towards an increase in marine science education at the undergraduate level has been observed in many countries, including the offering of a bachelor's degree or equivalent in marine science or in a related field or sub-field. A survey of such education is planned in order to obtain a better picture of the types of offerings, the number and level of students, the subsequent employment of graduates, etc.

6. **Extra-budgetary projects**

The above-mentioned programme activities (except for the Unesco/UNDP Mangrove Ecosystems Project) are carried out and financed under the Regular Programme and Budget approved by the Unesco General Conference at its 21st session (October - November 1980). In addition, the following projects for the strengthening of national marine science activities and infrastructures are executed by Unesco in the Western Pacific region with financial support from UNDP.

(a) **Thailand**

Improvement of Marine Science Education Project in Thailand. This five-year project started in 1979, and contributes in addition to the creation of a centre for physical and chemical oceanographic training and research at Chulalongkorn University, Bangkok, to an increased capacity to monitor, control and ultimately predict and eliminate levels of coastal pollution, and improve the living standards of shore-line artisanal fishermen. Project funds amount to US$549,000 for consultants, fellowships, group training, study grants and equipment.

(b) **Republic of Korea**

Strengthening the Ocean Research and Developments Institute, Republic of Korea. This project started in 1975 in order to increase the local capabilities in ocean research and engineering and to acquire specialized equipment. Phase II of the project also involved the execution of tidal power feasibility studies. Project funds for 1980-1982 amounted to US$410,000 for consultants, study grants, group training and equipment. Project activities terminated during 1982. Follow-up projects are under consideration, such as for the establishment of an oceanographic instrumentation department.

(c) **Other**

Proposals for extra-budgetary projects aimed at strengthening the marine science research activities, education and infrastructures have been developed for Viet Nam, the PDR Korea and the Philippines. The Philippine project proposal has been approved for UNDP support, and its execution is expected to commence later in 1983.
11th May, 1984

Dr. M. Ruivo
Secretary IOC
UNESCO
7 Place de Fontenoy 75700
PARIS

Dear Mario:

By now, I expect you will have received a copy of the first issue of the WESTPAC Newsletter. In it, you will note that the number of national nominees to task teams is really still quite limited. This gives me some concern if we are to move towards objectives for the present intersessional period in a timely manner. Anything you might be able to do to encourage member states who have not yet done so to make nominations would be very much appreciated. I intend taking separate initiatives to that end as well and hope for a positive response. Frankly, I cannot understand why we are experiencing such delays in view of the wide interest expressed in the WESTPAC program.

Yours sincerely,

John S. Bunt
Chairman
WESTPAC PROGRAMME GROUP

copy to: D. McEwan
National Co-ordinators
R. Harger
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of Unesco)

Third Session of the Programme Group for the Western Pacific (WESTPAC)
Townsville, Australia, 19-24 September 1983

REPORT OF WESTPAC TECHNICAL CO-ORDINATOR FOR GEOLOGY AND GEOPHYSICS
IOC-WESTPAC III

Reports
by
Noriyuki Nasu

Technical Coordinator
for
Geology and Geophysics

Activity reports received between WESTPAC II and III.

1. Publications

Preliminary report of the Hakuho Maru Cruise KH 80-3
July 14--September 6, 1980
Japan Trench, Shatsky Rise, Guam, Ponape and Ogasawara Areas
(IPOD, WESTPAC)
by the Scientific members of the Expedition
edited by Kazuo Kobayashi
Ocean Research Institute, University of Tokyo, 209p.

Preliminary report of the Hakuho Maru Cruise KH 82-4
July 23--August 21, 1982
Geophysical and geological investigation of seafloor around Ogasawara
(Bonin) Islands, Amami Plateau and Southwestern part of the Sea
of Japan (WESTPAC, IPOD)
by the Scientific members of the Expedition
edited by Kazuo Kobayashi
Ocean Research Institute, University of Tokyo, 267p.

2. Participation

Noriyuki Nasu participated, as the representative of IOC, to the
Second Workshop on the Geology and Hydrocarbon Potential of the South
China Sea and Possibilities of Joint Development, August 22-26, 1983.

This Workshop was held by the East-West Center in Honolulu,
Hawaii organized by C. Y. Li, and co-sponsored by EAPI/ASCOPE/CCOP/IOC.
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of Unesco)

Expert Consultation on Marine Geological and
Geophysical Research in the WESTPAC Region

Townsville, Australia, 15-17 September 1983

SUMMARY REPORT
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MARINE GEOLOGICAL AND GEOPHYSICAL RESEARCH PROGRAMMES IN THE WESTERN PACIFIC

INTERGOVERNMENTAL MECHANISMS TO PROMOTE AND COORDINATE RESEARCH PROJECTS

ADOPTION OF THE SUMMARY REPORT

CLOSURE
1. OPENING

Upon the invitation of the Intergovernmental Oceanographic Commission (IOC), an ad hoc Expert Consultation on Marine Geology and Geophysics was held at the Townsville International Hotel from 15 to 17 September 1983. The Agenda is given in Annex I. The List of Participants is given in Annex II.

The Consultation was aimed at identifying a few key research programmes in marine geology/geophysics in the Western Pacific that might meet certain of the Programme Group's needs in this field as well as provide inputs into the IOC global programme of Ocean Science in Relation to Non-living Resources (OSNLR). It was agreed that these regional programs should be concisely formulated with a view to achieving a relatively rapid implementation and delivery of results. They should take into account general and regional aspects; the latter should ensure the participation of interested developing Member States in the WESTPAC region.

The views of the experts are to be submitted to the Third Session of the IOC Programme Group for the Western Pacific.

Discussions were guided by Dr David Falvey and reported by Dr Keith Lewis.

2. CONSIDERATION OF THE AGENDA

The Assistant Secretary of IOC, Mr Ray C. Griffiths, suggested an Agenda comprising two substantive items (Annex I). This was considered by the group to be an acceptable basis for their discussions. He pointed out that, with respect to possible intergovernmental mechanisms, the Programme Group would be considering specifically the possible formation of a Joint Working Group with CCOP (SOPAC) and of a Task Team or Group of Experts on Ocean Science in Relation to Non-living Resources in the Western Pacific. Nevertheless, he said that the views of the experts on general needs for intergovernmental mechanisms to coordinate action in the implementation of programmes eventually adopted by the Programme Group could be a valuable input to the Third Session the following week.

3. MARINE GEOLOGICAL AND GEOPHYSICAL RESEARCH PROGRAMMES IN THE WESTERN PACIFIC

INTRODUCTION

Geoscience provides basic information and concepts that are central to development and economic growth. Marine geoscience is the essential hub of the marine sciences. It is a truly experimental science, incorporating quantitative modelling and model testing on a grand spatial and temporal scale. The work programme developed in this document will produce results not merely of local significance but which will become part of a global model of kinematics, structure and sedimentation.
The Western Pacific is unique in containing within its confines, the essential juxtaposed elements critical to the solutions of many global problems.

Within the Western Pacific, major groupings interested in geoscience already exist, including the two CCOP bodies and national organisations, some of which are represented on the CCOP bodies but have marine geoscience programmes independent of regional, mineral-exploration programmes. It is clear from current geoscientific knowledge of the WESTPAC area that geoscientific problems (scientific, economic and hazard-related) transcend the boundaries of these groupings and there is therefore a need for co-operation in the formulation of practical programmes for their resolution.

The present informal experts consultation addressed itself to this task and aimed to identify a small number of marine geoscientific projects that would be more appropriately supported in the overall WESTPAC context. The implementation of these projects, if approved, should be supervised by project-oriented working-level action groups under the aegis of the IOC Programme Group for the Western Pacific.

In the preparation of this document, earlier documents were consulted, particularly the WESTPAC Workshop on Marine Geology and Geophysics of the North West Pacific (IOC Workshop Report No. 23) and the CCOP (SOPAC)-IOC Workshop on Geology, Mineral Resources and Geophysics of the South Pacific (IOC Workshop Report No. 27).

The priority projects identified herein may contain the bases for specific development aid programmes, but are intended in the first instance to take a longer-term look at marine geoscience questions and to consider problems that confront all regional countries. Many of the proposed projects are outside the scope of CCOP or CCOP (SOPAC) alone. Their inclusion in a WESTPAC programme should, however, confer on them a regional and a global scientific relevance.

Support will be needed to promote and facilitate scientific participation and exchange, but the real carriage of these projects will rest with the scientific funding and resource-development agencies of the many Member States of the Programme Group, by their recognition of the widespread scientific, social and economic benefit likely to derive from them.

SEA LEVEL, ENVIRONMENT AND TECTONICS (SET)

Scope

This programme is concerned with the interaction between changes in sea level, vertical tectonic movement, and the depositional environments of sediments.

In the Western Pacific the unravelling of the processes that form sedimentary sequences on continental margins is unusually complex.
Recognised frameworks for analysis based on oscillations of sea level are complicated in many places by rapid tectonism, in some places by changes in ocean currents and in other places by high carbonate growth. The limited understanding has inhibited analysis of the structural and sedimentological evolution of the region and the interpretation of that evolution in terms of mineral and energy potential.

There appears to be a clear need to document and understand the evolution of sedimentary environments in terms of changes in the overlying water and underlying crust and lithosphere.

Objectives

(i) To differentiate between eustatic and tectonic sea-level changes and other environmental changes in the evolution of key sedimentary sequences, and to study mechanisms, rates and products.

(ii) To identify criteria which consistently provide indices of particular interrelationships that can be used for the interpretation of sequences.

Significance

(i) The WESTPAC region uniquely allows the study of juxtaposed sediment sequences on tectonically active and passive margins. The scientific solution to many global problems reside within the region. The understanding of, for example, the evolution of carbonate sequences under different tectonic regimes will provide comprehensively applicable analogues for the interpretation of ancient sequences elsewhere.

(ii) This programme will have direct application to studies of hydrocarbon evaluation, and exploration for offshore heavy minerals.

Sedimentary Evolution on Active Margins (SEAM)

The resolving of factors that effect the evolution of major sedimentary bodies and the correlation of seismic sequences is particularly complex along the rapidly changing plate boundaries of the Western Pacific.

The objective is to define the general principles for the evolution of sedimentary sequences in several key areas that are of major importance or unique to the Western Pacific.

(i) Trench-slope and fore-arc basins, particularly adjacent to major land masses.

(ii) Intra-arc basins, an element of reversed arcs in the Solomon Islands, Vanuatu, Fiji and Papua New Guinea.
(iii) The unique hierarchy of young and old marginal basins of the Western Pacific.
(iv) Slope-toe areas affected by western boundary undercurrents which may have oscillated in time and space. Understanding of these primary processes could be a significant contribution to understanding hydrocarbon generation in some basins and polymetallic nodules in slope-toe areas and adjacent ocean floors.

Cenozoic Reef Evolution in Space and Time (CREST)

In the Western Pacific, more than in other parts of the earth, coral reefs have thrived in a wide variety of tectonic environments now and throughout the Cenozoic. The main objectives are:

(i) To define and compare the geometric growth, the history and factors affecting evolution of reefs and their associated fore-reef and back-reef deposits along passive continental margins, offshore marginal plateaus, collision-overprinted passive margins and active margins.

(ii) To define the interrelationships between carbonate and terrigenous sedimentation with changes of sea level and tectonic setting.

(iii) To use the foregoing objectives for the precise analysis of older reef sequences, particularly as they are expressed in seismic reflection record sections.

(iv) To consider reefs and their associated deposits as source rocks and reservoirs for hydrocarbons.

Outstanding areas for study are around the Coral and South China Seas, although useful research is possible throughout the Western Pacific. With respect to the South China Sea, various shelf and slope basins in the region are, or have been the focus of intense petroleum exploration, providing a still unpublished and largely unintegrated body of scientific data.

MARGINS OF ACTIVE PLATES (MAP)

Scope

This programme will focus on aspects of the geological evolution of the complex active plate boundaries of the Western Pacific. In this region, defined by the zone of intense earthquake activity, oceanic lithosphere is created at marginal basin spreading ridges and is destroyed by underthrusting "subduction" at islands and volcanic arcs. Large-scale horizontal displacement of crustal accretion leads to arc-arc and arc-continent collisions and crustal accretion resulting in the formation of fold mountain belts. All active plate boundaries are to some extent in a state of evolution - the fundamental driving mechanisms of such evolution is only sketchily understood. As part of programmes aimed at resolving these driving mechanisms, projects leading to terrain identification and tectonic process labelling will be necessary.
Objectives

(i) To define the Tertiary history and kinematic framework of the Western Pacific plate boundaries as a prerequisite to quantifying back-arc and collision tectonic processes.

(ii) To identify the structural, thermal, magmatic, volcanic, tectonic and eustatic processes involved in arc rifting and back-arc sea-floor spreading.

(iii) To identify processes of arc collision and terrane accretion through the identification of styles of structural deformation, including ophiolite emplacement, displaced terraines in collision complexes, mechanism and causes of plate boundary relocation/reactivation, mechanisms for associated sedimentary basin evolution, and factors affecting vertical tectonics.

Significance

(i) Most of the world's modern island arcs and active back-arc basins occur in the WESTPAC region. However, they are also incorporated in ancient fold belts where they contain major ore bodies. An understanding of modern processes provides a key to exploration in older terraines.

(ii) This programme has immediate application to exploration for petroleum and minerals in the present-day island arcs and foldbelts of the Western pacific.

(iii) The programme also provides a tectonic framework for geological hazards: major earthquake, volcanic eruptions, tsunamis and landslips.

Back-arc Tectonics (BAT)

There are numerous regions in the Western Pacific where the objectives outlined above may be pursued. Actively spreading marginal basins in the region occur in the Mariana Trough, Okinawa Trough, Bismarck Sea, Andaman Sea, Woodlark Basin, North Fiji Basin and the Lau Basin. However, two areas stand out as regions where the processes of arc rifting and back-arc spreading can best be investigated in relation to the full suite of objectives. These are:

(i) the Mariana - Bonin region, and

(ii) the Woodlark - East Papua region.

Both of these areas allow an investigation of the spatial and temporal development of back-arc basins, from their initial rift stage to mature development. Understanding the processes involved in this development will particularly require detailed sea-floor geological mapping, requiring bathymetric/side-scan swath mapping and submersible sampling/observations. A comparative study of both areas would be
particularly beneficial. Particular attention will also need to be placed on the determination of microplate/plate kinematics and their relationship to magmatic/hydrothermal activity, structural evolution and consequent crustal structure.

Collision Tectonics (COT)

Several different types of collision zones are well developed in the WESTPAC region. Arc-continent collision is occurring in Taiwan, Timor, Mindanao-Molucca and northern New Guinea. A mosaic of "displaced" terranes have been assembled by strike-slip and collision tectonics in the Philippines, Borneo and central New Guinea. Microcontinental fragments, oceanic plateaus, aseismic ridges and seamounts are colliding with trenches along the entire Western Pacific boundary from Japan to New Zealand. It is recognised that there are several equally important areas where the three different types of collision may be studied. Several of these are being studied under other regional programmes. However, two areas in particular could be usefully adopted by the Programme Group for WESTPAC. These are:

(a) the Louisville Ridge collision with the Tonga Trench
(b) the late Tertiary arc-continent collisions in northern New Guinea.

The latter could be compared very profitably to the SEATAR studies in the Philippines and the Indonesian-Australian mapping programme in Kalimantan. It represents a particularly complex problem involving a series of accretion and collision events. As well as offshore programmes, a transect is suggested from the Bismarck/Caroline Basins across the foldbelt involving paleomagnetic and deep crustal seismic studies.

4. INTERGOVERNMENTAL MECHANISMS TO PROMOTE AND CO-ORDINATE RESEARCH PROJECTS

The group considered this matter and reached the following conclusions:

(i) That the two proposed geoscience programmes (MAP and SET) could be considered as components of OSNLR in the WESTPAC region.

(ii) That a group of experts on marine geology and geophysics in the Western Pacific (WESTPAC) should be established by IOC with the terms of reference proposed in Annex III.

(iii) That an IOC (WESTPAC) Workshop should be organised by IOC in consultation with the aforementioned Group of Experts and held in 1985 in conjunction with the next Circum-Pacific Energy and Minerals Conference.

(iv) That IOC (WESTPAC) should request appropriate government agencies to approve the release of basic scientific petroleum exploration data for regional framework studies under the high priority WESTPAC programmes (MAP and SET).
5. **ADOPTION OF THE SUMMARY REPORT**

The experts agreed and adopted the Summary Report of their consultation.

