

SOUTH PACIFIC COMMISSION

FOURTH TECHNICAL MEETING ON FISHERIES

Noumea, New Caledonia

21st - 29th October, 1970

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I N T R O D U C T I O N

The South Pacific Commission, at its Thirty-Second Session (1969), made provision for holding a Technical Meeting on Fisheries - the Fourth such meeting - during 1970.

It was decided at the Session, due to the high cost of interpretation and servicing staff, that it was not possible to hold this meeting in Fiji as originally intended and consequently the meeting took place at the SPC headquarters, Noumea, from 21-29 October, 1970.

The main theme of this Technical Meeting on Fisheries was "Fishing Boats and Fishing Gear suitable for Pacific Island Fishermen" and emphasis was also placed on an up-to-date assessment of territorial requirements and the further preparation of projects for inclusion in the Work Programme of the South Pacific Commission and also the South Pacific Islands Fisheries Development Agency.

Observers were present from the Food and Agriculture Organization of the United Nations, the United Nations Industrial Development Organization, the United States Peace Corps, and also a number of commercial companies concerned with fishing vessel construction.

The Meeting was called to order on 21 October by Mr A. Harris, Programme Director (Economic), who introduced the Secretary-General, Afioga Afoufouvale Misimoa. Mr J. Emond, Second Commissioner for France on the SPC, then gave an address of welcome to all the participants, and finally, Mr A. Harris addressed the Meeting.

ELECTION OF OFFICE BEARERS

On the nomination of Mr P. Wilson (Trust Territory of the Pacific Islands), seconded by Mr A. Adams (Fiji), Mr V. T. Hinds, the SPC Fisheries Officer and Co-Director of SPIFDA, was elected Chairman.

On the nomination of Mr W. Travis (Western Samoa), seconded by Dr S. Swerdloff (American Samoa), Monsieur M. Legand of the Office de Recherche Scientifique et Technique Outre-Mer (ORSTOM), was elected Vice Chairman.

The Steering Committee, consisting of the Chairman, the Vice Chairman, Mr A. Harris, Programme Director (Economic), and Mr P. Wilson (TTPI) was also established.

It was decided to appoint two rapporteurs to serve on a one-day basis, and that the rapporteurs would be appointed at the beginning of each daily session.

A Drafting Committee, consisting of the Chairman and Rapporteurs for the day, would also be established.

HOURS OF MEETING

The daily hours of meeting were accepted as follows:

0830 - 1130
and 1300 - 1630

ITEM I: TERRITORIAL STATEMENTS, PRESENT STATUS AND PROBLEMS IN THE TERRITORIES

All territories provided verbal resumés of their written situation statements. As requested by Mr A. Harris, Programme Director (Economic), Territorial Representatives touched briefly upon their interpretation of the rôles SPC and SPIFDA should play. A recurrent theme was the wealth of local expertise available within the territories and it was felt that SPIFDA should be encouraged to draw upon this source. Greater inter-change of ideas and techniques was considered desirable. It was generally felt that a necessary rôle of the SPC, and one which should be developed, was the collection, correlation and dissemination of statistical and technical information. Concern was expressed about the apparent overlap of duties of SPC and SPIFDA and the rôle and direction which they would be taking in South Pacific Fisheries Development.

ITEMS II and III: THE ROLE OF THE SOUTH PACIFIC COMMISSION IN FISHERIES DEVELOPMENT OVER A THREE-YEAR PLANNED PROGRAMME FROM 1972 TO 1974 INCLUSIVE

AREAS OF FISHERIES DEVELOPMENT IN WHICH THE SOUTH PACIFIC ISLANDS FISHERIES DEVELOPMENT AGENCY (SPIFDA) MAY BE OF GREATEST VALUE, INCLUDING THE IDENTIFICATION OF PRIORITIES ACCORDED TO PROJECTS FOR ACTION BY SPIFDA

The Meeting reviewed the fisheries programme requirements of the territories comprising the South Pacific Commission and agreed that during the coming years, the SPC should develop a wider range of activities relating to the marine resources of the area. Services of specific interest to members of the SPC include:

1. Fisheries Intelligence Service

Activities included within this section should comprise the collection, analysis, translation, publication and dissemination of practical fisheries knowledge.

The Meeting agreed that priority should be given to:

- a. keeping all members advised on the marine activities of other territories and making review of all activities and projects pertaining to fisheries and marine cultivation in SPC Island Territories;
- b. accumulating and translating such information as may be of use to territorial fisheries programmes.

2. Education

The Meeting agreed that all Territories would benefit from an increase in educational activities relating to the use and protection of the marine resources of their area. Emphasis should be given to the development of film strips, handbooks, films, pamphlets, posters, etc. and that these should be put into as many languages as is necessary to accomplish their primary objectives.

3. Training

The Meeting recognized the real need for increased training activities in all sectors of the fisheries activities. The importance of adequately trained support personnel such as navigators, mechanics, accountants, carpenters and fishermen was noted and

THE MEETING RECOMMENDED:

- a) the South Pacific Commission provide all territories with the location, cost-requirements and data of all training programmes within the Pacific region to which territories could send indigenous personnel for basic and advanced training in fisheries related activities; and
- b) the South Pacific Commission provide funds to the Territories which could be used to transport and support to and from selected training centres qualified islanders who would benefit from basic or advanced training programmes.

4. Consultant Services

The Meeting recognized the need of the territories for the Consultant Services as provided by the SPC's Fisheries Officer and urges that additional efforts be made by the SPC to increase the scope of such services by:

- a. providing an assistant to the present Fisheries Officer;
- b. providing funds for the transportation of certain marine specialists now working in the territories, where such consultant services would prove beneficial to the Territories requesting such assistance;

- c. locating and funding the transportation of experts from outside of the Commission area to such territorial areas as require assistance when it has been determined such is not available from within the SPC area.

5. Fishing Symposia

The Meeting recognized the need for additional symposia of a technical nature in order to keep regional fisheries personnel well advised on recent advances in such activities as are recognized to have an immediate value to the Territorial economy. In particular, the Meeting recommends that Technical Marine Symposia be held during the next three years on the following subjects:

- a. Turtle culture, farming and conservation;
- b. Tropical skipjack fishing;
- c. Edible oyster cultivation;
- d. Pearl shell cultivation and pearling;
- e. Shrimp cultures;
- f. Control and behaviour of the Crown-of-Thorns Starfish, Acanthaster planci.

The Meeting recognized that many territories are not adequately financed or budgeted for attending such Symposia and therefore,

THE MEETING RECOMMENDED:

- 1) the SPC provide funding for travel to such symposia; and
- 2) that such symposia be held in those Territories in which the subject matter is being worked on and with the participation of appropriate consultants.

Fisheries Development and Research Projects

The Meeting recognized the need for many research and development projects which are required to bring about a meaningful improvement in the economy of the Territories through a greater utilization of the marine resources of the area. The Meeting urges the SPC to take action to ensure that SPIFDA recognize that these projects are long-term and must be adequately budgeted and staffed for the period of time necessary to obtain the desired results. These long-term projects, principally those concerning the development and rational management of the existing and potential resources of the reefs, atolls and lagoons should be considered as being the responsibility of SPIFDA. The Meeting urges SPC and SPIFDA to consult with the territorial fisheries representatives on criteria deemed essential for the proper selection of personnel working in their respective areas and to make every effort to ensure an adequate period of work time for the expert while in the field.

