

ANNUAL REPORT 1991



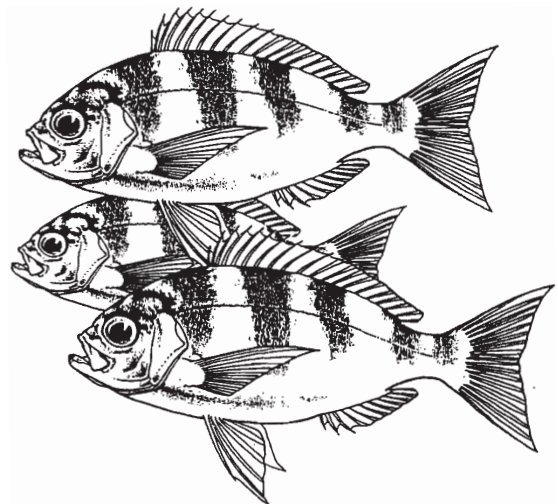
THE INSTITUTE OF MARINE RESOURCES; THE UNIVERSITY OF THE SOUTH PACIFIC



The University
of the
South Pacific

INSTITUTE OF MARINE RESOURCES
and
MARINE STUDIES PROGRAMME

ANNUAL REPORT 1991



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MEMBERS, MARINE STUDIES COORDINATING COMMITTEE

UNIVERSITY OF THE SOUTH PACIFIC

Pro Vice Chancellors
Director of Development
Professor Robin South (Chairman)
Professor John Morrison (SPAS representative)
Mrs Esther Williams (Vice Chancellor's representative)
Dr Vijay Naidu (Head of SSED)
Mr Johnson Seeto (IMR)
Mr Ganeshan Rao (PIMRIS Coordinator)

FORUM FISHERIES AGENCY

Mr Hugh Williamson (Ocean Resources Management Programme)
Mr Florian Gubon (" " " ")

SOPAC

Dr Russell Howorth

USAID

Dr Roger Uwate

BDDP

Mr David Salmon

FORUM SECRETARIAT

Mr Chris Rupen

FIJI FISHERIES DIVISION

Dr Tim Adams

CANADIAN COOPERATION OFFICE

Mr Philip Saunders
Mr Seremaia Tuqiri

SOUTH PACIFIC COMMISSION

Mr Gary Preston

UNDP

Mr Robert Gillett

IMR AND ASSOCIATED STAFF, 1991

1. Senior Academic and Comparable

G Robin South	Director, & Professor of Marine Studies
J Seeto	Fellow
T Tebano	Fellow (from Feb.)
V Ram	Fisheries/Extension Officer
J Maiwelagi	Fisheries Training Officer
S Lavaki	Chief Technician

2. Junior/Intermediate Staff

J Lesavua	Fisheries Officer (from March)
U Nath	Assistant Project Officer (from March)
F Manueli	Technician & Special Assistant for Earth Science and Marine Geology programme
* D O'Conner	Engineer
N Bulai	Secretary
F Uluiburotu	Clerk/Typist

3. Hourly Paid, Unestablished

S Chand	Labourer
M Prasad	Cleaner/Handyman
V Dawanivesi	Cleaner/Handyman
* M Lam	Technical Assistant (from March to Nov.)
* M Nautu	Deckhand
* S Talili	Deckhand (from June)
* V. Cagi	Deckhand (Temp.) March - May
* F Lavelawa	Caretaker, Field Station

4. Fiji Institute of Technology Staff

S Raikuna	(DTF SCD65)
K Tavainavesi	(DTF SCD65)
Capt. T Tikoicolo	(DTF SCD53, 54)
Capt. D Mitter	(DTF SCD53, 54)

5. Certificate in Earth Science & Marine Geology

R Howorth	SOPAC
F. Kiteheaho	Tonga
F. Harmsan	UCLA
P. Catt	James Cook University (Cairns)

* (Aided Posts)

1991 IN RETROSPECT

by
G. Robin South

1991 was a landmark, both for the Institute of Marine Resources, and for the Marine Studies Programme. Since it was impossible to separate the activities of one from the other, this 1991 report will cover both.

In April the IMR Steering Committee met in Honiara; representatives from USP, the Government of the Solomon Islands, the Solomon Islands College of Higher Education, the Forum Fisheries Agency, the South Pacific Commission, the International Centre for Aquatic Living Resources Management, and the University of Papua New Guinea, over two days of intensive discussions, drafted the Mission Statement, Objectives and Activities of the new Institute of Marine Resources, and their report was accepted by the USP Council at its May meeting in Rarotonga. A site close to the ICLARM site was selected, and plans will be put in place for the IMR to begin operations early in 1992, with space provided by the Solomon Islands government, and with administrative support provided by the USP Honiara Centre. Capital funding will be sought from the EEC. In Suva, it was agreed that I would continue as Director of IMR during the transition to Honiara, and that activities and funding would be transferred to Honiara in a phased manner. The IMR will remain a facility under the general aegis of the Marine Studies Programme, and will function as a regional agency, serving all of the USP member countries.

IMR activities continued in Suva, meanwhile, with the completion of the final year of the Diploma in Tropical Fisheries, as well as a number of training and consultancy activities. In recognition of the dual role that staff are now playing, between IMR and the MSP, however, various budgetary arrangements were made as a reflection of these split responsibilities. While this might have made budgetary sense, not all would agree, in retrospect, that it made much sense in

administrative terms, since some of the staff found themselves in neither one place nor the other. This uncertainty will be remedied during the coming year; essentially, teaching staff were transferred to the School of Pure and Applied Sciences or the School of Social and Economic Development, either wholly or in part, while others remained with IMR. It is likely that this situation will continue for some time, until the programme is well and truly up and running in Honiara.

The very hard work that went into the drafting of the Marine Studies Programme Five-Year Plan paid dividends this year. The Plan was based on a detailed report presented to the Marine Studies Coordinating Committee at their April meeting; subsequently, it went through the various Boards of Studies, Academic Planning Committee, Senate and, finally Council, at its October meeting in Tarawa. I was honoured to be able to attend the Tarawa Council meeting, as an elected Professorial member of Council. Also, the Plan was presented at meetings of all the regional agencies at their annual technical meetings, and distributed to a much wider clientele which included international agencies, cooperating institutions and universities, and interested individuals in many countries. I think that it would be fair to say that the Plan has received wide support throughout the region and, for the first time, USP is in a position to declare its commitment to Marine Studies. The response from donors has been especially encouraging, and by the end of this year it was also apparent that USP is rapidly attracting interest from many who want to see the University succeed in this important area of activity. I believe that in the longer term, there is a potential for the reaping of enormous benefits, and I am very excited about the future of Marine Studies at USP.

