

Library reference copy  
Not for loan

SOUTH PACIFIC COMMISSION


TECHNICAL MEETING ON FISHERIES

Nouméa, New Caledonia

4th - 13th June 1968

REPORT

SCANNED

SPC Library  
  
33623  
Bibliothèque CPS

South Pacific Commission  
Nouméa, New Caledonia  
June 1968

SPC  
REG  
639.2099  
1968

LIBRARY  
SOUTH PACIFIC COMMISSION

This Report is published without prejudice to the  
Commission's consideration of the  
Recommendations of this Meeting.

---

Loan No : 26304

## C O N T E N T S

	Page
INTRODUCTION	(i)
Introductory Statement by Mr William Granger, Programme Director (Economic), South Pacific Commission	(iii)
Opening Address by Sir Gawain Bell, Secretary-General, South Pacific Commission	(iv)
Address by Dr D.N.F. Hall, Chairman of the Meeting	(v)
AGENDA ITEM 1 - NEW DEVELOPMENTS, PRESENT STATUS AND PROBLEMS IN THE TERRITORIES	1
AGENDA ITEM 2 - SUPPORTING MEASURES FOR FISHERIES WITH PARTICULAR REFERENCE TO CO-OPERATIVE SOCIETIES AND CREDIT ORGANISATIONS	1
AGENDA ITEM 3 - TRAINING	1
AGENDA ITEM 4 - FERRO-CEMENT AND OTHER NON-TRADITIONAL CONSTRUCTION MATERIALS	2
AGENDA ITEM 5 - SURVEY OF MARINE TURTLE RESOURCES AND POSSIBILITIES OF TURTLE FARMING FOR PROTEIN AND LUXURY EXPORT PRODUCTS	2
AGENDA ITEM 6 - FISH CULTIVATION AND THE POSSIBILITY OF MULLET FARMING IN SELECTED LAGOONS	3
AGENDA ITEM 7 - TAHITIAN PEARL SHELL LURE SKIPJACK TECHNIQUE IN AREAS OF SHORT BAIT SUPPLY THROUGHOUT THE SOUTH PACIFIC	3
AGENDA ITEM 8 - FIJI FISHERMEN'S CO-OPERATIVE VENTURE TO OPERATE A COLLECTION VESSEL AND ICE SILOS FOR MOVEMENT OF BETTER QUALITY FISH TO MAIN MARKETS	3
AGENDA ITEM 9 - EDIBLE OYSTER CULTIVATION	3
AGENDA ITEM 10 - DEVELOPMENT OF MARINE CROCODILE CATCHING AND PROCESSING METHODS IN THE PALAU GROUP OF ISLANDS	4
AGENDA ITEM 11 - FISHERIES CONSERVATION OFFICER AND EDUCATIONAL FACILITIES	4
AGENDA ITEM 12 - PRELIMINARY SURVEY OF SPINY LOBSTER RESOURCES IN SELECTED ISLAND GROUPS	4
AGENDA ITEM 13 - STUDY OF BECHE-DE-MER (TREPANG) INDUSTRY TO DETERMINE METHODS OF EXPANSION AND IMPROVEMENT IN RELATION TO POSSIBLE CONSERVATION NEEDS	4
AGENDA ITEM 14 - REEF AND LAGOON FISHERIES PROJECT	5
AGENDA ITEM 15 - ASSESSMENT OF STOCKS OF COMMERCIAL SEAWEEDS IN SOUTH PACIFIC, IN CONJUNCTION WITH UNIVERSITY OF HAWAII	7
AGENDA ITEM 16 - DEMONSTRATION OF SCAD MACKEREL FISHING METHODS BY HAWAIIAN FISHING EXPERT TO GROUPS OF ISLAND FISHERMEN	7
AGENDA ITEM 17 - INTRODUCTION OF RAFT AND SURROUND NET METHODS OF CATCHING DOLPHIN FISH	7

Agenda and Programme

Following discussion, the Meeting adopted its Agenda and Programme (see Appendix I).

Hours of meeting

The daily hours of meeting were accepted as follows:

08.30 - 11.30 hours

13.30 - 16.30 hours.

---

INTRODUCTORY STATEMENT BY WILLIAM GRANGER

PROGRAMME DIRECTOR (ECONOMIC) SOUTH PACIFIC COMMISSION

Before inviting you, Sir, formally to open the meeting, I should like to make a few points explaining how the meeting fits into the Commission's programme.

Fisheries was an important element in the Commission's work programme from two or three years after its formation, say from 1950 through to about 1963. At this time, the Commission considered letting the post of fisheries officer lapse, but the Conference in Lae in 1965 asked firmly that the post be re-established and the fisheries programme expanded and the Commissioners agreed.

Current guidelines for policy came from the last technical meeting on fisheries, the second, held in Noumea in February 1962. Both the South Pacific Conference and the Commissioners in Session have since made important decisions which will be taken into account in our discussions in the next ten days.