6. **CLOSURE**

The consultation ended at 1700 on Saturday, 17 September 1983.
ANNEX I

AGENDA

1. OPENING

2. CONSIDERATION OF THE AGENDA

3. MARINE GEOLOGICAL AND GEOPHYSICAL RESEARCH PROGRAMMES IN THE WESTERN PACIFIC

4. INTERGOVERNMENTAL MECHANISMS TO PROMOTE AND CO-ORDINATE RESEARCH PROJECTS

5. ADOPTION OF THE SUMMARY REPORT

6. CLOSURE
ANNEX II

LIST OF PARTICIPANTS

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FEDERAL REPUBLIC OF GERMANY
ANNEX III

TERMS OF REFERENCE OF THE PROPOSED GUIDING GROUP OF
EXPERTS ON MARINE GEOLOGY AND GEOPHYSICS IN THE WESTERN PACIFIC

In order to promote marine geological and geophysical programmes throughout the WESTPAC region a Group of Experts should be asked:

(i) to further develop the IOC scientific programme in marine geology and geophysics in the Western Pacific; namely programme elements concerned with sea level, environments and tectonics (SET) and the margins of active plates (MAP).

(ii) to organise workshops to facilitate scientific interchange with respect to the IOC WESTPAC programme.

(iii) to review the results and recommendations of these workshops, disseminate their output, and to take all practical steps to ensure that these recommendations are integrated into ongoing IOC scientific programme.

(iv) to advise IOC on progress made with respect to the implementation of the scientific programme, on the results of the programme when completed and on new scientific programme directions that might be considered.

(v) to keep under review systems of scientific data exchange and to ensure (in coordination with WC/IODE) that such data are widely and effectively disseminated.

(vi) to liaise as necessary on programme matters with the IOC Guiding Group of Experts on OSNLR, with the secretariats of CCOP and CCOP/SOPAC, and with national institutions dealing with marine geology and geophysics in the Western Pacific.
Intergovernmental Oceanographic Commission
(of Unesco)

Third Session of the Programme Group for the Western Pacific (WESTPAC)
Townsville, Australia, 19-24, September 1983

Activities on the IGOSS Programme in Japan

Submitted by the National Representative for
the IGOSS Programme in Japan
General

The activities on the IGOSS Programme in Japan almosty are carried out under the co-operation of the governmental agencies: the Japan Meteorological Agency (JMA), the Maritime Safety Agency and the Fisheries Agency. They are contributing to all or a part of elements of the programme.

Furthermore, the IGOSS National Committee, comprizing those three agencies, the Ministry of Education Science and Culture (the national focal point of the IOC, Unesco), the Ocean Research Institute of Tokyo University and others, hold the sessions once to twice every year, convened by the National Representative for the IGOSS Programme (the Director of the Marine Department, the JMA), for exchange of information and co-ordination of the IGOSS related activities in Japan.

IGOSS BATHY/TESAC Operational Programme

Since 1972 Japan has been taking part in the collection and international exchange of subsurface temperature data on a real time basis in framework of the IGOSS BATHY/TESAC Operational Programme. The number of BATHY messages disseminated from Japan on a real time basis was 2,534 in 1981, 3,530 in 1982 and 2,130 in 1983 as of August. Majority of the oceanographic observations for the BATHY messages were made in the waters adjacent to Japan while some were made in the tropics of the western Pacific.

The Japanese National Representative for the IGOSS Programme has been urging relevant organizations and institutions to contribute towards the BATHY/TESAC Operational Programme; for example, by distributing a guidebook on the code and transmission of the BATHY messages.

More than twenty Japanese merchant vessels, under contract to the Scripps Institution of Oceanography, USA and the ORSTOM, New Caledonia, France, have been making voluntary X-BT observations on passage in the Pacific. Their subsurface temperatures are coded into BATHY format and sent to coastal radio stations in USA and Japan for international exchange on a real time basis.

In addition to the real time mode BATHY messages, the Japan Meteorological Agency began handling late BATHY reports from August 1982. Thus, about twenty to thirty oceanographic data obtained in the waters adjacent to Japan are being put onto the GTS every month in the delay mode.
Telecommunication Arrangements

Japan has already designated the Choshi-Radio (the call sign: JCS) as the radio station to accept BATHY/TESAC messages from ships as well as the ordinary meteorological messages. The oceanographic messages received are put onto the GTS on a real time basis through the Automatic Data Editing and Switching System of the Japan Meteorological Agency, a Regional Telecommunication Hub for international exchange. Regarding the data collection, the JMA has operationally received the BATHY/TESAC messages from the GTS.

IGOSS Data Processing and Services System

The Japan Meteorological Agency is routinely preparing the analyses of sea surface current in the seas adjacent to Japan and of subsurface temperature in the western North Pacific from the data obtained through the GTS, domestic tele-facsimile and mail. An example of the product of subsurface temperature is shown in Annex 1.

The JMA also produces the analyses of sea surface temperature in the western North Pacific and in the whole of the western Pacific including the southern hemisphere. They are based upon the sea surface temperatures extracted from the maritime meteorological messages from ships and those derived from the infra-red information obtained from the Geostationary Meteorological Satellite operated by the JMA and the US NOAA orbital meteorological satellite. An example of sea surface temperature chart is given in Annex 2.

All of the products above are generated every ten days for dissemination over the meteorological radio facsimile and by copies of "Ten-Day Marine Report".

Furthermore, the maritime Safety Agency provides analytical products of sea surface and subsurface temperatures and sea surface current in the waters adjacent to Japan, particularly in the Kuroshio region, twice a month by radio facsimile and printed matter entitled "Prompt Oceanographic Report". And the Japan Fisheries Information Service Center, a satellite organ of the Fisheries Agency, regularly issues sea surface temperature analyses in several parts of the North Pacific.
More detailed information on the activities on the IG OSS in Japan is available from:

Dr. Yoshiro Sekiguchi
National Representative for IG OSS
Director of the Marine Department
The Japan Meteorological Agency
3-4 Otemachi-1, Chiyoda-ku
Tokyo 100, Japan

Telex 222 2163 METOK J
Annex 1. An example of subsurface temperature analysis in the western North Pacific issued from the Japan Meteorological Agency.
POSSIBLE TRAINING OPPORTUNITIES
IN MARINE SCIENCES FOR 1984 - 85
- JAPAN

Submitted by the Delegate of Japan. Relevant to Agenda Item 6.
Possible Training Opportunities in Marine Sciences for 1984 - 1985

JAPAN

I. Programmes to be carried out under the Japanese Fund-in-Trust arrangement earmarked for the WESTPAC Programme (Listed below are preliminary draft plans and leave the room for future change or modification.)

IOC will select, in consultation with the Government of Japan, the limited number of scientists in the region to enable the participation in the following programmes. Their travel cost and per-diem will be covered by the Japanese Fund-in-Trust earmarked for the WESTPAC Programme.

Application should be made to IOC Secretariat through national committee for IOC in the applicant's country.

1. On-Board Fellowships

<table>
<thead>
<tr>
<th>Ship</th>
<th>Area</th>
<th>Date</th>
<th>Programme</th>
<th>Operating Agency</th>
<th>Number of Fellowship grantees</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAKUHO - MARU</td>
<td>Izu &amp; Marianas Trench</td>
<td>April - May 1984</td>
<td>Geology &amp; geophysics</td>
<td>Ocean Research Institute, University of Tokyo</td>
<td>2 - 3</td>
</tr>
<tr>
<td></td>
<td>East China Sea</td>
<td>June - July 1984</td>
<td>Fisheries</td>
<td></td>
<td>2 - 3</td>
</tr>
<tr>
<td></td>
<td>South China Sea &amp; Indian Ocean</td>
<td>Jan. - Mar. 1985</td>
<td>Biology</td>
<td></td>
<td>4 - 5</td>
</tr>
<tr>
<td></td>
<td>Philippine Sea &amp; East China Sea</td>
<td>May - July 1985</td>
<td>Biology</td>
<td></td>
<td>2 - 3</td>
</tr>
<tr>
<td>TAKUYO</td>
<td>NW Pacific Ocean</td>
<td>Feb. - Mar. 1984</td>
<td>Physical oceanography</td>
<td>Hydrographic Department, Maritime Safety Agency</td>
<td>2 - 3</td>
</tr>
</tbody>
</table>

2. Short-term Training Course on Marine Data Processing

<table>
<thead>
<tr>
<th>Venue</th>
<th>Date &amp; Duration</th>
<th>Number of trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan Oceanographic Data Center, Hydrological Department, Maritime Safety Agency</td>
<td>May 1984, two weeks</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>May 1985, two weeks</td>
<td>3</td>
</tr>
</tbody>
</table>
II. Japanese Government (Monbusho) Scholarship Programme

Although not specifically for study of marine related sciences, scholarships are offered by the Japanese Government (Monbusho) to foreign students at the undergraduate and the graduate level, who wish to study at Japanese universities under the following programmes.

Undergraduate scholarships:
Offered to undergraduate students taking regular courses leading to bachelor's degrees. Preference is given to the students from Southeast Asian countries. The tenure is five years (seven years to those who major in medicine or dentistry), including one year's study of the Japanese language. The applicants should be more than 17 years and less than 22 years of age and must be the graduates of upper secondary schools.

Research scholarships:
Offered to graduate students who receive research guidance at a graduate school. The tenure is one and a half or two years, including six months' study of the Japanese language. The applicants should be under 35 years of age and should be university or college graduates.

The Japanese Government Scholarship provides with stipend, roundtrip air tickets and other allowances. Tuition will be exempted.

The number and percentage distribution of foreign students studying in Japan by major field of study are as follows:

<table>
<thead>
<tr>
<th>Major Field of Study</th>
<th>Number (of which J.G.S.)</th>
<th>Percentage Distribution (of which J.G.S.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8,116 persons (1,777)</td>
<td>100.0% (100.0)%</td>
</tr>
<tr>
<td>Humanities &amp; Arts</td>
<td>2,457 (413)</td>
<td>30.3% (23.3%)</td>
</tr>
<tr>
<td>Education</td>
<td>325 (121)</td>
<td>4.0% (6.8%)</td>
</tr>
<tr>
<td>Social Science</td>
<td>1,840 (217)</td>
<td>22.7% (12.2%)</td>
</tr>
<tr>
<td>Natural Science &amp; Engineering</td>
<td>1,888 (625)</td>
<td>23.3% (35.2%)</td>
</tr>
<tr>
<td>Medical Science</td>
<td>812 (141)</td>
<td>10.0% (7.9%)</td>
</tr>
<tr>
<td>Agriculture</td>
<td>506 (244)</td>
<td>6.2% (13.7%)</td>
</tr>
<tr>
<td>Others</td>
<td>288 (16)</td>
<td>3.5% (0.9%)</td>
</tr>
</tbody>
</table>

(Note) Including those enrolled in graduate courses and junior colleges.

* Japanese Government Scholarship students (As of May 1, 1983)
Further information is available at and the application should be made through the Japanese embassy in the applicant's country. Final selection will be made by Monbusho.

III. Technical Cooperation Programme for Developing Countries

Among other facilities provided by the Government of Japan is the Group Training Courses conducted by the Japan International Cooperation Agency (JICA), as part of its Technical Cooperation Programme with Developing Countries with a view to contributing to upgrading the techniques of the administrative officers, researchers or middle-level technicians of the developing countries.

In 1981, some 2,200 trainees were accepted to the 182 courses under the Programme and were given the training opportunities in the fields of developing planning, public works, transportation, agriculture, fisheries, mining, energy, etc.

Further information is available at and the application should be made through the Japanese embassy in the applicant's country.

IV. In addition to the programmes described above, there are several training facilities provided on the bilateral basis or funded by private bodies.
List of University Faculties related to Marine Sciences in Japan

Some of the example of the university faculties which give the curricula related to marine sciences are listed below.

I. National University

1. Hokkaido University, Faculty of Fisheries
   1-1, Minato-machi 3, Hakodate-shi, Hokkaido 041

2. Tohoku University, Faculty of Agriculture
   1-1, Amemiya-machi, Tsutsumidōri, Sendai-shi, Miyagi-prefecture 980

3. The University of Tokyo, Faculty of Agriculture
   1-1, Yayoi 1-chome, Bunkyo-ku, Tokyo 153

4. Tokyo University of Fisheries, Faculty of Fisheries
   5-7, Konan 4-chome, Minato-ku, Tokyo 108

5. Yokohama National University, Faculty of Engineering I
   Tokiwadai 156, Hodogaya-ku, Yokohama-shi, Kanagawa prefecture 240

6. Mie University, Faculty of Fisheries
   80, Edohashi 2-chome, Tsu-shi, Mie prefecture 514

7. Kyoto University, Faculty of Agriculture
   Oiwake-cho, Kitashirakawa, Sakyo-ku, Kyoto-shi 606

8. Kobe University of Mercantile Marine, Faculty of Mercantile Marine
   1-1, Fukaeminamicho 5-chome, Higashi-nada-ku, Kobe-shi, Hyogo prefecture 658

9. Tottori University, Faculty of Engineering
   10, Minami 4-chome, Koyama-cho, Tottori-shi 680

10. Hiroshima University, Faculty of Fisheries and Animal Husbandry
    17, Midori-cho 2, Fukuyama-shi, Hiroshima prefecture 720

11. Ehime University, Faculty of Engineering
    Bunkyo-cho, Matsuyama-shi, Ehime prefecture 790
12. Kochi University, Faculty of Agriculture
   Monobe-otsu 200, Nangoku-shi, Kochi-shi 783

13. Kyushu University, Faculty of Agriculture
   10-1, Hakozaki 6, Higashi-ku, Fukuoka-shi 812

14. Nagasaki University, Faculty of Fisheries
   1-14, Bunkyo-machi, Nagasaki-shi 852

15. Miyazaki University, Faculty of Agriculture
   210, Funatsuka 3, Miyazaki-shi 880

16. Kagoshima University, Faculty of Engineering
   21-24, Korimoto 1-chome, Kagoshima-shi 890

17. "      
   , Faculty of Fishery
   50-20, Shimo-arata 4-chome, Kagoshima-shi 890

18. The University of Ryukus, Faculty of Science
   Aza-Minami-uehara 858, Nakagusuku-son, Nakatsu-gun,
   Okinawa-prefecture 901-24

II. Private University

19. Kitasato University, Faculty of Fisheries Sciences
   Aza-Utō 160-4, Sanriku-cho Okirai, Kesen-gun, Iwate
   prefecture 022-01

20. Tokai University, Faculty of Marine Science and Technology
   20-1, Orito 3, Shimizu-shi, Shizuoka prefecture 424

21. Nihon University, Faculty of Science and Technology
   8-14, Kanda-surugadai 1, Chiyoda-ku, Tokyo 101

22. "      
   , Faculty of Agriculture and Veterinary Medicine
   34-1, Shimouma 3, Setagaya-ku, Tokyo 154

23. Kinki University, Faculty of Agriculture
   4-1, Kowakae 3, Higashi-osaka-shi, Osaka prefecture 577
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of Unesco)

Third Session of the Programme Group for the Western Pacific (WESTPAC)

Townsville, Australia, 19-24 September 1983

ADDENDUM TO ITEM 7.1 OF THE SUMMARY REPORT

Technical Co-ordinators for WESTPAC

Under Section 7.1 of the Summary Report (Document IOC/WESTPAC-III/3) the Programme Group decided to appoint Technical Co-ordinators for each of its main areas of activity, and defined their Terms of Reference.

The names of the Technical Co-ordinators designated by the Programme Group at its Third Session were not given in the Summary Report, so the following text should be added as paragraph 183 bis:

"The Programme Group nominated the following Technical Co-ordinators and these nominations were agreed by the respective Member State delegates:

Marine Geology and Geophysics:
. Professor Noriyuki Nasu (Japan)

Marine Pollution Research and Monitoring:
. Dr. Aprilani Soegiarto (Indonesia)

Physical Oceanography:
. Dr. Ron Heath (New Zealand)

Marine Biology and Living Resources:
. Dr. David J. Tranter (Australia)

The Technical Co-ordinator for Training, Education and Mutual Assistance was not nominated, and the Chairman, in consultation with the Secretary of IOC, agreed to arrange for such a nomination."
LEMBAGA ILMU PENGETAHUAN INDONESIA
LEMBAGA OSEANOLOGI NASIONAL
(National Institute of Oceanology)
Kompleks Bina Samudera
Jl. Pasir Putih No. 1 - Ancol Timur - Jakarta Utara
P.O. Box 580. Dak.
Cable Address : LONAS

Jakarta, 20 April 1983

No.: K.201-111.0483

Pro : 1. Prof. I.A. Ronquillo - WESTPAC Technical Coordinator for Marine Biology
√2. Prof. N. Nasu - WESTPAC Technical Coordinator for Geology and Geophysics
3. Dr. Ronald Heath - WESTPAC Technical Coordinator for Physical Oceanography
4. Dr. A.A. Jothy - WESTPAC Technical Coordinator for Marine Pollution
5. Dr. Piamsak Menaswata - WESTPAC Coordinator for TEMA

Subject : 3rd Session IOC-PG WESTPAC, Townsville Australia, 19-24 September, 1983

Enclosed please find a copy of Provisional Agenda for the 3rd Session of the IOC-PG WESTPAC. I would be grateful if you could study it. If there is any correction or suggestion of improvement, please communicate it to me or directly to the Secretary of IOC.

