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FISHERIES PROGRAMME

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SOUTH PACIFIC COMMISSION
March 1994

Introduction

Today as in the past, marine resources retain their traditional importance to the diet, cultures and economies of Pacific Island peoples. The Island states are typified by small land areas and most have limited opportunities for land-based development, but they each have recognised economic control of enormous maritime zones.

The commercial use of living marine resources has increased to rival the combined value of all the region's other renewable resources and, for many island states, fisheries probably offers the greatest potential for economic development.

To ensure that this potential is realised, the Pacific Islands have a growing need to develop their own capacities to survey, assess, harvest, and manage access to their marine resources.

This requires the encouragement and training of the skilled fishermen, post-harvest specialists, entrepreneurs, scientists and planners who will enable the optimisation of the social and economic benefits that marine resources offer and ensure the exploitation and management of the region's fisheries in a rational, sustainable way.

SPC's first regional fisheries officer training course was held in 1956. Since that time, the Commission has continued to play a major role in providing support to the development of the region's fisheries at subsistence, commercial and industrial levels.

In keeping with the importance of marine resources in the region, assistance to member countries in fisheries development is a priority activity of SPC, and in fact constitutes the Commission's largest single programme, employing over 40 staff.

SPC work in fisheries falls into two main activity areas, as follows:

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Coastal Fisheries Programme (CFP)

The CFP provides support to the development and rational management of small- to medium-scale inshore and domestic coastal fisheries. The focus is on the provision of assessment, development and management advice, technical assistance, and vocational and scientific training at national and regional levels, as well as the dissemination of information.

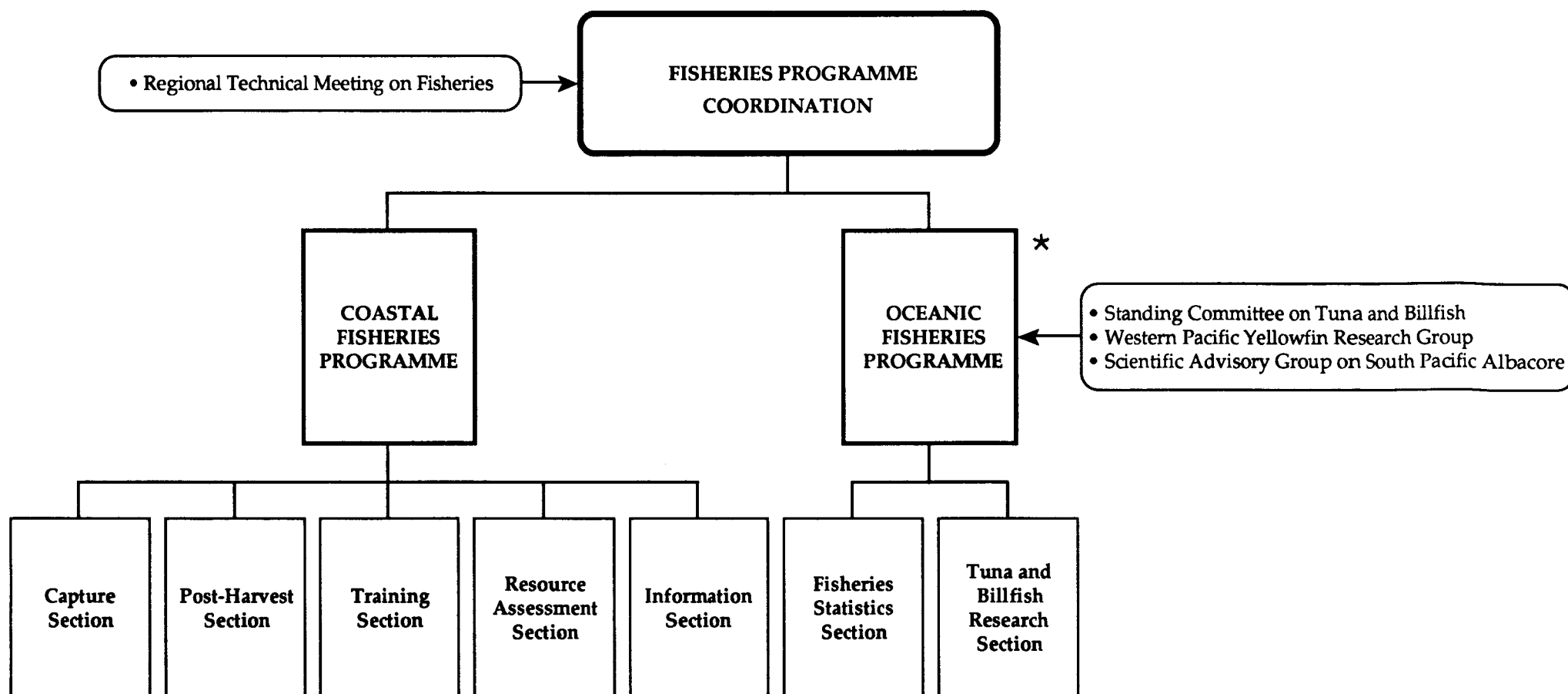
Oceanic Fisheries Programme (OFP)

The OFP is a programme of fishery data collection, synthesis, analysis and scientific research on behalf of member countries, with the aim of generating the resource information necessary for the rational exploitation and sound management of the expanding international tuna fisheries in the SPC area.

These two major components are further sub-divided into seven sections (shown in the diagram overleaf), each of which was established in response to specific needs, but which operate collaboratively. Through this wide range of activities, the Programme is able to provide technical support covering the broad spectrum of inshore and oceanic fisheries research, development and management needs of Pacific Island countries and territories.

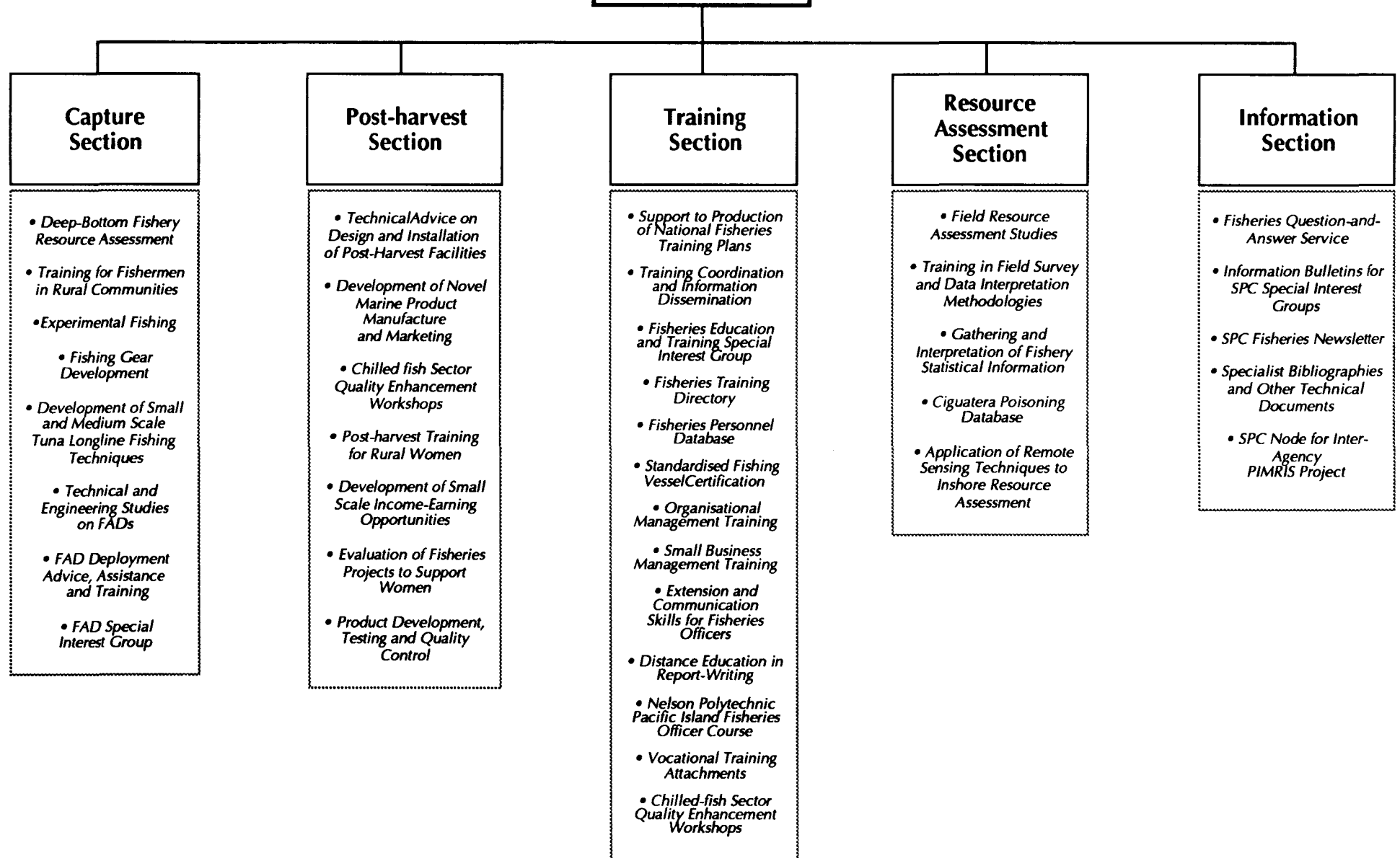
The priorities of the SPC's Fisheries Programme are decided by the region's fisheries officers at the Regional Technical Meeting on Fisheries (RTMF) which, between 1975 and 1992, was held annually and as of 1994 has become bi-annual. This direct control by governments, as well as the inherent flexibility of the Programme and the integrated operation of the various sections, ensures that its work remains both relevant and responsive to member country needs.

