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## **SOUTH PACIFIC COMMISSION**

### **TWENTY-SIXTH REGIONAL TECHNICAL MEETING ON FISHERIES** (Noumea, New Caledonia, 5 - 9 August 1996)

#### **CAPTURE SECTION** (Paper prepared by the Secretariat)

#### **GENERAL**

The Capture Section incorporates two projects, the Deep Sea Fisheries Development Project (DSFDP), and the Offshore Fisheries Development Project (OFDP). The Section's primary role is to provide practical field support, technical assistance, training and advisory services to Pacific Island member countries and territories on matters related to the development of national capture fisheries, Fish Aggregating Device (FAD) technology, and fisheries development in general. This section works closely with the other sections that make up the Coastal Fisheries Programme through collaboratively run projects and workshops that draw on the skills of all staff in the programme.

Funding of the Capture Section comes from two main sources, the Commission's core budget and external funding sources. The DSFDP staffing and operation since its inception in 1978 have been funded from the Commission's core budget. The level of core funds for this section has fluctuated over recent years, with the current level supporting the salaries of the Fisheries Development Adviser and one Masterfisherman. Only limited operational or activity funding is available from the Commission's core budget for these positions, so external funding will need to be sought to cover most of the activities of these positions.

The OFDP on the other hand is an externally funded programme where the UNDP provided funding in 1992 for of a four-year programme to promote and support medium-scale offshore tuna fishery development in Pacific Island countries, in association with programs of FAD deployment. The OFDP funding provides for the employment of a Project Officer (Fisheries Development Officer) for two years, a Project Assistant, and 6 man-months of specialised consultancy per year.

During the second quarter of 1995, UNDP was unable to continue providing funding support for the fourth year of the OFDP. However, as a result of the recommendation of Pacific Island member countries, during the Tripartite Review of the Regional Fisheries Support and National Capacity Building Project (RFSNCBP) at PNG in May, 1995, UNDP agreed to utilise resources under this Project as seed money to assist SPC in implementing the fourth year of the OFDP. The OFDP will be officially concluded by the end of August, 1996. Given the conclusion of this funding, the Capture Section will need to focus on securing external funding from other sources to continue its operation beyond August 1996 at a similar level.

The focus of the Capture Section has changed, and continues to change in line with the fisheries developments that are occurring within the region and the type of national requests being received. These changes still require the services of highly skilled Masterfishermen to conduct in-country projects with Fisheries Department staff, local fishermen and local fishing companies. The main focus of the region, and hence the Capture Section, has been on developing tuna longlining operations, the surveying of suitable FAD sites and the construction and deployment of FADs. All Sections of the Coastal Fisheries Programme have been involved in workshops associated with these topics.

## **NATIONAL LEVEL ACTIVITIES**

In the period from March 1994 to August 1996, the Capture Section conducted the following projects using Masterfishermen, Consultant Masterfishermen, the Fisheries Development Officer and the Fisheries Development Adviser.

**Solomon Islands: Deep-bottom fishing training, November 1993 - March 1994**

March 1994 saw the conclusion of this very successful project in Marau, Solomon Islands by consultant Masterfisherman, Paxton Wellington. The project at that time was assisting with the fitting out of 6 local vessels with deep-bottom fishing gear, and then training the crews in the method of deep-water snapper fishing. Several seamounts were discovered during the fishing trials which resulted in large catches of *Etelis coruscans* plus an assortment of other associated species. Catches were in the order of 100 kg to 200 kg per day per vessel with the main fishing activity targeting a depth of around 225 metres.

Another important component of this project was the training in appropriate fish handling techniques for export quality fish. Iced fish were transported to Honiara and then flown to Hawaii. Initial shipments received favourable prices which put a lot of money in the pockets of the crews being trained. At the conclusion of the project, handling practices had improved, however, there was still room for further improvement.