In addition, for the purpose of preparing intersessional report, may I request you - as WESTPAC Technical Coordinator - to write a brief summary on what activities have taken place and problems encountered in the WESTPAC programme you are coordinating during the WESTPAC intersessional period (1981-1983). Please send this brief summary report to me or to Dr. Robin Harger, the IOC Assistant Secretary for WESTPAC.

Looking forward to hear from you soon, I remain.

Enclosure

Yours sincerely

Aprilani Soegiarto
Chairman, IOC-PG WESTPAC

cc. 1. Dr. M. Ruivo, IOC Secretary, UNESCO Paris
2. Dr. Robin Harger - ROSTSEA UNESCO, Jakarta
3. Prof. T. Hirano - Vice Chairman WESTPAC-Tokyo

AS/Wh
Dear Dr. Aprilani,

The main purpose of this letter is to ask you to comment on the first draft of the Provisional Agenda, herewith; preferably in consultation with Robin Harger to whom I have sent a similar draft. Please let me know whether any important item is missing, bearing in mind the fact that we wish especially to review work done since the Second Session and to determine mechanisms for the implementation or enhanced implementation (action plus funding) of programmes already agreed. We must avoid the introduction of proposals for new activities, except possibly those needed to adapt the work of the Programme Group to the major global projects and activities of the Commission.

Regarding the work of the Task Teams agreed by the Programme Group at its Second Session, we must aim to have a proposal ready from each of them for consideration by the Programme Group.

With best wishes,

Yours sincerely,

Ray C. Griffiths,
Head of the Information and Co-ordination Unit

Dr. Aprilani Soegiarto

cc: Chairman IOC (Prof. I.A. Ronquillo)
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of Unesco)

Third Session of the Programme Group for the Western Pacific (WESTPAC)
Townsville, Australia, 19-24 September 1983

PROVISIONAL AGENDA

1. OPENING
2. ADMINISTRATIVE ARRANGEMENTS
   2.1 ADOPTION OF THE AGENDA
   2.2 DESIGNATION OF THE RAPPORTEUR
   2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION
3. REPORT ON INTERSESSIONAL ACTIVITIES
4. OCEAN SCIENCE
   4.1 ROLE OF THE PROGRAMME GROUP FOR WESTPAC IN THE STUDY OF OCEAN DYNAMICS AND CLIMATE
      4.1.1 Ocean dynamics and continental shelf oceanography
      4.1.2 Regional co-operation in global projects
   4.2 IMPLEMENTATION OF PROJECTS IN OCEAN SCIENCE IN RELATION TO LIVING RESOURCES (OSLR) IN THE WESTERN PACIFIC
   4.3 IMPLEMENTATION OF PROJECTS IN OCEAN SCIENCE IN RELATION TO NON-LIVING RESOURCES (OSNLJR)
      4.3.1 Implementation of projects adopted by the CCOP-IOC Joint Working Group on South East Asian Tectonics and Resources (SEATAR)
4.3.2 Co-operation with CCOP-SOPAC

4.3.2.1 Establishment of a CCOP (SOPAC)-IOC Joint Working Group on South Pacific Tectonics and Resources (STAR)

4.3.2.2 Preparation of a bathymetric chart of the South Pacific

4.4 MARINE POLLUTION RESEARCH AND MONITORING

4.4.1 Promotion of the implementation of the regional component of the IOC Marine Pollution Monitoring System (MARPOLMON)

5. OCEAN SERVICES

5.1 IOC/WMO INTEGRATED GLOBAL OCEAN SERVICES SYSTEM IN THE WESTERN PACIFIC

5.2 INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE AND MARINE INFORMATION MANAGEMENT IN THE WESTERN PACIFIC

5.2.1 Development of RNODCs and NODCs

5.2.2 Development of marine information services

6. TRAINING, EDUCATION AND MUTUAL ASSISTANCE IN THE MARINE SCIENCES (TEMA) IN SUPPORT OF THE SCIENTIFIC PROGRAMMES AND SERVICES

6.1 REVIEW OF NEEDS IDENTIFIED UNDER OCEAN SCIENCE (AGENDA ITEM 4) AND OCEAN SERVICES (AGENDA ITEM 5), AND SETTING OF PRIORITIES

6.2 SUBREGIONAL PROJECTS UNDER THE IOC COMPREHENSIVE PLAN FOR A MAJOR ASSISTANCE PROGRAMME TO ENHANCE MARINE SCIENCE CAPABILITIES OF DEVELOPING COUNTRIES

7. STRUCTURE AND BUDGET

7.1 FUTURE STATUS OF THE PROGRAMME GROUP

7.2 GUIDANCE ON PROGRAMME AND BUDGET FOR 1984-85

7.3 EXTRA-BUDGETARY FUNDING IN SUPPORT OF REGIONAL ACTIVITIES
8. **CO-OPERATION WITH OTHER REGIONAL ORGANIZATIONS**

8.1 **CO-ORDINATING BODY FOR SOUTH EAST ASIA (COBSEA)**

8.2 **SOUTH EAST ASIAN FISHERIES DEVELOPMENT CENTRE (SEAFDEC)**

8.3 **OTHERS**

9. **ELECTION OF THE CHAIRMAN AND VICE-CHAIRMAN**

10. **DATES AND PLACE OF THE FOURTH SESSION**

11. **ADOPTION OF THE SUMMARY REPORT**

12. **CLOSURE**
TOKYO

Dr. Mario Ruivo
UNESCO
7 Place de Fontenoi, 75700
Paris, France

Having not received formal invitation for WESTPAC three. Solicit to send invitation argent VIA Japanese Permanent delegate for UNESCO. Nasu

SENDERS NAME AND ADDRESS
(NOT TRANSMITTED)

根本敬久

※ Please fill in columns in the thick frame only
Dear Dr. Nasu:

This is to remind you about one of the programmes of the WESTPAC II, i.e. a Programme on Marine Biology and Living Resources in which we expressed interest in participating during our meeting in Jakarta, Indonesia in 1981 as approved.

In this connection, in reminding you about the Programme, may I request your good Office to request someone to prepare a short report on list of projects together with summaries and results of projects if any, on your relevant researches undertaken during the last two years period so that they may be included in a report which I am to prepare as the Technical Correspondent of the Study Group.

I would appreciate very much if you can send me a copy of your country report on activities on Marine Biology early enough so that I can compile same, and/or request that this be included in your report during the WESTPAC III session in Australia in September.

Hoping for your kind cooperation and early reply. Thank you.

Yours very truly,

[Signature]

Technical Correspondent for Marine Biology

---

Chairs:

Prof. I. A. Ronquillo
Chief, Division of Research
Bureau of Fisheries and Aquatic Resources
P.O. Box 623
Manila, Philippines

Secretariat:

Dr. Martin Huvo
Intergovernmental Oceanographic Commission
UNESCO
Place de Fontenoy, 75700 Paris, France

Vice-Chairs:

Mass M.-A. Martin-Sané
Coordinateur multilatéral
Direction Générale des Relations Scientifiques et Techniques (DGRST)
Ministeres des Affaires Extérieures
34, rue La Pérouse
75116 Paris
France

Dr. J. A. Galavis-Seidel
Geologist Jefe II-Asesor
Ministerio de Recursos Naturales
Bureau of Fisheries and Aquatic Resources
860 Galleria Ave., Daang City, Metro Manila 1030
P.O. Box No. 623, Manila
Tel. Nos. 56-5468, 56-5428
DECISION WESTPAC-II.3

Marine Biology and Living Resources

The IOC-Programme Group for the Western Pacific,

A

Having studied the recommendations and proposed projects of the WESTPAC Workshop on Marine Biological Methodology (IOC Workshop Report No. 29)

Accepts the report (IOC Workshop No. 29), with the necessary amendments referred to in the Summary Report,

Adopts as a WESTPAC Programme the identification and characterization of the major biological communities and assessment of their productivity in the coastal regions of the WESTPAC area, including investigations of the taxonomy, biogeography and natural history of relevant species and processes important in sustaining harvestable products;

Recommends to Member States that, in the selection of the major biological communities for study, priority should be given to those communities of major importance for human use.

B

Recognizing that the WESTPAC Region contains very extensive mangrove and coral reef systems of critical importance to the WESTPAC Member State,

Strongly supports the existing activities of the Unesco Division of Marine Sciences in mangrove and coral reef scientific studies and training;

Recommends to the IOC that it invite Unesco to use WESTPAC as a regional co-ordinating mechanism for the above-mentioned scientific studies of mangroves and coral reefs.

C

Recognizing that sea grasses and benthic marine represent important coastal biological resources, which could be investigated by interested countries as part of the WESTPAC Programmes,

Also recognizing that marine fauna, such as mussels and oysters, also merit concerted scientific investigation by WESTPAC Member States, beyond that under the programme proposed by the ad hoc Task Team on Marine Pollution Research and Monitoring Using Commercially Exploited Shellfish as Determinants,
Urges the Member States to give particular attention to determining the scientific principles necessary for the manipulation of the productivity of natural ecosystems, such as estuaries, lagoons, bays and reef flats, as possible areas for mariculture, and

Recommends to Member States that, in such studies, which would lead to the selection and reservation of areas for different forms of mariculture, the areas concerned should be utilized as priority sites for studies on the level and effects of pollutants in the marine system.

D

Adopts as a WESTPAC Programme the delineation and assessment of zones of high pelagic and planktonic productivity in the WESTPAC region, with investigations of the taxonomy, biogeography and natural history of key species, characterization of their communities and of environmental and biological processes which maintain resources of value to man;

Recognizes the importance of marine bacteria, phytoplankton and zooplankton, including the larval stages of relevant species.

E

Adopts as a WESTPAC Programme the assessment of the deleterious effects of man's activities on the environment, and on the living marine resources that are or may be utilized by human populations throughout the WESTPAC region;

Recommends and encourages the Member States to develop systematic measures to evaluate such effects and to determine the associated costs to national and international economies for the region.
Japanese activities in the WESTPAC marine biology and related programmes after 1981

1. Declared WESTPAC cruises of Hakuho-Maru

Two cruises of Hakuho-Maru, belonging to the Ocean Research Institute, University of Tokyo were conducted for marine biological studies as part of the WESTPAC programme.

1) Cruise KH-81-4 (Chief scientist, Prof. M. Horikoshi)

The KH-81-4 cruise examined the Japan Trench and adjacent waters during the period from 6th July to 4th August in 1981. The investigation covered studies of benthic communities as well as mid water ecosystems. Three foreign scientists were invited as TEMA personnel.

- Widiarsh Kastoro (Indonesia)
- Mai Lopez (Philippines)
- Paul Shin (Hong Kong)

2) Cruise KH-81-5 (Chief scientist, Prof. R. Marumo)

This cruise was conducted in the Philippine Sea and South China Sea during a period of 75 days from September 7 to November 20 in 1981. The KH-81-5 cruise formed part of the WESTPAC programme aimed at studying the pelagic ecosystem and its dynamics in the Western Pacific region. Besides Japanese and visiting scientists, six foreign scientists were invited under the TEMA project.

- Xiuren Ning (China)
- Ving Ching Chong (Malaysia)
- Don Yu Kim (Korea)
- Jose A. Ordonez (Philippines)
- Augustinno B. Sutomo (Indonesia)
- Ruben A. Estudillo (Philippines)

2. Some activities on the study of the coastal margin and benthic ecosystems

As one of the two main groups of projects adopted at the WESTPAC marine biology meeting in Tokyo in 1981, studies on coastal margin and benthic ecosystems was stressed. The project A group includes analysis on sea grasses, coral reefs, and magrove ecosystems. Several works were conducted internationally (bi-national) in the past two years, in this line of study, some of which (not all) are described below.

1) Seagrass ecosystem studies in the tropical western Pacific

The first phase of this project (Leader, Prof. A. Hattori) was a field study conducted on sea grass beds in Palau, Noumea, Queensland and Port Moresby in cooperation with scientists from the Australian Institute of Marine Sciences and the University of Papua New Guinea in 1982.

2) Biological production processes in salt ponds in mangrove swamps

Prof. N. Taga and his group studied the biological production processes of organisms in salt ponds in mangrove swamps in cooperation with scientists from Kasetsart University of Thailand in 1981 and 1982.

3) Mangrove ecology in Thailand

A Thai-Japanese cooperative research project on mangrove productivity and development was conducted during the period from 1981 to 1982. Prof. K. Nozawa and his research group carried out basic studies on the conservation and development of mangrove ecosystems.


This large co-operative research project on marine biology sponsored by the
Ministry of Education, Science and Culture started in the fiscal year of 1980 and continued until 1983. Prof. R. Marumo was the representative for this project, and the project contained 18 main programmes and several supporting ones. Some programmes of this national project formed part of an international co-operative project among WESTPAC member countries.

4. Discussion on the implementation and co-ordination of WESTPAC marine biology

Prof. T. Nemoto visited five WESTPAC countries to discuss the implementation and co-ordination of biological studies in the WESTPAC programme in May 1981. The following scientists and institutions were visited.

Indonesia
- Dr. A. Soegiarto, Mr. D. Prawato, Mr. A. Sutomo (National Institute of Oceanography)
- *Dr. M. Eidman, Mr. Murdiyanto, Mr. Haluan, Mr. Ayodhya (Bogor Agricultural University)

Malaysia
- Dr. T.K. Ishak, *Dr. G. Wong, Dr. Sivalingam, Dr. W.K. Gong,
- Dr. C.H. Wong (Sains Malaysia University)

Thailand
- Dr. M. Hongsparsegs, *Dr. S. Sudara, *Dr. P. Menasveta (Chulalongkong University)
- Dr. M. Bhovichitra (Kasetsart University)

Philippines
- *Dr. E. Gomez (Marine Science Centre, University of the Philippines)

Hong Kong
- *Dr. B. Morton (Hong Kong University)
- Dr. Thrower, Dr. Tsen, W-E. (Chinese University of Hong Kong)

* Scientists who attended the WESTPAC Marine Biology workshop in Tokyo in 1981.
ORIUT TOKYO

29715. ATTN PROF NASU
REURLTX 15 JULY FORMAL LTR OF INVITATION FOR WESTPAC-III SENT TO JAPANESE PERMANENT DELEGATION TO UNESCO AND ONE COPY MAILED YOU.

(RUIVO SECRETARY IOC/UNESCO) 27.7.83

ORIUT J25607
UNESC Z 270602F
Dear Colleague,

Australia has the honour of hosting the Third Session of the IOC's Program Group for the Western Pacific (WESTPAC III), which will be held in Townsville, Queensland, from 19-24 September 1983.

I expect that formal invitations to attend the session will be issued by the Director-General of UNESCO in the near future. In the meantime, I take this opportunity on behalf of the Australian Government to extend to Japan an invitation to be represented at the session. I trust that it will be possible for you personally to be present.

We have prepared the attached information papers for potential participants. I ask that you take particular note of dates referred to in those papers as early responses to matters such as accommodation requirements will assist in finalising arrangements for the meeting and thus contribute to its success.

This session of the Group will be important in further clarifying the role and operational arrangements of WESTPAC both in a regional context and within the framework of the IOC itself.

Earlier meetings of the Group concentrated on identifying those areas in need of immediate research attention and, as such, provided a focus for discussion of common problems. Agreement having been reached at WESTPAC II on priorities, it is now necessary that program development within those areas be considered and stimulated. The effectiveness of the Group as a mechanism to promote and co-ordinate marine science research activity within the region will be called into question unless a program development phase is entered into and, as such, I believe it essential that WESTPAC members address themselves to this question as a matter of urgency.

Similarly, the status of WESTPAC within the IOC is a matter which will require resolution in the near future. Recent IOC Assembly and Executive Council meetings have touched on the subject of sub-commissions and decisions in this regard will obviously impact upon the Group. Development of a considered group position on this question which could be put to the Executive Council in due course is therefore important.