During the year the USP institutes were reviewed by a team led by Kenneth Back. Several of their recommendations will have a significant impact on the MSP and IMR. One surprise was their recommendation that the new IMR should not receive core funding, although all other institutes would: Senate, and later Council, over-turned this recommendation, as it would have made it very difficult indeed to raise funds for IMR without such an indication of support by the University. Other recommendations centering on the future of Atoll Research and Development Unit in Tarawa would place ARDU under the MSP.

Extensive planning for new Certificate and Diploma programmes in Marine Studies was completed during the year. Programmes for new Certificates in Ocean Resources Management and Policy, Fisheries Economics and Management, and Tropical Fisheries were finalized during the year. The Certificates will be available entirely by Extension, and a progression from Certificate to Diploma to Degree will be possible in the future. While the programmes will not feature in the USP Calendar until the 1993 Academic year, it is expected that enrollments will begin in 1992.

The International Centre for Ocean Development and the Canadian International Development Agency continued to support marine programmes at USP; several major new projects were developed and received funding approval this year, including a three-year project in Marine Geology, involving close cooperation between the MSP and SOPAC; a consultancy to review research priorities in the seaweed aquaculture industry; and a feasibility study on the sea-cage culture of hybrid red Tilapia. The Marine Studies Programme development project continued into its second year, and several other projects were completed. A great deal of time was spent planning for the integration of the Ocean Resources Management Programme at USP, and the transfer of fiscal responsibility from the Forum Fisheries Agency to the University. The integration should be completed by the beginning of 1992.

We saw significant progress on the development of university linkages in support of Marine Studies. The CIDA-funded link between the University of Victoria, Canada and USP, focussing on Marine Pollution, began with the appointment of Remi Odense for a two and half year term, and the arrival of three Coop students for three-month assignments in Fiji. Letters of understanding were exchanged between our Vice Chancellor and the Vice Chancellor of the University of Otago, and some initial exchanges took place during the year. The University of Tokyo continued their seagrass programme at the Dravuni Field Station, during a seven-week stay in October - November, and a possible new linkage with the Centre for Development Studies, University of Bergen was discussed.

In November, we received word that the US-AID funded Tarawa Lagoon Project (part of the PIMAR Programme) has been let to the California-

based consulting company BioSystems, Inc. By year-end, plans were getting underway for an early start to the project in early 1992, approximately a year behind schedule. The University undertook substantial renovations to buildings at the USP Tarawa Centre, for the accommodation of Atoll research activities and the Tarawa Lagoon Project.

The French support for the Coral Reef programme was delayed, as a result of the depressed economic situation in France, but by October we received word that the first 50% of the capital funding would be made available. Delays in the appointment of the French scientist who will be attached to the programme will result in a deferment of the programme until 1992. Travel funds provided by the French Embassy, however, assisted considerably in programme development and the commencement of cooperation with French agencies in the South Pacific.

Consulting was more active than in 1990, and we were involved in several joint programmes in the Institute of Natural Resources, including the Denarau Island resort development near Nadi, and EIA's in Lautoka and Lami. I was involved in a three-month consultancy examining Fisheries Human Resource Development in the South Pacific, as a member of a team led by Paul Sutherland, Fisheries and Oceans Canada. The consultancy was funded by ICOD and sponsored by the South Pacific Commission. IMR was also provided advice to Fiji Post and Telephones on designs for some 1993 postage stamp issues.

The Dravuni Island Field Station had a moderately busy year. Although we had hoped to undertake some limited expansion of the station, this was not possible for legal and ownership reasons. We will continue to review the situation in light of the need to make longer-term plans for the station's development. The Astrolabe, Inc. Scientific Advisory Committee met in Honolulu, in combination with the XVIIth Pacific Science Congress.

In 1991 the old IMR Technical Report Series was discontinued, and a new series Marine Studies Programme Technical Reports was begun, with 11 issued completed. Marine Studies Programme participants will be encouraged to contribute to the series, as a means of rapid publication and dispersal of the results of research activities in all areas of

Marine Studies at the University.

A number of new MSc students commenced programmes in Marine Studies, some supported from ICOD scholarships. A total of six were actively pursuing their programmes by the end of the year, and it is hoped that a strong post-graduate programme will develop. USP staff research on a range of marine topics added to the range of activities in the Marine Studies Programme.

At IMR there were some staff changes during the year; Temakei Tebano took up the balance of the ICOD Fellowship vacated by Veikila Vuki, and Vereti Cagi worked as a Deckhand for three months, before Samuela Talili joined us in that position. Remi Odense began a two and half year contract under the University of Victoria linkage programme, to replace Johnson Seeto, who was planning an extended study leave, and Michelle Lam worked part-time as a Technical Assistant.

We experienced a significant increase in the numbers of visitors to IMR during 1991. While the majority of the visitors were short-term, some notable researchers spending time with us included Dr Leon Zann of FAO (Western Samoa), Drs J. and B. Kohlmeyer from the University of N. Carolina Institute of Marine Sciences, and the Japanese Seagrass Team under Dr H. Mukai, University of Tokyo.

We continued to enjoy cooperation from regional and international agencies, as well as from the Fiji Fisheries Division and the Fiji Institute of Technology, School of Maritime Studies. The Marine Studies Coordinating Committee and the members of the IMR Steering Committee deserve special thanks for their guidance and interest.

I anticipate many more developments during the coming year, as the Marine Studies Programme implementation begins. Some of the uncertainty that pervaded our activities last year has now dissipated, and we can look forward to what promises to be a very exciting time. The dedication of the IMR staff has been an important factor in our progress, but I want in particular to thank Johnson Seeto for his untiring assistance, and for his willingness to "hold the fort" during my many absences. He will begin a well-deserved study leave in early 1992, and I want to wish him all success.