ITEM IV: THE IMPROVEMENT AND MECHANIZATION OF FISHING CANOES INCLUDING THE INTRODUCTION OF NON-TRADITIONAL MATERIALS

Dr B. White for the Cook Islands dealt with the importance of traditional canoes within his Territory and the unlikelihood of their being superseded within the foreseeable future by alternate types. Attention was drawn to a fibre-glass canoe which was introduced into the Northern Cooks by Mr R. Powell some years ago but this, however, had proved too heavy for accepted use. The Southern Cooks, in contrast to the traditional canoe construction employed in the Northern islands, had been using plywood canoes, sometimes fibre-glass covered, during the past decade and these were now accepted by the fishermen in this region. It seemed as though the Cook Islands canoe was nearing the peak of its design and performance possibilities.

Other members of the Meeting touched briefly upon the possibilities of assisting certain territories by the interchange of plans and construction details of successful canoe types, such as the Cook Islands canoe, French Polynesian Taha canoe, Northern Solomons and Gilbert and Ellice Island types. The Chairman requested that representatives for these territories or any other members who had information, plans or construction details of these specific types, should forward them to the SPC Fisheries Officer for library and record purposes.

With regard to new materials other than plywood, weight and cost penalties were generally considered prohibitive for local canoe construction within the Territories at the present time.

ITEM V: THE DORY AND ITS APPLICATION TO NEAR SHORE PELAGIC FISHERIES

The Chairman pointed out that consideration was being given to experimenting with a St Pierre-type of dory as a possibility for an intermediate vessel at Niue Island, should the project of creating a small boat harbour on the west coast there be undertaken.

Mr Fyson, FAO, provided an interesting commentary on cheap methods of dory construction as had been practised by him in certain territories in Africa. This consisted of building the craft on an inverted jig and securing the planking with copper wire. Fibre-glass tape was then placed over the wire and glued in place after which the dory was taken off the jig for final construction. This seemed to have definite possibilities for local island construction of this type of vessel. Dr Swerdloff from American Samoa spoke briefly on the St Pierre modified dory which had been used with certain success within his territory recently. This vessel was considerably larger than the original

St Pierre Dory, being 28' long. It was fibre-glass sheathed and was very heavy. A 16 h.p. diesel motor gave a speed of 7 knots and a 40 h.p. motor produced $8\frac{1}{2}$ knots. It was felt that the St Pierre dory-type might well prove a possible general duties intermediate vessel for certain territories.

ITEM VI: FLORIDA TYPE FISHING SKIFFS: THEIR SUITABILITY FOR LAGOON FISHING CONDITIONS IN THE FIJI ISLANDS

Mr Adams from Fiji pointed out that this type of inshore vessel had proved extremely useful in certain lagoon areas within his territory since it enabled fishermen to reach new grounds at considerable distances from their villages. The forward positioning of the outboard motor employed in this design had not given rise to difficulties once a new technique required for steering the skiff had been mastered. In Fiji, Florida skiffs had been used exclusively for inshore shallow water netting operations for which they were ideally suited. They were not however suitable for beyond the reef and rough water usage. Mr Wilson, for the Trust Territory, commented that his region have used a similar vessel - the Hawaiian bait-skiff - with the engine in the rear. This had proved a versatile and stable work platform for general purposes in inshore waters.

ITEM VII: THE REVIVAL AND DEVELOPMENT OF THE WESTERN SAMOAN "ALIA" - A TWIN-HULLED FISHING PLATFORM OF TRADITIONAL MATERIALS

The representative for Western Samoa described in some detail the development and construction of these offshore fishing platforms. Particular emphasis was placed upon their multi-purpose usage, stability and low cost. As an example of this last consideration, a 30-foot twin-hulled vessel of this type, capable of carrying a two-ton payload, and having a cruising speed of $9\frac{1}{2}$ knots with a 20 h.p. motor, whilst carrying a crew of 7, cost the village craftsmen responsible for its construction \$380, of which \$300 represented the price of the engine. It was pointed out that two distinct types of "Alia" had been developed within the last year in Western Samoa. One of these was based upon the ancient traditional Tongan ocean-going war catamaran, whilst the other was a lighter, higher vessel obtained by enlarging and joining two standard light-weight Western Samoan Bonito canoe hulls. Both types had proved extremely successful, the Tongan version being generally the larger, heavier, and also wetter boat. Considerable experience in their offshore fishing potential had been gained during this year's S.E. monsoon and the vessels had shown themselves capable of conducting many offshore fishing duties in all but the most severe weather. It was felt that this development might be of interest for possible adoption by other territories who had need of a low-cost, locally constructed offshore fishing vessel.

ITEM VIII: THE DEVELOPMENT OF THE TAHITIAN "BONITIER" FISHING BOAT, AND AREAS WHERE THIS TYPE OF VESSEL MAY BE PROFITABLY INTRODUCED

M. W. Ellacott (French Polynesia) presented details of the history and development of Tahitian skipjack tuna boats. These vessels, modified cruisers, are 28' - 32' in length and are powered by 80-250 h.p. diesel engines. Maximum speeds of 18-22 knots are attained. Fish and ice holds are not provided, and the vessels are used as day boats, with a maximum range of 100 miles. Competitive aspects of the Tahitian bonito fishery have necessitated frequent changes to higher horsepower engines, resulting in rapid depreciation of engine value.

All of the delegates expressed considerable interest in adapting the "bonitier" to their territorial conditions. Mr M. Sutherland (Certified Concrete N.Z. Ltd.), suggested the use of variable pitch propellers to reduce engine size and increase payload, while Mr S. Sannergren (UNIDO) indicated that fibre-glass or aluminium hull construction would give the same results. Mr J. Fyson (FAO) pointed out that dynel-covered marine plywood could also serve as hull material.

The meeting recommended that the SPIFDA boat expert conduct a study of the Tahitian "bonitier", resulting in improvement and/or adoption of this design in other territories.

ITEM IX: APPLICATION OF THE FERRO-CEMENT MEDIUM TO FISHING BOATS IN THE PACIFIC ISLANDS - REQUIREMENTS AND FEASIBILITY

Mr A. Sannergren (UNIDO) opened the discussion with the history of ferro-cement construction for fishing craft. He pointed out the advantages and drawbacks in using this material. The main advantage is low maintenance cost. Construction and maintenance can be undertaken by unskilled labour provided an experienced supervisor is available. On small vessels, he pointed out, no frames are required which effected savings on capital costs of from 8-10%. One prototype 30 foot fishing vessel has already been constructed at Suva under his supervision. The cost of materials for the hull and deck was F\$800 and approximately 800 man-hours were required to complete the vessel. Mr Sannergren stressed the need for sharp, clean sand for this construction and did not consider coral sand suitable. In displacement hulls of ferro-cement construction, fuel costs would be slightly increased.

Mr M. Sutherland went into considerable detail on aspects of ferro-cement construction. Initially, ferro-cement construction met with many problems and in some cases gained a bad reputation due to local failures resulting from bad design or construction. His firm had made special studies of these difficulties and developed a special wire mesh as one means of increasing strength and impact resistance. One of the initial troubles with ferro-cement construction was that fuel and lubricating oil, mixed with

sea water, would penetrate the ferro-cement and cause rusting, but this has now been resolved by using epoxy paint in the sump and bilges.

Problems had been experienced with refrigeration in this form of construction and from experience it was found that a vapour barrier, or space between hull and insulation was necessary.

Another point noted was the poor impact resistance of flat surfaces in ferro-cement construction; curved surfaces provide better results but low impact resistance remains a consideration in design of ferro-cement fishing vessels. The New Zealand Marine Division has set standards for ferro-cement construction and these are now being followed by reputable firms. The mixing of the cement, sand and water are very important, Mr Sutherland stated, and should be carried out with a mechanical mixer of the rotary paddle type. The seakeeping abilities of ferro-cement vessels are exceptionally good, especially in the larger displacement hulls. Mr Sutherland mentioned a vessel built in Hong Kong which was comfortably fishing when other vessels of similar size had to leave the fishing grounds because of rough seas. It was Mr Sutherland's opinion that ferro-cement was more suited to displacement hulls than chine hull construction.