26 April 1983
Given the nature of the subject matter likely to be discussed at WESTPAC III, and I should stress that the above are two questions which Australia sees as requiring resolution, I believe it essential that as many members of the Group as possible attend this session. I encourage you to make every effort to ensure representation in Townsville and look forward to meeting with you.

Yours faithfully

(D G Keeley)
Australian National Co-ordination for WESTPAC
### SCHEDULE OF OPENING CEREMONY AND PROGRAM

**19 September 1983**

**Whitsunday Room**  
First Floor  
The Townsville International Hotel (Flinders Mall)  
cnr Flinders and Stokes Streets  
Townsville, Australia

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 0830 - 0930 hours | Arrival of Delegates and Guests.  
|              | Late Registration                                                     |
| 0945        | All Delegates and Guests are requested to be seated                   |
| 1000 - 1045 hours | **Opening Ceremony**  
|              | (1) Introduction and remarks by the Chairman                        |
|              | (2) Welcome address by  
|              | The Hon. Barry O. Jones, M.P., Minister for Science and Technology   |
|              | (3) Statement by IOC Representative                                   |
| 1045 - 1130 hours | Coffee break and group photograph                                     |
| 1130 - 1200 hours | Session and adoption of the provisional agenda.                      |
| 1200 - 1400 hours | Lunch                                                                |
| 1400 - 1700 hours | Session                                                              |
| 1830 hours  | Australian Government Reception at the Townsville International Hotel, hosted by The Hon. Barry O. Jones M.P. |
UNESCO : WESTPAC III

Townsville, Australia 19-24 September 1983

INFORMATION FOR PARTICIPANTS

1. MEETING PLACE

The Third Session of the Intergovernmental Oceanographic Commission's Program Group For the Western Pacific (WESTPAC III) will be held in the Conference Room (the "Whitsunday Room") of the Townsville International Hotel, Townsville, Australia, from 19 September until 24 September 1983. The Opening Ceremony of the Session will be held in the same room.

2. ARRIVAL IN TOWNSVILLE

Provided that flight information, i.e. arrival date and time, and flight number, has been received by the Liaison Officer well in advance of the session, delegates will be met at the airport by a member of the Conference staff and assisted with completion of immigration procedures and customs clearance. Official transport will be provided from the airport to the Hotel where delegates will be assisted with checking into the Hotel. Any other assistance required by delegates will be provided by Conference staff stationed at the Hotel.

3. REGISTRATION AND OPENING OF THE SESSION

Upon arrival at the Hotel delegates will be given registration forms which should be completed as soon as possible and returned to the Liaison Officer in the Conference Room the following day.

<table>
<thead>
<tr>
<th>Registration</th>
<th>0830 hours</th>
<th>19 September 1983</th>
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<tbody>
<tr>
<td>Opening of the Session</td>
<td>1000 hours</td>
<td>19 September 1983</td>
</tr>
</tbody>
</table>

4. LIAISON OFFICER

Mr R N Harriss
WESTPAC III Liaison Officer
Sectoral Policy Branch
Department of Science and Technology
PO Box 65
BELCONNEN ACT 2616
Australia

Telex: AUSCI 62484
Telegrams: AUSCITEC
Telephone: CANBERRA (062) 64 4247

Any communications from, or for, participants may be sent to the Liaison Officer at the above address.
The secretariat will move to Townsville approximately one week before the session commences and at any stage prior to, or during, the session, communications may be directed to:

Mr R N Harriss  
WESTPAC III Liaison Officer  
c/- The Townsville International Hotel  
cnr Flinders and Stokes Streets, (Flinders Mall)  
TOWNSVILLE QLD 4810 AUSTRALIA  

Telex: 47076  
Telegrams: TOWNSV  
Telephone: (077) 722477

Communications to this Townsville address should clearly indicate that they relate to the WESTPAC III Session.

6. ENTRY AND EXIT FORMALITIES IN TOWNSVILLE, AUSTRALIA

Visas

Participants will require an entry visa to Australia and are advised to seek details from the Australian representative in their country or from the nearest Australian Embassy or High Commission.

The Australian Department of Foreign Affairs and the Department of Immigration and Ethnic Affairs have advised their officials of the meeting and requested that they facilitate the issuance of visas to participants. It will be necessary to present confirmation of participation in the meeting to Embassy or High Commission officials and participants are strongly advised to apply for visas at least two months prior to the meeting.

Airline Tickets

It is strongly advised that airline tickets be given to the Liaison Officer upon arrival so that onward or return flights may be confirmed, so as to comply with airline regulations of reconfirmation 72 hours prior to departure. Delegates should let the Liaison Officer know their departure details (flight number, date, time, etc.) as soon as possible.

7. HEALTH CERTIFICATES

Visitors from the South East Asian/South Western Pacific region do not require any certificates of vaccination; however, participants are advised to enquire at an Australian Embassy or High Commission prior to travelling to ascertain whether requirements have altered since the time of writing.

8. AIRPORT TAX AND PORTERAGE

Townsville's international air terminal is situated approximately 8 kilometres from the Townsville International Hotel and is about 10 minutes by taxi from both the Hotel and the city centre.

Departing passengers are required to check in at the airport not less than 90 minutes before scheduled flight time. There is a Departure Tax of Australian $20.00.
No porterage charge is levied on baggage and tipping is at the
discretion of the individual.

Hand held luggage on departure is limited to one piece not
exceeding 5 kg (economy class)/7 kg (first class travel) in weight and in
the form of a small overnight bag.

9. CUSTOMS

One bottle liquor (1 litre) 200 cigarettes (or 250 grams of
cigar or tobacco products) and gifts to the value of $200.00 Australian
are allowed duty free on entry to Australia.

10. CURRENCY AND FOREIGN EXCHANGE

The basic unit of currency is the Australian dollar which is
equivalent to $US0.87 (as at 29 March 1983).

Upon departure from Australia visitors may export up to $250.00
in Australian notes and $5.00 in Australian coins.

11. BANKS

The nearest banks to the Townsville International Hotel are:

**Westpac**

337-343 Flinders St (P.O. Box 919)
Townsville Qld 4810

Telex/Telegram: 034-222
Telephone: 077-722822

Open: Monday - Wednesday 9.30 a.m. - 4.00 p.m.
       Thursday 9.30 a.m. - 8.30 p.m.
       Friday 9.30 a.m. - 5.00 p.m.

**Commonwealth**

370 Flinders Street
Townsville Qld 4810

Telex/Telegram: 47001
Telephone: 077-723444

Open: Monday-Wednesday 9.30 a.m. - 4.00 p.m.
       Thursday 9.30 a.m. - 8.00 p.m.
       Friday 9.30 a.m. - 5.00 p.m.

All banks are closed Saturdays and Sundays

12. WEATHER CONDITIONS

During the period of September temperatures in Townsville
usually fall within the range 17.2ºC (average minimum) to 27.5ºC
(average maximum). This is the spring season with rain not expected.
13. **HOTEL**

A block booking of accommodation for delegates has been arranged at the Townsville International Hotel.

A special rate of Australian $45.00 (room only) has been granted for single and double occupancy. No service charges or government taxes apply.

The Townsville International Hotel is located at:

Corner Flinders and Stokes Streets (Flinders Mall)
TOWNSVILLE QLD AUSTRALIA

Telex: 47076
Telegrams: TOWNSV
Telephone: (077) 722477

Delegates are urged to take advantage of this offer and should complete the attached form and return it to the Liaison Officer not later than 1 August 1983.

Attention is drawn to the fact that delegates are responsible for payment of their own hotel accounts and that neither the Government of Australia nor IOC can accept responsibility for cancellation of reservations.

**MEAL COSTS**

Participants can expect that meals offered by the Hotel will cost in the vicinity of:

- Breakfast: $4.50 (Continental)
- Lunch: $6.00
- Dinner: $12.00

(Participants should note that Room Service charges apply)

Participants will be provided with information on restaurants, sandwich bars, coffee shops and the like in the area which offer a variety of meals at varying prices.

Participants might also note that tipping in hotels, restaurants, taxis etc., is at the individual's discretion and no 'rules' apply.

14. **MEDICAL FACILITIES**

A doctor is on call to the Hotel on a 24 hour a day basis.

15. **TRANSPORT TO OFFICIAL FUNCTIONS AND AIRPORT**

Official transport will be provided to and from the airport on arrival and departure and to all official functions.

16. **ELECTRICAL CURRENT**

240 volts, 50 cycles, AC
17. **RECEPTIONS AND TOURS**

An Australian Government reception will be held on the evening of 19 September 1983 in the Townsville International Hotel. Details of other functions will be advised at a later date.
NAME:

COUNTRY/ORGANISATION:

BUSINESS ADDRESS:

BUSINESS TELEX/TELEGRAM:

ACCOMMODATION REQUIREMENTS

SINGLE/TWIN/DUOUBLE ROOM

EXPECTED DATE OF ARRIVAL:

EXPECTED DATE OF DEPARTURE:

METHOD OF ACCOUNT PAYMENT: CASH/BANK CHEQUE/CREDIT CARD

PARTICULAR MENU REQUIREMENTS

Delegates are asked to complete and return this form to the WESTPAC Liaison Officer not later than 1 August 1983 (see S.13 of Information Paper).
cable address: Unesco Paris  
telex: 204461 Paris

Your reference: IOC/4/1.0/4

In reply refer to: Circular Letter No. 909
(Available in English, French, Spanish and Russian)

To: Member States of the Programme Group for WESTPAC, and other IOC Member States

cc: Chairman and Vice-Chairmen of the Commission
Chairman and Vice-Chairman of the Programme Group for WESTPAC
Director, Unesco/ROSTSEA
Director, Unesco/SC-OCE

Subject: Third Session of the IOC Programme Group for the Western Pacific (WESTPAC-III), Townsville, Queensland, Australia, 19-24 September 1983

I have the honour to invite you to participate in the Third Session of the IOC Programme Group for the Western Pacific (WESTPAC-III), which will be held from 19 to 24 September 1983, in Townsville, Queensland, Australia.

The Session will open at 10 a.m., Monday, 19 September 1983, under the Chairmanship of Dr Aprilani Soegiarto, Chairman of WESTPAC, at the Townsville International Hotel.

The Provisional Agenda (Document IOC/WESTPAC-III/1 prov.) and an Information paper for participants are attached hereto. We shall be producing an Action Paper (to be distributed later on) which will be the main working document of the Session, and in which, for each item, background information, other relevant details, and action requested of the Programme Group will be provided.

Inquiries in the host country may be made through the local Liaison Officer at the following address:

Mr. R.N. Harriss
WESTPAC-III Liaison Officer
Sectoral Policy Branch
Department of Science and Technology
P.O. Box 65
BELCONNEN, A.C.T. 2616
Australia

Telex: AUSCI 62484
Telegrams: AUSCITBC
Telephone: CANBERRA (062) 644247
Dear Dr. Iwabuchi:

Thank you very much for sending the needed copies of the "WESTPAC Data Management Guide." These are being distributed to interested U.S. scientists and should prove very useful to them. However, the Guide's definition of a "WESTPAC Oceanographic Programme" is, as I understand it, not completely correct. The Programme Group for WESTPAC decided, at its (second) Session, "...that there should be two categories of (WESTPAC) projects, namely: (i) projects that have been adopted by the Programme Group at any of its Sessions ..., and (ii) other projects which serve the objectives of WESTPAC, but which could be either national, bilateral or sub-regional in origin and scale." Projects in the first category are referred to as "WESTPAC projects," projects in the second category as "projects which contribute to the objectives of WESTPAC."

The criterion for an activity to become a "WESTPAC project" is clear—it must be adopted by the Programme Group. The criterion for an activity to become a "project which contributes to the objectives of WESTPAC" is that a WESTPAC member country or group of countries must first propose that a project be so identified. Then, the Chairman of the Programme Group, in consultation as necessary with the appropriate WESTPAC Technical Correspondents and the IOC/WESTPAC Regional Secretary, reviews this proposal to determine if it will contribute to the objectives of WESTPAC defined by the Programme Group. He may also have the proposal reviewed by workshops, ad hoc take team groups of experts, etc. If the Chairman's review concludes that the proposed project meets the criterion, he may designate the project as one "which contributes to the objectives of WESTPAC."

Therefore, no country or group of countries can simply "declare" a project "as being a WESTPAC Oceanographic Programme," either on an IOC form for transmission of DNP's/NOP's or in another way. A country or group of countries must propose a project which then has to be either adopted by the Programme Group (category i) or approved by the Chairman of the Programme Group in consultation with other WESTPAC officials (category ii). Unfortunately, the report of the Second Session of the Programme Group for WESTPAC does not clarify this issue. This report (in paragraph 118) incorrectly applies the criterion for category (ii) to category (i).
The objective of the procedures established by the Working Group for adoption and approval of WESTPAC projects is important and commendable. This objective is to assure that all projects associated with the title "WESTPAC" truly contribute in some way to the overall objectives of WESTPAC as defined by the Programme Group. Under this system national research programs which are not relevant to WESTPAC cannot be conducted under WESTPAC sponsorship.

May I suggest that you discuss this question further with the Chairman and Secretary of WESTPAC. If my interpretation of the situation is correct, then it would probably be appropriate to modify the wording of the next edition of the WESTPAC Data Management Guide accordingly.

Sincerely,

Louis B. Brown
U.S. National Coordinator for WESTPAC
Mr. Louis B. Brown  
Division of Ocean Sciences  
National Science Foundation  
Washington D.C. 20550  
U.S.A.

August 30, 1983

Dear Mr. Brown:

Thank you very much for your letter dated 10 June. I have been considering the way of declaration of WESTPAC on which you gave me a comment. I wish to express my thought on making the WESTPAC DATA MANAGEMENT GUIDE, especially on the mechanism of registration of cruises. I wish also to have opportunity to consult on it with the Chairman and Secretary of WESTPAC as well as the officials of the WC/IODE.

The GUIDE was compiled according to the Decision WESTPAC I.17, with the aim of having good harmony with the current IODE System. The draft of the GUIDE was reviewed and coordinated by the members of the Group of Experts on RNODCs and submitted to the tenth Session of the WC/IODE. After that, it was published with slight change caused by the advice given from the IOC Secretariat.

In making the GUIDE, our labour was almost focused on providing a mechanism for registration of WESTPAC cruises. That is exactly your question. I decided to use the mechanism which has been used in the IODE system, because the adoption and operation of new system will need much time to be acceptable widely.

The IOC takes every opportunity to call upon the member states, to submit to the secretariat, on a more regular basis, information of Declared National Programmes (DNPs) / National Oceanographic Programmes (NOPs).
At present, it is customary to fill out the names of international programmes in the remarks column of DNPs. I decided to adopt this method for registration of cruises.

When we compiled the GUIDE, we intended a comment "WESTPAC" to be filled out in the remarks column for indicating the objective cruises of our data collection, without strictly discriminating the data obtained during international programmes and the data obtained under DNPs, because we supposed that all Declared National Programmes carried out in the western Pacific would contribute to the WESTPAC Programme.

Strictly theoretically speaking, especially in connection with the paragraph 11 of the Summary Report of PG/WESTPAC-II you referred to, international programme(WESTPAC) and Declared National Programmes in the region should be discriminated. I suppose that the data resulting from WESTPAC Programmes should, in effect, be considered as Declared National Programmes (Action Paper of the Second Session of IOC/WESTPAC-II) "Case 1"; and that the data resulting from DNPs in the region are not necessary to be considered as WESTPAC Programme "Case 2".

The above consideration will lead us to the idea that only the cruises that passed through the procedure written in the paragraph 11 of the PG/WESTPAC-II could rightly be declared as WESTPAC. The GUIDE may be able to control only the data resulting from the case 1. So as a conclusion, I would like to add the following footnote in the Chapter of cruise declaration when I will revise the GUIDE; "The cruises which meet the condition described in the paragraph 11 of the Summary Report of PG/WESTPAC-II can be declared as WESTPAC".

Anyway, it is necessary for management of data that the declaration of cruises should be notified to the RNODC-WESTPAC either from IOC Secretary or from participating member states. In this connection, when I made an inquiry to Dr. Henin of ORSTOM on the statement of the delegation of France at the second Session of the PG/WESTPAC-II (Summary Report paragraph 81), he answered
as follows: "For me all the hydrographic data of the cruises in the WESTPAC zone have to be sent to JODC which is WESTPAC RNODC because they are part of Monitoring Programme in the Western Pacific Ocean exactly like XBT monitoring programme".

His idea that a DNP cruise which will be carried out in the Western Pacific should be automatically registered as a WESTPAC cruise because it will contribute to WESTPAC Programme, is quite similar to our idea we had when making the GUIDE. Nevertheless no distinct declaration of "WESTPAC" would cause similar confusion. So I would rather prefer that explicit comment "WESTPAC" should be filled out.

