

UNIVERSITY OF THE SOUTH PACIFIC

Institute of Marine Resources

SUMMARY OF PROF. SCHOTT'S REPORT

27th June, 1978

- I. In accordance with the objectives outlined in the memorandum of agreement between the governments of Fiji, Tonga and Western Samoa and the European Economic Commission, on the establishment of the Institute of Marine Resources (IMR), the task of IMR is seen as follows:
- (a) provide advisory services to the regional governments on exploration and exploitation of marine resources inside and outside the 200 mile economic zone, including problems on the protection of the marine environment.
  - (b) Carry out applied scientific research on living and non-living resources of the sea, for the benefit of the island territories of the University region.
- and (c) provide specialized educational programmes on marine environment.
- II In consultation with government officials, agencies and relevant institutions the work programme of IMR has been categorized:

PRIORITY A.

- (1) Aquisition and compilation of supplements of periodicals, books, charts and maps concerning marine resources, as appropriate to the region.
- (2) Data Collections of all scientific and economic offshore investigations in the USP region and surrounding areas undertaken by overseas countries, organizations and companies.
- (3) Tuna baitfish research. Provide information on baitfish species.
- (4) Mangrove ecosystems. Identify the extent of distribution and species composition of the flora and fauna.
- (5) Outer reef fish stocks. Map the species composition, distribution and relative abundance of these resources.
- (6) Marine mineral resources for public works and industries.

Fiji:	Raw material (Coral sand) for cement factory in Suva
Tonga:	Coral sand for building houses and roads
Western Samoa:	Coral sand and rubble for roads and concrete.
- (7) Sedimentary heavy mineral deposits, offshore and near-shore - Detailed study and investigation of all publications and reports available from the place deposits in the region of USP.

PRIORITY B:

- (8) Gear technology and information collection: Investigate and develop traditional and modern gear. Compile data on the traditional knowledge in marine environment.
- (9) Investigation of freshwater seepages in the lagoons of Western Samoa.
- (10) Study of the exploitation of coral rubble on Gilbert Islands.

PRIORITY C:

- (11) Investigation of the phosphatization of thin surface layer of calcareous sand and gravel on coral islands.
- (12) Bathymetric investigation of the shelf and upper part of the slope of the Islands Upolu and Savaii (W.Samoa) and of Tongatapu (Occurrences of phosphorites?)

PRIORITY D:

- (13) Recommendations on establishment of nearshore national marine parks
- (14) Establishment of a Pacific Maritime Museum.

The resources of IMR, atleast in the near future, will not allow it to engage in research involving high technology, e.g. manganese nodules, metalliferous sediments, hot brines, thermal and wave energy. However, IMR staff should participate in expeditions of Metropolitan and international Organizations. All research activities in these areas in the South Pacific need to be monitored and reviewed for the governments of the USP region.

Similarly, IMR will be unable to investigate offshore hydrocarbon possibilities but the regional governments may wish to utilize the consultancy services of Marine/petroleum geologists, if such appointments are possible in IMR.

- III. IMR is best located at the Lower Laucala Bay Campus. The outstations, outside of Fiji, should be established where costs allow and the work programme expands.
- IV. In order to fully develop IMR activities it is essential to train and employ a regional expert in the area of non-living resources.
- V. IMR should have an Advisory Board drawing its membership from University staff and Government representatives with expertise in biological and geological fields.
- VI. The work programme of IMR could include investigations of salt production from seawater and installation of small desalination plants for freshwater supply in small, remote islands with low precipitation high insolation.

Institute of Marine Resources

Report to Council

25th August, 1978.

MFA

Institute of Marine Resources  
USF, Box 112, Suva

The Institute of Marine Resources was established in January, 1978. The resources (personnel and equipment) of the Diploma in Tropical Fisheries programme were placed in the Institute and Dr. Raj appointed as the director in February. With the assistance of Professor Walfgang Schott, Consultant from West Germany, the director held extensive consultations with Government Officials, agencies and institutions in Fiji, Tonga and Western Samoa to identify priority areas of endeavour by Institute of Marine Resources. This was occasioned by the need for a USP submission on EEC Marine Resources Project (see enclosure I). The Consultant subsequently held similar discussions in Solomon Islands, Gilbert Islands and Nauru to advise on the future development of IMR (see schott report and enclosures II & III).

Courses: IMR staff contributed substantially to the teaching of the following SMR Courses:

NR335 - Marine Biology (including an intensive field course on reefs, mangroves, lagoons and shores)

NR337 - Fisheries Biology (including practical fishing and fisheries)

NR336 - Experimental methods in Biology

NR234 - Animal physiology and Behavior.

Visitors to the institute also made some teaching contribution to the NR234 course.

The Institute is responsible for the Diploma in Tropical Fisheries programme. The following courses for the Diploma are provided by Institute of Marine Resources Staff:

Diploma 1: Invertebrate Zoology

Ichthyology

Practical Navigation and Boat Handling, Part A

Gear Technology, Part A

Practical Fishing, Part A

Swimming and Scuba diving (optional)

Diploma 2: Oceanography and Marine Ecology

Fisheries Biology and Management

Practical Navigation and Boat Handling, Part B

Gear Technology, Part B

Practical Fishing, Part B

Other courses for DTF are given by Fiji College of Agriculture and Fiji Institute of Technology. These are Co-ordinated by IMR.