Construction costs in ferro-cement were of the following dimensions: materials for a 48/50' vessel from NZ\$1.3 - NZ\$1.5 per square foot of total surface area. Man hours required were from 1.8 - 2.0 hours per square foot.

Mr Sutherland also gave details of moulds developed for ferro-cement construction. Male moulds were usable for small vessels, but had limitations due to difficulties in the incorporation of internal strength members; female moulds were more suitable, but expensive.

It was noted that coral sand would not be ideally suited for construction because of low impact resistance qualities.

An offer has been made to the various territories by Mr Sutherland in regard to training local staff in New Zealand. His firm is also prepared to consider the establishment of joint building ventures with local businessmen, and the need for experienced supervision was emphasised.

In reply to a question from American Samoa as to how much time is required to start production after a design had been agreed on, Mr Sutherland stated that in five months his company would be capable of producing one 30' vessel per week. Commercial boat-building companies will require more information from the territories about the total estimated boat requirements in the region before final cost estimates can be made. In reply to a

question from the Cook Islands about the suitability of ferro-cement or pre-stressed concrete barges for inter-island refrigerated transport Mr Sutherland stated that it was very suitable and several units had already been constructed.

THE MEETING RECOMMENDED that the representatives of the Territories prepare, and submit, to the SPC Fisheries Officer statements on the size, type and number of vessels required. After tabulation this data will be used by SPIFDA and UNIDO boat experts, and interested commercial firms, to develop optimum vessel designs.

ITEM X: OTHER CRAFT CONSIDERED SUITABLE FOR PACIFIC ISLAND FISHERMEN, AND THE NEED FOR FURTHER RESEARCH AND EXPERIMENTATION

Mr Fyson (FAO) opened this subject with valuable pointers and advice on design requirements. These covered:

1. the fishing method for which the vessel is used;
2. range of the vessel;
3. speed required;
4. capacity;
5. social conditions of the fishermen.

Only by taking all these points into consideration could a cost analysis be made of capital and operating expenses to give an estimation of return on investment.

The delegate from the Trust Territory explained the need for a fast vessel for conservation and transportation. Problems had been experienced with certain types of jet drives, but it was noted that a suitable heavy duty jet drive unit has been developed in New Zealand.

The question of marine plywood construction was raised and Mr Fyson advised that in certain designs this was suitable, but recommended that the surface be covered with a dnyel cloth, rather than fibre glass material.

There was a general discussion on the most suitable type of marine engines for use in fishing vessels, since territories have had difficulty in obtaining sufficient information on this, and the delegate from Western Samoa stated that, in twenty years' experience, he had discovered that the value of a marine diesel engine was proportional to the weight of metal put into its manufacture, provided it was subsequently given careful maintenance.

The meeting placed considerable importance on back-up service and efficient agencies, as much loss of time had been experienced due to either poor agencies or lack of trained engineers to repair engines.

ITEM XI: FISHERIES TECHNICAL TRAINING

- (i) Marine diesel maintenance
- (ii) Outboard engine maintenance
- (iii) Small boat building and repair
- (iv) Ferro-cement boatbuilding techniques
- (v) Administration courses for Island Fisheries Personnel charged with Fisheries Development
- (vi) Basic navigation
- (vii) Fish handling, preservation, processing and marketing
- (viii) Oyster and mussel farming techniques.

As in previous meetings, the delegates unanimously affirmed the need for intensive training programmes in the field of:

1. marine diesel maintenance and repair
2. outboard motor maintenance and repair
3. small boat building and repair
4. administration courses for indigenous Fisheries Personnel
5. fishing techniques for island fishermen
6. fish handling, processing and marketing.

Diesel and/or outboard motor maintenance courses are offered, in varying degrees, in Western Samoa, Fiji, BSIP, New Hebrides, New Caledonia, French Polynesia, East-West Center and American Samoa. Mr A. Adams (Fiji) pointed out that quite often training courses are lacking in depth, thus leading to inefficient maintenance. Mr P. Wilson (TTPI) expressed the need for the provision of good workshop facilities for trained marine engine mechanics.

A discussion of fishing technique training programmes brought to light many of the problems encountered in various island training courses. Among these are "homesickness", language barriers at foreign centres, and the occasional unfavourable impact on islanders of training in developed countries. The Meeting recognized the need for diverse training programmes including:

1. Regional training centres for marine diesel and outboard motor maintenance;
2. Regional training centres for indigenous Fisheries Personnel;
3. Regional training centres for fish processing;
4. Local training by visiting experts who are orientated to local needs;

5. Reciprocal training projects in which island trainees visit a foreign expert for an extended period, after which the expert, supported by the trainees, demonstrates techniques in the developing territory.

THE MEETING RECOMMENDED that the SPC Fisheries Office (whose training programme responsibilities have been delineated under Items II and III) coordinate, and seek funding for, the various training programmes.

ITEM XII: FISHERIES STATISTICS: IPFC DEFINITION OF AREAS FOR STATISTICAL PURPOSES

The Meeting reviewed the statistical areas recommended by the Indo Pacific Fisheries Council/Indian Ocean Fisheries Commission Working Party and recognized that the division of the oceans into large areas was desirable to permit the study of the general outline of the development of fishery exploitation in the biological and economic sense. The Meeting agreed with the basic parameters set forth for the definition of such areas by the IPFC/IOFC but felt that the boundaries for the Pacific Ocean should be more clearly defined. The Meeting considered it most important to consider the regions established by the Japanese Fisheries Agency in the reporting of their catch data as well as natural biological and geographic zones. The Meeting was agreed on the need for a system of natural names describing the major Pacific regions which would identify without reference to charts the major Pacific areas.

Therefore, THE MEETING RECOMMENDED:

- 1) the Pacific Ocean be divided into the following regions:
 - a) Western Pacific
 - b) Central Pacific
 - c) Eastern Pacific.
- 2) The Pacific regions would have the following boundaries as defined by longitude:
 - a) Western Pacific - 130°E to 175°W
 - b) Central Pacific - 175°W to 130°W
 - c) Eastern Pacific - 130°W to South America.
- 3) The Pacific regions be further divided into the following zones as defined by latitude:
 - a) North Pacific - 25°N to 50°N
 - b) Tropical North Pacific - 25°N to 5°N
 - c) Equatorial Pacific - 5°N to 10°S
 - d) Tropical South Pacific - 10°S to 30°S
 - e) South Pacific - 30°S to 50°S.

The Meeting felt that the adoption of these boundaries and names would require clearly defined limits on the Western and Eastern margins and that these should follow existing territorial boundaries as shown on the attached chart.

The Meeting further felt that the primary objective of establishing such Pacific regions is to more accurately define oceanic boundaries for fisheries statistical purposes.