I am afraid that the smooth operation of registration of WESTPAC cruises would not be so easy, on the ground that the notification of the DNPs/NOPs, the first step of data management, has not yet been carried out by each member state, although its submission has been called upon frequently by the IOC Assembly.

I expect that the GUIDE, obtaining good support of many relevant scientists, will be a useful input to the WESTPAC programme. Also I believe that the RNODC should diligently collect the data, with close contact with the NODCs of other countries.

Thank you again for your important comments on this matter. I sincerely hope that you would kindly give me the assistance which will be needed for our operation of the duties of RNODC for WESTPAC.

Yours Sincerely,

Yoshio Iwabuchi
Director, JODC

P.S. The rest 85 copies of the GUIDE you previously requested were sent to you under separate cover by air.
文部省 条約監視部

なお、今次会議において、参加国により、韓国航空機事件に関する発言が行われる可能性も排除されない。<br>

なお、本件については、我が国は国連安保理においてソ連側の誠意ある対応を強く求め、またエネルギーPDC<br>

文部省条約監視部<br>

今回政府間理事会等においても発言を行ない、我が方の立場を説明した。経緯があるので、今次会議におい<br>

てもかかる発言を行うことに対し、必要と判断される事態にたち至った場合には、可能な限り関係国との対応振<br>

及び意見を付して講評した。その時間的余裕のない場合では、「非武装かつ無抵抗な民間機を攻撃す<br>

することは、いかなる場合にも容認されず、ソ連側の迅速かつ誠実な対応を求めるものである。」<br>

表明ありたい。
Dear Dr. Honza,

I was very sorry that you could not attend the informal expert consultations organized in conjunction with the WESTPAC session in Townsville. I passed the information you provided in your letter of 9 September to my colleagues who were in charge of these meetings so that they could take your views into account during the discussions.

As you may have heard by now from the Japanese Delegation to WESTPAC, both the consultations and the session of the Programme Group were most successful, and provided a good basis for the promotion of the regional component of the Programme Group for Ocean Science and non-Living Resources and for co-operation with other regional organizations concerned.

Yours sincerely,

Mario Ruivo
Secretary IOC

Dr. Eiichi Honza
Geological Survey of Japan
1-1-3 Higashi
Yatabe
Ibaraki 305
Japan

cc: Dr. J.R.E. Harger
Dr. N. Nasu
Dear Dr Ruivo,

Thank you for your invitation in the WESTPAC meeting in Australia. I failed to attend the meeting in this time nevertheless you arranged an invitation form to our director. For, we had to request our passport to our Ministry. I got your telex on 3rd and they said it takes for two weeks to arrange. They could not arrange my passport until my departure on 13th from 5th September.

I would show you our projects and interests in the Western Pacific. CCOP and CCOP/SOPAC have several projects respectively. They are announced in each proceeding. Through both meetings, Mr Harger attended. I think you can check them from Mr Harger.

I will explain briefly these projects. CCOP has projects of
1. compilation of geophysical map of NW Pacific.
2. compilation of basin map for oil geology.
3. heat flow measurement in the basins
4. shallow seismic works started from the exploration of tin deposits.
5. SEATAR compilation.
CCOP/SOPAC projects are
1. mineral resources surveys in the domestic territory of each country.
2. baseline studies for OTEC in Fiji and in Tonga.
3. Tripatite survey (cooperative project of Australia, NZ, USGS and CCOP/SOPAC).
   cooperative project of Australia, NZ, Japan and CCOP/SOPAC.

One of the main problems which are commonly interested in the W. Pacific are natural seismicity and Tsunami warning. This is also supported by your Committee as one of the main projects. Your Committee, CCOP, CCOP/SOPAC and Japan are accepting many trainee from W. Pacific countries in various coarses of oceanography.

Common scientific interest in the W. Pacific is to understand the arc mechanism. Many arcs are arranged in the W. Pacific to offer a preferable field for the understanding of the fundamental mechanism of arcs. This interest is also divided in some fundamental problems, such as
1. subduction mechanism in trench,
2. mechanism of arc volcanism,
3. mechanism of backarc spreading,
4. formation of basins in the arc.

Next interest is the reconstruction and historical traces of continental masses based on the plate movements. Quite different geomorphologies of continental masses are suggested during historical ages. Some of them are complicated by a few
stages of tectonic development. Reconstruction of these geomorphologies may advance comprehensibility of each country beyond artificial borderlines.

Japan and USA proposed geological and geophysical surveys in the South Pacific respectively. Tripartite cruise conducted by Australia, NZ, USA and CCOP/SOPAC planned to do the survey for mineral resources in the Southwestern Pacific including both offshore and onshore surveys. Japanese proposal is a co-operative survey with Australia, NZ and CCOP/SOPAC. Geological and geophysical surveys including a multi-channel seismic profiling and ocean bottom seismometers carried out in the Solomon and the Bismarck Seas in 1983, in the Tonga Arc in 1984 and possibly in the Sunda Arc in 1985.

Recently US Geological Survey proposed a scientific project to transect the Pacific from north to south. This also include cooperative works with the South Pacific countries.

I wish your success in the WESTPAC meeting in Australia.

Yours sincerely,

Eiichi Honza
Geological Survey of Japan

cc: Mr. J. R. E. Harger
Professor Dr Noriyuki NASU  
Director, Ocean Research Institute  
University of Tokyo  
1-15-1 Minamidai, Nakano-ku  
TOKYO 164 JAPAN  

Dear Dr Nasu

The Third Session of the IOC Program Group for the Western Pacific (WESTPAC) recently held in Townsville, Australia, was I believe a very successful meeting. I had the honour to be elected Chairman of WESTPAC and it is in that capacity that I am seeking the support of your country for WESTPAC and for the decisions taken at WESTPAC III.

A significant result of WESTPAC III was the recognition by Member States that program identification, development and implementation are the responsibilities of the Member States themselves and will require cooperation and collaboration if progress is to be achieved. To that end, WESTPAC III established a coordination mechanism within each of five priority program areas, namely marine pollution, ocean dynamics and climate, marine geology and geophysics, marine biology and living resources and ocean services.

Technical Coordinators and/or Task Teams have been established in each of the program areas. I have asked the Technical Coordinators or chairmen to establish contact with appropriate scientists in Member States to encourage maximum participation in WESTPAC programs. Details of the programs are contained in the Summary Report of the Meeting, which I expect you will receive shortly.
I urge you to draw the attention of your Government to the results of WESTPAC III and to request your Government to participate fully in those elements of the program which accord with national needs and capabilities.

Yours sincerely

[Signature]

JS Bunt
Chairman
WESTPAC PROGRAMME GROUP

Please copy all correspondence to:

Mr David McEwan
Department of Science and Technology
PO Box 65
BELCONNEN ACT 2616 AUSTRALIA
Professor Dr Noriyuki Nasu
WESTPAC Technical Correspondent for Marine
Geology and Geophysics
Ocean Research Institute
University of Tokyo
1-15-1 Minamidai, Nakano-Ku
TOKYO 164 JAPAN

Dear Professor Nasu,

Thank you for offering to serve as WESTPAC Technical Coordinator for Marine Geology and Geophysics.

Enclosed is a copy of the Terms of Reference for Technical Coordinators as agreed at WESTPAC III. In view of the final paragraph, I would be pleased if you would confirm your willingness to take up the position.

The Program Group has set for itself a sizeable task in each of the program areas for this intersessional period. Responsibility for progress in the programs rests with the Technical Coordinator and the Chairman. I believe it is essential that we establish a practical working arrangement from the start. I have given some thought to this and I suggest that contact with Member States on particular matters within your program would be your responsibility.

As a member of all of the Task Teams within your program area, you will have first-hand knowledge of progress in particular tasks. I would appreciate it if you would provide me with a short report on activities from time to time. Of course I would like to know of any problems that may arise as early as possible. There will be occasions when I will contact Member States directly, and where this affects your program area, I will send copies of my correspondence to you. While on the matter of correspondence, David McEwan, Department of Science and Technology, is assisting me to keep track of the various program areas. I would appreciate it if you would send copies of all you correspondence on WESTPAC matters to him as well as to Dr Robin Harger in Jakarta.

I have examined the Summary Report of WESTPAC III and there are a number of actions which are essential first steps in the Marine Geology and Geophysics program.
The Program Group agreed to request the Secretary IOC to establish a Group of Experts on Marine Geology and Geophysics. I have written to Dr Ruivo asking that he expedite this matter and the organising of an IOC (WESTPAC) workshop to be held in 1985 in conjunction with the Circum Pacific Energy and Minerals Conference. I would appreciate it if you would contact scientists in Member States asking them to nominate members of the Group of Experts. I also would welcome your thoughts on a Work program for the Group of Experts.

The Task of shaping the WESTPAC program during this intersessional period will not be easy. I am hopeful that with your support we can achieve real progress during this intersessional period. I also am hopeful that I can present a very positive report to the XVIIth Executive Council Meeting in February 1984 and I will be seeking a contribution from you for that report in the next few months.

Yours sincerely

J S Bunt
Chairman
WESTPAC PROGRAMME GROUP

Please copy correspondence to:

Mr D McEwan
Dept of Science and Technology
PO Box 65
BELCONNEN ACT 2616, AUSTRALIA

Best wishes for a successful program.
SUMMARY REPORT AGENDA ITEM 7.1

TERMS OF REFERENCE OF WESTPAC TECHNICAL COORDINATORS

Each WESTPAC Technical Coordinator will:

i. under the direction and authority of the Chairman of the Programme Group for WESTPAC, oversee and ensure coordination of WESTPAC scientific programmes and related activities within the area(s) assigned to the Coordinator;

ii. encourage the participation of Member States in WESTPAC programmes with the Technical Coordinators assigned field of action, by ensuring that all such countries are informed of the potential benefits of the relevant programmes and of the specific opportunities that exist for participation consistent with their interests and capacities;

iii. advise the Chairman and the IOC Assistant Secretary responsible for WESTPAC on programs in the planning and implementation of the relevant programmes and related activities identifying matters requiring action by the IOC Secretariat and the Programme Group itself;

iv. review and evaluate these programmes and related activities and, on the basis of this review and evaluation, report to the Programme Group, and recommend how these programmes and related activities could be further developed or otherwise followed up; and

v. serve as an ex-officio member of all WESTPAC Programme Group subsidiary bodies within his assigned field.

WESTPAC Member States, when invited by the Programme Group to nominate or give consent to scientists to serve as Technical Coordinators for specific WESTPAC activities, should be certain before responding to such a request that these individuals are able to provide the time and have the resources necessary to accomplish these tasks.
23 November 1983

Professor Dr. Noriyuki Nasu,
Director,
Ocean Research Institute,
University of Tokyo,
1-15-1 Minamidai, Nakano-ku,
TOKYO 164 JAPAN

Dear Professor Nasu,

As you may be aware, one of the decisions reached at the most recent meeting of the WESTPAC programme group was to establish a Task Team on Ocean Science in Relation to Living Resources. The Chairman of the Task Team is Dr. D. Tranter of Australia.

It was decided that the research theme, for which the Task Team would be primarily responsible for the development of specific projects and activities should be: "Biological productivity in relation to coastal and oceanic processes", consisting of four main areas of activity: (i) Biological productivity in the open ocean; (ii) Biological productivity on the continental shelf; (iii) Biological productivity at the land-sea interface; and (iv) Toxic and anoxic biological phenomena related to plankton blooms.

To that end, Dr. Robin Harger is writing asking you to provide a national nominee for each of the main areas of activity or at least for the area or areas in which your country has a direct interest. Since the Chairman on the Task Team has assured me he is anxious to move ahead in the implementation of a program and since I would like to report progress to the IOC Assembly in Paris early in 1984, I would be most grateful if you could provide Dr. Harger with a response with as little delay as possible.

With kind regards,

Yours sincerely,

[Signature]

JOHN S BUNT
CHAIRMAN
WESTPAC PROGRAMME GROUP
23 November 1983

Professor Dr. Noriyuki Nasu,
Director,
Ocean Research Institute,
University of Tokyo,
1-15-1 Minamidai, Nakano-ku,
TOKYO 164 JAPAN

Dear Professor Nasu,

As you may be aware, one of the decisions reached at the most recent meeting of the WESTPAC programme group was to establish a Task Team on Ocean Science in Relation to Living Resources. The Chairman of the Task Team is Dr. D. Tranter of Australia.

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With kind regards,

Yours sincerely,

[Signature]

JOHN S BUNT
CHAIRMAN
WESTPAC PROGRAMME GROUP
2 December 1983

Prof Dr Noriyuki Nasu
Director
Ocean Research Institute
University of Tokyo
1-15-1 Minamidai, Nakano-ku
TOKYO 164
JAPAN

Dear Professor Nasu,

From correspondence already emerging in the present intersessional period, it is apparent that interest in the WESTPAC programs is strong. Nonetheless, comments coming in from the members of task teams and others with recommendations and suggestions for projects within individual programs indicate the possible need to assure that major agreed objectives are preserved and that coherence is maintained. I am sure you are conscious of these needs and ask that you consider such initiatives to that end as may be necessary. If there is any way you feel I may be able to assist in that regard, please let me know. In any event, as indicated in an earlier letter, I look forward to your specific proposals in due course.

Yours sincerely,

John S. Bunt
Chairman
WESTPAC PROGRAMME GROUP
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of Unesco)

Third Session of the Programme Group for
the Western Pacific (WESTPAC)

Townsville, Australia, 19 - 24 September 1983

A PROPOSAL FOR A JOINT CCOP-SOPAC/IOC WORKING GROUP
ON SOUTH PACIFIC MARINE GEO SCIENCE, TECTONICS AND RESOURCES (STAR)

CCOP/SOPAC, in its 1981 Session, established a working group "to assist in implementing research programmes in marine geology and geophysics in the Southwest Pacific" and asked for co-sponsorship for this activity from IOC.

The IOC Assembly, at its 12th Session, took note of this request.

In response to Resolution XII-2, the Secretary asked (by letter dated 21 December 1982) the CCOP/SOPAC Secretariat to collaborate in developing the more detailed programme analysis and terms of reference requested by the IOC Assembly (Document SC/MID/73, para. 358), and suggested, in a stepwise approach, that consideration be given first to the development of sea-floor mapping, taking advantage of the CCOP/SOPAC Secretariat's expertise in this area.

The Secretary then sent a follow-up, and more detailed, letter on 28 February 1983, with a view to preparing the submission of a proposal to the Executive Council at its Seventeenth Session in February 1984.

No specific reactions on this matter have yet been received from CCOP/SOPAC, due to the fact that it is only expected to hold its next meeting, the Twelfth Session, in Tonga from 11 to 20 October 1983. It should be noted also that some guidelines may be expected to emerge from the UNU-CCOP/SOPAC/IOC Workshop on Basic Geoscientific Marine Research Required for Assessment of Minerals and Rvd. Recourses in the South Pacific (Suva, 3-7 October 1983). The background information given in Document IOC/WESTPAC-III/8 Annex 5 is also relevant.

Pending more specific proposals from CCOP/SOPAC, the Programme Group may wish to consider the following draft Terms of Reference, submitted by the Secretary of IOC as part of the preparations for the Executive Council's consideration, at its Seventeenth Session, of the formation of a Joint CCOP/SOPAC-IOC Working Group on South Pacific Marine Geoscience Tectonics and Resources (STAR):

(i) to act as a joint mechanism for liaison and co-operation between CCOP/SOPAC and the IOC Programme Group for the Western Pacific (WESTPAC) in the field of marine geoscience, tectonics and resources

(ii) to promote and co-ordinate the implementation of the agreed projects with particular attention to those part of the IOC/UN(OSTB) Programme on Ocean Science in Relation to Non-living Resources (OSNLR)
(iii) to keep the projects under review and to ensure the updating of the programme in the light of this evaluation and assessment;

(iv) to facilitate exchange of data collected with due attention to the mechanisms available under IODE, and to ensure dissemination of scientific results;

(v) to identify, on a continual basis, the needs of the participating institutions in the region for training, education and mutual assistance (TEMA), to enhance their participation in the agreed projects.
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of Unesco)

Third Session of the Programme Group for
the Western Pacific (WESTPAC)

Townsville, Australia, 19 - 24 September 1983

RNODC REPORT FOR THE THIRD SESSION OF PG/WESTPAC

RNODC - WESTPAC

( Japan Oceanographic Data Center )
This report is prepared by the RNODC-WESTPAC (Japan Oceanographic Data Center) for submission to the third Session of PG/WESTPAC (Townsville Australia, September 1983) with the aim of informing the Programme Group of the intersessional activities of the RNODC, present status of the NODCs in the WESTPAC region as well as the action of the Programme Group needed for promotion of data exchange in the Programme.