Field Course: The annual field course in Marine Biology was offered in both semesters. From August 15 to August 29 eighteen Senior students of Auckland University attended the Course run by Dr. Raj and Professor Morton. In the past the course was given jointly to USP and Auckland students but owing to a shift of the Marine Biology to semester I, USP students were offered the course separately this year.

Public Health Lectures: Annual lectures on Ichthyosarcotoxism were given by (Dr. S. M.) of the Fiji School of

Research: In addition to the regular on-going research by IMR staff the following visiting academics carried out research in IMR:

1. Mr. Barry Brooks - Bristol University, U.K.  
- 4 weeks on nudibranchs of South Pacific
2. Dr. Ian Hiscock - Senior Lecturer at Monash University  
Australia  
- 7 months sabbatical leave  
- research on freshwater Clam, Batirsa violacea, jointly with Dr. Raj
3. Professor Dennis Crisp - Professor of Marine Biology,  
University College of N. Wales,  
Director, Menai Bridge Marine Lab.  
- 8 weeks Royal Society and IUC  
fellowship  
- research on Acorn Barnacles and the  
marine insect, Halobates fijiensis
4. Dr. ~~Dina~~ Moore - Dean of Faculty of Science, Clive Hill Campus,  
University of West Indies, Barbados.  
- 4 weeks Commonwealth visiting fellowship  
- research on plankton of Laucala Bay and off  
Suva Barrier Reef
5. Mr. Mark Gentle - SPC Consultant and MAFF, Fiji, Research  
Officer  
- 6 months  
- research associate on Beche-de-mer species  
of South Pacific.

Other academics to join IMR in research in the near future are:

Professor Patricia Morse - North Eastern University, U.S.A.  
(a) - 9 months Fulbright - Hays award  
- research on interstitial fauna.

Dr. David Nedwell - Lecturer, Essex University, former USP staff  
(b) - 1 year sabbatical leave  
- research on marine microbiology relating to  
mangrove ecosystems.

While awaiting the outcome of the EEC Marine Resources Project submission, IMR staff have initiated the following research projects:

- (i) Mangrove - Composition of flora and fauna and extent of distribution
- (ii) Lagoon/reef/outer reef - composition of major species
- (iii) Deep Sea Snapper - Biology of Pristipomoides spp.
- (iv) Biology of the deep sea shrimp, Heterocarpus sp., and Nautilus pompilius
- (v) Coral sand budget off Suva reefs and in Laucala Bay.
- (vi) Collection of traditional knowledge (fishing methods, conservation and natural history) on fisheries and marine environment.
- (vii) Production of Resource texts - Six reference guide books on reefs and shores and mangroves of Fiji by Dr. Raj and Professor [Name] at USP are in the process

A project proposal for a grant of \$25,000 for reef studies in Fiji is being actively considered by the International Union for Conservation of Nature and Natural Resources (IUCN).

IMR is participating in the development of global project on Coral reefs, jointly with the International Association of Biological Oceanographers (IABO), for funding by UN Agencies. Negotiations are taking place between Fiji Industries Limited, IMR and Lands and Mineral Resources Department for research on Coral Sand for cement in Fiji.

A regional project on monitoring of the marine environment is being prepared jointly with W.H.O.

#### Symposium and Cruises

- 1) INTERNATIONAL SYMPOSIUM ON BIOGEOGRAPHY AND EVOLUTION IN SOUTH PACIFIC OCEAN, Auckland, July 14-23; Suva, July 24-28.  
As co-sponsors, together with the University of Auckland, New Zealand Oceanographic Institute and Western Naturalist Society (with its foundations in Scripps Institute of Oceanography, IMR, USP, was host to 120 marine scientists from some eleven countries. IMR organized the field studies for the participants in Astrolabe and on reefs, mangroves and rainforests around Suva.

- 2) MEETING OF EXPERTS ON CORAL REEF MONITORING, August 7-11, Papua New Guinea.

IMR was represented by Prof. J.S.Ryland at this meeting organized by SPC.

- 3) In June, IMR, in consultation with the French Consulate, arranged for two graduating students of SNR (B.Sc.) to participate in research, on board R.V. Coriolis, on the Tropical Convergence. A follow up of this has resulted in an award to one of the graduates to study oceanographic techniques and instrumentation in marine studies for six months, based at Orstom, in Noumea.

- 4) WEST GERMAN RESEARCH VESSEL, "SONNE" -

In October, the director has been invited to join the West German research vessel on an eighteen day cruise from Tahiti to Suva, to participate in deep sea manganese nodule exploration.

#### BUILDING AND LABORATORY FACILITIES

Owing to a lack of office and laboratory facilities and technical support staff, the work programme of IMR is being adversely affected.

#### ATOLL RESEARCH UNIT

IMR is in the process of establishing an atoll research unit in Tarawa. The Government of Gilbert Islands has provided some laboratory and housing facilities for the unit.