**Tonga: Training in safety at sea and the use of vertical longlines, February to March 1994**

This activity was a joint project between the Capture Section and the Fisheries Training Section. The workshop focused on the demonstration at sea of deep trolling and vertical longlining technique in association with FAD's and gear construction and maintenance. Another important component of this project was training in and demonstration of safety at sea procedures. The workshop was well received by the 40 Tongan participants.

**Palau: Inshore sportfishing workshop, April 1994**

Following the Palauan Government's decision to promote the development of a sustainable sportfish fishery, the Capture Section provided the services of Masterfisherman Peter Watt to assist in a one week workshop. The aim of the workshop was to introduce the concept of light-tackle sportfishing to the public and private sectors, establish the requirements for a sustainable industry and train participants in sportfishing techniques. SPC designed specific modules for the workshop on fishing vessel requirements, safety at sea and boating etiquette.

Palau: Technical assistance in the use of monofilament longline gear, November 1994

Consultant Masterfisherman Steve Beverly assisted Palau's Department of Marine Resources in evaluating the potential of their newly acquired multi-purpose vessel, F/V Elechel, which came as an aid boat from Japan's OFCF. F/V Elechel came equipped with a Lindgren-Pitman monofilament longline reel and most other gear necessary for tuna longline fishing. Advice was given on gear configuration and additional gear needed. The Masterfisherman accompanied DMR staff and OFCF officers on a deep bottom fishing trip to Velasco Reef on F/V Elechel. A future longer term longline project was envisioned with DMR and SPC to fully develop the tuna longlining technique in Palauan waters.

Wallis and Futuna: National FAD programme implementation, July 1995

This project involved close collaboration and cooperation between 4 organisations, SPC Capture Section, the Service de l'Économie Rurale et de la Pêche of Wallis and Futuna, the Service Territorial de la Marine Marchande et des Pêches Maritimes of New Caledonia, and the French Navy. The aim of the project was to train the fisheries staff of Wallis and Futuna in the construction and deployment of FADs, through installing two FADs in areas previously surveyed under SPC staff supervision. The training was conducted by SPC's Fisheries Development Office, Satalaka Petaia, and Philippe Simoni, Masterfisherman with the Service Territorial de la Marine Marchande et des Pêches Maritimes.

The project was very successful with the two FADs deployed in the chosen locations, 120 miles apart. The French Navy vessel La Glorieuse was used for the deployments, which were done on the same day. Given the size of the vessel and the equipment available, the mooring line was laid out on the afterdeck and the FADs deployed anchor first, which is not the normal procedure, however, very effective from this type of vessel.

American Samoa: National FAD programme implementation, August 1995

With the loss of key staff from the Government of American Samoa's Department of Marine and Wildlife Resources' (DMWR) FAD programme, SPC arranged the services of Western Samoa's Senior Fisheries Officer, Savali Time to assist with the finalisation of their FAD programme. For three weeks, practical training was given in FAD site surveys (using SPC's equipment loaned to DMWR), construction of all parts of FADs, and deployment procedures, using a DMWR vessel. The end result was that 4 FADs were successfully deployed in the waters around American Samoa, which concluded their FAD programme.

Chuuk: Assessment of National Fisheries Corporation's longline fleet, August 1995.

Consultant Masterfisherman Steve Beverly, in conjunction with a regional tuna handling workshop conducted by SPC's Post Harvest and Fisheries training Sections held in Chuuk State, gave a preliminary assessment of NFC's longline fleet. In particular, NFC's two Delta Marine (USA) fibreglass longliners, NFC Waab and NFC Kosrae, equipped with Lindgren-Pitman monofilament gear were inspected and evaluated for a possible future NFC-SPC project.

Initial assessment found the two vessels broken down and inoperable due to lack of maintenance and engine problems. There is clearly a need to improve current maintenance procedures to keep these vessels operational.

**Tuvalu: Initiation of comprehensive national FAD programme (Phase I), October 1995**

Phase I of the national FAD program was to use SPC expertise, through the assistance of the Fisheries Development Officer, Satalaka Petaia, to train local counterparts on FAD site surveying, all aspects of FAD construction and FAD deployment. Over the 2 week period, formal sessions were run with the staff of the Tuvalu Fisheries Department and the captain and crew of the F/V Manau. In addition, a national FAD implementation programme plan was developed for 1996.