1. Intersessional activities of the RNODC

Japan Oceanographic Data Center (JODC), after commencing the activity of the Responsible National Oceanographic Data Center (RNODC) for WESTPAC, has carried out the following items of activity.

(1) Publication and distribution of the "WESTPAC DATA MANAGEMENT GUIDE"

On the ground of the decision WESTPAC I.17, the RNODC-WESTPAC compiled and distributed the "WESTPAC DATA MANAGEMENT GUIDE" in March 1982. The GUIDE has been compiled in accordance with the IOC Manuals and Guides No.9 (International Oceanographic Data Exchange) and Manual on RNODC.

The status of the data management plan was coordinated by the Group of Experts on RNODCs. The draft of the GUIDE was submitted to the tenth Session of the Working committee on International Oceanographic Data Exchange (Hamburg, August 1981), and also to the second Session of the Programme Group for WESTPAC (Jakarta, October 1981). Then it was printed with slight change based on the advice given from the IOC Secretariat.

The GUIDE is composed of the following six chapters and appendices. Chapter 1 provides a mechanism for registration of the WESTPAC cruises in line with the DNPs/NOPs notification system of the IOC.
Chapter 2 deals with types of information and data such as the ROSCOP, IG/GCI formats, as well as standard observations and nonstandard experimental observations mainly based on the IOC Manuals and Guides No.9 (International Oceanographic Data Exchange).

Chapter 3 deals with procedures for forwarding and disseminating information such as ROSCOPs, IG/GCIs, etc.

Chapter 4 provides the procedures for forwarding data resulting from the standard observations and their announcement.

Chapter 5 provides the procedures for the users to receive information and data via NODCs/DNAs, RNODCs and WDCs.

Chapter 6 encourages the contribution of the results obtained by using WESTPAC data.

It is expected that the GUIDE will be an important input for dissemination of data by the support of the relevant scientists and officials.

(2) Publication and distribution of the "RNODC Newsletter for WESTPAC"

The Newsletter is divided into Part I and Part II.

Part I is supposed to act as a means of dissemination of such information as DNPs/NOPs notification, ROSCOPs, etc, which the RNODC collects from the participating member states according to the procedures described in the above mentioned GUIDE.

Part II deals with other information and news related to WESTPAC. Contributions to Part II by related officials, scientists, data users and others are quite welcome.

At present, the No.1 and No.2 of the Newsletter were published in March and December 1982, respectively. For instance, the Newsletter No.2 deals with the following items:
Part I
1. WESTPAC Cruises
2. ROSCOPs
3. Data Received
4. Scientific Literatures Relevant to WESTPAC

Part II.
1. International Conferences Relevant to WESTPAC
   i) IOC Executive Council-XIV
   ii) Programme Group WESTPAC-II
   iii) Global Investigation of Pollution in the Marine Environment-IV
   iv) IOC Executive Council-XV
3. Contributions from WESTPAC Countries
   i) Scientific Programmes during WESTROPAC-82 (Australia)
   ii) Data Handling in the AODC (Australia)
4. Training Services for WESTPAC Countries by the RNODC
   i) Short term Training Course on Data Processing
   ii) Mission on Technical Guidance for Oceanographic Data Management
5. Notice from the RNODC

(3) Training of NODC officials

The RNODC-WESTPAC, by the support of IOC fund, has carried out twice "Short term training on oceanographic data management" for officials of NODCs in the region. Participants were responsible people in each NODC. They participated from the following countries :

First time ( March-April, 1982, 2 weeks )
Korea, Philippines and Thailand.
Second time ( May, 1983, 2 weeks )
Indonesia, Malaysia and People's Republic of China.
The syllabi were as follows:
Lecture on function of IOC and IODE system, procedures for forwarding and disseminating relevant information and data, processing variable items of data, Experiments on computer data processing and Study visit to related institutions.

2. Activities of NODCs in the Region

According to the Summary Report of the second Session of PG/WESTPAC (October, 1981), the number of WESTPAC participating countries is nineteen. Out of them, the following countries have established the NODC or the National Coordinator for IODE, that is reported in the IODE Handbook (IOC/INF-434 rev., December 1982). Countries that have established National Coordinator for IODE and NODC: Australia, People's Republic of China, France, Japan, Korea, Philippines, USSR, United Kingdom and USA. Country that has established National Coordinator for IODE: Thailand. A few other countries in the region are planning to establish the NODC.

Establishing and developing the NODCs or DNA (Designated National Agency) or nominating the National Coordinator for IODE will facilitate smooth operation of international data exchange.

The starting step of the NODCs and DNAs for IODE activity is to notify the DNPs (Declared National Programmes) to IOC Secretary. Regular and timely notification of DNPs is called upon member states by the Recommendation IODE VIII-4 and Resolution XII-6 of the IOC Assembly, and is most important duty of the NODCs or DNAs.

As of end of August 1983, the following information and data have been transferred to the RNODC-WESTPAC from NODCs or relevant institutions in the region:

Information on cruises relevant to WESTPAC
1979 : 6 cruises ( France 4, Japan 2 )
1980 : 5 cruises ( Japan 3, USSR 2 )
1981 : 17 cruises ( France 12, Japan 4, USSR 1 )
1982 : 18 cruises ( Australia 3, France 7, Japan 3, New Zealand 3, USSR 2 )
ROSCOPs (Report Observations/Samples Collected by Oceanographic Programmes)

1979 : 2 cruises ( Japan 2 )
1980 : 5 cruises ( France 2, Japan 3 )
1981 : 16 cruises ( France 12, Japan 4 )
1982 : 13 cruises ( France 7, Japan 6 )

Data (in the form of Scientific Literatures)

1979 : 1 cruise ( Japan 1 )
1980 : 4 cruises ( France 2, Japan 2 )
1981 : 7 cruises ( France 5, Japan 2 )
1982 : 3 cruises ( France 1, Japan 2 )

3. Action needed for smooth operation of data exchange

It would be beneficial for smooth operation of data exchange in the WESTPAC region, if the Programme Group would call upon member states to take measures with the following contents:

1) To establish NODC or designate DNA, or to nominate National Coordinator for IODE, and to notify it to the IOC Secretary.

2) To exchange the following information or data.
   i) The NODC/DNA or National Coordinator for IODE collect information on DNPs and transmit it to IOC Secretary and to RNODC-WESTPAC.
   ii) Responsible Scientist of a cruise transmits the ROSCOP on his/her cruise to the RNODC-WESTPAC via NODC/DNA or National Coordinator for IODE in his/her country.
   iii) Each institution actively exchanges data and scientific literatures.
   iv) RNODC-WESTPAC render timely services on information through the Newsletter.
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of Unesco)

Third Session of the Programme Group for
the Western Pacific (WESTPAC)
Townsville, Australia — 19-24 September 1983

INFORMATION FOR PARTICIPANTS

1. TIMETABLE FOR OPENING CEREMONY AND FIRST DAY (19 September 1983)

Whitsunday Room
First Floor
The Townsville International Hotel (Flinders Mall)
cnr Flinders and Stokes Streets
Townsville, Australia

0830 - 0930 hours
- Arrival of Delegates and Guests.
  Late Registration

0945
  All Delegates and Guests are requested
to be seated

Opening Ceremony

1000 - 1045 hours
- (1) Introduction and remarks by the Chairman
  (2) Welcome address by
      The Hon. Barry O. Jones, M.P.,
      Minister for Science and Technology
  (3) Statement by IOC Representative

1045 - 1130 hours
- Coffee break and group photograph

1130 - 1200 hours
- Session and adoption of the provisional
  agenda

1200 - 1400 hours
- Lunch

1400 - 1700 hours
- Session

1830 hours
- Australian Government Reception at the
  Townsville International Hotel, hosted
  by The Hon. Barry O. Jones M.P.
2. **MEETING PLACE**

The Third Session of the Intergovernmental Oceanographic Commission's Programme Group For the Western Pacific (WESTPAC III) will be held in the Conference Room (the "Whitsunday Room") of the Townsville International Hotel, Townsville, Australia, from 19 September until 24 September 1983. The Opening Ceremony of the Session will be held in the same room.

3. **ARRIVAL IN TOWNSVILLE**

Provided that flight information (i.e., arrival date and time, and flight number) has been received by the Liaison Officer well in advance of the Session, Delegates will be met at the airport by a member of the conference staff and assisted with completion of immigration procedures and customs clearance. Official transport will be provided from the airport to the hotel where Delegates will be assisted with checking into the hotel. Any other assistance required by Delegates will be provided by conference staff stationed at the hotel.

4. **REGISTRATION AND OPENING OF THE SESSION**

Upon arrival at the hotel, Delegates will be given IOC registration forms which should be completed as soon as possible and returned to the Liaison Officer in the conference room the following day.

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration</td>
<td>08.30</td>
<td>19 September 1983</td>
</tr>
<tr>
<td>Opening of the Session</td>
<td>10.00</td>
<td>19 September 1983</td>
</tr>
</tbody>
</table>

5. **LIAISON OFFICER**

Mr. R.N. Harriss  
WESTPAC III Liaison Officer  
Sectoral Policy Branch  
Department of Science and Technology  
PO Box 65  
BELCONNEN ACT 2616  
Australia  

Telex: AUSCI 62484  
Telegrams: AUSCITEC  
Telephone: CANBERRA (062) 64 4247

Any communications from, or for, participants may be sent to the Liaison Officer at the address above.
The secretariat will move to Townsville approximately one week before the Session commences and, at any stage prior to, or during, the Session, communications may be directed to:

Mr. R.N. Harriss  
WESTPAC III Liaison Officer  
c/o The Townsville International Hotel  
cnr Flinders and Stokes Streets, (Flinders Mall)  
TOWNSVILLE QLD 4810 AUSTRALIA  

Telex: 47076  
Telegrams: TOWNSV  
Telephone: (077) 722477

Communications to this Townsville address should clearly indicate that they relate to the WESTPAC III Session.

6. ENTRY AND EXIT FORMALITIES IN TOWNSVILLE, AUSTRALIA

Visas

Participants will require an entry visa to Australia and are advised to seek details from the Australian representative in their country or from the nearest Australian Embassy or High Commission.

The Australian Department of Foreign Affairs and the Department of Immigration and Ethnic Affairs have advised their officials of the meeting and requested that they facilitate the issuance of visas to participants. It will be necessary to present confirmation of participation in the meeting to Embassy or High Commission officials and participants are strongly advised to apply for visas at least two months prior to the meeting.

Airline Tickets

It is strongly advised that airline tickets be given to the Liaison Officer upon arrival so that onward or return flights may be confirmed, so as to comply with airline regulations on reconfirmation 72 hours prior to departure. Delegates should let the Liaison Officer know their departure details (flight number, date, time, etc.) as soon as possible.

7. HEALTH CERTIFICATES

Visitors from the South East Asian/South Western Pacific region do not require any certificates of vaccination; however, participants are advised to enquire at an Australian Embassy or High Commission prior to travelling to ascertain whether requirements have altered since the time of writing.
8. **AIRPORT TAX AND PORTERAGE**

Townsville's international air terminal is situated approximately 8 kilometres from the Townsville International Hotel and is about 10 minutes by taxi from both the Hotel and the city centre.

Departing passengers are required to check in at the airport not less than 90 minutes before scheduled flight time. There is a Departure Tax of Australian $20.00.

No porterage charge is levied on baggage and tipping is at the discretion of the individual.

Hand-held luggage on departure is limited to one piece not exceeding 5 kg (economy class) or 7 kg (first class) in weight and in the form of a small overnight bag.

9. **CUSTOMS**

One bottle of liquor (1 litre) 200 cigarettes (or 250 grams of cigar or tobacco products) and gifts to the value of $200.00 Australian are allowed duty free on entry to Australia.

10. **CURRENCY AND FOREIGN EXCHANGE**

The basic unit of currency is the Australian dollar which is equivalent to US $0.87 (as at 29 March 1983).

Upon departure from Australia, visitors may export up to $250.00 in Australian notes and $5.00 in Australian coins.

11. **BANKS**

The nearest banks to the Townsville International Hotel are:

**Westpac**

337-343 Flinders St (P.O. Box 919)
Townsville Qld 4810

Telex/Telegram: 034-222
Telephone: 077-722822

Open: Monday - Wednesday 9.30 a.m. - 4.00 p.m.
      Thursday  9.30 a.m. - 8.30 p.m.
      Friday   9.30 a.m. - 5.00 p.m.

**Commonwealth**

370 Flinders Street
Townsville Qld 4810

Telex/Telegram: 47001
Telephone: 077-723444
14. MEDICAL FACILITIES

A doctor is on call to the Hotel on a 24-hour-a-day basis.

15. TRANSPORT TO OFFICIAL FUNCTIONS AND AIRPORT

Official transport will be provided to and from the airport on arrival and departure and to all official functions.

16. ELECTRICAL CURRENT

240 volts, 50 cycles, AC

17. RECEPTIONS AND TOURS

An Australian Government reception will be held on the evening of 19 September 1983 in the Townsville International Hotel. Details of other functions will be advised at a later date.
Open: Monday-Wednesday 9.30 a.m. - 4.00 p.m.
         Thursday 9.30 a.m. - 8.00 p.m.
         Friday 9.30 a.m. - 5.00 p.m.

All banks are closed Saturdays and Sundays

12. WEATHER CONDITIONS

During September, temperatures in Townsville usually fall within the range 17.2°C (average minimum) to 27.5°C (average maximum). This is the spring season with rain not expected.

13. HOTEL

A block booking of accommodation for Delegates has been arranged at the Townsville International Hotel.

A special rate of Australian $45.00 (room only) has been granted for single and double occupancy. No service charges or Government taxes apply.

The Townsville International Hotel is located at:

Corner Flinders and Stokes Streets (Flinders Mall)
TOWNSVILLE QLD AUSTRALIA

Telex: 47076
Telegrams: TOWNSV
Telephone: (077) 722477

Delegates are urged to take advantage of this offer and should complete the attached form and return it to the Liaison Officer not later than 1 August 1983.

Attention is drawn to the fact that Delegates are responsible for payment of their own hotel accounts and that neither the Government of Australia nor IOC can accept responsibility for cancellation of reservations.

MEAL COSTS

Participants will be provided with information on restaurants, sandwich bars, coffee shops and the like in the area, which offer a variety of meals at various prices.

Participants might also note that tipping in hotels, restaurants, taxis etc., is at the individual's discretion and no 'rules' apply.
NAME:

COUNTRY/ORGANISATION:

BUSINESS ADDRESS:

BUSINESS TELEX/TELEGRAM:

ACCOMMODATION REQUIREMENTS
SINGLE/TWIN/DOUBLE ROOM

EXPECTED DATE OF ARRIVAL:

EXPECTED DATE OF DEPARTURE:

METHOD OF ACCOUNT PAYMENT: CASH/BANK CHEQUE/CREDIT CARD

PARTICULAR MENU REQUIREMENTS

Delegates are asked to complete and return this form to the WESTPAC Liaison Officer not later than 1 August 1983 (see S.13 of Information Paper).
POSTAL INFORMATION

1. GENERAL INFORMATION

Australia Post offers a number of postal services including surface, air, priority paid, and express delivery mail services. General information on postage rates, and size and weight limits for letters, packets, parcels and printed papers, are shown in the attached tables.

Delegates will be required to pay for all postal charges.

2. NEAREST POST OFFICE

The principal Townsville Post Office is located in the same block as the Hotel.

Address: Australia Post

Flinders Mall

Townsville, QLD

Post Office hours are 9.00 a.m. - 5 p.m. Monday to Friday.

3. PACKETS AND PARCELS

Contents must be declared on customs forms. No wrapping requirements apply; however, Delegates are urged to take normal precautions in securely packing and wrapping articles.

4. PRINTED PAPERS

Printed papers are subject to reduced postal rates if declared and packed in the required manner. Parcels should be clearly marked PRINTED MATTER and must be wrapped in such a way that the contents can be inspected.

5. CABLES

Cables can be sent from the above-mentioned post office during normal business hours. Delegates will be required to meet these costs.
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of Unesco)

Third Session of the Programme Group for
the Western Pacific (WESTPAC)

Townsville, Australia, 19 - 24 September 1983

A PROPOSAL FOR THE ESTABLISHMENT OF A WESTPAC TASK TEAM
ON OCEAN SCIENCE IN RELATION TO NON-LIVING RESOURCES IN THE WESTERN PACIFIC

This paper was prepared by the IOC Secretariat to assist the Programme Group in its deliberations under Agenda Item 4.2.
1. In 1963, the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) formed an independent intergovernmental organization, the Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas (CCOP), which will hold its 20th session in November 1983. Its mandate makes the Committee a co-ordinating and review body for marine geology and geophysics applied to the exploration and exploitation of mineral and hydrocarbon resources.