ITEM XIII: THE INTRODUCTION AND SUPPORT OF VILLAGE FISHERMEN'S ASSOCIATIONS

A detailed description of the operation and management of Kia Island Fishermen's Association provided by Mr A. Banner (U.S. Peace Corps, Fiji) revealed the value of this form of development in areas which have a strongly developed community spirit. Mainly based on subsistence fisheries the cash return for fishing effort is relatively small, but the value to the community in terms of increased protein, regular employment, and the ready organization of subsistence fishermen to prepare them for a gradual upgrading by defined stages to more efficient effort and eventual prosperity, greatly outweigh the supporting costs initially involved. This form of development requires an intimate knowledge of the sociological factors at village level, plus efficiently organized logistical support services in way of mechanical maintenance and fish handling, and also local marketing techniques. Other territories, particularly Western Samoa, where fisheries are of a subsistence nature, were encouraging this development in various ways, including Fishermen's Co-operative Societies, which ranged over a wider field of facilities and services according to local needs. The Meeting noted the desirability of further training for local staff in special subjects at various levels including technical and business training covering executive management and accounts, and considered that a study be made into the feasibility of preparing a basic training manual to assist fisheries extension workers.

ITEM XIV: THE MOVEMENT OF ACTIVE FISHERMEN INTO OTHER OCCUPATIONS, AND THE PROBLEM THIS POSES FOR FUTURE FISHERIES DEVELOPMENT IN THE SOUTH PACIFIC ISLANDS

The movement of fishermen into other occupations of a less arduous and more rewarding nature was recognized as a positive trend in certain island groups, but this was considered to be a normal and cyclic evolution based on the economic factors of supply and demand. The Meeting recognized the need to project an image of fishing as a prestigious occupation and encouraged the example being set by Fiji in the application of school broadcasts and visiting lecturers from the Fisheries Division in an attempt to attract and recruit a share of the many annual school leavers into the industry. The currently low price of locally caught fish in several areas did not meet the higher cash returns required by fishermen in meeting the increased cost of vessels,

engines and gear. Governments should be encouraged to subsidise directly or indirectly the supply of these items to 'bona-fide' fishermen and in this way recruit more productive units; too often the fishermen are the last section of the community to receive concessions. Discussions also revealed that some administrations paid too little attention to the development of their local fishing industry potential, and that there is a need for the education of top-level planning administrators in fisheries in order to give them better appreciation and orientation in this important area of economic development.

ITEM XV: CROWN-OF-THORNS STARFISH ERADICATION METHODS

The Fourth Technical Meeting on Fisheries reviewed the Crown-of-Thorns Starfish problem in each of the territories represented at the Meeting. Historical reports, methods of control, types of equipment including compressors, diving gear, boats, motors, etc. were reviewed. The Meeting discussed the need for more information on the causes of such population explosions and commended the United States Congress for its action in allocating funds for the control and study of this problem.

The Meeting urged Territorial representatives to continue to investigate this problem within the capability of their programmes and budgets. In addition,

THE MEETING RECOGNIZED:

- 1) the Crown-of-Thorns Starfish poses a threat to the living coral reefs of the Territories comprising the South Pacific Commission;
- 2) that living coral reefs are more desirable than dead reefs and that efforts to protect their destruction by the Crown-of-Thorns should be encouraged;
- 3) the need for improved techniques of control on large populations of Acanthaster; and
- 4) the urgent need for scientific studies on the causes of this phenomena.

After discussing the overall requirements for scientific investigations and controls within the South Pacific Commission territories

THE MEETING RECOMMENDED:

- 1) the South Pacific Commission serve as a clearing house, receiving and passing on information of a general and technical nature to all interested territorial members;
- 2) all Territories adopt a similar method of recording data on the starfish problem;
- 3) that data forms be printed by the SPC and forwarded to territorial Administrations;

- 4) all Territories carry on educational activities indicating the importance of the problem and methods by which the general public may assist with its resolution;
- 5) the South Pacific Commission have a half hour to one hour film made on the general subject of the Crown-of-Thorns starfish and that such a film include, but not be limited to, the reasons for concern, the method of killing a living coral reef, the effect of killing living coral on the surrounding environment and fauna, methods of control, research, etc;
- 6) the South Pacific Commission endeavour to find a useful way of utilizing Acanthaster, either as a fertilizer, source of useful chemical, curio item, etc;
- 7) the South Pacific Commission endeavour to have the U.S. Research Programme extended to affected areas in the South Pacific.

ITEM XVI: BAIT FISHERIES. DAY AND NIGHT:

Mr Wilson of the Trust Territory of the Pacific Islands gave valuable information on this subject, quoting the example of Truk. Here, in spite of the pre-war existence of a bait-fishery, no suitable bait-fish could be found until an old Okinawan fisherman was able to identify the particular fish utilized which proved to be a species of small shoaling-snapper not previously recognized as a suitable bait-fish. In the same way goat-fishes, damsels and certain carangids had proved suitable for commercial bait-fish use. Dr Swerdloff went on to point out that caution should be exercised against over-exploitation of reef and lagoon small-fish species for bait-fish purposes. Certain fresh-water species, namely Tilapia and thread-fin shad held great potential as examples of bait-fish which could be easily and effectively reared in fish-ponds.

ITEM XVII: THE MOTHER-OF-PEARL SHELL LURE FISHING TECHNIQUE AS DEVELOPED IN FRENCH POLYNESIA, FOR SMALL TUNA:

M. Ellacott, for French Polynesia, gave the meeting a complete description of this highly successful method, whose evolution depended upon two differing factors. The first of these was the unusual market and fish-price structure present in Tahiti which had made necessary the utilization of a very high-speed competitive day-boat vessel configuration. The second concerned the practical 'on-ground' fishing technique. Emphasis was laid upon the prime necessity of possessing a multitude of suitable variant lures and that the success of each boat largely depended upon the skill of their fishermen in selecting the right lure for the particular sea/weather conditions pertaining at that time. Other points of note were: the slow speed (1-2 knots) necessary when actually fishing; the practice of slow continuous circling on an area in order to bring back to the surface and under the fishing-boat those

bait-fish and attendant skipjack which had sounded on the initial arrival of the fishing-boat upon the scene.

ITEM XVIII: THE SUITABILITY OF A LIMITED TUNA LONGLINE METHOD FOR ISLAND FISHERMEN

Discussion proved general with emphasis on bait problems, which seemed to be the critical factor in these operations. The critical state of the Japanese SAURI bait industry was described and alternatives were discussed the most suitable of which seemed to be squid, though no territory had, at this time, a fishery of this nature. The possibilities of using frozen "trash-fish" from the New Zealand trawling industry was mentioned as a possibility. In general it was felt that this localised long-line fishery could be of certain limited importance to particular territories and that each territory would develop according to its own capabilities.

ITEM XIX: PURSE SEINING FOR SKIPJACK TUNA

The Meeting discussed the recent Pacific-wide survey by seven of the world's most productive purse seiners. The need for the development of new tuna fishing grounds by the world's tuna fishermen was also reviewed and the Meeting recognized that the skipjack stocks of the Central and Western Pacific Ocean constitute the world's last major undeveloped tuna resource and that ultimately the tuna fishermen of the world will be attempting to utilize it.

The Meeting recognized that the development of purse seine fishing for skipjack was beyond the present capability of the SPC or any of its member territories and that any immediate progress made along these lines will probably come from the U.S. or Japanese tuna industry.

The Meeting recognized the need for such development in areas where bait resources are limited, but urged that every effort be made by member territories and governments to prevent over-exploitation of the resources and that the development of seining techniques adaptable to island fishermen is desirable.

The Meeting felt that the development of purse seine fishing would not replace live bait fishing for skipjack tuna in as much as commercial quantities of skipjack can be taken more cheaply with bait boats than with seiners; therefore, the Meeting urged all territories to continue to press for the development of their skipjack resources either with the live bait or pearl shell method.

THE MEETING RECOMMENDED:

- 1) that Government administrators of Pacific Territories recognize and investigate the potential value of their off-shore skipjack resource and plan on how its development can best benefit the island inhabitants of the area;

- 2) that future exploratory purse seine surveys by U.S. and Japanese fishing fleets be closely monitored by all territories and that intelligence regarding such operations be passed on to the South Pacific Commission for dissemination to member territories.