Site surveys were conducted in two outer islands, Nui and Vaitupu by the F/V Manau, which was equipped with echo sounding equipment to conduct site surveys in depths to 2,000 metres and a Global Positioning System for accurate navigation to assist the survey work. After practical training on the job at the first island, the captain, crew and fisheries officers were able to conduct the second site survey under minimal supervision. Following this visit the Tuvalu Fisheries Department staff were able to conduct site surveys around some other islands without further assistance from SPC.

**Pohnpei: Technical assistance in fleet operations and longline fishing using Lindgren-Pitman monofilament longline gear, March to June 1996**

SPC Masterfisherman Steve Beverly spent twelve weeks working with FSM's National Fisheries Corporation (Pohnpei). The aim of the project was to improve maintenance and management procedures in NFC's fleet and to increase catch per unit effort of the two NFC vessels that are equipped with LP monofilament systems. Work was carried out on one of the two 53 foot fibreglass Delta Marine longliners, NFC Waab, which had been moved from Chuuk to Pohnpei for the project. The vessel and fishing gear were upgraded and all safety equipment and appliances renewed in preparation for longline fishing. A new style of branchline using 3.0 mm tarred polyester line and stainless steel leader wire was introduced.

During the course of two longline trips, fishing in the waters to the east of Kapingamarangi Atoll, the crew of NFC Waab were trained in fishing techniques and strategy using the LP system. Catch per unit effort was improved over past results (43 kg/100 hooks compared to 18 kg/100 hooks) but recurring maintenance problems cut the actual fishing time short. Aside from maintenance regimes and fishing techniques, the other issue that was looked into was suitable vessel parameters for a commercial tuna longliner.

**Tuvalu: FAD program implementation (Phase II), May to June 1996**

Phase II of the Tuvaluan national FAD programme was aimed at further instruction and training of fisheries department staff as well as the practical deployment of two FADs. The Fisheries Development Officer, Satalaka Petaia, was assigned to this programme. Further training was provided in all aspects of FAD construction, site surveys and the deployment of FADs. This was a very successful project which resulted in the deployment of two FADs and the surveying of several other locations. Instruction was also provided in the appropriate maintenance of FADs.

Concurrent with the implementation of Phase II of the national FAD program, the Fisheries Development Officer was also able to assist the Tuvalu Fisheries Department with their national training workshop. Input into the workshop centred on the demonstration of variety of FAD based fishing techniques (drop-stone method, trolling and vertical longlining), as well as sea safety procedures.

## **OTHER NATIONAL ACTIVITIES (ADVISORY SERVICE)**

Another area of assistance that the Capture Section has been able to offer member countries is that of the provision of advisory services on technical fishery issues in response to a variety of requests. This service was provided by staff within the section either from headquarters or during in-country consultative visits. Some of the main areas where advice and information were provided are outlined below.

### **Fiji: National FAD programme, June 1994**

The provision of technical advice on FAD design, material procurement and specification, as well as FAD programme planning and needs assessment to the Fiji Fisheries Division. This advice was provided by the Fisheries Development Adviser, Peter Cusack, to assist the national FAD programme being implemented by the Fisheries Division.

### **Papua New Guinea: National FAD programme, July 1994**

In an effort to support the initiation of a sustainable national FAD programme, the Capture Section through the services of the Fisheries Development Adviser, Peter Cusack, assisted the Department of Fisheries and Marine Resources with the implementation of its FAD programme, primarily for the New Ireland region. Technical advice was provided on FAD designs, material procurement and specification, as well as FAD program planning and needs assessment.

### **New Caledonia: National FAD programme, September 1994**

In conjunction with the implementation of the Territory's Service Territorial de la Marine Marchande et des Pêches Maritimes national FAD programme, technical advice and assistance on FAD material procurement and specifications, design, construction, and FAD needs assessment was provided. These services were provided by Masterfisherman, Peter Watt and the Fisheries Development Adviser, Peter Cusack.