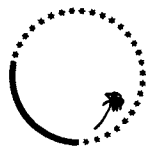
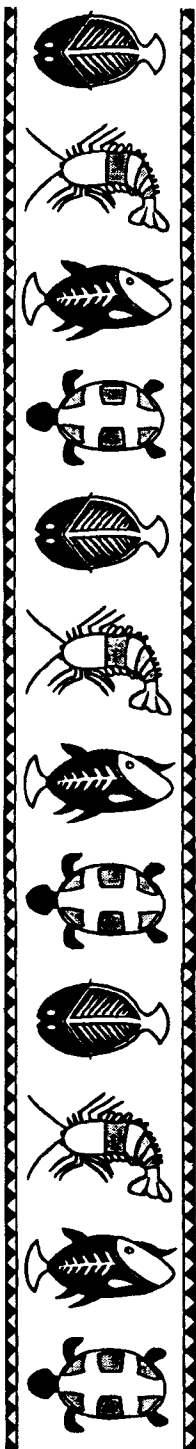
Separate leaflets which give broad descriptions of the CFP and the OFP, as well as more detailed leaflets on each of the seven programme sections, are also available.



* Formerly known as the Tuna and Billfish Assessment Programme

COASTAL FISHERIES PROGRAMME





CAPTURE SECTION

Introduction

The Capture Section provides technical advisory services and practical field support to SPC member countries in the development of the harvesting sector of national fisheries. This is done through programmes of technological research, gear development, experimental fishing, demonstration and training. The Section employs full-time professional Master-fishermen/FAD technicians, as well as consultant specialists from time to time, and operates under the supervision of the Fisheries Development Adviser.

Objectives

- ☛ To promote the development or expansion of artisanal and small-to-medium scale commercial fisheries based on resources that are locally under-utilised, in particular the deep-bottom resources of the outer reef slope, coastal pelagic fish, and offshore aggregations of pelagic species.
- ☛ To assist both subsistence and commercial fishermen increase their efficiency or diversify their efforts towards more productive activity through the development, evaluation, and demonstration of affordable, appropriate technology, fishing gear, fishing techniques and FAD systems.

Structure

The Capture Section comprises two projects:

- ☛ Deep Sea Fisheries Development Project (DSFDP);

- ☛ Offshore Fisheries Development Project (OFDP).

The DSFDP, established in 1979, is one of SPC's longest running and most successful projects. It focuses particularly on rural fisheries and on resources that are currently unexploited or under-exploited. Funding for the project is from SPC's core budget and until 1992 included the costs of the Fisheries Development Adviser and 3 full-time Master Fishermen. Since 1992, core budget resources have diminished and extra-budgetary funds are being actively sought to enable DSPDP to continue functioning at past levels.

The OFDP was established in response to the increasing number of requests from SPC member countries for specialised assistance in domestic tuna fishery development, especially in association with programmes of fish aggregation device (FAD) deployment.

The project, funded by the United Nations Development Programme for four years from mid-1992, provides for the employment of the Fisheries Development Officer, a Project Assistant, 6 months of specialised consultancy per year, and training.

Strategy

By providing expert technical assistance and hands-on training opportunities in the field, as well as headquarters-based advisory services, the Section assists in the development of small- and medium-scale capture fisheries throughout the SPC region, in order to enhance subsistence production, generate income-earning opportunities at all levels, and to assist Pacific Island countries develop the capacity to take a more equitable share in offshore fisheries.

Specific strategies include:

The conduct of programmes of demonstration and training in appropriate fishing skills and techniques, including FAD rigging and deployment, for local fishermen and government personnel;

- ☛ The conduct of basic resource assessments or fishing ground surveys;
- ☛ The conduct of research and development trials with new or exotic fishing methods, gear, vessels and FADs to assess their value or adapt them to Pacific Island conditions;
- ☛ Provision of information and advice on technical aspects of capture fisheries;
- ☛ Provision of technical services and field support to other SPC Coastal Fisheries Programme projects, particularly the Fisheries Training Project and, on occasion, to other of the Commission's Sections such as the SPC Integrated Rural Development Project.

Activities

More than 90 field assignments have now been completed. Recent national projects involving the field attachment of Section staff have included:

National-level activities

- ☛ Tuna longline fishing trials – East New Britain, Papua New Guinea and American Samoa.
- ☛ National FAD programme planning and implementation – Wallis and Futuna, Fiji, Tonga, Western Samoa, Palau, and Tokelau.

- ☛ Training for rural fishermen in deep-bottom fishing techniques – Solomon Islands.
- ☛ Broadbill swordfish longlining trials – New Caledonia;
- ☛ Training for sports fishing guides – Palau;
- ☛ Survey FAD sites – Nauru.

Regional-level activities

☛ Advisory services

The Section responds to requests from Pacific Island fishery workers for advice on a wide range of matters relating to capture fisheries. This includes information on fishing gear and material developments and sources of supply, provision of catch and resource assessment data gathered during field assignments, and advice on FAD raft and mooring design and sources of FAD material supply.

☛ Training

Field assignments undertaken by the Section always emphasise group and counterpart training. In some cases opportunities are also provided for fisheries officers or fishermen from other countries to participate as trainees or counterparts in national fisheries development activities of relevance to their home countries.

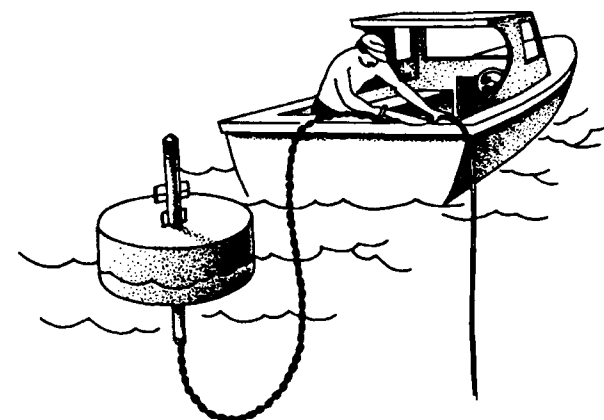
In addition, the Section contributes to regional fisheries training efforts, particularly those co-ordinated by the Fisheries Training Section. A Capture Section Master-fisherman usually serves as boat skipper/ tutor during the practical module of the SPC/ Nelson Polytechnic Pacific Island Fisheries Officers' Training Course.

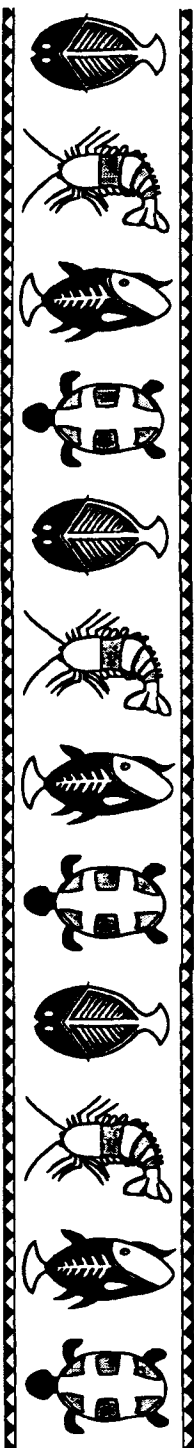
The Section has also sponsored the placement of Pacific Island fisheries officers on fishing vessels in countries outside the SPC region.

☛ Publications

The Section provides reports of its field activities to governments as a matter of course. These give accounts of the work carried out, show catch data, provide technical descriptions of the gear, vessels and techniques employed, identify constraints to development aspirations, and make recommendations as to how these constraints might be alleviated.

Other publications in preparation include: a handbook on deep-bottom fishing methods, designed as a companion volume to the popular *Handbook on Trolling Techniques for the Pacific Islands* (recently published in a French); a series of technical reports giving detailed descriptions of appropriate gear construction, rigging and fishing techniques for vertical longlining, deep-trolling, small-scale surface longlining and other fishing methods; and a revised *SPC FAD Handbook* which incorporates the findings of recent SPC FAD research, as well as information on FAD development and use regionally and worldwide.





POST-HARVEST SECTION

SOUTH PACIFIC COMMISSION
March 1994

Introduction

The CFP Post-Harvest Section provides support to national fishery development efforts in this area. This is done by providing specialist advice, formal and informal training, producing training materials and providing technical and marketing information. The Section employs two professional staff and operates under the technical supervision of the SPC Post-Harvest Fisheries Adviser.