ITEM XX: FIFTH TECHNICAL MEETING ON FISHERIES

The Fourth Technical Meeting on Fisheries discussed possible locations for the Fifth Technical Meeting in 1971 in conjunction with the South Pacific Islands Fisheries Development Agency Consultative Committee Meeting.

The Meeting recognized the desirability of having future conferences in South Pacific Commission territories where developmental work on marine resources is being carried on. The Meeting was of the unanimous opinion that observing such projects in the field would be of great assistance in formulating new programmes and improving on-going ones through the benefits of on-the-job consultation with experienced personnel facing problems of a similar nature.

The Meeting urges that all delegates to the South Pacific Conference recognize the importance of such consultative meetings in the various territories of the SPC and encourage the holding of such sessions in the various territories so that all members of the SPC will eventually be able to receive the benefits of such consultative meetings and the review by marine specialists on problems of particular importance to each territory.

After discussing possible locations and objectives for the next Technical Meeting,

THE FOURTH TECHNICAL MEETING ON FISHERIES RECOMMENDED:

- 1) the Fifth Technical Meeting on Fisheries be held in conjunction with the South Pacific Islands Fisheries Development Agency Consultative Committee Meeting in Tahiti during late 1971;
- 2) the Fifth Technical Meeting concentrate on the potential of mari-culture, marine conservation, pearl shell fishing for skipjack tuna, and the development of coral reef atolls, as is now being practised in French Oceania;
- 3) the Fifth Technical Meeting stress on-the-job consultative sessions in order to view on-going projects such as pearl oyster cultivation, pearl culture, edible oyster cultivation, fresh water shrimp cultivation, pearl shell fishing for skipjack tuna, etc.;
- 4) should it not be logistically possible to hold the Fifth Technical Meeting on Fisheries in French Polynesia this meeting recommends that it should be convened outside Noumea in a suitable territory.

ITEM XXI: FOREIGN FISHING OPERATIONS

Considerable discussion centred on the implications of the growing foreign fishing interest in the waters of Pacific Island territories.

The Meeting recognized that in the past agreements with foreign fishing interests had proved disadvantageous to Island territories and agreed that a set of Guidelines for future negotiations is desirable.

It was considered that the granting of tariff concessions for fuel, food and other essential requirements gave unfair advantages over local fishermen. It considered too that in all agreements the ratio of local involvement at all levels should be a major factor in negotiations.

In these circumstances THE MEETING RECOMMENDED THAT:

- 1) each territory should, wherever possible, establish, for local use, fishing zones extending 9 nautical miles beyond the outer limits of territorial waters or extending to the outer edge of continental shelves, whichever distance is greater;
- 2) all territories should be party to a reciprocal agreement calling for punitive measures, by the territorial home port, against vessels violating another territory's restricted fishing zone. Inter-territorial complaints should follow a format to be established by the SPC member territories;
- 3) legislation be introduced to ensure the easy identification of foreign and inter-territorial fishing vessels;
- 4) ground fishing operations by non-territorial vessels should be prohibited;
- 5) floating reefer stations, established by foreign fishing interests should be prohibited;
- 6) ship and shore communications of foreign fishing interests should proceed through normal territorial communications networks;

- 7) summaries of articles concerning foreign fishing interests in the SPC territories should be made available to the SPC Fisheries Office for transmission to member territories.

ITEM XXII: OTHER BUSINESS

The Cook Islands expressed a need for information on fishing boat master's licensing requirements in other territories. With the exception of G.E.I.C., Cook Islands and French Polynesia (1971), licences are not required for fishing boat operators.

THE MEETING RECOMMENDED THAT:

the SPC Fisheries Office establish licensing Guidelines for fishing boat operators.

THE MEETING RECOMMENDED THAT:

a study of cold storage plants be undertaken by SPC or SPIFDA as a research and development project.

* * * * *

EXTRACT OF RECOMMENDATIONS

Reference

TRAINING

The Meeting recommended that the SPC Fisheries Office (whose training programme responsibilities have been delineated under Items II and III) coordinate, and seek funding for, the various training programmes which include:

ITEM XI/page 11

1. marine diesel maintenance and repair;
 2. outboard motor maintenance and repair;
 3. small boat building and repair;
 4. administration courses for indigenous Fisheries Personnel;
 5. fishing techniques for island fishermen;
 6. fish handling, processing and marketing;
- and also

ITEM XI/page 10

1. regional training centres for marine diesel and outboard motor maintenance;
2. regional training centres for indigenous Fisheries Personnel;
3. regional training centres for fish processing;
4. local training by visiting experts who are orientated to local needs;
5. reciprocal training projects in which island trainees visit a foreign expert for an extended period, after which the expert, supported by the trainees, demonstrates techniques in the developing territory

ITEM XI/page 10

and further:

- a) the South Pacific Commission provide all territories with the location, cost-requirements and data of all training programmes within the Pacific region to which territories could send indigenous personnel for basic and advanced training in fisheries related activities; and
- b) the South Pacific Commission provide funds to the Territories which could be used to

PARA 3/page 3

transport and support to and from selected training centres qualified islanders who would benefit from basic or advanced training programmes.

EDUCATION

Emphasis should be given to the development of film strips, handbooks, films, pamphlets, posters, etc. and that these should be put into as many languages as is necessary to accomplish their primary objectives.

PARA 2/page 3

CONSULTANT SERVICES

Additional efforts be made by the SPC to increase the scope of such services by:

- i. providing an assistant to the present Fisheries Officer;
- ii. providing funds for the transportation of certain marine specialists now working in the territories, where such consultant services would prove beneficial to the Territories requesting such assistance;
- iii. locating and funding the transportation of experts from outside of the Commission area to such territorial areas as require assistance when it has been determined such is not available from within the SPC area.

PARA 4/page 3

PARA 4/page 4

FISHERIES INTELLIGENCE SERVICE

Activities included within this section should comprise the collection, analysis, translation, publication and dissemination of practical fisheries knowledge, and, that priority should be given to:

PARA 1/page 2

- i. keeping all members advised on the marine activities of other territories and making review of all activities and projects pertaining to fisheries and marine cultivation in SPC Island Territories;
- ii. accumulating and translating such information as may be of use to territorial fisheries programmes.

PARA 1/page 3

FISHING SYMPOSIA

The Meeting recommends that Technical Marine Symposia be held during the next three years on the following subjects:

Reference

- i. Turtle culture, farming and conservation;
- ii. Tropical skipjack fishing;
- iii. Edible oyster cultivation;
- iv. Pearl shell cultivation and pearling;
- v. Shrimp cultures;
- vi. Control and behaviour of the Crown-of-Thorns Starfish, Acanthaster planci.

PARA 5/page 4

The Meeting recognized that many territories are not adequately financed or budgeted for attending such Symposia and therefore, the Meeting recommended:

1. the SPC provide funding for travel to such symposia; and
2. that such symposia be held in those Territories in which the subject matter is being worked on and with the participation of appropriate consultants.

CROWN-OF-THORNS STARFISH

1. the South Pacific Commission serve as a clearing house, receiving and passing on information of a general and technical nature to all interested territorial members;
2. all Territories adopt a similar method of recording data on the starfish problem;
3. that data forms be printed by the SPC and forwarded to territorial Administrations;
4. all Territories carry on educational activities indicating the importance of the problem and methods by which the general public may assist with its resolution;
5. the South Pacific Commission have a half hour to one hour film made on the general subject of the Crown-of-Thorns starfish and that such a film include, but not be limited to, the reasons for concern, the method of killing a living coral reef, the effect of killing living coral on the surrounding environment and fauna, methods of control, research, etc.;
6. the South Pacific Commission endeavour to find a useful way of utilizing Acanthaster, either as a fertilizer, source of useful chemical, curio item, etc;

ITEM XV/pages 13/14

Reference

7. the South Pacific Commission endeavour to have the U.S. Research Programme extended to affected areas in the South Pacific.