### **Tuvalu: Workshop to review the bottom fish fishery and draft management plan, January 1995**

This workshop was called to review the potential future development and management strategies of the deep bottom fish fishery in Tuvalu. The workshop was also used to present the findings of the consultants to the Government of Tuvalu. The findings of the consultants and draft management plan highlighted the potential constraints that are most likely to impede the development of a bottom fish fishery in the country, as well as making specific recommendations on how to alleviate these constraints in order to create an environment that is conducive to the sustainable development and management of the bottom fish industry in Tuvalu.

SPC's participation in this workshop was by Satalaka Petaia, Fisheries Development Officer. Mr Petaia's participation in the workshop arises following his three year involvement as the project manager of the Tuvalu Bottomfish Project, before commencing with SPC.

### **Papua New Guinea: Fishing industry seminar, December 1995**

The Seminar was initiated by the Capture Section following the successful completion and very encouraging results of the East New Britain Pilot Tuna Longline Project. The purpose of the seminar was to inform the Government of PNG, and the private sector of the potential opportunities and problems regarding the development of a domestic tuna fishing industry in the country.

The seminar highlighted a number of issues requiring immediate attention by the National Fisheries Authority: the need to review all foreign longline licences that were recently reflagged in PNG; to initiate a study of the economics of the tuna industry in PNG; to design and implement a strategic plan on the domestication of the tuna industry in a realistic timeframe; to establish consultative links with other Departments and Statutory Authorities within PNG; and the development and implementation of a tuna resource management plan.

Kosrae: Evaluation of FAD materials and programme, June 1996

SPC Masterfisherman Steve Beverly inspected Department of Fisheries and Marine Resource's FAD materials and vessel. DFMR has materials on hand for rigging seven or eight deep water FADs. The materials were part of an aid package from Japan's OFCF and have been under-utilised in the past. DFMR also has a 15 metre fisheries vessel that was donated by Japan. The Masterfisherman determined that the vessel, F/V Mutunte, was suitable as a FAD survey and deployment vessel if it could be equipped with a deep water colour echo sounder.

## REGIONAL AND SUB-REGIONAL ACTIVITIES

During the last two years, the Capture Section continued to monitor and keep abreast of regional and world-wide developments in FAD technology, and capture fisheries technology, in particular the medium-scale commercial tuna longline fishery. These included the exchange of technical information with FAD users in the Indian Ocean and Japan, consultation with FAD material and tuna fishing gear suppliers, and acquisition of information on markets and marketing opportunities for chilled fresh tuna.

The Capture Section was also involved in several regional and sub-regional workshops. Many of these workshops required the joint efforts of the different sections that make up the Coastal Fisheries programme, to develop the training material required. In other instances, the section worked with other national and regional organisations to draw on the appropriate expertise. The main workshops that the Capture Section were involved in are summarised below.

American Samoa: First sub-regional FAD skills workshop, May 1994

The aim of this workshop was to provide practical training for participants in all physical aspects of FAD programme implementation. SPC Masterfisherman Peter Watt Masterfisherman Aymeric Desurmont from New Caledonia's Service Territorial de la Marine Marchande et des Pêches Maritimes spent around 2 months preparing the detailed training programme on FAD skills. The programme covered site survey techniques, preparation of bottom contour maps, FAD site navigation and charting, FAD material specifications, mooring calculations and rigging, raft and anchor construction, deployment techniques, and maintenance procedures. Assistance was also provided by USP tutor, Captain Jone Maiwalagi. The workshop comprised 14 participants from American Samoa, Cook Islands, Fiji, Niue, Tokelau, Tonga and Western Samoa.

Concurrent with this workshop, the Capture Section through the services of the Masterfishermen, provided technical advice and assistance to American Samoa's Department of Marine and Wildlife Resources (DMWR), for which the technical assistance of the Commission had been requested. Both DMWR and the participants were extremely pleased with the outcomes of the workshop.