Objectives

The overall development objective of the Section is to improve marine resource utilisation in the post-harvest fisheries sector. More specifically the immediate objectives of the Project are:

- ☛ Increase the value of fishery products through improved fish handling practices and procedures at all levels in national fishing industries;
- ☛ Reduce losses in the post-harvest fisheries sector caused by inadequate or inferior handling and preservation techniques, or by inefficient or wasteful processing methods;
- ☛ Create new or improved income-earning opportunities within the private sector through the development of new or improved value-added products, and by the identification and development of local and export marketing opportunities;
- ☛ Reduce health problems associated with the consumption of improperly handled and preserved seafood through the development of hygienic fish handling and processing practices, together with the promotion of greater public awareness of seafood hygiene issues;

- ☛ Enhance the income of fishermen, seafood processors and traders, with a particular focus on women, through programmes of training and information dissemination in the above areas.

Structure

The Post-Harvest Section comprises three projects:

- ☛ Fish Handling and Processing Project (FHPP);
- ☛ Women's Fisheries Development Project (WFDP);
- ☛ Regional Post-Harvest Fisheries Centre (RPFC).

The **FHPP** was established in 1986 in response to the demands of SPC member countries, who identified as a pressing need the increase of fishery development effort in the post-harvest fisheries area. Its mandate is to support Pacific Island countries in their efforts to increase the use and value of fish and fishery products being produced in the region.

Specific targets include reducing losses in the post-harvest fisheries sector, enhancing the income of fishermen, processors and traders, and reducing health problems associated with the consumption of improperly handled and preserved seafood. The project, which finances the Post-Harvest Fisheries Adviser position, will be funded by the UK Government until June 1994.

The **WFDP** was established in May 1991 in response to growing interest by a number of SPC member countries in enhancing the participation of women in fisheries activities. The project assists women from coastal fishing communities to more effectively participate in and benefit from fisheries activities in the region by developing and implementing activities,

mainly post-harvest, directed specifically towards them. The Canadian Government has provided the bulk of the financial assistance to the project in the past.

The initial phase of the project is mainly directed at women's groups in Papua New Guinea, with activities in other Melanesian fishing communities; extension to other countries is planned. Although implementation is by the CFP, the project receives the active support of the Pacific Women's Bureau at SPC. The WFDP comprises one professional staff position, the Women's Fisheries Development Officer.

Funding is being sought under LOME IV second financial protocol for the establishment of a **RPFC** on the campus of the University of the South Pacific in Suva, Fiji.

When established, the Centre will serve a variety of functions in support of the Post-Harvest Section, including product development, product storage trials, quality assessment and other analytical work which at present has to be commissioned from outside agencies. In addition, it will provide a venue for vocational post-harvest training activities, as well as presenting more advanced food technology training to USP students. The Centre will also provide analytical services to private industry and so will be partly self-financing.

Activities

During 1993 the section supported workshops, in Tuvalu, Kiribati, Solomon Islands and Papua New Guinea aimed at raising awareness and knowledge of fresh fish quality issues among local fishermen, extension officers, traders and managers of fisheries facilities.

This brings to nine the total number of workshops supported since this training programme was initiated following an SPC Regional Workshop on the Chilled/

Frozen Fish Sector in early 1992. SPC support is normally in the form of consultant technical specialists, mostly from other Pacific Island countries, to advise and assist the national workshop tutors.

According to a follow-up survey, a total of 629 individuals have now received some form of post-harvest fisheries training through this programme. The ultimate aim, which is on its way to be achieved, is for the national tutors to be able to provide ongoing post-harvest training in their local fisheries communities without the need for further external support. In support of this aim, a full set of student teaching notes, for use as by tutors as a teaching aid, are currently being completed with assistance from the Australian Maritime College for release in 1994.

Research work commissioned by the Section in Australia at the end of 1992 has resulted in improved procedures for the production of marinated dried tuna products. A meeting, attended by representatives from Tokelau, Kiribati, Tuvalu and Marshall Islands, was organised by the section at the beginning of the year to discuss the implications of this research for commercial production of these products in atoll locations.

A number of improvements have now been incorporated into the manufacturing process in the Marshall Islands and in Kiribati, where new labels and a superior packaging format have successfully been developed for one processor. The Australian Centre for International Agricultural Research (ACIAR) provided valuable financial assistance to these activities.

A socio-economic study of a dried tuna processing plant in Tokelau was undertaken on behalf of the Section by the SPC Rural Development Economist. The study will complement the technical research and provide guidance to Tokelau on how this plant can be made to operate more effectively.



Training in the production of salted dried fish was carried out in an order island community in the Marshall Islands. Over thirty men and women attended demonstration sessions and lectures on the improved manufacture and marketing of salted dried fish.

In November 1993 the third in a series of workshops for women on the subject of fish processing and marketing was conducted in the Momase Region of Papua New Guinea, with the assistance of a tutor from the Section. Plans are currently being finalised for a range of follow-up support activities for workshop participants.

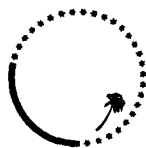
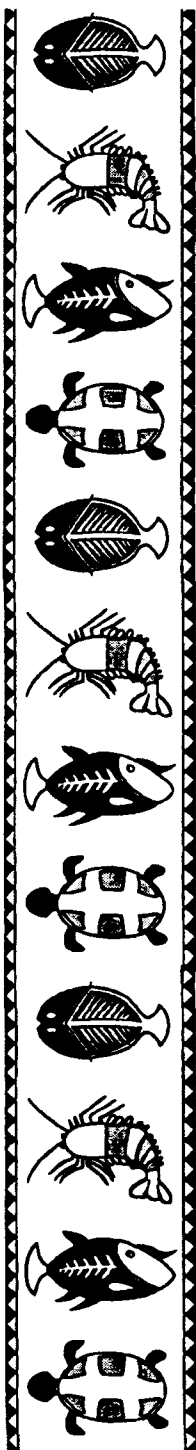
Publications/Reports

The student teaching notes referred to above are in preparation and are planned for release in 1994. A handbook and poster on Sea cucumbers and beche-de-mer of the Tropical Pacific will also be completed and distributed in 1994.

In addition, a number of other documents have been prepared for more limited distribution, based on the results of research work commissioned by the Section on the processing of novel tuna products. These include:

-  a report on refinement of techniques for the production of tuna jerky in remote Pacific Island countries;
-  a product development study on dried minced tuna products.





TRAINING SECTION

SOUTH PACIFIC COMMISSION
March 1994

Introduction

The Commission's first major fisheries project was a three month course for fisheries officers, held in Noumea in 1956. Since that time, the Commission has been more or less continuously involved in providing training to the fisheries sector, particularly at a vocational level.

The CFP Training Section was established in 1985 to co-ordinate all SPC fisheries training activities and to act as a vehicle for the organisation of specialised training courses in given subject fields in response to country demand. The Section has been particularly successful in this latter role, where it has bridged an important gap by providing training opportunities for Pacific Islanders in fields outside those normally covered by established academic and training institutions. The Section comprises two professional positions, and operates under the technical supervision of the Fisheries Education and Training Advisor.

Section staff also respond to national and regional requests for assistance and advice within the broad area of fisheries education and training.

Objectives

- By co-ordinating and, where appropriate, generating training opportunities, the Section aims to act as a vehicle for enhancing the transfer of fisheries-related skills and knowledge to Pacific Island nationals, thereby increasing the ability of Pacific Island countries and territories to exploit and manage their fishery resources.

Structure

The Section consists of two principal work areas:

- Human Resource Development (HRD) Planning; and
- Training Implementation.

Within the HRD work area, the Section assists Pacific Island countries to plan national manpower training programmes more effectively and to make the best use of available training opportunities.

In the field of training implementation, the Section develops training programmes in areas where existing opportunities do not fully satisfy Pacific Island country requirements. The Section focuses particularly on vocational areas not normally addressed by established training programmes, and on non-formal or 'hands-on' training for individuals who may not have extensive educational backgrounds.

The Section's operational funds are provided by the Governments of Australia and France, the Territorial Administration of New Caledonia, and SPC's core budget.

Some individual training initiatives receive additional funding from other sources (recently these have included the Government of Canada, the Commonwealth Foundation, the Commonwealth Secretariat, the Government of New Zealand, and the United Nations Development Project) as well as the provision of specialist tutors and equipment from a number of co-operating technical organisations and institutions.

Strategy

To achieve its objectives, the Section:

- reviews and evaluates existing fisheries training opportunities available to Pacific Island countries and disseminates information on these opportunities;
- assesses current and projected fisheries training requirements of individual SPC member countries and territories;

- conducts or organises national and international technical training courses and workshops in subject fields identified as priority areas in consultation with governments of SPC member countries.

Activities

Activities recently carried out or under way by the Section include:

National-level activities

- Training attachments
- National post-harvest workshops, held as follow-up to the Regional Chilled Fish Handling Workshop (see separate leaflet on CFP Post-Harvest Section for more details);
- Exchange of regional extension tutors in support of in-country extension training courses;
- Survey of staffing resources of selected fisheries departments, and support to the production of long-range training and human resource development plans.