TEACHING AND TRAINING PROGRAMMES

Diploma in Tropical Fisheries (1991)

DTF STUDENTS LIST 1991

<u>Names</u>		<u>Country</u>
Theofanes	ISAMU	Palau
Clyde	JAMES	Marshall
Glen	JOSEPH	Marshall
Lionel	LUDA	Solomons *
Siola'a	MALIMALI	Tonga *
Beckwin	MECHOL	Palau
Patrick	MESAIAH	Solomons *
Tong	NALU	Tuvalu *
Audrie	NGIRAMOLAU	Palau
Wesley	OBED	Vanuatu
Fereti	PUE	Tokelau
Tekata	TOAISI	Fiji *
Simpson	ABRAHAM	FSM
Raumea	KOROA	Cooks *
Metusela	KOROA	Cooks *
Mason	TIMOTHY	FSM *

* graduating students

Siola'a Malimali was rated the best graduating DTF student.

The Diploma in Tropical Fisheries Programme entered its final phase this year with a cohort of 17 students. Following the review by Professor John Clift from Victoria University, Wellington, it was decided that the present diploma with 23 courses, was too general and some specialisation was needed. While not all the students of the programme will graduate this year, special arrangements have been made to allow remaining students to complete outstanding courses in 1992.

During the year, various USP staff members have been involved in planning the new certificate and diploma.

TABLE I : Graduating Diplomates by Year and Their Countries of Origin

Year	1975	1976	1977	1978	1979	1980	1981	1982	1983	1987	1988	1989	1990	1991	Total
COUNTRY															
Fiji	8	11	10	8	6	8	6	4	9	1	0	0	0	1	72
Tonga		1	1	0	1	1	0	0	0	0	0	0	1	1	6
Kiribati			1	1	1	0	2	1	3	0	0	0	1	0	10
Solomons					3	1	0	0	4	2	3	1	2	2	18
Tuvalu				1	0	2	0	0	0	0	2	2	3	1	11
Vanuatu								2	0	0	1	0	1	0	4
Tokelau								1	0	0	2	0	0	0	3
Cook Island										1	0	1	1	2	5
FSM												1	5	1	7
W. Samoa													1	0	1
	8	12	12	10	11	12	8	8	16	4	8	5	15	8	137

It is appropriate to mention that this is the end of an era of a programme which will have produced many regional fisheries officers and a few Chief Fisheries Officers. Many DTF graduates are heads of sections within their fisheries departments, others have gone on and done undergraduate and even postgraduate degrees. As part of this manpower development, IMR can be proud of the DTF and what it has achieved in the past. The diploma, to date, has produced 137 graduates from 10 countries. We hope to graduate students from Palau and Marshall Islands next year.

Ocean Resources Management Programme

For 1991 the ORMP continued to operate in the School of Social and Economic Development, under the aegis of the Forum Fisheries Agency, and with staff Hugh Williamson and Florian Gubon. This arrangement terminated on December 31st, with the balance of the original ICOD funding and the overall responsibility of the programme being transferred to USP.

1991 saw the offering of UU201 (Introduction to Ocean Resources Management), by Extension. In addition, considerable time was spent

on programme development. By year-end, as part of the integration of the programme with USP, a new series of Certificates and Diplomas had been approved, with an expected partial start-up in 1992, and a full implementation by 1993 - 1994. New programmes include Certificates in Ocean Resources Management Tropical Fisheries, and Diplomas in Ocean Resources Management and Policy, Fisheries Management and Economics, and Tropical Fisheries. Among new courses planned for the programmes is UU111 Introduction to Marine Science for Pacific Islands. This course, which will be the foundation of Marine Studies at the University, will be offered by Extension and a number of USP staff were heavily involved in course preparation during the year, in collaboration with Extension Services.

An In-Service Course on Ocean Resources Management was held in Majuro, Marshall Islands from January 21 - February 8th. The course was organized by the Forum Fisheries Agency, under Hugh Williamson's direction, and a number of USP staff participated.

Certificate in Earth Science and Marine Geology

The course was coordinated by SOPAC Training Officer Dr Russell Howorth; lecturers included Mr Fuka Kiteheaho from Tonga, Dr Fraka

Harmsan from the University of California at Los Angeles, and Dr Pauline Catt from James Cook University (Cairns). Fiu Manueli, IMR Technician, assisted in the course. There were 15 students doing the course (Advanced I and II stages), part of which was conducted at the USP Dravuni Island Field Station.

South Pacific Commission/Nelson Polytechnic Fisheries Training Course

The fishing module of the course was conducted at the Dravuni Island Field Station, Kadavu, under the supervision of Michel Blanc (SPC). Sixteen students from the region attended the course. The "Aphareus" and "Hawksbill", as well as a vessel from Fiji Fisheries, were used in the training.

MEETINGS, WORKSHOPS AND CONFERENCES

Conferences, Meetings and Workshops attended by IMR Staff, 1991

- December 1990 "Women in the South Pacific" Conference", Kagoshima Prefectural College, Japan (not listed in 1990 report: Vina Ram).
- February 1991 Ocean Resources Management Program In-Service Workshop, Majuro, Marshall Islands (Organized by Hugh Williamson, ORMP Co-ordinator; IMR contributors Vina Ram and G. Robin South).
- May 1991 XVIIth Pacific Science Congress, Honolulu, Hawaii (G. Robin South).
- August 1991 South Pacific Commission, 23rd Regional Technical Meeting on Fisheries, Noumea, New Caledonia (G.R. South).
- September 1991 AAUS Scientific Diving Symposium, Honolulu, Hawaii (F. Manueli).

October 1991 South Pacific Applied Geosciences Commission Technical Meetings, Port Vila, Vanuatu (G. Robin South).

October 1991 University of the South Pacific, 33rd Meeting of Council, Tarawa, Kiribati (G. Robin South).

November - December 1991 FAO/DANIDA Fish Statistics Training Course (J. Seeto, Observer).

Funding support for Conferences, Meetings and Workshops was provided by the International Centre for Ocean Development, Kagoshima University, the University of the South Pacific and the Government of France.

FACILITIES

IMR

APHAREUS:

1. REFITS

During the mandatory annual slipping of the vessel from 14th January to 21st January some refit work was also carried out apart from the normal slipway maintenance work performed by the crew. The refit work is included:-

- a) new stern bearing installed
- b) new gland packing fitted
- c) new exhaust pipe fabricated and installed
- d) new exhaust overboard cover welded on
- e) new video sounder transducer installed.

2. ENGINE AND EQUIPMENT INSTALLATION (from 12th March to 5th April)

During this period a new PERKINS MARINE engine was installed, and extra refit work carried out.

- a) Welding of watertight compartment
- b) Cementing of bait well bilge to trim the vessel
- c) Welding of new railings for sides and awning

- d) Video Sounder screen installed and tested on 4th February
- e) New forward deck awning.