FOREIGN FISHING OPERATIONS

1. each territory should, wherever possible, establish, for local use, fishing zones extending 9 nautical miles beyond the outer limits of territorial waters or extending to the outer edge of continental shelves, whichever distance is greater;
2. all territories should be party to a reciprocal agreement calling for punitive measures, by the territorial home port, against vessels violating another territory's restricted fishing zone. Inter-territorial complaints should follow a format to be established by the SPC member territories;
3. legislation be introduced to ensure the easy identification of foreign and inter-territorial fishing vessels; ITEM XXI/
pages 17/18
4. ground fishing operations by non-territorial vessels should be prohibited;
5. floating reefer stations, established by foreign fishing interests should be prohibited;
6. ship and shore communications of foreign fishing interests should proceed through normal territorial communications networks;
7. summaries of articles concerning foreign fishing interests in the SPC territories should be made available to the SPC Fisheries Office for transmission to member territories;
8. further exploratory purse seine surveys by U.S. and Japanese fishing fleets be closely monitored by all territories and that intelligence regarding such operations be passed on to the South Pacific Commission for dissemination to member territories. PARA 2/
page 16

FISHING BOATS

The SPIFDA boat expert conduct a study of the Tahitian "Bonitier", resulting in improvement and/or adoption of this design in other territories.

ITEM VIII/
page 7

Reference

The representatives of the Territories prepare, and submit, to the SPC Fisheries Officer statements on the size, type and number of vessels required. After tabulation this data will be used by SPIFDA and UNIDO boat experts, and interested commercial firms, to develop optimum vessel designs.

ITEM IX/
page 10

DEFINITION OF AREAS FOR STATISTICAL PURPOSES

1. the Pacific Ocean be divided into the following regions:

- a) Western Pacific
- b) Central Pacific
- c) Eastern Pacific

2. The Pacific regions would have the following boundaries as defined by longitude:

- a) Western Pacific - 130°E to 175°W
- b) Central Pacific - 175°W to 130°W
- c) Eastern Pacific - 130°W to South America.

ITEM XII/
page 11

3. The Pacific regions be further divided into the following zones as defined by latitude:

- a) North Pacific - 25°N to 50°N
- b) Tropical North Pacific - 25°N to 5°N
- c) Equatorial Pacific - 5°N to 10°S
- d) Tropical South Pacific - 10°S to 30°S
- e) South Pacific - 30°S to 50°S.

PURSE SEINING FOR SKIPJACK TUNA

ITEM XIX/
page 15

Government administrations of Pacific Territories recognize and investigate the potential value of their offshore skipjack resource and plan on how its development can best benefit the island inhabitants of the area.

FIFTH TECHNICAL MEETING ON FISHERIES

1. the Fifth Technical Meeting on Fisheries be held in conjunction with the South Pacific Islands Fisheries Development Agency Consultative Committee Meeting in Tahiti during late 1971;

ITEM XX/
page 16

2. the Fifth Technical Meeting concentrate on the potential of mari-culture, marine conservation, pearl shell fishing for skipjack tuna, and the development of coral reef atolls, as is now being practised in French Oceania;

3. the Fifth Technical Meeting stress on-the-job consultative sessions in order to view on-going projects such as pearl oyster cultivation, pearl culture, edible oyster cultivation, fresh water shrimp cultivation, pearl shell fishing for skipjack tuna, etc.;

4. should it not be logistically possible to hold the Fifth Technical Meeting on Fisheries in French Polynesia this meeting recommends that it should be convened outside Noumea in a suitable territory.

OTHER BUSINESS

The SPC Fisheries Office establish licensing Guidelines for fishing boat operators.

ITEM XXII/
page 18

THE MEETING RECOMMENDED THAT

a study of cold storage plants be undertaken by SPC or SPIFDA as a research and development project.

APPENDIX AAGENDA

- ITEM I: Territorial Statements, Present Status and problems in the Territories.
- ITEM II: The Rôle of the South Pacific Commission in Fisheries Development over a three-year planned programme from 1972 to 1974 inclusive.
- ITEM III: Areas of Fisheries Development in which the South Pacific Islands Fisheries Development Agency (SPIFDA) may be of greatest value, including the identification of priorities accorded to projects for action by SPIFDA.
- ITEM IV: The Improvement and Mechanization of Fishing Canoes including the Introduction of non-traditional materials.
- ITEM V: The Dory and its application to near-shore pelagic fisheries.
- ITEM VI: Florida type Fishing Skiffs: their suitability for lagoon fishing conditions in the Fiji Islands.
- ITEM VII: The Revival and Development of the Western Samoan "Alia" - a twin-hulled fishing platform of traditional materials.
- ITEM VIII: The Development of the Tahitian "Bonitier" Fishing Boat, and areas where this type of vessel may be profitably introduced.
- ITEM IX: Application of the Ferro-cement Medium to fishing boats in the Pacific Islands - requirements and feasibility.
- ITEM X: Other Craft considered suitable for Pacific Island Fishermen, and the need for further research and experimentation.
- ITEM XI: Fisheries Technical Training.
- ITEM XII: Fisheries Statistics; IPFC definition of areas for Statistical Purposes.
- ITEM XIII: The Introduction and Support of Village Fishermen's Associations.
- ITEM XIV: The Movement of Active Fishermen into other occupations, and the problem this poses for future fisheries development in the South Pacific Islands.
- ITEM XV: Crown-of-Thorns Starfish Eradication Methods.
- ITEM XVI: Bait Fisheries, Day and Night.
- ITEM XVII: The Mother-of-Pearl Shell Lure Fishing Technique as developed in French Polynesia, for small Tuna.
- ITEM XVIII: The suitability of a limited Tuna Longline method for Island Fishermen.

- ITEM XIX: Purse seining for Skipjack Tuna.
 - ITEM XX: Fifth Technical Meeting on Fisheries.
 - ITEM XXI: Foreign Fishing Operations.
 - ITEM XXII: Other Business.
-

APPENDIX B

LIST OF PARTICIPANTS
LISTE DES PARTICIPANTS

American Samoa
Samoa Americaines

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 Office of the Governor,
PAGO PAGO.

Cook Islands
Iles Cook

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 Fisheries Officer,
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RAROTONGA.

Fiji
Iles Fidji

Mr Albert Adams,
 Senior Fisheries Officer,
 Fisheries Division,
 Department of Agriculture,
SUVA.

French Polynesia
Polynésie-Française

M. Warren Ellacott,
 Motu Uta,
PAPEETE, Tahiti.

(Also representing the
 New Hebrides)
 (Représentant aussi le
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 Hébrides)

Professeur François Doumenge,
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Gilbert and Ellice Islands
Colony/Colonie des îles
Gilbert et Ellice

Mr James Hughson,
 Fisheries Section,
TARAWA.

New Caledonia
Nouvelle-Calédonie

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M. Michel Legand,
 Chef de la Section Océanographie Biologique,
 ORSTOM,
NOUMEA.

M. Jean Parrat,
 Chef du Service des Eaux et Forêts,
 B.P. 285,
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Niue

Mr Frank Lui,
ALOFI.