Regional-level activities

- Maintenance of a database of fishery training courses and programmes relevant to the region, and publication of a Directory of Training Opportunities for Fisheries Personnel based on the information it contains;
- Maintenance of a Fisheries Personnel Database, which contains information on the training histories of all individuals in the region who have participated

in SPC-sponsored training activities, for use in participant evaluation, and as a planning and statistical tool;

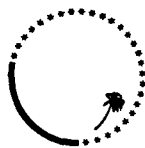
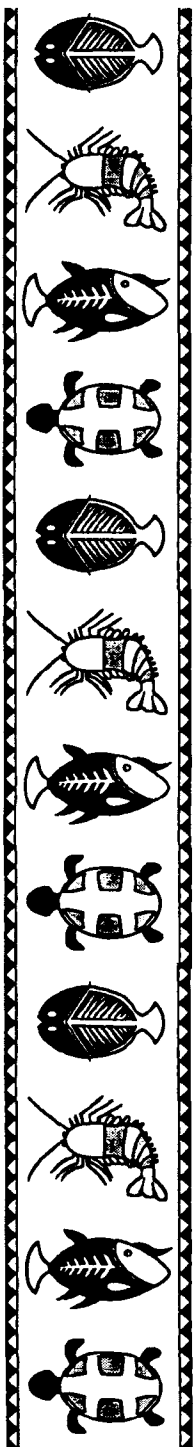
- Support to the organisation of an Association of South-East Asian Nations (ASEAN)/ Pacific Island Nations (PIN) Education and Training Workshop;
- Study tour of ASEAN educational and training institutions for Pacific Island Fisheries Training Officers;
- Organisation and maintenance of a SPC Special Interest Group on Fisheries Education and Training, in conjunction with the CFP Information Section. (See separate leaflet on Information Section for more details of the Special Interest Groups);
- Running of the annual SPC/Nelson Polytechnic Pacific Island Fisheries Officers Training Course in Nelson, New Zealand, and the associated Practical Fishing Module held at a Pacific Island venue;
- Regional training programme in Extension and Communication Skills for Pacific Island Fisheries Workers, and publication of an *Extension Training Manual* in support of this programme;
- Production of training videos on aspects of fishing techniques, vessel operation, and, in future, sea safety;
- Standardisation of fishing vessel deckhand training and certification in support of greater employment of Pacific Islanders on foreign fishing vessels operating in the region;
- Pilot correspondence course in report-writing for fisheries extension officers and other professionals.

Publications

As well as the publications referred to above, the Section also produced a number of other documents for more limited circulation, including:

- a set of guidelines for the production of human resource data summaries, for circulation to fisheries administrations and organisations. This document will assist in the preparation of medium-term human resource development plans;
- a draft fishing vessel logbook, designed both as a user-friendly aid for small vessel operators to assess commercial viability, and as a means for fishery managers to monitor harvest rates and effort.
- an handbook on the on-board handling of tuna, in support of increased activity in the export of fresh chilled tuna from Pacific Island Countries. The handbook will be used as the basis of a series of workshops on handling sashimi-grade tuna, planned for 1994.





RESOURCE ASSESSMENT SECTION

SOUTH PACIFIC COMMISSION
March 1994

Introduction

The Resource Assessment Section assists SPC member countries to acquire and make use of the information necessary for the sound and rational management of national fishery resources in the face of increasing levels of exploitation. The Section operates under the technical supervision of the Senior Inshore Fisheries Scientist.

Objectives

- ☛ The Section's overall aim is to strengthen the capabilities of Pacific Island States to carry out baseline resource surveys and assessments, establish and maintain national small-scale fishery statistics collection and analysis programmes, and interpret this data to allow the formulation of improved resource management approaches.

Structure

The Section comprises two projects:

- ☛ Inshore Fisheries Research Project (IFRP); and
- ☛ Remote Sensing Project (RSP).

The IFRP was established late in 1987, in response to a growing appreciation of the need for management of inshore fishery resources in the Pacific Islands region. The Project comprises two professional scientific positions (Senior Inshore Fisheries Scientist and Inshore Fisheries Scientist). Staff and operational costs will be funded by the British Government until the end of June 1994. This funding is supplemented by support for some specific activities from other donors.

The RSP is a planned activity, with funding still to be confirmed. The Project will involve the establishment of

a small facility (computer equipment and technician, carry out image analysis and other work related to the interpretation of data acquired through satellite remote sensing, as well as the development of a computerised multi-disciplinary geo-referenced resource database. Both these tools will be used principally to meet in-house needs, and their use will lead to improved effectiveness of fishery research and development projects in which the Commission is involved.

Strategy

The Resource Assessment Section achieves its aims through the provision of direct support to member countries in in-country field research assignments by its scientific staff and by consultant specialists, through the encouragement of scientific and professional contact and information-sharing amongst Pacific Island fishery workers, and through a programme of literature research, data analysis and documentation activities at SPC headquarters.

Specific strategies include:

- ☛ Provision of assistance to SPC member countries in the design and implementation of appropriate programmes of resource surveys, fisheries data collection and data analysis;
- ☛ Provision of attachment training, and conduct of or assistance with training courses and workshops in aspects of marine resource survey design, data collection and analysis;
- ☛ Evaluation, summarisation and communication of relevant fisheries information from within and outside the region, by means of workshops, specialist working groups, publications and other media;

Comparison with national officials, SPC staff and other research organisations involved in research relevant to Pacific Island inshore fishery resources.

Activities

The first activity of the Resource Assessment Section was the organisation of the SPC Workshop on Pacific Inshore Fishery Resources (IFRW) in March 1988. Since then Section staff, consultants and trainees have completed numerous specific national-level resource assessment projects plus many smaller assignments, as well as being involved in regional resource assessment activities, and longer-term information gathering and dissemination.

Examples of recent Section activities are:

National-level activities

- ☛ Stock assessment and management of the trochus fishery – Cook Islands (Aitutaki) and Vanuatu;
- ☛ Fishery resource survey – Cook Islands (Palmerston atoll), Niue, Solomon Islands (Western Province) and Pitcairn;
- ☛ Pearl oyster resource survey – Kiribati (Kiritimati, Abaiang and Butaritari) and Tuvalu (Nukulaelae);
- ☛ Assistance with fisheries technical report production – Papua New Guinea;
- ☛ Beche-de-mer resource surveys – Fiji (Northern Vanua Levu) and Tonga (Ha'apai);
- ☛ Ciguatera sampling protocol and assessment of ciguatera poisoning distribution – Federated States of Micronesia;

- ☛ Deep-bottom fishery data analysis – Vanuatu, Tonga and Federated States of Micronesia (Chuuk);
- ☛ Review of inshore fishery research activities – Tonga, Palau and Vanuatu;
- ☛ Stock assessment of baitfish resources – Papua New Guinea and Tonga;
- ☛ Development of fishery statistics system – Tuvalu and Nauru;

Regional-level activities

- ☛ Support to US National Marine Fisheries Service Pacific Island Stock Assessment Workshop – Hawaii;
- ☛ Analysis of historical SPC bottom fishing data;
- ☛ Workshop on Trochus Resource Assessment, Development and Management;
- ☛ Review of Pacific Island fish aggregation device programmes;
- ☛ Reef Reseeding Project (experiments to determine the feasibility of juvenile release as a reef restocking mechanism, carried out jointly with FAO South Pacific Regional Aquaculture Development Project); and
- ☛ Establishment and maintenance of a database on ciguatera intoxications.

Advisory services

Section staff respond to requests for advice and technical information from Fisheries Officers of the region and

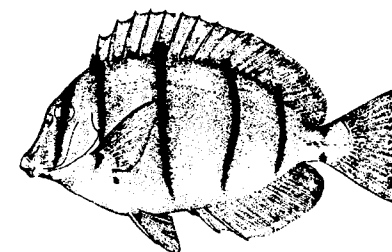
from scientific and technical institutions carrying out fisheries research and related activities in the region and beyond. It is notable that there is an increasing number of requests from member country fisheries administrations for advice on how to deal with commercial fishery investment proposals, and how to ensure that commercial exploitation of inshore fisheries can best be tailored to the resource potential.

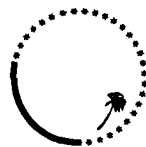
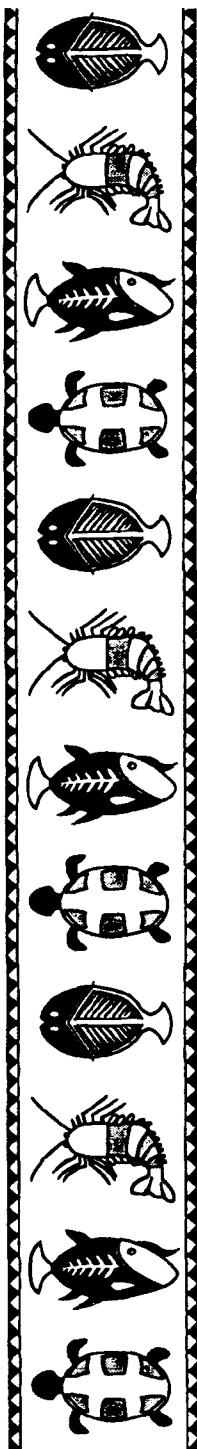
Publications

Comprehensive draft reports of all IFRP country-specific activities were forwarded to Fisheries Departments and other relevant bodies, usually within one week of completion of field work, and always within two months. If they present results of broader importance, and if the commissioning country approves, these reports can then be prepared for publication as IFRP technical documents.

Other IFRP contributions resulting from attendance at workshops and conferences are published in the respective proceedings of these meetings.