3. MAINTENANCE AND REPAIRS

Maintenance and minor/repairs done by the crew such as the usual and rust removing,

- SSB and VHF - serviced by Tec Air 12th November
- Fishing gear mounted and also maintained by the crew.

In 1991 the vessel performed well. The crew supported the vessel performance and won verbal praise from most of the researchers and hirers throughout 1991.

HAWKSBILL :

1. MAJOR ACTIVITIES

"Hawksbill" spent a large part of the year moored at IMR wharf area. The only major cruise undertaking it took part on was the S.P.C. Practical Fishing, details of which are listed below:-

SPC PRACTICAL FISHING TRIP

Duration - 27 days
 Dates - 21st June to 17th July

ENGINE BREAKDOWN - NIL

The success of this trip, as far as the launch service was concerned, was the daily servicing by O'Connor the care and smooth operation by the operator Mr. Rata (SPC) and also the support and watch of the "Aphrareus" crew on the launch at all time when it was out on the fishing ground.

OTHER ACTIVITIES

The Hawksbill also did 3 x 1 day runs ferrying researchers inside the Laucala Bay, Makuluva Is and Reef Patch vicinity with a varying performance.

2. REFIT

The major refit done during the year was the

installation of an additional new service tank on 9th May with the fuel lining alterations done by O'Connor and the set-up was found to be functioning properly during a trial carried out by Mr Sunia Lavaki on the 10th May.

3. REPAIR AND MAINTENANCE

Most of the minor repairs and maintenance were carried out at IMR workshop by our handyman and O'Connor and electrical faults and batteries maintenance done by Mahen (IMR). The starter motor was removed for servicing and repair by an electrical contractor and later installed on the 11th September.

4. CURRENT STATE

On the 20th November, the launch was stranded on shallow water during the sudden approach of a strong wind period due to Cyclone Tia which was near Fiji. The launch pounded on the sea bed and despite precautionary measures taken, the rudder skeg got bent. When the motor was placed on gear the propeller struck the skeg causing damage to it and the engine. The launch never took in water, flooded or got holed.

The vessel was lifted off from the sea on the 26th November and the following damages were found to be present:-

- a) Propeller - bent and chaffed. required to be built up and balanced.
- b) Propeller shaft - suspected to be bent and also to be straighten and checked.
- c) Shaft Bearing - Broken but spare available in IMR store.

* The vessel is currently on its cradle at IMR wharf with all it outer removable parts dismantled and kept at IMR shed.

PUNTS AND OUTBOARD MOTORS

1) PUNTS AND OTHER VESSELS:

Below is a table showing the types of other vessels we started off 1991 and their conditions as at 9th December 1991.

<u>TYPES</u>	<u>ACTIVITIES AND CONDITIONS</u>
FIBRE-GLASS PUNT	Used extensively throughout the years as work boat for Aphareus and for hire at IMR for a day trip. In good order.
ALUMINIUM SKIFF	Used throughout the year as work boat for Aphareus and a few times for sample collection trips for researchers at IMR NEEDS REPAIR.
ZODIAC RUBBER DINGHY	Used during the first quarter of 1991 as work-boat. It was not in leaky condition before the end of 1991.

2) OUTBOARD MOTORS

Below is a table showing the IMR outboard motors, their condition and activities with in conjunction to the type of vessel they were used on.

<u>ENGINE MAKE</u>	<u>HORSE POWER</u>	<u>ACTIVITIES</u>	<u>PRESENT CONDITION</u>
Suzuki	30 HP	Used with fibre glass punt or Zodiac throughout the year.	Got damaged and propeller changed but still not working properly.
Mariner	30 HP	Used with the punt for day trip and Aphareus workboat.	Gear box malfunction from November 1991.
Suzuki	15 HP	Used with Zodiac or skiff.	In good order.
Suzuki	15 HP	Used with Zodiac or Aluminium skiff.	In good order.

R V APHAREUS
1991 CRUISES AND ACTIVITIES

HIRER/S	DURATION DATES		NUMBER OF DAYS	RUNNING HOURS		GENERATOR
	FROM	TO		MAIN ENGINE	AUXILLARY	
1. Maintenance Unit, USP	12th Feb	14th Feb	3 days	11.5 hrs	-	6 hrs
2. CCOP/SOPAC	18th Feb	19th Feb	2 days	9.0 hrs	-	9 hrs
3. Dravuni Village	22nd Feb	23rd Feb	2 days	11.5 hrs	0.5 hrs	
4. DEG III SPAS	1st Mar		1 day	3.0 hrs	-	2.5 hrs
5. DEG III SPAS	8th Mar		1 day	3.0 hrs	-	3.0 hrs
6. CCOP/SOPAC	9th Apr	14th Apr	6 days	21.5 hrs	-	37.0 hrs
7. SPAS	16th Apr	19th Apr	4 days	20.0 hrs	-	17.0 hrs
8. CCOP/SOPAC	20th May	25th May	6 days	27.0 hrs	2 hrs	16.0 hrs
9. Astrolabe Inc.	5th June	6th June	2 days	11.0 hrs	-	6.5 hrs
10. Astrolabe Inc.	18th June	19th June	2 days	10.0 hrs	-	5.5 hrs
11. S.P.C.	21st June	17th July	27 days	159.0 hrs	38.0	55.5 hrs
12. Maintenance IMR Fishing	29th July	2nd Aug	5 days	44.5 hrs	9.0 hrs	42.0 hrs
13. Wisconsin University U.S.A.	29th Aug		1 day	2.0 hrs	0.5 hrs	-
14. Fisheries Division FAD	3rd Sept		1 day	6.5 hrs	-	1.5 hrs
15. U.S.P.S.A	7th Sept		1 day	1.5 hrs	-	-
16. Maintenance IMR Fishing	16th Sept	20th Sept	5 days	40.5 hrs	25.0 hrs	50.5 hrs
17. Japanese Seagrass Res.	12th Oct	7th Nov	27 days	50.0 hrs	3.0 hrs	47.0 hrs
18. Dravuni Villagers	19th Nov	20th Nov	2 days	10.0	-	6.0 hrs
19. SPAS Safety Committee	22nd Nov		1 day	3.0 hrs	-	-
TOTAL :			99 days	444.5 hrs	78 hrs	320 hrs

The IMR premises, which came under the jurisdiction of SPAS during the course of the year were used for the teaching of the Diploma in Tropical Fisheries, for the Earth Science and Marine Geology course and for the housing of various short and medium term visitors and other activities. Marine Studies Programme, and BI432, Marine Phycology, was taught.