Palau: Second sub-regional FAD Skills Workshop, October-November 1994

The aim of the two-week workshop was to provide technical training for participants in all physical aspects of FAD programme implementation including: site survey techniques using Global Positioning System (GPS) and a colour echo sounder, preparation of bottom contour charts, FAD material specification and procurement, mooring calculations and rigging, raft and anchor construction, deployment techniques, and maintenance procedures. The workshop was held at the Marine Resources Division's headquarters in Koror. MRD also provided the use of their newly acquired multi-purpose fishing vessel, F/V Elechel. At the conclusion of the classroom portion of the workshop, a site survey was carried out and an Indian Ocean style FAD was rigged and deployed.

Masterfisherman Peter Watt, Consultant Masterfisherman Steve Beverly, and Cook Island's Ministry of Fisheries Masterfisherman Siosifa Fukofuka taught FAD skills to eleven fisheries officers. Participants included officers from Guam, Nauru, Kiribati, Tuvalu, Marshall Islands, Commonwealth of the Northern Mariana Islands, Yap, Pohnpei, Kosrae, and Chuuk. Also three fisheries staff from Palau's MRD attended the workshop in addition to performing their duties as crew of the vessel used for site survey work and FAD deployment. Again as with the first workshop of this type, the participants and the officers from MRD were extremely positive about the benefits of such practically oriented workshops.

New Caledonia: Fisheries officer's practical fishing module, July 1995

In collaboration with the New Caledonian Service Territorial de la Marine Marchande et des Pêches Maritimes, the Capture Section assisted the Fisheries Training Section in running the 1995 Practical Fishing Module for South Pacific Fisheries Officers in Touho, New Caledonia. The Capture Section was able to assist through the services of the Fisheries Development Officer Satalaka Petaia. Areas covered through this course included the provision of practical hands-on training in fishing practices, gear technology, navigation, and the latest FAD technology. As always, this course was very well received as the participants derived huge benefits from this practical module, which complemented the theory they received in the classroom in New Zealand.

Consultancy: The use of live milkfish as tuna longline bait, June to July 1996

Given the regional growth in domestic tuna longlining operations, and the reports of increased catch rates when live milkfish is used as longline bait, the Commission contracted a consultant to do a study on the use of live milkfish in tuna longlining operations. Bill Fitzgerald from Oceania Pacific Rim Consultant Services was contracted to undertake this study.

The aims of the study are to give an overview of the use of live milkfish in the Guam-basin tuna longline fishery; survey the current use of live bait by vessels porting in Guam including the practical procedures for adopting live bait use, comparison of live milkfish to other baits, and the fishing success with live milkfish; a summary of the catch data from landings in Guam with all associated data such as number of hooks set and amount of live bait used; production of live milkfish at each stage (fry, fingerlings and useable size) and the other uses of milkfish; a description of the procedures for transferring live bait from farms to the vessels; an overview of the live bait fishery elsewhere in the Pacific and in Asia; and a discussion on the economic potential of live bait production and use in the Pacific Islands. The results of this study will be presented at the RTMF.

Kiribati: Fisheries officer's practical fishing module, July 1996

In collaboration with other Section's of the Coastal Fisheries Programme, the Capture Section assisted the Training Section in running the July 1996 SPC/Nelson Practical Fishing Module which was held on the Island of Abaiang in Kiribati. The Capture Section assisted in this initiative through the services of the Fisheries Development Officer, Satalaka Petaia, who served as skipper/tutor during the course. Practical hands-on training in fishing practices, gear technology, navigation, and the latest FAD technology were provided to the participants.

## **OTHER ACTIVITIES**

### **Short term consultancies and training attachments**

Technical experts were called upon to assist in short term projects, particularly in FAD programmes, and in collaboration with the Training Section, a number of training attachments for Pacific Island nations were organised. Short term consultancies included: the Fisheries Training Officer from IMR, USP, Jone Maiwalagi was attached to the first FAD Skills Sub-regional Workshop held in American Samoa; a Cook Islands Fisheries Officer, Siosifa Fukofuka, was attached to the second FAD Skills Sub-regional Workshop held in Palau; Philippe Simoni, Masterfisherman with the New Caledonian Service Territorial de la Marine Marchande et des Pêches Maritimes was on attachment in Wallis and Futuna for FAD surveys, rigging and deployment; and Savali Time, Senior Fisheries Officer with the Western Samoa Department of Agriculture, Forestry, Fisheries, and meteorology supervised FAD site surveys, rigging and deployment in American Samoa.