Other Section publications include: a summary and analysis of all the data generated by the SPC Masterfishermen during country assignments to assess deep reef slope stocks in the Pacific between 1975 and 1988; and a collection of *Papers on Fisheries Science from the Pacific Islands*, most of which were presented at the 1988 Workshop on Pacific Inshore Fishery Resources, and are of interest to fisheries scientists in the Pacific.





INFORMATION SECTION

SOUTH PACIFIC COMMISSION
March 1994

Introduction

SPC has always played an important role in the provision of fisheries information to government departments and individuals, particularly those in isolated areas having poor communications and limited access to information. Because of their importance, information services will continue to be a central function of the CFP.

The Information Section serves as a formal mechanism to enhance the CFP's capacity to process and disseminate information and to co-ordinate the information-related activities of other sections.

Objectives

- ☛ To provide timely and relevant advice, both routinely and on request, on all aspects of tropical fisheries to both regional governments and individuals with fisheries information needs.
- ☛ Make available the technical fishery information required by Pacific Island fishery workers to fulfil their professional function;
- ☛ Assist private sector development in the region by actively disseminating commercially relevant fishery information;
- ☛ Discourage the wasteful duplication or repetition of fisheries research and development efforts by actively promoting the flow of technical information between countries of the region, and by encouraging the proper archiving, in organised retrieval systems, of historical fishery information;
- ☛ Engender greater public awareness of marine resource exploitation, conservation and

management issues through the circulation of information on these topics in forms accessible to general audiences.

Structure

The Information Section is newly established within the CFP structure and is currently composed of the Fisheries Information Project (FIP).

The FIP, which is funded by the Government of France, was effectively established in April 1989. The FIP provides information, both routinely and on request, to assist fisheries scientists, development officers, extension agents, planners, managers and others involved in developing and managing fisheries at national, regional and international levels.

The project comprises the positions of Fisheries Information Adviser, Fisheries Information Officer and Fisheries Associate (position to be shared with the Training Section).

Strategy

Collection and dissemination of resource-related information both in a general sense, and to Pacific Island government fisheries departments, and to individual fisheries officers, scientists, extension agents, development workers and others with known special interests.

Activities

Question-and-answer service

Working with other parts of the Fisheries Programme, the Information Section co-ordinates a responsive information and advisory service to answer technical fishery-related questions from workers in SPC member countries.

The frequency of information requests has been increasing over the past four years, perhaps in response

to the increased emphasis placed on fisheries information by SPC and other PIMRIS participating agencies (see overleaf), and a resulting increased awareness on the part of regional fishery workers about the services that are available. The trend is expected to continue in future.

As part of this service, the Section has collaborated with the SPC Library in establishing a comprehensive collection of information on tropical fisheries and marine resources.

Pacific Island Marine Resources Information System (PIMRIS)

The FIP is one of the mechanisms (along with the SPC Library) whereby SPC participates in PIMRIS, a joint activity involving the Forum Fisheries Agency, the University of the South Pacific and the South Pacific Applied Geoscience Commission.

The PIMRIS agencies provide a variety of services to member countries, including the provision of bibliographies and literature searches, in-country assistance in organising information collection, and question-and-answer services.

They also collaborate on the compilation of a computerised bibliographic database, called MOANA, on Pacific marine resources. The FIP participates in these activities as required, and the Fisheries Information Officer also represents SPC on the PIMRIS Steering Committee, which has now met six times.

Special Interest Groups (SIGs)

A major activity since 1990 has been the establishment of SIGs on fishery-related topics of interest to regional fishery workers. The SIGs were developed as a result of the SPC Workshop on Pacific Inshore Fishery Resources, held in March 1988, where participants expressed concern about the absence of mechanisms to promote contact and information exchange among regional fishery workers.

In establishing the SIGs, the most important areas of interest in the region were determined by canvassing regional fishery workers using a questionnaire. More than 500 responses to the questionnaire were received by the end of 1993, 75% from the region, and returns are continuing.

Responses to the questionnaire surveys have been used to identify the most common areas of interest to fishery workers in the region, and those that should therefore be targeted first through the formation of SIGs. In addition, several SPC fisheries meetings and workshops have also recommended the establishment of SIGs.

Based on this guidance, five SIGs have now been established: *Beche-de-mer*, *Pearl Oyster*, *Ciguatera*, *Trochus and the shell industry*, *Traditional Marine Resource Management and Knowledge*, and *Fisheries Education and Training*. One more SIGs will be established in 1994 on Fish Aggregation Devices, as financial and staff resources permit.

As part of the support offered to each SIG, SPC undertakes to circulate literature, technical materials and correspondence relevant to the interests of group members on an approximately six-monthly basis.

This is mainly done in the form of an information bulletin, compiled with the assistance of an external technical specialist (selected on their regional experience combined with expertise on the subject in question) and relying heavily on contributions from members of the SIG.

Using technical coordinators in this way ensures that the information circulated is of high standard and relevant to the needs of the region. A total of 22 Information Bulletins have now been produced (and are now translated into French), and this is continuing at the rate of about 10–12 a year.

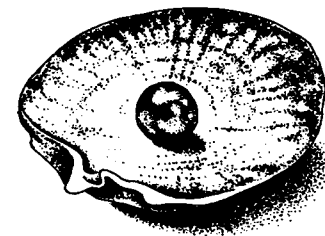
Fisheries Newsletter

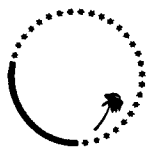
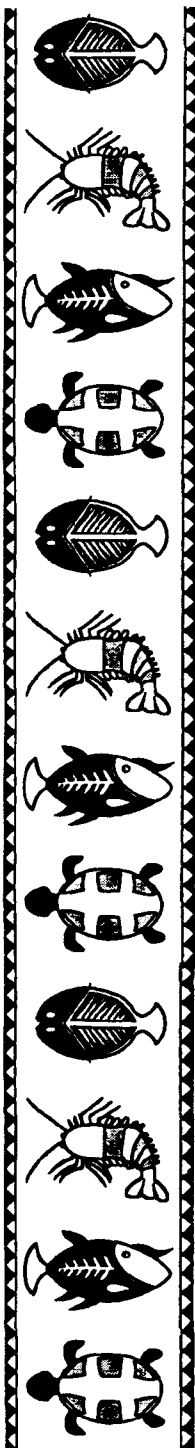
Production of the SPC *Fisheries Newsletter* is maintained on a quarterly basis, in both English and French. The newsletter provides timely information on SPC Fisheries Programme activities and on regional developments, as well as providing technical information on various aspects of fisheries. The newsletter is widely distributed within the region (600 addresses on the mailing list).

Compilation of specialist bibliographies, topic reviews, and information packages

Marine resources bibliographies of the Federated States of Micronesia, the Marshall Islands and Guam have been produced, in which special attention is paid to research and experimental reports written in Japanese before World War II. A bibliography on pearl oysters has also been published, and information packages on various topics prepared on request.

The project has also established a database which, when complete, will contain a keyword-indexed listing of all the fisheries ephemera ('grey literature') produced by the SPC Fisheries Programme since its inception in 1957. This includes all articles and useful information published in the *Fisheries Newsletter*, all the working, information and background papers presented during RTMFs and other SPC fisheries meetings, and all articles in the various Special Interest Group Information Bulletins since their creation.





OCEANIC FISHERIES PROGRAMME

SOUTH PACIFIC COMMISSION
March 1994

Introduction

Tunas and associated oceanic resources constitute the largest fishery resource available to countries of the region.

Recognising their international migratory nature and the need for a regionally co-ordinated research effort leading to stock assessment, the Tuna and Billfish Assessment Programme (TBAP) was established by the 1980 South Pacific Conference to continue the work initiated by its predecessor, the Skipjack Survey and Assessment Programme (SSAP). In 1985, the Twenty-fifth South Pacific Conference approved a five year extension of the Project through 1991. The subsequent acceptance of a five year Strategic Plan by the Thirty-second South Pacific Conference now guides the work of the Programme for the 1993-1997 period.

The OFP continues to be funded by extra-budgetary contributions from Australia, France, New Zealand and the United States of America. Specific projects have been funded in recent years by Canada (ICOD) and the European Community.

Structure and Functions

Two sections are defined within the Oceanic Fisheries Programme:

- ☛ The Fisheries Statistics Section; and
- ☛ The Tuna and Billfish Research Section.

These two sections interact to a large extent, in carrying out the main functions of the OFP – statistics and monitoring, biological research, assessment and modelling and reporting and liaison.

The scientific research carried out by the Tuna and Billfish Research Section is designed to monitor the exploitation levels of stocks of commercially important tuna and billfish species (particularly in areas where there is localised intense fishing effort), to assess the status of these stocks, to provide information on the biology and ecology of tunas, billfishes and bait species, and to assess the interaction between

different fisheries for oceanic species through the study of tuna population dynamics.

The Programme works in close collaboration with other organisations concerned with tuna fisheries in the region, and, where necessary, beyond.

Tuna fisheries in the region continued to expand rapidly during the 1980s to over one million tonnes during the early 1990s; the tuna fishery of the western equatorial Pacific is now the world's largest. In response to this, major field research activities relating to stock assessment and fishery interaction have been implemented by the Programme, in recent years.