The Nelson Polytechnic/SPC students spent three days of lecture and workshop practical activities prior to and after the actual fishing practice in Dravuni. A teaching laboratory and the storage shed was used for the above activities.

The Ocean Research Institute team from Japan were allocated laboratory space when they arrived. The activities carried out in it were mainly unpacking/setting up of instruments on arrival and preparing/packing collections and instruments when organising to return. Staff participation included arranging for rations, manning of punts and the Aphareus, preparation of diving gear, organising customs clearance, organising return shipping and assist in the preparation of their meals.

With the prospect of a considerable increasing in MSP activities in 1992, it is anticipated that space will be at a considerable premium, and that resources and staff will be stretched to the limit.

DRAVUNI ISLAND FIELD STATION

In February the Maintenance Unit conducted a survey for water pipes to be connected from the village tank to the station in a measure to improve on the availability of such service to the premises. They also carried out some routine maintenance work.

The first trip for the Earth Science students, under the supervision of Dr R. Howorth, SOPAC, was made on the ninth of April lasting a week and the second one lasting the same period, was taken on the third week of May.

A third year Biology class was accommodated at the station for four days from the sixteenth April, under the supervision of Ms Milika Naqasima, SPAS.

For three weeks, beginning first week of June, the station was occupied by Mrs Joan Koven's (Astrolabe, Inc.) team which included Dr Peter Bell (University of Queensland) who joined them thirteen

days later. A report summary of his observations on waste water disposal of the station and village was submitted to Astrolabe Incorporated and copied to IMR/MSP. A proposal for an appropriate system was attached with this report.

The third week of June saw the Nelson Polytechnic Fishing module at the field station with Michel Blanc, the Coordinator of the programme from the South Pacific Commission, the Instructors from New Zealand and students from regional areas and Fiji. This group shared the Station/accommodation with the Astrolabe team in their first four days. They had the total occupancy after that, making necessary fishing preparations. This operation lasted about three and half weeks before returning to round off the module at IMR.

Water pipes were installed at the end of July under the supervision of the plumber from the USP Maintenance unit, with the labourers hired from the village. The work was completed in four days and the team returned on the second of August. Later in the middle of September, a special trip was made to Dravuni for repair and improvement to be done to the Sewerage system. It took three days to complete this work and again the villagers were hired as the labourers under the plumbers supervision.

A group of Scientists from the Ocean Research Institute (Japan) left for Dravuni on the twelfth of October, completed their Sea-grass project and returned on the seventh of November.

Additions to the station were held in abeyance during the year, pending the resolution of discussions concerning a possible lease of the field station site. At year's end however, it was clear that a lease could not be negotiated under the terms of the Native Lands Trust, and so the matter was left unresolved.

The Field Station Management Committee met in June, and was attended for the first time by a village representative, Mr Pone with Dr Peter Bell presented his preliminary findings to the Committee.

IMR DIVING ACTIVITIES 1991

The Institute has one NAUI, four PADI Open Water Divers, and a PADI Dive master. With the availability of ten full sets of dive gear, kindly

donated by APOLLO and ASTROLABE INC., we have been able to assist visiting researchers and students in their various activities. Diving activities this year were mainly in research, environment orientation/familiarisation and training.

RESEARCH : Some of the diving researchers to visit the Institute this year included:

- * Dr Carol Stewart (Auckland University) - collected gastropods, rock oysters, mud core and water samples from around the Suva harbour for tributyl tin tests.
- * Drs. Fraka Harmsen & Russell Howorth (SOPAC) - reef and sand ripples formation of the Dravuni foreshore, for the Earth Science and Marine Geology course.
- * Joan Koven and her group (Astrolabe Inc.) - underwater photography, and
- * Dr Mukai and the Seagrass Team (Amusaka Marine Biology Laboratory Kyushu University) - studies on seagrass beds around Dravuni.

ENVIRONMENT ORIENTATION /FAMILIARISATION ACTIVITIES:

These activities are mainly to review and keep IMR divers proficient and up-to-date with their diving skills. Days trips can be arranged for visitors wishing to see some of the more popular dive sites around Suva. This year we've had visitors from Wisconsin University, Otago University, Smith's Biolab and staff members of INR.

TRAINING

Three staff members were trained and certified this year, two as PADI Open Water Divers and one a PADI Divemaster. Twelve DTF students were also trained and certified. This was made possible by the generous sponsorship of UNDP/FAO Fisheries Support Programme, with the approval of the regional member countries' Fisheries Officers. It has been suggested that safety standards and procedures in scientific diving be included as part of IMR's activities. This has enabled a staff member to attend the AAUS 11th Annual Scientific Diving Symposium/Workshop in Hawaii, and to visit ORSTOM and the Noumea Aquarium, with the generous support of the Regional Division for

Cooperation, Government of France.

STAFF RESEARCH (IMR)

- | | |
|-------------|---|
| RAM, Vina | <ul style="list-style-type: none"> 1) Current and potential markets for Giant Clams in Fiji. 2) The socio-economic role of women in domestic fisheries. 3) A review of the Individual Transferrable Quota (ITQ) Fisheries Management System in New Zealand: case study of the Ngawi Rock Lobster Industry. |
| SEETO, J. | <ul style="list-style-type: none"> 1) Fishes of Fiji and deep-sea invertebrates. 2) Biology of blind gobies (with W. Kenchington). 3) Flashlight fishes. |
| SOUTH, G.R. | <ul style="list-style-type: none"> 1) The benthic marine algae of Fiji: floristics and ecology. 2) An ethnobotanical study of edible seaweeds in Fiji. |
| TEBANO, T. | <ul style="list-style-type: none"> 1) Ciguatera Fish Poisoning in South Pacific atoll countries. 2) The biology of <u>Anadara</u>. |

PUBLICATIONS, REPORTS & SEMINARS, (IMR)

EMERY, A.R. & WINTERBOTTOM, R. 1991

Lagoonal fish and fisheries of Dravuni, Great Astrolabe Reef, Fiji, South Pacific. USP Mar. Stud. Prog. Tech. Rept. 1991(3): 22 pp.