Eight years later, in 1971, ESCAP felt that it should extend its activities into the South Pacific, after CCOP had proven so successful, and established a similar organization called Committee for Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas (CCOP/SOPAC). CCOP/SOPAC will hold its 12th session in Nuku'alofa, Tonga, 11-20 October 1983. Its mandate is similar to that of CCOP.

Both Committees felt that, for rational exploration or exploitation of mineral and hydrocarbon resources, basic research in geology and geophysics is obligatory, but they not covered by their mandates.

Therefore, CCOP and CCOP(SOPAC) sought co-operation with an organization such as the Intergovernmental Oceanographic Commission (IOC) of Unesco, whose Statutes ask it "to promote scientific investigation with a view to learning more about the nature and resources of the oceans through the concerted action of its members" (Article 1).

It was decided that a representative of IOC (the then Deputy Secretary) regularly participate in CCOP and CCOP(SOPAC) sessions.

It was further agreed to form joint bodies (of governmentally nominated experts). In the case of CCOP, the Joint CCOP-IOC Working Group on IDOE (renamed "post-IDOE" once the Decade ended in 1980) Studies on East Asia Tectonics and Resources (SEATAR) was established in 1975, through Resolution EC-V.18; it proved successful, since it enabled developing countries of the region to implement an important part of the programme from their own resources.

A similar joint body with CCOP(SOPAC), called Joint CCOP(SOPAC)-IOC Working Group on South Pacific Studies of Tectonics and Resources (STAR) is now under consideration.

2. In the meantime, a new development in IOC took place: its former regional body, the International Co-ordination Group for the Co-operative Studies of the Kuroshio and Adjacent Regions (which did not deal with geology) was replaced, in 1977, by a Programme Group for the Western Pacific (WESTPAC), which covers all marine science disciplines, and therefore marine geology and geophysics, in its mandate. Because of the complementarity of activities and in view of the very close collaboration with CCOP and CCOP(SOPAC), the Programme Group invited these two bodies to assist it in promoting geological programmes of interest to the Member States.
The IOC contributed to these activities by, inter alia, co-sponsoring joint workshops with CCOP (Bangkok 1973, Bandung 1978) and CCOP (SOPAC) (Suva 1975, Noumea 1980). These workshops updated existing programmes and proposed new ones.

Since 1980, however, a trend arose in WESTPAC to formulate a marine geological and geophysical research programme, independent of the practical considerations of exploration and exploitation. This was reflected in the holding of a WESTPAC Workshop on the Marine Geology and Geophysics of the North-West Pacific (Tokyo, March 1980). The proposals of this workshop have not been fully implemented yet (except for a part carried out by Japan).

3. More recently, at the Twelfth Session of its Assembly, the IOC adopted a global programme of Ocean Science in Relation to Non-Living Resources (OSNLR) which, apart from the more formal ocean mapping (bathymetry and specialized overlay sheets), covers all IOC activities in the field of marine geology and geophysics; this programme is co-sponsored by the UN (OETB) and supported by Unesco (Division of Marine Sciences). It is expected that relevant regional research projects will be developed in the framework of OSNLR.

4. It therefore now appears desirable to establish a WESTPAC Task Team on Marine Geology and Geophysics which should co-ordinate, in the framework of WESTPAC, the implementation of projects proposed by the above-mentioned Tokyo Workshop, in 1980, or other projects to be adopted by the Programme Group, including appropriate project proposals from the Workshop on Basic Geoscientific Marine Research Required for Assessment of Minerals and Hydrocarbons in the South Pacific, to be held in Suva, in October 1983. This Workshop will not only be sponsored by CCOP (SOPAC), but also by the United Nations University (UNU), as a new element. At the same time, this workshop will update the CCOP (SOPAC) programme developed in Noumea, in 1980. The recommendations of the Third International Workshop on Marine Geosciences (Heidelberg, Federal Republic of Germany, 17-24 July 1983) and of the IOC ad hoc consultation on OSNLR (Paris, 6-8 April 1983) should be taken into account in developing the WESTPAC programme and in the work of an eventual Task Team.

It is understood that the new WESTPAC Task Team proposed above will strengthen and diversify marine geological/geophysical research of the developing countries of the region and will facilitate more rapid solutions to some of the complex geotectonic problems of the Western Pacific region. A scheme of relationships between the various bodies and organizations is given in the Annex hereto.


5. The following specific Terms of Reference for the proposed Task Team are suggested:

The Task Team shall:

(i) promote and co-ordinate the implementation, by the Member States of the Programme Group, of agreed research projects;
(ii) review project proposals in the field of marine geological and geophysical research originating from IOC and other sources, and advise on the priorities of such proposals;

(iii) identify the possible contributions that the WESTPAC research projects in the fields of marine geology and geophysics could make to the IOC/UN (OETB) programme of Ocean Science in Relation to Non-Living Resources (OSNLR) and determine which elements of the latter could be undertaken in the framework of the Programme Group;

(iv) maintain a close liaison and co-operate with the IOC/UN (OETB) Guiding Group of Experts on OSNLR, including by participation of the Chairman of the Task Team or an alternate in meetings or other relevant activities of the Guiding Group;

(v) assist WESTPAC Member States, at their request, in organizing their national participation in the implementation of the projects, advise them on the exchange of research data through the IODE system, in consultation with the IOC Working Committee on IODE and its relevant subsidiary bodies;

(vi) assist in identifying training, education and mutual assistance needs related to the adopted project(s);

(vii) report to each Session of the Programme Group on progress in the execution of the project, on plans and requirements for future work and on the Task Team's own intersessional work.
Hatched lines: proposals currently under consideration.

--- line of reporting.
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
of (Unesco)

Third Session of the Programme Group for the Western Pacific (WESTPAC)

Townsville, Australia 19-24 September 1983

SUMMARY AND RESPONSE BY THE AD-HOC PANEL ON OCEAN DYNAMICS TO THE TASK TEAM REPORT ON OCEAN DYNAMICS
SUMMARY AND RESPONSE BY THE AD-HOC PANEL ON OCEAN DYNAMICS TO THE WESTPAC TASK TEAM REPORT ON OCEAN DYNAMICS.

1. INTRODUCTION

1.1 At WESTPAC II the programme group adopted four monitoring programmes, namely

(i) V.O.S. Programme,
(ii) Island and coastal station programme,
(iii) Hydrographic programme, and
(iv) Drifting buoy programme.

1.2 The programme group, in creating the ad-hoc Task Team on Ocean Dynamics, defined its purpose as "assessing and advising the Programme Group on Scientific research objectives of the WESTPAC Ocean monitoring programmes and related activities, as well as collaborating with IGOSS and RNODC for WESTPAC in the development of the programme development and the data management".

1.3 As indicated in the task team report, co-ordination under IGOSS has already commenced. During the intersessional period there have been some rapid developments in research activity in the WESTPAC region, particularly in relation to the oceanographic programmes of the WCRP, and arising out of increasing national awareness of regional benefits from monitoring and observing projects.

1.4 In light of these developments it was felt that some focussing of the recommendations of the Task Team Report might be worthwhile in formulating plans for future WESTPAC activity. An ad-hoc panel was convened to make specific suggestions in relation to the Programme Groups adoption of the report.

2. CRITICAL DISCUSSION

2.1 The report identified two geographical regions, namely the Tropical West Pacific and the North West Pacific, as being of primary interest and listed seven broadly defined research topics within these regions.

2.2 These topics to a large degree reflect existing national and international research project objectives. The "study on extended long range forecasting of oceans and atmosphere", for example, now embraces the objectives
of TOGA; the "study into seasonal and interannual redistribution of heat and salt" is the subject of the PATHS programme.

2.3 One essential feature of the scientific topics identified, is that they transcend national interest and are vitally important to the whole WESTPAC community. Another essential feature is that they all depend to a very large degree upon the creation and continuance of monitoring programmes, particularly those listed in 1.1 above, as adopted by WESTPAC.

2.4 At present, monitoring programmes are primarily the initiative of individual countries, and are justified in terms of national research and economic priorities. Nevertheless, when designed and conducted so that they are complementary to the efforts of other countries, they have the capacity for creating observational networks essential for the achievement of the larger scale scientific objectives of WESTPAC. For this reason it was correctly perceived by the Task Team that project co-ordinating groups would be required.

2.5 The ad-hoc panel, in examining the report, felt concern at the number of project co-ordinating groups recommended, and the commitment of resources that would entail. It was felt that for the present, one or two groups would suffice, and that because there exists a high degree of commonality in the monitoring requirements of the various projects, the grouping should be based on geographical rather than subject interest. Membership should not only include national representatives, but also representatives from international bodies with strong regional or programmatic involvement such as CCCO Tropical Pacific Panel and the IOC Programme in OSLR, and the WMO.

2.6 The ad-hoc panel also noted that the geographical regions nominated in the report were not comprehensive. In particular, it was remarked that there existed vital scientific questions in the zone of the South East Asian Archipelago and the sub-tropical and temperate South West Pacific. Co-ordination groups might also be needed for these regions as part of WESTPAC strategy.
2.7 In passing it was noted that no specific mention was made in the observing programmes defined by WESTPAC II, of tide and sea level gauges nor of deep moored buoys, both of which are of great value in regional and global monitoring.

1. SPECIFIC PROJECT RECOMMENDATIONS

A recent meeting of the CCCO Tropical Pacific panel noted that the existing IGOSS monitoring system provides an excellent starting point for climate research in the WESTPAC region, and recommended some extensions of it, to address the fact that the highest sea surface temperatures in the world are found in the equatorial West Pacific, and that the dynamics of the sea surface temperature maximum are of key relevance to the El Nino - Southern Oscillation phenomenon. The CCCO recommendations were:

(i) Further hydrographic sections across the equator in the equatorial West Pacific.

(ii) Some moorings giving detailed time series of currents, temperatures and salinities near the equator.

(iii) Extensions of the existing tide gauge and thermal profiling network into identified regions of sparse data coverage - particularly the South-East Asian Archipelago.

(iv) Moorings giving thermal data only, near the equator.

We strongly endorse these recommendations, as a sound scientific project consistent with available resources for studies of ocean dynamics in the tropical WESTPAC region, though the list is not intended to be comprehensive. Similar projects can be identified in the North-West Pacific region.

4. CONCLUDING RECOMMENDATIONS

Noting the need for attention during the intersessional period to the closer definition of scientific projects of collective regional and global importance, and noting that encouragement should be given to member countries to co-ordinate their ocean monitoring and observational activities in a way which will complement these larger scale projects, the panel recommends that
(i) Project co-ordinating groups should be now established to promote efforts within two broad geographical regions, the equatorial West Pacific and the north-west pacific regions. Representatives of organizations conducting related international programmes or projects should be members of the project co-ordinating groups. Draft terms of reference for each of the groups are appended.

(ii) Consideration be given to the ultimate formation of project co-ordinating groups for the South East Asian Archipelago region and the Temperate South West Pacific region.

(iii) The work of ad-hoc task team on ocean dynamics be regarded as complete and the team be disbanded with appreciation for its excellent work.
Draft Terms of Reference of Project Co-ordinating Groups
(for tropical Pacific group - others by analogy)

In order to promote increased co-ordination of regionally motivated research
and monitoring programmes and to assist in aligning these with the objectives
of large scale research programmes (such as those within the WCRP), it is recommended
that WESTPAC Co-ordinating Groups for Ocean Dynamics be established. These
Groups will:

(i) Develop co-ordinated research and monitoring programmes which
emphasize well established scientific objectives and build upon
projected national efforts.

(ii) Conduct regular co-ordinating meetings to implement these programmes
through solicited national contributions.

(iii) Advise WESTPAC on the continuing progress made in implementing
these programmes, and on new opportunities for well-focused
research within the scope and resources of WESTPAC.

(iv) Act to provide timely information to WESTPAC on the scientific
results of these co-ordinated efforts, and on the broader efforts
which they support.

(v) Establish close liaison with the CCCO Tropical Pacific Panel
and the IOC Program in OSLR, with particular emphasis on the
biological consequences of the El Nino - Southern Oscillation
phenomenon.

It is envisaged that the co-ordinating group would be made up of representatives
from each interested WESTPAC country, one of whom could serve as the focal
point for contributions from that nation (or from institutions within it).

The group would also have as standing members the Chairman of the CCCO Tropical
Pacific Panel, an individual representing the IOC program in Ocean Science
in Relation to Living Resources (OSLR), and IGOSS representatives as appropriate.
Intergovernmental Oceanographic Commission
(of Unesco)

Third Session of the Programme Group for the Western Pacific (WESTPAC)
Townsville, Australia, 19-24, September 1983

Activities on the IGOSS Programme in Japan

Submitted by the National Representative for
the IGOSS Programme in Japan
General

The activities on the IGOSS Programme in Japan almosty are carried out under the co-operation of the governmental agencies: the Japan Meteorological Agency (JMA), the Maritime Safety Agency and the Fisheries Agency. They are contributing to all or a part of elements of the programme.

Furthermore, the IGOSS National Committee, comprizing those three agencies, the Ministry of Education Science and Culture (the national focal point of the IOC, Unesco), the Ocean Research Institute of Tokyo University and others, hold the sessions once to twice every year, convened by the National Representative for the IGOSS Programme (the Director of the Marine Department, the JMA), for exchange of information and co-ordination of the IGOSS related activities in Japan.

IGOSS BATHY/TESAC Operational Programme

Since 1972 Japan has been taking part in the collection and international exchange of subsurface temperature data on a real time basis in framework of the IGOSS BATHY/TESAC Operational Programme. The number of BATHY messages disseminated from Japan on a real time basis was 2,534 in 1981, 3,530 in 1982 and 2,130 in 1983 as of August. Majority of the oceanographic observations for the BATHY messages were made in the waters adjacent to Japan while some were made in the tropics of the western Pacific.

The Japanese National Representative for the IGOSS Programme has been urging relevant organizations and institutions to contribute towards the BATHY/TESAC Operational Programme; for example, by distributing a guidebook on the code and transmission of the BATHY messages.

More than twenty Japanese merchant vessels, under contract to the Scripps Institution of Oceanography, USA and the ORSTOM, New Caledonia, France, have been making voluntary X-BT observations on passage in the Pacific. Their subsurface temperatures are coded into BATHY format and sent to coastal radio stations in USA and Japan for international exchange on a real time basis.

In addition to the real time mode BATHY messages, the Japan Meteorological Agency began handling late BATHY reports from August 1982. Thus, about twenty to thirty oceanographic data obtained in the waters adjacent to Japan are being put onto the GTS every month in the delay mode.
Telecommunication Arrangements

Japan has already designated the Choshi-Radio (the call sign: JCS) as the radio station to accept BATHY/TESAC messages from ships as well as the ordinary meteorological messages. The oceanographic messages received are put onto the GTS on a real time basis through the Automatic Data Editing and Switching System of the Japan Meteorological Agency, a Regional Telecommunication Hub for international exchange. Regarding the data collection, the JMA has operationally received the BATHY/TESAC messages from the GTS.

IGOSS Data Processing and Services System

The Japan Meteorological Agency is routinely preparing the analyses of sea surface current in the seas adjacent to Japan and of subsurface temperature in the western North Pacific from the data obtained through the GTS, domestic tele-facsimile and mail. An example of the product of subsurface temperature is shown in Annex 1.

The JMA also produces the analyses of sea surface temperature in the western North Pacific and in the whole of the western Pacific including the southern hemisphere. They are based upon the sea surface temperatures extracted from the maritime meteorological messages from ships and those derived from the infra-red information obtained from the Geostationary Meteorological Satellite operated by the JMA and the US NOAA orbital meteorological satellite. An example of sea surface temperature chart is given in Annex 2.

All of the products above are generated every ten days for dissemination over the meteorological radio facsimile and by copies of "Ten-Day Marine Report".