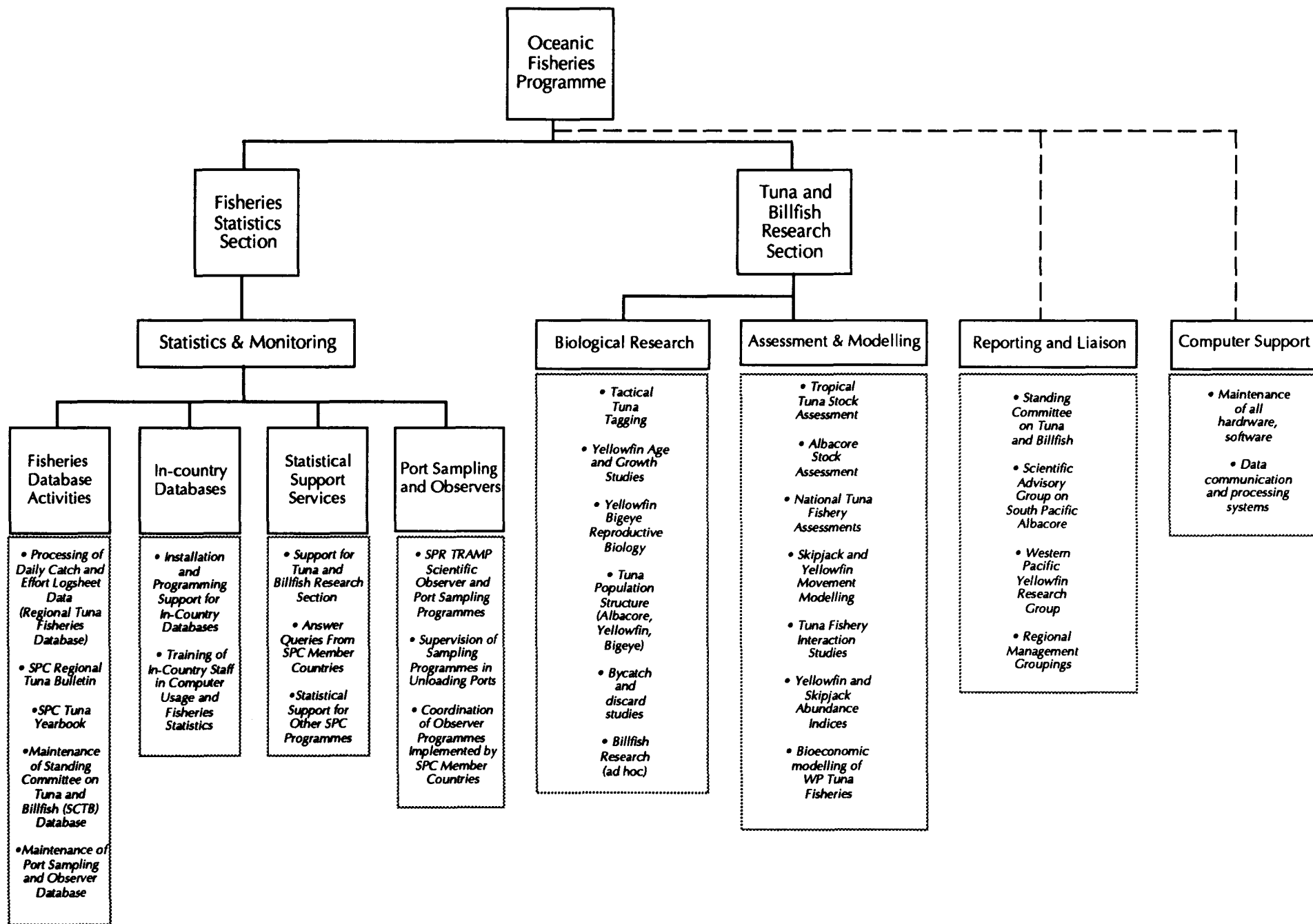
A large-scale Regional Tuna Tagging Programme (RTTP) to address a number of questions regarding the yellowfin and skipjack fishery in the equatorial waters of the SPC region was funded by the European Community under the 6th EDF Pacific Regional Marine Resources Development Programme.

Smaller-scale tagging projects designed to address local fishery interaction problems were undertaken in several member countries. Albacore tuna were also tagged in more temperate waters to provide much-needed information on this more southerly fishery.

Following these tagging-based assessments, continuous scientific monitoring of the western Pacific tuna fisheries is now being implemented under the EU-funded South Pacific Regional Tuna Resource Assessment and Monitoring Project (SPR TRAMP). As a result, port sampling and scientific observer activities are increasingly being undertaken to supplement the previous field research.

Collection and analysis of oceanic fisheries data at regional and national levels have always been an integral part of the Programme. To emphasise the importance of this role, a Fisheries Statistics Section is now a distinct entity within the OFP.

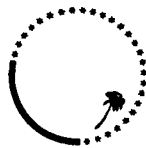
The Project assists in collecting and processing data from fishing vessel logsheets and other sources, analysing these data, and providing regular reports to assist countries with monitoring and management of their fisheries.





FISHERIES STATISTICS SECTION

SOUTH PACIFIC COMMISSION
March 1994



Regional Tuna Fisheries Databases

Catch and effort logbook data

Since its inception in 1981, the Tuna and Billfish Assessment Programme has maintained a database on industrial tuna fisheries in the region. The main sources of data have been catch and effort logsheets provided to SPC by member countries; the logsheets have been obtained either from distant-water fishing nations (DWFNs) under access agreements or from vessels of domestic fleets.

The database is used for research and monitoring purposes; in particular, to assess the state of exploitation of the stocks and to study interactions between the different fleets operating in the region. Monitoring of the fisheries is facilitated through quarterly publication of the *SPC Regional Tuna Bulletin*. Data summaries are also provided to member countries on a quarterly basis. For several member countries, the processed data are returned on diskettes for incorporation into databases which are maintained on computers within each country.

During 1992—93, logsheet data for tuna vessels fishing in the region were received from Australia, the Cook Islands, the Federated States of Micronesia, Fiji, French Polynesia, Kiribati, the Marshall Islands, New Caledonia, New Zealand, Palau, Papua New Guinea, Solomon Islands, Tonga, Tuvalu and the United States. Coverage of domestic fleets by the Regional Tuna Fisheries Database has remained high. However, delays with logsheet data from Palau and Solomon Islands have continued.

Standing Committee Database

At the meeting of the Standing Committee on Tuna and Billfish held in Suva on 19-21 June 1989, the Committee considered the problem of inadequate statistical coverage of the fishing activities of DWFNs in the region, including Indonesia, Korea, Japan, Philippines, Taiwan and the USSR.

The Standing Committee discussed the establishment of a common database consisting of aggregated data provided by all fishing nations (including DWFNs), which would be separate from the data currently assembled by SPC in the Regional Tuna Fisheries Database (which are contributed only by SPC member countries).

At present, data have been provided to the Standing Committee Database by Australia, Fiji, Japan, Kiribati, Korea, New Caledonia, New Zealand, Papua New Guinea, Solomon Islands, Taiwan, Tonga and the United States. During 1992, additional data were

received covering American purse seiners active during 1981—1985. Data covering Japanese longline and pole-and-line fleets during 1981—1990 and purse seine fleets during 1967—1991 were received at SPC from the Fisheries Agency of Japan in December 1992. Data covering Korean longliners, since 1988, and Korean purse seiners, since 1985, are still forthcoming.

SPAR Database

At the Second South Pacific Albacore Research (SPAR) Workshop, held in June 1989, the participants agreed to the offer made by SPC to act as a clearinghouse for the receipt and distribution of albacore data.

At present, catch and effort data have been provided by Australia, Japan, Korea, New Caledonia, New Zealand, Taiwan, Tonga and the United States. Size frequency data have been provided by the Australia, Fiji, French Polynesia, Japan and the United States.

Data for the SPAR database were updated in preparation for the fifth meeting of the SPAR group, held in Papeete, French Polynesia, from 29 March to 2 April 1993.

Port Sampling

Sampling of size and species composition of landed catches in port often provides a convenient means of monitoring these characteristics of the commercial catch. These data are fundamental for stock assessment and fishery interaction research. The amounts unloaded are also useful corroborative information that can be compiled during port sampling.

During 1992, port sampling programmes to collect biological data and amounts unloaded from landings were supervised by the TBAP in the Federated States of Micronesia, Fiji, French Polynesia, Marshall Islands, New Caledonia and Palau. The sampling data are forwarded on a quarterly basis to SPC, where they are then processed. The sampling programmes in the Marshall Islands and Palau suffered from lack of personnel during late 1992, but these problems were resolved during early 1993. A further interruption in port sampling in the Marshall Islands occurred in mid-1993; the problem was resolved in October 1993 with funding assistance from SPC.

It is noteworthy that new minimum terms and conditions of access to SPC members' EEZs have limited high seas transshipment since from 15 June 1993. As a result, more transshipment has occurred in regional ports, with a corresponding increase in port sampling.

The TBAP held a port sampling workshop from 17 to 21 January 1994 on Chuuk, Federated States of Micronesia. Port samplers and supervisors from American Samoa, Federated States of Micronesia, Fiji, Guam, Kiribati, Marshall Islands, New Caledonia, Palau, Papua New Guinea and Solomon Islands met to review current port sampling programmes, to examine and standardise port sampling procedures, to consider the development of a regional port sampling manual, and to provide a forum for port samplers, and SPC staff, to meet each other and share experiences.