RAM, V. 1991 The Seaweed Industry in Fiji, with

- specific reference to Eucheuma (Rhodophyta). USP Mar. Stud. Prog. Tech. Rept. 1991(2): 19 pp.
- SEETO, J. 1990
Biological aspects of some marine resources in the Solomon Islands. pp. 5-9 In: Iwakiri (ed.) Study on Social Ecology and Regional Planning for Lagoon Area in the South Pacific. Kagoshima University. 86 pp. [not listed in 1990 Annual Report].
- SEETO, J. 1991
"Marine aspects of environmental impact assessment." Seminar, presented to Indonesian Coastal Zone Planners, Irian Jaya. Sponsored by UNDP/FAO Fishery Support Programme, Suva.
- SEETO, J., VODONAIVALU, S., & GREEN, D. 1991
Preliminary survey of the environment near the Rokobili Container Yard outside Suva. Report for Kinhill, Reidel & Byrne. 9 pp. + 1 fig.
- SEETO, J., GREEN, D. & GANGAIYA, P. 1991
An assessment of the effects of the Neisau marina project on the marine environment. (Consultancy report).
- SOUTH, G.R. 1991
Marine Studies for the Twenty-First Century in the South Pacific. Report to the USP Marine Studies Coordinating Committee. 408 pp.
- SOUTH, G.R. 1991
University of the South Pacific Marine Studies Programme Five-Year Plan, 1991 -1996. USP, Suva. 21 pp.
- SOUTH, G.R. 1991
Educational opportunities in the Pacific Islands, including a review of opportunities and constraints for education and training in Marine Studies. USP Mar. Stud. Prog. Tech. Rept. 1991(4): 43 pp.
- SOUTH, G.R. 1991
Benthic marine algae from Dravuni Island, Astrolabe Islands, Kadavu, Fiji. USP Mar. Stud. Prog. Tech. Rept. 1991 (5): 13 pp.
- SUTHERLAND, P.H., CAVUILATI, S.T., ROBERTS, A.C. & SOUTH, G.R. 1991
Human Resource Development and Planning in the Pacific Island Fisheries Sector. A report prepared for the South Pacific Commission. 180 pp.
- TEBANO, T. 1991
Is it development or destruction? Impact of physical innovation on atoll ecosystems - biological and ecological implications. USP Mar. Stud. Prog. Tech. Rept. 1991(8): 15 pp.
- TEBANO, T. 1991
Preliminary survey of fish poisoning on Nauru. USP Mar. Stud. Prog. Tech. Rept. 1991(9): 10 pp.
- TEBANO, T. 1991
Preliminary survey of fish poisoning on the Marshall Islands. USP Mar. Stud. Prog. Tech. Rept. 1991(10): 10 pp.
- TEBANO, T. 1991
Preliminary survey of fish poisoning on Tuvalu. USP Mar. Stud. Prog. Tech. Rept. 1991(11): 10 pp.
- TEBANO, T. & LEWIS, R. 1991
Ciguatera fish poisoning and reef disturbance. Observations on ciguatoxin level in reef fishes at Nei Tebaa Channel, Dai Nippon Causeway, South Tarawa, Kiribati. USP Mar. Stud. Prog. Tech. Rept. 1991(6): 12 pp.

TEBANO, T. & McCARTHY, D. 1991

Ciguatera fish poisoning and the causative organism in the Giblets, Kiribati. USP Mar. Stud. Prog. Tech. Rept. 1991(7): 120 pp.

VUKI, V.C. 1991

A fish consumption survey of Dravuni Islanders, Great Astrolabe Reef, Fiji. USP Mar. Stud. Prog. Tech. Rept. 1991(1): 7 pp.

UNIVERSITY OF THE SOUTH PACIFIC
Marine Studies Program
Funding Summary

(Excludes Consultancies and projects completed in 1990 and earlier)

A. <u>Direct Funding</u>	Amount [FJ\$ 000]	F u n d i n g Period
IMR		
1. IMR Technical Support ICOD - C-001	63.4	1990 (1992)
2. IMR Institutional Enhancement ICOD - 880229	85.4	1989 - 1992
3. IMR Attachment - French Cooperation	11.5	
MARINE STUDIES PROGRAM		
4. Marine Studies Scholarships ICODE C-033	341.6	1991 - 1996
5. Marine Studies Program Development ICODE C-005	244	1990 - 1993
6. Earth Science & Marine Geology Program Development ICOD - C-038	427	1992 - 1995
7. Seaweed Aquaculture ICOD - SP-022	70.8	1992
8. French Cooperation	40	1991 (1992)
9. Coral Reef Program - Equipment (Government of France)	400	1992 - 1993
10. Post Graduate Students - French Cooperation	11.3	
11. Marine Reference Collection Upgrade (AIDAB)	30	1992
12. Tropical Fisheries Diploma Scholarships - USP/FSM ICOD - 860062 DA	211.6	1989 - 1991
13. Tropical Fisheries Diploma Scholarships, USP/Palau ICOD - 870160 DA	183	1989 - 1991
INR		
14. Staff Training - INR (USP) ICOD - 900377 NA	76.9	1991 (1992)
USP LIBRARY		
15. PIMRIS Outreach, USP ICOD - 890288DA	244	1990 - 1992
16. PIMRIS Regional Coordination Unit, USP. ICOD - 870106AA	448.4	1990 - 1992
SUB-TOTAL		<u>2888.90</u>

B. Ocean Resources Management**Program (ORMP).**

Programs based at USP, funding via
FFA, USP to be funding recipient in 1992.

17.	Training Activities, ORMP ICOD C-019AA	402.6	1990 - 1991 (92)
18.	ORMP - Infrastructure Support ICOD C-025AA	601.5	1990 - 1991 (92)
SUB-TOTAL		<u>1004.1</u>	

C. Indirect funding

19.	Tilapia feasibility Study. ICOD	13.5	1991
20.	U.Victoria/USP linkage Program - Marine Pollution CIDA to U.Victoria	1215.3	1991 - 1996
21.	Univ. Otago / USP linkage Program - Marine Sciences University of Otago.	12	1992 - 1994
22.	USP/GOVT. KIRIBATI TARAWA LAGOON PROJECT US-AID - BIOSYSTEMS ANALYSIS INC.	2175	1991 - 1996
23.	International Oceans Institute Regional Program	936	1992
SUB - TOTAL		<u>4351.8</u>	

D. Core Funding

24.	Marine Studies Program (School of Pure & Applied Sciences)	91.5	
25.	Institute of Marine Resources	183	1992
26.	Atoll Research (Tarawa)	86	1992
27.	SSED (1 Staff position) ¹	45	1992 onwards
SUB - TOTAL		405.5	

GRAND TOTAL **\$8650.3**

¹ *Estimate for 1992 only.