Furthermore, the maritime Safety Agency provides analytical products of sea surface and subsurface temperatures and sea surface current in the waters adjacent to Japan, particularly in the Kuroshio region, twice a month by radio facsimile and printed matter entitled "Prompt Oceanographic Report". And the Japan Fisheries Information Service Center, a satellite organ of the Fisheries Agency, regularly issues sea surface temperature analyses in several parts of the North Pacific.
More detailed information on the activities on the IGOSS in Japan is available from:

Dr. Yoshiro Sekiguchi  
National Representative for IGOSS  
Director of the Marine Department  
The Japan Meteorological Agency  
3-4 Otemachi-1, Chiyoda-ku  
Tokyo 100, Japan  
Telex 222 2163 METOK J
Annex 1. An example of subsurface temperature analysis in the western North Pacific issued from the Japan Meteorological Agency.
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of Unesco)

Third Session of the Programme Group for
the Western Pacific (WESTPAC)

Townsville, Australia, 19 - 24 September 1983

RNO DC REPORT FOR THE THIRD SESSION OF PG/WESTPAC

RNO DC - WESTPAC

(Japan Oceanographic Data Center)
RNODC—WESTPAC FOR THE THIRD SESSION OF PG/WESTPAC ( Townsville, September 1983 )

RNODC - WESTPAC (Japan Oceanographic Data Center)

This report is prepared by the RNODC—WESTPAC (Japan Oceanographic Data Center) for submission to the third Session of PG/WESTPAC (Townsville Australia, September 1983) with the aim of informing the Programme Group of the intersessional activities of the RNODC, present status of the NODCs in the WESTPAC region as well as the action of the Programme Group needed for promotion of data exchange in the Programme.

1. Intersessional activities of the RNODC

Japan Oceanographic Data Center (JODC), after commencing the activity of the Responsible National Oceanographic Data Center (RNODC) for WESTPAC, has carried out the following items of activity.

(1) Publication and distribution of the "WESTPAC DATA MANAGEMENT GUIDE"

On the ground of the decision WESTPAC I.17, the RNODC—WESTPAC compiled and distributed the "WESTPAC DATA MANAGEMENT GUIDE" in March 1982. The GUIDE has been compiled in accordance with the IOC Manuals and Guides No.9 (International Oceanographic Data Exchange) and Manual on RNODC.

The status of the data management plan was coordinated by the Group of Experts on RNODCs. The draft of the GUIDE was submitted to the tenth Session of the Working committee on International Oceanographic Data Exchange (Hamburg, August 1981), also to the second Session of the Programme Group for WESTPAC (Jakarta, October 1981). Then it was printed with slight change caused by the advice given from the IOC Secretariat.

The GUIDE is composed of the following six chapters and appendices. Chapter 1 provides a mechanism for registration of the WESTPAC cruises in line with the DNP/NOP notification system of the IOC.

- 1 -
Chapter 2 deals with Types of Information and Data such as the ROSCOP, IG/GCI formats, as well as standard observations and nonstandard experimental observations mainly based on the IOC Manuals and Guides No.9 (International Oceanographic Data Exchange).

Chapter 3 deals with procedures for forwarding and disseminating information such as ROSCOPs, IG/GCIs, etc.

Chapter 4 provides the procedures for forwarding data resulting from the standard observations and their announcement.

Chapter 5 provides the procedures for the users to receive information and data via NODCs/DNAs, RNODCs and WDCs.

Chapter 6 encourages the contribution of the results obtained by using WESTPAC data.

It is expected that the GUIDE will be an important input for dissemination of data by the support of the relevant scientists and officials.

(2) Publication and distribution of the "RNODC Newsletter for WESTPAC"

The Newsletter is divided into Part I and Part II.

Part I is supposed to act as a means of dissemination of such information as DNPs/NOPs notification, ROSCOPs etc, which the RNODC collects from the participating member states according to the procedures described in the above mentioned GUIDE.

Part II deals with other WESTPAC related information and news. Contributions to Part II by related officials, scientists, data users and others are quite welcome.

At present, the No.1 and No.2 of the Newsletter were published in March and December 1982, respectively. For instance, the Newsletter No.2 deals with the following items;
Part I
1. WESTPAC Cruises
2. ROSCP's
3. Data Received
4. Scientific Literatures Relevant to WESTPAC

Part II
1. International Conferences Relevant to WESTPAC
   i) IOC Executive Council-XIV
   ii) Programme Group WESTPAC II
   iii) Global Investigation of Pollution in the Marine Environment-IV
   iv) IOC Executive Council-XV


3. Contributions from WESTPAC Countries
   i) Scientific Programmes during WESTROPAC-82 (Australia)
   ii) Data Handling in the AODC (Australia)

4. Training Services for WESTPAC Countries by the RNODC
   i) Short term Training Course on Data Processing
   ii) Mission on Technical Guidance for Oceanographic Data Management

5. Notice from the RNODC

(3) Training of NODC officials

The RNODC-WESTPAC, by the support of IOC fund, has carried out two times of "Short term training on oceanographic data management" for officials of NODCs in the region. Participants were responsible people in each NODC. They participated from the following countries.

First time (March-April, 1982, 2 weeks)
Korea, Philippines and Thailand.

Second time (May, 1983, 2 weeks)
Indonesia, Malaysia and People's Republic of China.
The contents of the course were as follows:

Lecture on function of IOC and IODE system, procedures for forwarding and disseminating relevant information and data, processing variable items of data,
Experiments on computer data processing and Study visit to related institutions.

2. Activities of NODCs in the Region

According to the Summary Report of the second Session of PG/WESTPAC (October, 1981), number of the WESTPAC participating country is nineteen. Out of them, the following countries have established the NODC or the National Coordinator for IODE, that is reported in the IODE Handbook (IOC/INF-434 rev., December 1982). Countries that have established National Coordinator for IODE and NODC: Australia, People's Republic of China, France, Japan, Korea, Philippines, USSR, United Kingdom and USA. Country that has established National Coordinator for IODE: Thailand. A few other countries in the region are planning to establish the NODC.

Establishing and developing the NODCs or DNA (Designated National Agency) or nominating the National Coordinator for IODE will facilitate for smooth operation of international data exchange.

The starting step of the NODCs and DNAs for IODE activity is to notify the DNPs (Declared National Programmes) to IOC Secretary. Regular and timely notification of DNPs is called upon member states by the Recommendation IODE VIII-4 and Resolution XII-6 of the IOC Assembly, and is most important duty of the NODCs or DNAs.

As of end of August 1983, the following information and data have been transferred to the RNODC-WESTPAC from NODCs or relevant institutions in the region:

Information on cruises relevant to WESTPAC
1979: 6 cruises (France 4, Japan 2)
1980: 5 cruises (Japan 3, USSR 2)
1981: 17 cruises (France 12, Japan 4, USSR 1)
1982: 18 cruises (Australia 3, France 7, Japan 3,
New Zealand 3, USSR 2)
ROSCOPs (Report Observations/Samples Collected by Oceanographic Programmes)

1979: 2 cruises (Japan 2)
1980: 5 cruises (France 2, Japan 3)
1981: 16 cruises (France 12, Japan 4)
1982: 13 cruises (France 7, Japan 6)

Data (in the form of Scientific Literatures)
1979: 1 cruise (Japan 1)
1980: 4 cruises (France 2, Japan 2)
1981: 7 cruises (France 5, Japan 2)
1982: 3 cruises (France 1, Japan 2)

3. Action needed for smooth operation of data exchange

It would be beneficial for smooth operation of data exchange in the WESTPAC region, if the Programme Group would call upon member states to take measures with the following contents:

1) To establish NODC or designate DNA, or to nominate National Coordinator for IODE, and to notify it to the IOC Secretary.

2) To exchange the following information or data.
   i) The NODC/DNA or National Coordinator for IODE collect information on DNPs and transmit it to IOC Secretary and to RNODC-WESTPAC.
   ii) Responsible Scientist of a cruise transmits the ROSCOP on his/her cruise to the RNODC-WESTPAC via NODC/DNA or National Coordinator for IODE in his/her country.
   iii) Each institution actively exchanges data and scientific literatures.
   iv) RNODC-WESTPAC render timely services on information through the Newsletter.
Possible Training Opportunities in Marine Sciences for 1984 - 1985

J A P A N

I. Programmes to be carried out under the Japanese Fund-in-Trust arrangement earmarked for the WESTPAC Programme (Listed below are preliminary draft plans and leave the room for future change or modification.)

IOC will select, in consultation with the Government of Japan, the limited number of scientists in the region to enable the participation in the following programmes. Their travel cost and per-diem will be covered by the Japanese Fund-in-Trust earmarked for the WESTPAC Programme.

Application should be made to IOC Secretariat through national committee for IOC in the applicant's country.

1. On-Board Fellowships

<table>
<thead>
<tr>
<th>Ship</th>
<th>Area</th>
<th>Date</th>
<th>Programme</th>
<th>Operating Agency</th>
<th>Number of Fellowship grantees</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAKUHO - MARU</td>
<td>Isu &amp; Marian A Trench</td>
<td>April - May 1984</td>
<td>Geology &amp; geophysics</td>
<td>Ocean Research Institute, University of Tokyo</td>
<td>2 - 3</td>
</tr>
<tr>
<td>&quot;</td>
<td>East China Sea</td>
<td>June - July 1984</td>
<td>Fisheries</td>
<td>&quot;</td>
<td>2 - 3</td>
</tr>
<tr>
<td>&quot;</td>
<td>South China Sea &amp; Indian Ocean</td>
<td>Jan. - Mar. 1985</td>
<td>Biology</td>
<td>&quot;</td>
<td>4 - 5</td>
</tr>
<tr>
<td>&quot;</td>
<td>Philippine Sea &amp; East China Sea</td>
<td>May - July 1985</td>
<td>Biology</td>
<td>&quot;</td>
<td>2 - 3</td>
</tr>
<tr>
<td>TAKUYO</td>
<td>NW Pacific Ocean</td>
<td>Feb. - Mar. 1984</td>
<td>Physical oceanography</td>
<td>Hydrographic Department, Maritime Safety Agency</td>
<td>2 - 3</td>
</tr>
<tr>
<td>&quot;</td>
<td>&quot;</td>
<td>Feb. - Mar. 1985</td>
<td>&quot;</td>
<td>&quot;</td>
<td>2 - 3</td>
</tr>
</tbody>
</table>

2. Short-term Training Course on Marine Data Processing

<table>
<thead>
<tr>
<th>Venue</th>
<th>Date &amp; Duration</th>
<th>Number of trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan Oceanographic Data Center, Hydrological Department, Maritime Safety Agency</td>
<td>May 1984, two weeks</td>
<td>3</td>
</tr>
<tr>
<td>&quot;</td>
<td>May 1985, two weeks</td>
<td>3</td>
</tr>
</tbody>
</table>
II. Japanese Government (Monbusho) Scholarship Programme

Although not specifically for study of marine related sciences, scholarships are offered by the Japanese Government (Monbusho) to foreign students at the undergraduate and the graduate level, who wish to study at Japanese universities under the following programmes.

Undergraduate scholarships:
Offered to undergraduate students taking regular courses leading to bachelor's degrees. Preference is given to the students from Southeast Asian countries. The tenure is five years (seven years to those who major in medicine or dentistry), including one year's study of the Japanese language. The applicants should be more than 17 years and less than 22 years of age and must be the graduates of upper secondary schools.

Research scholarships:
Offered to graduate students who receive research guidance at a graduate school. The tenure is one and a half or two years, including six months' study of the Japanese language. The applicants should be under 35 years of age and should be university or college graduates.

The Japanese Government Scholarship provides with stipend, roundtrip air tickets and other allowances. Tuition will be exempted.

The number and percentage distribution of foreign students studying in Japan by major field of study are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Number (of which J.G.S.%)</th>
<th>Percentage Distribution (of which J.G.S.%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8,116 persons (1,777)</td>
<td>100.0% (100.0)%</td>
</tr>
<tr>
<td>Humanities &amp; Arts</td>
<td>2,457 (413)</td>
<td>30.3% (23.3%)</td>
</tr>
<tr>
<td>Education</td>
<td>325 (121)</td>
<td>4.0% (6.8%)</td>
</tr>
<tr>
<td>Social Science</td>
<td>1,840 (217)</td>
<td>22.7% (12.2%)</td>
</tr>
<tr>
<td>Natural Science &amp; Engineering</td>
<td>1,888 (625)</td>
<td>23.3% (35.2%)</td>
</tr>
<tr>
<td>Medical Science</td>
<td>812 (141)</td>
<td>10.0% (7.9%)</td>
</tr>
<tr>
<td>Agriculture</td>
<td>506 (244)</td>
<td>6.2% (13.7%)</td>
</tr>
<tr>
<td>Others</td>
<td>288 (16)</td>
<td>3.5% (0.9%)</td>
</tr>
</tbody>
</table>

(Note) Including those enrolled in graduate courses and junior colleges.

* Japanese Government Scholarship students (As of May 1, 1983)
Further information is available at and the application should be made through the Japanese embassy in the applicant's country. Final selection will be made by Mombusho.

III. Technical Cooperation Programme for Developing Countries

Among other facilities provided by the Government of Japan is the Group Training Courses conducted by the Japan International Cooperation Agency (JICA), as part of its Technical Cooperation Programme with Developing Countries with a view to contributing to upgrading the techniques of the administrative officers, researchers or middle-level technicians of the developing countries.

In 1981, some 2,200 trainees were accepted to the 182 courses under the Programme and were given the training opportunities in the fields of developing planning, public works, transportation, agriculture, fisheries, mining, energy, etc.

Further information is available at and the application should be made through the Japanese embassy in the applicant's country.

IV. In addition to the programmes described above, there are several training facilities provided on the bilateral basis or funded by private bodies.
List of University Faculties related to Marine Sciences in Japan

Some of the example of the university faculties which give the curricula related to marine sciences are listed below.

I. National University

1. Hokkaido University, Faculty of Fisheries
   1-1, Minato-machi 3, Hakodate-shi, Hokkaido 041

2. Tohoku University, Faculty of Agriculture
   1-1, Amemiya-machi, Tsutsumidōri, Sendai-shi, Miyagi-prefecture 980

3. The University of Tokyo, Faculty of Agriculture
   1-1, Yayoi 1-chome, Bunkyo-ku, Tokyo 153

4. Tokyo University of Fisheries, Faculty of Fisheries
   5-7, Konan 4-chome, Minato-ku, Tokyo 108

5. Yokohama National University, Faculty of Engineering I
   Tokiwadai 156, Hodogaya-ku, Yokohama-shi, Kanagawa prefecture 240

6. Mie University, Faculty of Fisheries
   80, Edohashi 2-chome, Tsu-shi, Mie prefecture 514

7. Kyoto University, Faculty of Agriculture
   Oiwake-cho, Kitashirakawa, Sakyo-ku, Kyoto-shi 606

8. Kobe University of Mercantile Marine, Faculty of Mercantile Marine
   1-1, Fukaeminamicho 5-chome, Higashi-nada-ku, Kobe-shi, Hyogo prefecture 658

9. Tottori University, Faculty of Engineering
   10, Minami 4-chome, Koyama-cho, Tottori-shi 680

10. Hiroshima University, Faculty of Fisheries and Animal Husbandry
    17, Midori-cho 2, Fukuyama-shi, Hiroshima prefecture 720

11. Ehime University, Faculty of Engineering
    Bunkyo-cho, Matsuyama-shi, Ehime prefecture 790
12. Kochi University, Faculty of Agriculture
   Monobe-otsu 200, Nangoku-shi, Kochi-shi 783

13. Kyushu University, Faculty of Agriculture
   10-1, Hakozaki 6, Higashi-ku, Fukuoka-shi 812

14. Nagasaki University, Faculty of Fisheries
   1-14, Bunkyo-machi, Nagasaki-shi 852

15. Miyazaki University, Faculty of Agriculture
   210, Funatsuka 3, Miyazaki-shi 880

16. Kagoshima University, Faculty of Engineering
   21-24, Korimoto 1-chome, Kagoshima-shi 890

17. "
   Faculty of Fishery
   50-20, Shimo-arata 4-chome, Kagoshima-shi 890

18. The University of Ryukus, Faculty of Science
   Aza-Minami-uehara 858, Nakagusuku-son, Nakatsu-gun,
   Okinawa-prefecture 901-24

II. Private University

19. Kitasato University, Faculty of Fisheries Sciences
   Aza-Utō 160-4, Sanriku-cho Okirai, Kesen-gun, Iwate
   prefecture 022-01

20. Tokai University, Faculty of Marine Science and Technology
   20-1, Orito 3, Shimizu-shi, Shizuoka prefecture 424

21. Nihon University, Faculty of Science and Technology
   8-14, Kanda-surugadai 1, Chiyoda-ku, Tokyo 101

22. " 
   Faculty of Agriculture and Veterinary Medicine
   34-1, Shimouma 3, Setagaya-ku, Tokyo 154

23. Kinki University, Faculty of Agriculture
   4-1, Kowakae 3, Higashi-osaka-shi, Osaka prefecture 577