On a wider scale, port sampling as envisaged under the Lomé IV-funded South Pacific Regional Tuna Resource Assessment and Monitoring Project (SPRTRAMP) will be extended during 1994 where possible to cover a representative proportion of unloadings of western Pacific fish at a maximum number of locations. The sampling design may need to include south-east Asian ports, transshipment operations (high seas and in ports of member countries), and cooperative programmes with DWFNs. Under SPR TRAMP, a Port Sampling and Observer Manager, based in Noumea, and five or more local samplers, will be recruited.

Observers

To date, the TBAP has played mainly an advisory role with respect to observer programmes in the western tropical Pacific. Since the inception of the observer programme on American purse seiners under the US treaty, which is administered by FFA, the TBAP has played a key support role in observer training, design of data collection forms, processing of observer data and data quality assessment.

During 1992—93, this advisory role to the American purse seine observer programme continued. One TBAP scientist acted as lecturer in the observer training course held in Apia and Pago Pago in February 1993. Further, financial and technical assistance was provided by SPC to the Micronesian Maritime Authority (MMA) to initiate placement of observers aboard Taiwanese purse seiners and to monitor transshipment. A longline observer form was developed and tested in collaboration with MMA staff. The implementation of observer programmes in the Marshall Islands and Palau was proposed and discussed with national counterparts.

The TBAP will continue to support the US treaty and national observer programmes. Under the SPRTRAMP, the TBAP will have substantial funding available for the placement of scientific observers aboard commercial tuna fishing vessels over the next

five years. It is intended to recruit five scientific observers, who will be expected to spend up to 75 percent of their time at sea, involving vessels of all fleets. The main role of these observers will be the collection of biological and fishing effort data, however the TBAP will attempt to accommodate requests from other agencies and member countries for the collection of other data.

SPC Regional Tuna Bulletin

The quarterly *SPC Regional Tuna Bulletin* provides summaries of catch and effort by month, gear type and fishing nation, for all commercial tuna fleets in the SPC area. It has been distributed since the first quarter of 1988 to fisheries officers within the region and to research institutions and industry within the region and beyond.

During 1992, the mailing list was updated and, for the first time, payment was requested from subscribers from the private sector in order to partly offset the cost of publication. Currently, 13 out of 151 subscribers pay US\$ 50 per annum for the *Tuna Bulletin*.

SPC Tuna Fishery Yearbook

At the third meeting of the Standing Committee on Tuna and Billfish (SCTB), held in June 1990, the members of the committee called for the TBAP to compile fishery status reports, in order to facilitate the review by the SCTB of the TBAP work programme and to place the work of the TBAP in perspective. The status reports, which contain historical and current estimates of annual catches, by species, for each of the fleets that have operated in the SPC area, have since been produced each year and presented at meetings of the SCTB.

The report on annual catches up to 1992 was presented to the sixth meeting of the SCTB, held on Pohnpei in June 1993. In previous years, the status report has been published in the TBAP Technical Report series. The 1992 report is the first published in a new SPC series, the *SPC Tuna Fishery Yearbook*.

National fishery statistics systems

Commencing in 1988, tuna fishery databases have been developed and installed on computers in fisheries departments of thirteen SPC member countries. The systems are customised according to

the needs of the member country, but typically allow the production of data summaries and maps of fishing activity within their EEZ. Some systems also include a logsheet data entry component that allows in-house data processing. In cases where data entry is carried out at SPC, regular data updates are sent via Peacesat or on diskette by mail.

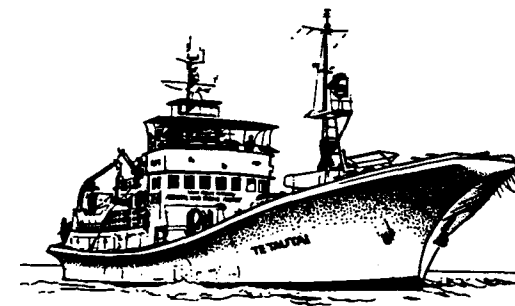
During 1992—93, several countries (Federated States of Micronesia, Marshall Islands, Palau and Papua New Guinea) were visited by TBAP staff to provide programming support for their in-country fisheries databases.

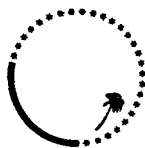
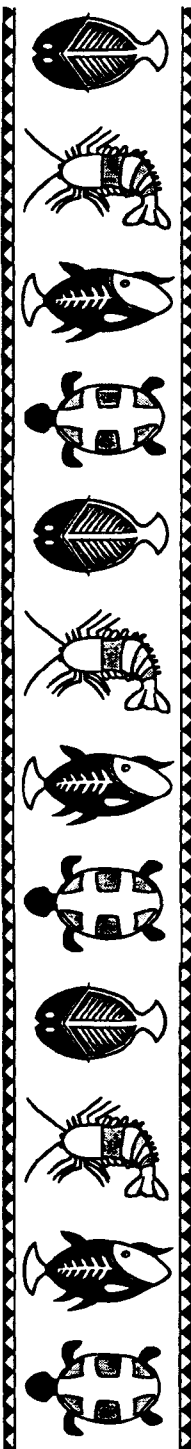
During 1994, TBAP staff plan to visit several countries to provide programming support and database development, including extensive upgrading of their existing systems. A request for the development of a fisheries database system in French Polynesia will be met during 1993—94.

Statistical support for other SPC fisheries projects

Statistical support is provided to other SPC fisheries projects, in addition to the research and assessment work of the TBAP, in particular the Deep Sea Fisheries Development Project, the Inshore Fisheries Research Project and the Regional Fisheries Training Programme. Data management for the tagging projects conducted by the TBAP has been carried out since 1989.

Most of the support provided during 1992—93 concerned continuing maintenance of database systems for the Regional Tuna Tagging Project (RTTP) and associated projects. With the completion of tagging activities during 1992—93, programming assistance continued with tag recovery data processing and data summaries.





TUNA AND BILLFISH RESEARCH SECTION

- **Biological Research**
- **Assessment & Modelling**

SOUTH PACIFIC COMMISSION
March 1994

BIOLOGICAL RESEARCH

Regional Tuna Tagging Project

The RTTP was a three-year project undertaken by the OFP, with funding support from the European Community Sixth European Development Fund (Lomé III). The project was expressly designed to provide practical answers to questions raised by tuna fisheries interaction and tuna exploitation generally, within the region. The project was completed in December 1992, but will continue to provide information on the population characteristics of yellowfin, skipjack and, to a lesser extent, bigeye, so that these questions can be addressed using various modelling approaches.

Including various in-country tagging projects (Fiji, Kiribati, Solomon Islands) and some experimental releases, a total of 133,129 tunas were tagged and released throughout the main fishing area of the western Pacific. At the end of December 1993, 14,562 of these releases (11%) had been returned.

The collection of a large amount of biological data from tuna caught during fishing operations, will provide the basis for several important investigations, including age and growth, stock structure, feeding behaviour and reproductive biology. Various analyses of this large amount of data have now either begun in earnest or are planned to begin in the coming year.

Tactical Tuna Tagging

With the completion of the RTTP and the attainment of all its primary objectives, no further large scale tuna tagging experiments are planned in the future. Smaller scale work may however be undertaken to address specific localised questions of interest e.g. fishery interaction. An example of this has been the Philippines Tuna Research Project, undertaken as a two year technical consultancy to the Philippines

Government with the approval of member countries. Exploitation rates in this much more heavily exploited component of the western Pacific tuna fishery have been estimated from results of a tagging experiment where 14,000 tuna of three species were released for over 3,500 recaptures (26%), and management implications identified.

By-catch and Discards in Western Tuna Fisheries

A review of by-catch and discards in western Pacific tuna fisheries commenced during 1991-92. The objective of the study is to critically review by-catch and discard practices of the industrial tuna fisheries operating in the western Pacific, using logsheet data provided to SPC member countries, observer data, and published and unpublished reports. The review is intended to provide authoritative background information on this topic and to point the way towards any further studies or data collection programmes that may be required. A preliminary draft of the review has been completed and was presented to SCTB6. Collection of further data on by-catch and discards will be considered when planning the SPR TRAMP observer programme.

Age and Growth of Tropical Tunas

The age and growth of tropical tunas are important aspects of their population dynamics. Tag returns are now providing a large amount of new information on growth, particularly of the longer-lived species, yellowfin and bigeye. Also during the RTTP, 704 yellowfin and 61 bigeye tuna otolith samples were collected. In combination, these data, along with a growing database of size composition data, should provide much new information on age and growth of tropical tunas.

☛ Analysis of Yellowfin Reproductive Condition

A substantial amount of data on yellowfin gonad stage, weight and other variables was collected during the course of the RTTP. These data will be analysed with the objective of characterising variability in yellowfin condition (as indicated by gonad stage and GSI) by fish size, season and location. It is believed that this may influence vulnerability to surface fishing gears.

☛ Assessment of Stock Structure

Analysis of morphometric and meristic data collected during the RTTP will be carried out to provide information on geographical structuring in the western Pacific yellowfin stock; a pilot genetic study of albacore stock structure in the Pacific is also in progress.