SUMMARY OF IMR VISITORS, 1991

Month	Names	Affiliation	Activity
January	Michael Guinea	Univ. Northern Territory.	Familiarization
	Mike McCoy	FAO/Suva	Safety at Sea Project.
	Tony Boyle	FAO/Suva	
February	Ernie Reese	Hawaii Institute Marine Biology	Project Development
	C. Kataoka	Faculty Fisheries Kagoshima Univ.	Project Development
March	R. Gerard Ward	Research School of Pacific Studies, ANU	Review
	Paxton Wellington	SPC	Information
	Hugh Walton	FAO/Suva	Fiji Fisheries Review.
	Bette Kirchner	FAO/Honiara	Resource Centre
	S.T. Mangisi	Director of Fisheries, Tonga	Familiarization
	C. Jacomin	French Embassy, Suva	Project Development
	J. Y. Cruon	" "	" "
	P. Mladenov	Marine Sciences, U. Otago	USP/U.Otago linkage Programme
	R. Ram	Fiji Philatelic Bureau	Stamp design project.
April	Martha Crawford	Majuro, Marshall Is.	Familiarization
	Carol Stewart	Univ. of Auckland	Marine Pollution.
	John Mclury	Auckland	

Month	Names	Affiliation	Activity
April (cont.)	David Kear	DSIR, NZ.	SOPAC
	Greg Anderson	PNG Chamber of Mines & Petroleum	Training Review
	Jean Mitchell	PEI, Canada	CIDA Project
	Carol F. Stanish	ICOD, Halifax, Canada	ICOD Projects
May	Peter Mather	Qld. Univ. Technology	Ciguatera
	Mike Capra	" " "	Ciguatera
	John Collie	Harrison Grierson, Suva.	
	Rob Gomersall	Airlie Beach, Australia.	Dive Tour Dravuni /Astrolabe
	<u>Scripps Aquarium Group - Scripps Institution of Oceanography (Dravuni Island / Astrolabe trip)</u>		
	R.E. Snodgrass Heidi Hahn Chuck Marefrehl Lynn Vandracek John E. Vandracek Sarah L. Burge T.F. Friedberg Joseph A. Linkiewicz Kate Troup		
	Jochen Halzar	California State Univ. Fresno.	Diving
	T. Zack	Univ. Pennsylvania	Diving
	Gilles Nageon de Lestang	Min. Planning & External Relations, Mahe, Seychelles.	Familiarization
	Mostyn Habu	Min. Education, Solomon Islands.	IMR (Solomons)

Month	Names	Affiliation	Activity
May (cont.)	<u>Institutes Review Team</u>		
	Ken Back Roy Sharp Anne Whittle	Canberra University of Auckland IDP, Canberra	
	Larry Harris	UNH, Durham & College of Micronesia, Majuro.	Course Development.
	R.A. Burnham	Scripps Aquarium, San Diego.	Familiarization
	Nelly M. Burnham	" " "	" "
	Wynn Oesterlins	Mtn. View, California.	Familiarization
	E. Wilford	Crystal River, Florida	Familiarization
	Joanne Hall A. Hall	Minden, Nevada. " "	Familiarization " "
	Lem J. Thal Donna J. Thal	San Diego, California. " " "	Familiarization " "
	Michael Kauth	Portland, Oregon, USA.	Familiarization
	Melinda Hall Whit Hall	Foster City, California. " " "	Familiarization " "
	Don Wilkie	Scripps Aquarium La Jolla.	Familiarization
	David Booth	Oregon State Univ. USA.	Familiarization
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June	Joan F. Koven	Astrolabe Inc. Washington, D.C.	Dravuni Is. Field Station
	Walter J. Magruder	" " "	" "
	Dorothy Soule John D. Soule	Univ. Southern California " "	Plans for WSN 1993 Conference " "
	Krishna Swamy	Fisheries Division, Lami	Seaweed Identification