In addition to the short term consultancies, training attachments were arranged for Len Isotoff, Assistant Manager Operations and Training, National Fisheries Corporation (FSM) and Nicholas Yarofalchuw of the Micronesian Longline Fishing Company (FSM). Both were enrolled in Ocean Producers International's (Hawaii) first longline fishing course held in Honolulu in February 1996.

### **Publications**

Draft technical reports compiled by section staff and consultants as a result of their field assignments have in most cases been provided immediately on completion to the host nation. In addition, the Capture Section disseminates information to member countries through the fisheries newsletters and bulletins.

Specific publications over the last two years include Manuals on FADs: Volume I & II - FAD Programme Planning Handbook; Rigging Deep-Water FAD Moorings; and a Special Interest Group Bulletin devoted to FAD use. Other manuals that had been produced before the last RTMF have now been translated into French and distributed.

## **EVALUATION**

The Capture Section has been greatly restricted over the last 2 years through not having a Masterfisherman on staff until March 1996, and due to the uncertainty in both core and extra-budgetary funding support. Even with these constraints, the section has been able to maintain the level of assistance and output as required to meet all country requests in a timely fashion. The conclusion of funding from UNDP, and the loss of the two positions which it supports (Fisheries Development Office and Project Assistant), will make it difficult to continue activities at the current level unless additional extra-budgetary funding can be secured.

## **FUTURE PLANS AND ACTIVITIES**

The most important short-term need of the Capture Section is to secure extra-budgetary funding for field operations and the employment of at least one or two more Masterfishermen, as well as retaining support staff in Noumea. This is essential for the section to provide field assistance in the development of tuna longlining operations with Pacific Island Nations. However, the activities of the Capture Section will be constrained by the level of funding available.



In line with recently established national policies to domesticate the commercial exploitation of tuna resources, the Capture Section will continue to promote and support the development of small to medium-scale offshore fisheries in the region, particularly tuna fisheries. It is anticipated that further assistance will be required by some countries for the construction and deployment of FADs, including site surveys, and the fishing methods used in conjunction with these devices. The aim of these initiatives is to increase the participation of member countries in the harvest of the tuna resources and to obtain maximum benefits from this effort.

Aligned to the catching of fish will be the need for correct onboard fish handling practices and onshore handling of product for both domestic and export trade. This is an area that the Coastal Fisheries Programme as a whole will need to work on as these areas spans several section within the Coastal Fisheries Programme.

Another area that the section will focus on is the increasing use of live milkfish as bait in tuna longlining operations. Bait is a major cost of any longline operation, so any assistance through increased catch rates or reduced costs associated with bait will assist development of domestic longline operations.

The section has already received indications from several countries that they will be seeking assistance from the Capture Section in the immediate future. Informal requests for assistance from the section have also been received for Kosrae (FAD construction and deployment training) and Tonga (assistance in many areas for a domestic tuna longline company).

Masterfisherman Steve Beverly has already been assigned to commence a project in New Caledonia with the local tuna longline company Navimon, to improve the catching power of Navimon's tuna longline fleet. Key elements will be the provision of on-the-job training for the crew of the vessels, with particular emphasis on fine-tuning effective tuna fishing strategies, the use of Lindgren-Pitman gear, line setting and hauling procedures, and onboard fish handling and storage procedures.

The final area that the Capture Section will be focusing on is the area of publications. Several manuals are partly written (FAD volume III [to focus on site surveying procedures, rope and buoyancy calculations etc.,] and vertical longlining training manual) as well as there being many country reports that need finalising. These will be progressed in line with the available time of staff within the section.

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