Trust Territory of the
Pacific Islands/Territoire
sous tutelle des îles du
Pacifique

Mr Peter Wilson,
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Mr Toshiro Paulis,
KOROR, Palau,
 Western Caroline Islands, 96940.

Western Samoa
Samoa occidentales

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OBSERVATEURS

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Mr J. Alan Tubb,
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 South Pacific Islands Fisheries Development
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 New Caledonia.

Mr Arne Sannergren,
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Mr John Glude,
 National Marine Fisheries Service,
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Mr Alan Banner,
 Peace Corps,
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 Fiji.

M. J. Perot
 Office de Recherche Scientifique et
 Technique Outre-Mer, PARIS, France.

CORRIGENDUM

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M. Jean Emond,
Second Commissaire pour la France
à la CPS,

NOUMEA,
Nouvelle-Calédonie.

SPC SECRETARIAT
SECRETARIAT DE LA CPS

Mr Alan Harris,
Programme Director (Economic),
South Pacific Commission.

Mr Valentine Hinds,
Fisheries Officer,
South Pacific Commission.

Mme J. des Moutis, Interpreter
Mr M. Chandler, Interpreter
Mr R. Compton-Smith, Interpreter
Mr C. Stenersen, Interpreter

Miss O. Pitt, Secretary.

the same time, the same person may be a member of several different groups. For example, a person may be a member of a family, a community, a nation, and a religion. The groups to which a person belongs may be defined by birth, by choice, or by a combination of the two. The groups to which a person belongs may also be defined by their size, by their purpose, or by their location.

The groups to which a person belongs may also be defined by their history, by their culture, or by their values. The groups to which a person belongs may also be defined by their power, by their influence, or by their resources. The groups to which a person belongs may also be defined by their goals, by their interests, or by their needs. The groups to which a person belongs may also be defined by their beliefs, by their attitudes, or by their behaviors.

The groups to which a person belongs may also be defined by their identity, by their reputation, or by their status. The groups to which a person belongs may also be defined by their role, by their position, or by their function. The groups to which a person belongs may also be defined by their name, by their title, or by their rank.

The groups to which a person belongs may also be defined by their location, by their time, or by their space. The groups to which a person belongs may also be defined by their nature, by their quality, or by their quantity. The groups to which a person belongs may also be defined by their form, by their shape, or by their size.

THE GROUPS TO WHICH A PERSON BELONGS

THE GROUPS TO WHICH A PERSON BELONGS

APPENDIX CLIST OF DOCUMENTS

- SPC/Fisheries 4/WP.1 British Solomon Islands Protectorate Fisheries Programme and Resources
- SPC/Fisheries 4/WP.2 Information Paper on Fisheries in New Caledonia and Dependencies, by J. J. Eude
- SPC/Fisheries 4/WP.3 Ferro-Cement Fishing Boats suitable for South Pacific Islands Fishermen - Summary, by A. Sannergren
- SPC/Fisheries 4/WP.4 American Samoa - Summary
- SPC/Fisheries 4/WP.5 Gilbert and Ellice Islands Colony
- SPC/Fisheries 4/WP.6 Trust Territory of the Pacific Islands - Marine Resources Division - Programme Summary
- SPC/Fisheries 4/WP.7 Fisheries Programme for the Cook Islands
- SPC/Fisheries 4/WP.8 Status of the Crown-of-Thorns Starfish Eradication and Control Programme on Guam
- SPC/Fisheries 4/WP.9 Exploratory Fishing Survey of the Inshore Fisheries Resources of Guam, by Isaac I. Ikehara
- SPC/Fisheries 4/WP.10 Ferro-cement Shell Hull Construction for Fishing Boats, by F.S. Hespe
- SPC/Fisheries 4/WP.11a Western Samoa - Village Fisheries Associations (1)
- SPC/Fisheries 4/WP.11b Western Samoa - Village Fisheries Associations (2)
- SPC/Fisheries 4/WP.12 A Fisheries Reconnaissance in Western Samoa, March 17-27, 1969, by V. T. Hinds
- SPC/Fisheries 4/WP.13 Canoes of the Pacific Islands, by Ronald Powell
- SPC/Fisheries 4/WP.14 Fisheries in French Polynesia
- SPC/Fisheries 4/WP.15 Fishery activities in French Polynesia
- SPC/Fisheries 4/WP.16 The Tahitian Bonito Fishing Boat and local methods of fishing Bonito
- SPC/Fisheries 4/WP.17 Western Pacific Fisheries statistical areas
- SPC/Fisheries 4/WP.18 The Tuna baitfish of Fiji
- SPC/Fisheries 4/WP.19 Fisheries Services in Fiji
- SPC/Fisheries 4/WP.20 The Development of small-scale fishing units in Fiji - A progress report
- SPC/Fisheries 4/WP.21 The Commercial Fishery Resources of Fiji
- SPC/Fisheries 4/WP.22 Conservation Problems in the Truk Lagoon, by Ronald Powell
- SPC/Fisheries 4/WP.23 Formalin Injection Information

INFORMATION DOCUMENTS

1. A Fisheries Report prepared for the Government of Niue
 2. A Fisheries Reconnaissance to Wallis Island
 3. Fisheries Report to the Government of the Cook Islands
 4. Crown-of-Thorns Starfish (INFORMATION CIRCULAR 25)
 5. Crown-of-Thorns Starfish (INFORMATION CIRCULAR 26)
 6. Marine Resources : a top priority
 7. "Akule" Night Fishing Gear
 8. Hawaiian "Opelu" Hoop Net Fishing Gear
 9. Suggested Projects for Inclusion in 1972/74 Fisheries Programme of SPC
 10. Aquanaut Equipment
 11. Fishing Gear and Boats of the South Pacific
-

APPENDIX DOPENING ADDRESS BY AFIGA AFOAFOUVALE MISIMOA,
SECRETARY-GENERAL OF THE SOUTH PACIFIC COMMISSION

Once again, the South Pacific Commission has invited fisheries officers from the Island Territories in the Pacific Basin to come together and discuss their problems, their successes and their disappointments, and on this, the fourth occasion for a Technical Meeting on Fisheries, we feel that there are exciting developments happening around us in which we are, in the Commission, not only greatly interested, but intimately involved.

New Fisheries Administrations have been created, greater training and responsibility is being given to indigenous fisheries personnel, and more secure, and potentially profitable contacts have been made with international agencies prepared to introduce further technical expertise for the greater economic benefit of the Pacific Island Fishermen.

Consequently I have, at this Fourth Technical Meeting on Fisheries, a very pleasant duty in welcoming:-

- (1) Monsieur Michel Legand of ORSTOM, who attended the first Fisheries Technical Meeting in 1952, and who has on numerous occasions given SPC valuable assistance from his wide experience and knowledge;
- (2) Mr Alan Tubb is again with us as official FAO Fisheries Department Observer, and also is now more closely associated with SPC through the South Pacific Islands Fisheries Development Agency, formed since the last meeting in 1968, of which he is Project Director;
- (3) a particular welcome to the newly-appointed fisheries officers, first-timers at this meeting, Dr Barry White of the Cook Islands, Mr J. Hughson of the Gilbert and Ellice Islands Colony, and Mr W. Travis of Western Samoa; and also to Mr A. Sannergren, UNIDO Boat-building expert from Suva;
- (4) this is the first occasion that the U.S. Peace Corps have been represented at a Fisheries Meeting and this voluntary organization deserves great credit for the excellent work which its members have contributed to the development of fisheries in many Pacific Islands;
- (5) Mr Frank Lui represents Niue Island Fisheries' interests for the first time and also it is a pleasure to welcome another Pacific Islander, Mr Toshiro Paulis of the U.S. Trust Territory of the Pacific Islands.