☛ Billfish Research

The TBAP is mandated to conduct research on stocks of billfish (marlins, broadbill swordfish and sailfish), although this has received little attention in the past due to the emphasis of the programme on commercially important tunas. The OFP's work in this area has concentrated on the collection of fishery statistics, providing information on billfish on an ad hoc basis to member countries on request and collaborating with outside researchers where appropriate.



ASSESSMENT & MODELLING

☛ Tropical Tuna Assessment Using Tagging Data

Two of the principal objectives of the RTTP were to provide a first overall assessment of the current status of the western Pacific yellowfin stock, and to provide a reassessment of the status of the skipjack stock. To this end, a preliminary analysis of aggregate RTTP results, for the purpose of evaluating the status of the stocks and their exploitation potential, was presented at SCTB5.

The analysis has been updated to include new data and some refinements to the method. This work will be finalised early in 1994 and a manuscript submitted for publication. The remaining major refinements considered necessary are the estimation of tag reporting variability from the tag seeding and other data, and the incorporation of spatial and size structure. The testing of alternative models (e.g. time variant M models) will also be carried out.

A preliminary assessment of bigeye stock status, combining the more limited tagging data with other types of data, may also be carried out.

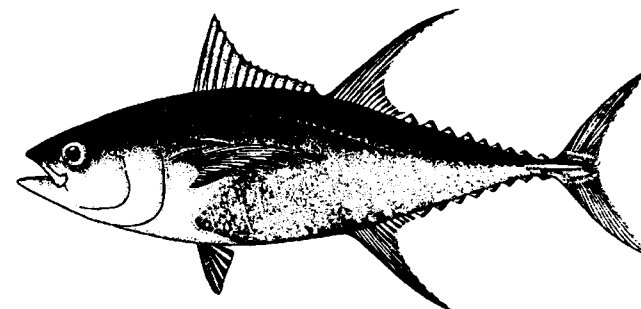
☛ South Pacific Albacore Assessment

Data collection activities and biological investigations were carried out over a three year period, with the aim of producing a first assessment of the albacore stock by the end of 1993, using a length-based assessment model. This work has extended an existing model to undertake a full age-structured analysis based on size structure, to provide estimates of mortality rates, population sizes, catchability and gear selectivity parameters. The models now form the

primary research tools for the evaluation of albacore stock status and fishery interaction.

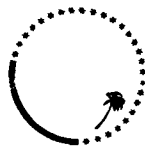
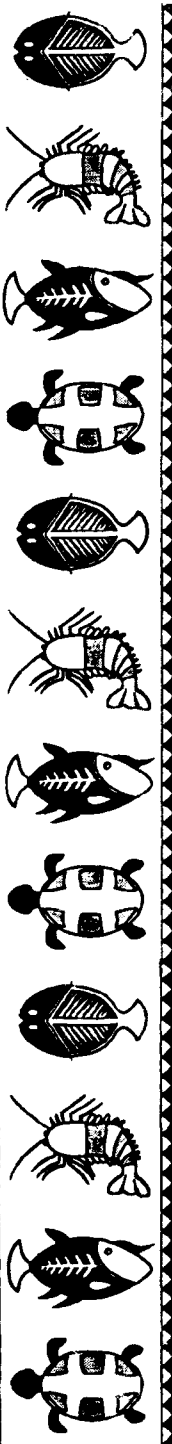
☛ Development of Indices of Yellowfin Abundance

Work has been initiated to develop indices of yellowfin abundance utilising daily catch and effort logbook data for the American and Japanese purse fleets. A generalised linear model has been fitted to the available data and significant independent variables identified. Preliminary results indicate that yellowfin stocks have not declined in response to increased purse seine efforts.



☛ Development of Skipjack Movement Model

This work is being undertaken in collaboration with Otter Research Ltd of Canada. During 1992-93, the model was tested using stimulated data and shown to be robust under a variety of experimental conditions. Preliminary fits of the model to subsets of the SSAP tag return data have yielded parameter estimates consistent with expectation. Fitting of the model to SSAP and RTTP skipjack tag return data will be carried out during 1994.



TUNA AND BILLFISH RESEARCH SECTION

- Assessment & Modelling
(Cont'd)
- Reporting and liaison
- Computer support

SOUTH PACIFIC COMMISSION
March 1994

ASSESSMENT & MODELLING (Cont'd)

☛ *National Fisheries Assessment (Country Reports)*

National Fisheries Assessments (NFAs) are produced by the OFP to inform member countries of the status of their tuna fisheries and the stocks that support them. The reports are based primarily on logsheet data obtained through access agreements with DWFNs and submitted to SPC by the member country concerned. Recent reports have been upgraded, and now include sections on the biology of the major tuna species, oceanographic influences in the EEZ, reviews of the fisheries and analyses of data, assessment of stocks and management recommendations. In some cases, the reports have included analyses of RTTP and/or in country tagging project data, enabling more quantitative assessments and management advice.

During 1992-93, one NFA was completed (Solomon Islands) and the results presented to government and industry officials. A draft report was prepared and presented to PNG Government and it is anticipated that 3-4 reports can be produced during 1994. These reports are likely to be for Fiji, Palau, Marshall Islands and possibly Tuvalu. If there is a demand and additional funding becomes available, it is possible that the preparation of additional NFAs might be possible on a consultancy basis under OFP direction.

☛ *Investigation of Interaction Between Surface and Longline Fisheries for Yellowfin*

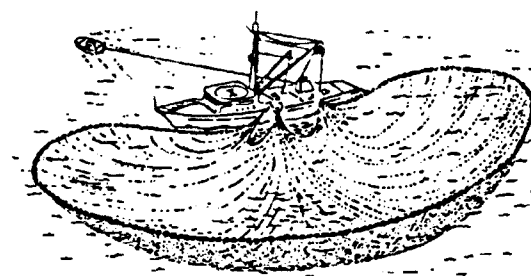
This issue has for some years been a concern for SPC member countries and its resolution was one of the major objectives of the RTTP. It is planned to carry out an analysis of tagging, size composition, catch and effort data in order to evaluate the effects of the various surface fisheries on the valuable longline fishery.

Commencement of this work has been delayed to allow a clearer picture of tagged yellowfin recoveries by longliners to emerge. It is intended that this work will be undertaken as part of Phase II of the SPC-NRIFS collaborative study.

☛ *Bioeconomic Modelling of Western Pacific Tuna Fisheries*

It is envisaged that a new project, involving collaboration between the TBAP, FFA and the University of Queensland and with ACIAR funding, would examine the optimal level and distribution of purse seine effort in the region. It would have three main objectives requiring TBAP input:

- ☛ to determine the optimal level and distribution of purse seine effort within an EEZ, taking account of interaction with the pole-and-line fishery, tuna movement and the use of fish aggregating devices;
- ☛ to determine the optimal level of purse seine effort in each EEZ taking account of spatial interactions; and
- ☛ to determine the optimal level of purse seine effort for the region as a whole, taking account of the interaction between purse seine and longline fisheries.



REPORTING AND LIAISON

The reporting and liaison function of the OFP ensures that member country requirements are adequately catered for by the OFP, that the results of OFP research are communicated in appropriate form, and that member countries receive the best available scientific advice regarding the management of their tuna fisheries. This occurs at various formal and informal levels.

The OFP has been subject since 1988 to annual peer group review by the Standing Committee on Tuna and Billfish (SCTB), which also assists the OFP with the acquisition of catch and effort from all sources. The SCTB, which reports its findings to the RTMF, also initiated the preparation of the present five-year Strategic Plan, which guides the work of the OFP for the 1993-1997 period.

The OFP also serves a scientific secretariat for the Scientific Advisory Group on South Pacific Albacore (known as SPAR), assists with the running of the Western Pacific Yellowfin Research Group (WPYRG), and provides scientific advice to various regional bodies and consultative groups as required eg the PNA group, the annual US Treaty Consultation etc.

COMPUTER SUPPORT

The OFP computer system forms an integral part of the work of the programme. It is required to process and store the very large volume of statistical data that is generated by the fisheries in the region and to undertake analyses of those data in support of programme objectives.

The OFP has at its disposal, as of December 1993, 23 computers, including an HP 9000 845S mini-computer, a Sun IPC Sparcstation, an HP 9000 715/33 workstation 17 IBM PC compatible desktop and notebook computers, and 3 Apple Macintosh. The HP 9000 845S minicomputer, Sun IPC and HP 9000 716/33 workstations, all 386 and 486-based IBM PC compatible computers and 2 of the Apple Macintosh are all connected by TCP/IP ethernet using 10BaseT

wiring through 2 HP Ether-Plus hubs, to allow rapid and easy exchange of data amongst these platforms. The needed hardware and software to complete the network integration process for the HP-9000, and Sun, Macintosh, and PC workstations were purchased, eventually delivered, and are in the process of being installed and integrated.

System enhancements and upgrades performed on PC workstations as required, and are mostly aimed towards providing increased capacity needed to support increasingly demanding mathematical modelling and analysis applications, Microsoft Windows and Windows applications. This is necessary to keep the TBAP up to date with the main stream of computer industry software developments, and to maintain compatibility with FFA and various computer systems in the region supported by them.