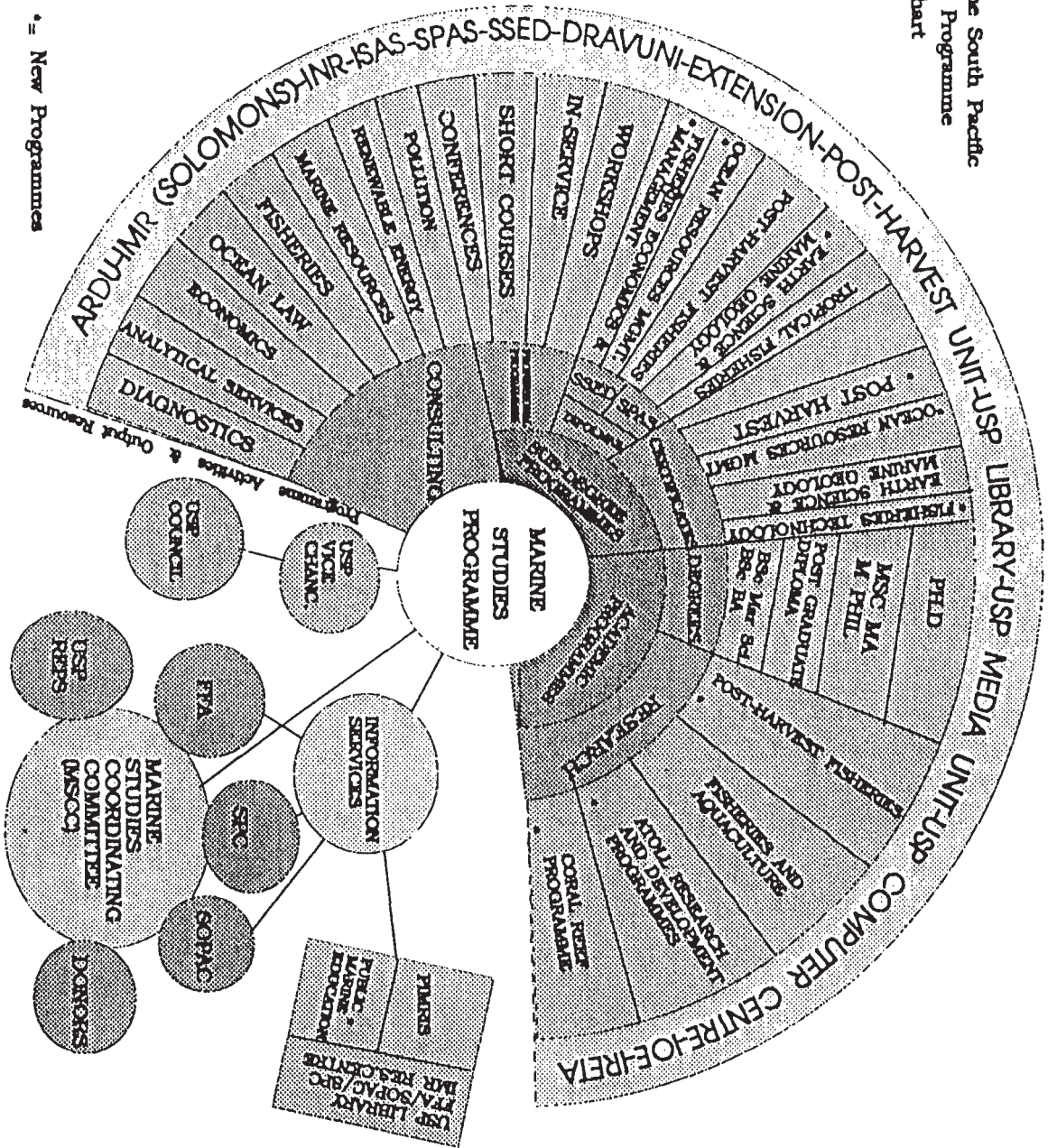
Month	Names	Affiliation	Activity
June (cont.)	Paulene Catt	JCU (Cairns)	SOPAC/Earth Science Course
	Ramesh V. Bhat	National Institute of Nutrition, Hyderabad, India	Familiarization
	Louis Prezlin	Cousteau Society	Familiarization
	Ian Chapman	" "	Project Development
	David Gwyther	Davies & Moore, Melbourne	FAO/D & I Consultancy
	Derek Ellis	Univ. Victoria, Canada.	U.Vic / USP linkage Programme.
	Peter Bell	Univ. Queensland Brisbane	Dravuni Is. Consultancy
July	Elenoa Fakahau	Min. Fisheries (TONGA)	Familiarization
	Veikila Yuki	Oceanography Dept. Univ. Southampton, U.K.	Remote Sensing Crown of thorns starfish
	Leon Zann	FAO/Apia	Crown of thorns
	Richard Stump	James Cook University	Crown of thorns
	Laura M. Taylor	Thomas J. Watson Fellow, USA.	Resource Centre
	Melite Samoily	QDPI Fisheries Branch	Fisheries Survey
	Gary Carlos	" "	" "
	Mike King	Aust. Maritime College, Tasmania.	Collaboration
	Trevor Sankey	UNESCO/Apia	Marine Education Network

Month	Names	Affiliation	Activity
July (cont.)	Olaf Schneider	Braunschweig, Germany	Dravuni Island.
	B. Nicholls	Crown Agents, Suva.	Services
	D. Salmon	BDDP, Suva	Programs
	Dick Beales	ODA, London	" "
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August	A. J. Nilsen	Hidrasund, Norway	Familiarization
	Jean Gardère	French Embassy, Suva	Programs
	Jon Burke	Seattle Pacific University	Familiarization
	Justin Nunter	" " "	" "
	Sefa Nawadra	Div. Drainage & Irrigation, Suva.	FAO Consultancy
	Roland Lin	" " "	" "
	Luca Tacconi	University of Queensland	Familiarization
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September	Leighton Taylor	Calif. Acad. Sciences	Familiarization
	Masashi Yamaguchi	Univ. of the Ryukyus, Japan	Research
	Kuzuhiro Toyama	Okinawa, Japan	Research
	Rishi Ram	Fiji Philatelic Bureau	Stamp Seaweed Project
	Isireli Heskie	" "	" "
	M.F. Barker	Univ. Otago Portobello, Marine Laboratory.	Research
	Jacky Piguet	French Embassy, Suva.	Program Development

Month	Names	Affiliation	Activity
Sept (cont.)	Chantal Michel	Caisse Centrale, Paris	Program Development
	B. Lupul	Fisheries Division, Tuvalu	Information
	Dregong F. Meateshawrid	Catholic Mission, Pohnpei, FSM	" "
October	N. Rawlinson	Fisheries Division, Fiji.	ACIAR/CSIRO Baitfish Project
	F.S. Vulatolu	Dravuni Is., Kadavu	Field Station Lease.
	C. Bunning	Qld. Dept. Primary Industry, Brisbane	Training Projects
	Hugh Walton	FAO/UNDP, Suva.	Training Projects
	Edvard Hviding	Centre for Dev. Studies, University of Bergen	IMR Cooperation
	Raymond Clark	ICOD, Halifax	ICOD/CIDA Programs.
	David Salmon	BDDP, Suva	Project Development
	J. Malpas	Memorial University of Newfoundland.	Familiarization
November	R. Ram	Fiji Philatelic Bureau	Stamp Design Project.
	D. Gwyther	Dames & Moore, Melbourne.	FAO/UNDP Project
	E. Ledua S. Nand Lal	Fiji Fisheries Division " " "	Aqua. Tilapia Project. " " "
	H. Mukai	Ocean Research Institute, University of Tokyo	Seagrass Research Team Leader Dravuni.
	Stuart Davies	North/South Consultants, Winnipeg, Canada	Tilapia Project

Month	Names	Affiliation	Activity
November (cont.)	A. Hodges	CSIRO, Clayton, University of Victoria	IDP Review Team
	S. Harris	Murdoch University, Murdoch.	" "
	A. Tanner	Anthropology Memorial University, Newfoundland.	Familiarization
	K.E. Simmons	RDA International California.	DTF
December	N. Ruells	Sydney, Australia.	Familiarization
	F. Hickey	Luganville, Vanuatu.	Familiarization
	Drew Wright	Forum Fisheries Agency, Honiara.	Projects
	Lloyd Baron	HPI, Vancouver.	C-SPODP Review.
January - December	A. Robertson	SPC, Suva.	Cooperation
	M. Blanc	SPC, Suva.	" "
	R. Howorth	SOPAC, Suva.	" "

University of the South Pacific
 Marine Studies Programme
 Organization Chart



• New Programmes