We had also hoped to welcome Dr Vernon Brock, who attended the first Fisheries Meeting in 1952, but unfortunately he has been prevented by illness from attending. I am sure you would wish to join with me in wishing him an early recovery.

There is indeed a record attendance at this meeting and for that I thank you all for giving your support by coming here today.

I note from a preview of your agenda that you are about to embark on some very interesting technical matters which concern the livelihood of many Pacific Islanders. You are all men of experience and knowledge, and out of your discussions I am sure will come valuable conclusions and recommendations which will not only provide policy guidelines for the South Pacific Commission, but which will also bear weight on the work programme of the South Pacific Islands Fisheries Development Agency in the Consultative Committee Meeting which will be convened next week.

The application of new techniques and materials in the fields of boat building and in the improvement of fishing gear is having an increasingly beneficial impact on our island fisheries. Individual islands have however differing requirements depending on available manpower, financial resources, fish stocks and suitable facilities. There would appear to be no simple over-all standard answer that can be projected on the varying backgrounds to be encountered in this vast region. Fisheries Officers with an intimate knowledge of the requirements of their own territories can, through an exchange of information, and open and frank discussion, in co-operation with the consultants and observers now with us, specify priorities, and avoid expensive duplication of effort, and this is in itself the valuable essence of this type of meeting.

From my own experience of fishing in Pacific Islands, I too am aware of the many problems which exist in fisheries development, and I assure you that I shall take a personal interest in your deliberations and look forward to reading your final report.

On behalf of the Commission, I wish you every success, a pleasant stay in Noumea, and have much pleasure in declaring your meeting open.

APPENDIX EOPENING ADDRESS BY MR A. HARRIS,
PROGRAMME DIRECTOR (ECONOMIC)

Mr Secretary-General, Gentlemen:

This Fourth Technical Meeting on Fisheries has been convened by the South Pacific Commission in accordance with the recommendation of the Third Technical Meeting on Fisheries which was held in Noumea in June 1968. Also in accordance with the recommendation of that Meeting, special emphasis is to be given to Fishing Boats and Fishing Gear Technology in our discussions.

One of the most significant recommendations at the 1968 Meeting was that the Commission should seek the assistance of United Nations in establishing a South Pacific Islands Fisheries Development Agency. This was done, and the Agency formally came into existence at the beginning of July 1970. In accordance with the provisions of the Plan of Operation of the Agency, the Commission has convened a Meeting of the Fisheries Consultative Committee, which many of you will be attending, immediately after the conclusion of this Meeting.

I would like also to mention that at the recent Tenth South Pacific Conference and Thirty-third Session of the South Pacific Commission, it was decided that a Meeting of Development Planning Officials from Pacific countries and territories should be convened early next year for the purpose of preparing a draft three year work programme for the Commission, i.e. for the calendar years 1972, 1973 and 1974. I would hope that we can, during the course of this Meeting, give some thought to the future work programme of the Commission in the field of fisheries development.

This task is in some ways rendered more difficult by the establishment of SPIFDA, in that we know that SPIFDA will be technically in a position to undertake many of the things we would like to see done, but will certainly not be able to undertake all of such tasks, having regard to limitations of personnel, funds and time. We must therefore direct our minds to the Commission's Work Programme for the years 1972-1974 in the light of what it will be possible for SPIFDA to accomplish.

There is a further complication, in that the Commission's Fisheries Officer (Mr Hinds) is required under the Plan of Operation to devote his full time to SPIFDA during the continuance of this project. In practice, we do not see this as presenting any real problems, and we would wish to emphasize that territories should continue to seek the advice of the Commission on their problems in fisheries development.

In general, however, I think we can see a very productive period ahead of us. It is, however, important that we should continue to adopt a long-sighted approach to fisheries development, so that we can maintain the momentum likely to be generated over the next three years.

I look forward to the discussions, and wish the Meeting every success!

APPENDIX FADDRESS BY MR V.T. HINDS, CHAIRMAN OF THE MEETING

Gentlemen:

It is an honour to serve as Chairman of the Fourth Technical Meeting on Fisheries. I consider this meeting to be of prime importance and, judging from the attendance, this viewpoint is shared by most of the member Governments.

In looking through the reports of previous Technical Meetings, I noted that fisheries development in the South Pacific has been agonizingly slow, and, in many cases, singularly uninspiring. But this is true of most embryonic industries. I feel that we are nearing the end of gestation and that Pacific Island fisheries are on the threshold of dynamic expansion.

I don't have to remind you that, at the present rate of increase, the world demand for fish will soon greatly exceed the supply. Fortunately, most of our territorial governments are beginning to realize the importance and potential of fisheries resources and are strongly supporting fisheries programmes.

Many territories are conducting, or have completed, surveys of their potential exploitable stocks. Now it is time to go fishing. It is, thus, quite appropriate that the main theme of this meeting is "Fishing boats and gear suitable for Pacific Island fishermen".

The Third Technical Meeting recognized the relative isolation of the territorial Fisheries Officers and its resultant effect on technical interchange. That Meeting recommended further meetings every two years; but considering the notorious corresponding habits of Fisheries Officers, this may be insufficient.

The purpose of this Meeting is to overcome those spatial barriers, and I am confident our free interchange of experience and ideas will have a marked beneficial effect on all of our programmes.

Finally, I want you to know that being elected chairman of this Meeting came as a complete surprise to me, as it is not normal procedure for the Fisheries Programme Officer in SPC to be given this position, and while I appreciate your confidence and shall attempt to serve you to the best of my ability, I hope that you will not be disappointed. May I add my best wishes for your enjoyment, and profit from the discussions in which we are about to engage.

Thank you.

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1. *Journal of the American Medical Association*, 1997; 277: 1027-1031.

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APPENDIX G

ADDRESS BY M. EMOND, SECOND COMMISSIONER FOR FRANCE
ON THE SOUTH PACIFIC COMMISSION TO THE FOURTH TECH-
NICAL MEETING ON FISHERIES

Secretary-General,
Gentlemen,

For generations, a famous Chinese proverb has been developed and applied: "Give a man a fish and he will feed on it today; teach him to fish and he will not go hungry for the rest of his life". Thus from the West to the Far East, since the beginning of this Century, we have developed equipment and fishing methods to the point where on many fishing grounds, inshore or offshore, traditional resources have become rare or have even disappeared; not to mention other causes, such as industrialization and its consequences, which affect the coastal fishing grounds, the lakes and the rivers. We must therefore recognize that the value of increased knowledge and the improvement of fishing techniques is and will be increasingly limited.

This is why, whilst bearing in mind the very technical goal of this Conference, it seems to me that I should draw your attention to the need to take steps to conserve and restock marine resources: such action must at least keep step with progress achieved in the exploitation of ocean resources and at times should even be taken in advance.

Thus, the various aspects of the work of the Technical Conference are linked in time - and also to a joint participation - to the work of the Consultative Committee of the Fisheries Agency. The French delegation welcomes this meeting; it hopes the basic objective given by the Commission to the Agency will be looked into and defined during the debates of the next two weeks, so it can be fully achieved by the end of the joint SPC/FAO project on fisheries in the lagoons and reefs.

Before you consider your Agenda, I should like to thank the Secretary-General for giving me the opportunity and pleasure of welcoming you on your arrival here. In my capacity as observer for the French Government and as permanent resident with the Commission, I wish you all, whether you are newcomers to the Conference or old hands already, success in your work, and I hope that at your moments of leisure you will be able to enjoy the best season of the year we have in our island of light.

Original Text: French