I am pleased to be able to tell you that Professor Vernon Brock, Director of the Hawaii Institute of Marine Biology has agreed to attend this meeting as Consultant. Professor Brock attended the first South Pacific Commission Fisheries Technical Meeting in Noumea in 1952, and was Chairman of the second meeting in 1962. It is good that his long experience and great knowledge will be available to us again.

I am pleased also formally to introduce Mr Val Hinds, fisheries officer of the Commission. Mr Hinds took up duty late last year and will be known to most of you by correspondence. Mr Hinds will be the executive for the meeting, and he and Mlle Exbroyat, and indeed the interpretation staff and all of us on the Secretariat staff, will do our best to make your meeting a success.

We hope again to get useful guidelines for a fisheries programme for consideration by the Conference and the Commissioners.

OPENING ADDRESS BY SIR GAWAIN BELL  
SECRETARY-GENERAL OF THE SOUTH PACIFIC COMMISSION

Mr Granger, Ladies and Gentlemen,

It gives me great pleasure to welcome you, on behalf of the Commission, to this technical meeting on fisheries.

It had been intended, as you know, to hold this meeting at Koror in the Palaus. Circumstances beyond our control, however, prevented this at the last moment, and we were obliged to make very rapid plans to arrange for it to be held here. This has inevitably meant that unfortunately one or two distinguished participants have been unable to be present.

In such a vast region as the Pacific Ocean the development of fisheries' resources for the benefit of the indigenous island fishermen is of major concern to the Commission. There are many problems of research and technology to be solved. This is the third time that the South Pacific Commission has brought together representatives of widely scattered fisheries administrations, research establishments and the fishing industry to discuss the action required to make the best use of the valuable resources that lie within and surround the islands. The discussions upon which you are now about to embark will mainly concern the solutions to problems connected with the stocks of fish in and around the reefs and lagoons dispersed throughout the Pacific. At the last South Pacific Conference in October, 1967, delegates expressed their serious concern at the deterioration of the stocks of the lagoons and reefs. How are we to conserve these resources and increase them? Can we, by establishment of a Reef and Lagoon Institute, tackle the many tasks in this field? The answers to these and many other problems will no doubt emerge in the course of your discussions.

One of the most valuable of the Commission's activities, I feel, is to arrange technical meetings such as this. They provide a unique opportunity for technical officers with wide experience of local problems to study and discuss these problems with distinguished consultants from other parts of the world and to recommend policy guidelines for the South Pacific Conference.

I feel sure that your discussions will be both inspiring and valuable, and I can assure you that the conclusions and recommendations which emerge from this exchange of ideas and information will receive careful consideration at the coming Conference and Session of the South Pacific Commission in October this year.

I wish you every success and have much pleasure in declaring your meeting open.

ADDRESS BY DR D.N.F. HALL, CHAIRMAN OF THE MEETING

Gentlemen,

It is a most unexpected honour you have done me in electing me Chairman of this Meeting. One of my prime objectives in coming here was to learn more of the fisheries of the South Pacific in order to do my own job better. You have put me in a position it will be impossible to forget! Looking around I see those who have devoted the greater part of their lives to the South Pacific area; men dedicated to their profession, to the ocean, to the islands, and to the peoples of the South Pacific. Compared with these, I, who have so little acquaintance with the South Pacific, am but a babe in arms and I hope they will excuse any apparent lack of understanding on my part. I can only promise that I will do my best to deserve the confidence you have put in me.

I am also quite alarmed when I see that at this stage the Chairman is due to make some profound remarks, lasting 15 minutes. All I have are impromptu comments based on a few random thoughts I have hastily jotted down.

One of the first things that struck me in looking at the papers that have been assembled for this meeting is the similarity of the problems with which we are faced and which faced the delegates to the very first meeting 16 years ago. Undoubtedly during this meeting there will be much discussion, much exchange of ideas, but I think we should also ask ourselves a few pertinent questions:

- (1) Are we satisfied with the rate of fisheries development in the area? I think those to whom we report would find this useful to know but, in either event, "yes" or "no", we should ask next:
- (2) What is preventing or limiting the development? Almost certainly there will be no simple answer to this.
- (3) and most important of all - Can we identify specific actions that are required by the South Pacific Commission, by the territorial governments, and by other bodies or agencies to overcome these problems, and ascribe to these actions degrees of priority?

If we can provide satisfactory answers to these three questions during the next two weeks I think we will have made a useful contribution to the furtherance of the fisheries of the area.

Coming new to the South Pacific, one cannot fail to be impressed simply by the enormous size of the SPC area, and one or two thoughts follow as a matter of consequence.

- (1) The matter of overall production: if we take the world's marine fish catch and divide it by the area we arrive at a production of almost exactly 1 lb/acre/year. Some regions have a production very much higher than this and we have only to look eastwards to the Peruvian coast to see the finest example of high production. Other regions have a very much lower production; but if we take this figure of 1 lb/acre/year, purely as a yardstick, and apply it to the SPC area, the resultant figure is 3.5 million m.tons/year. Now this is a thought, isn't it? Of course we realize that extrapolation of this sort is quite insupportable; nevertheless, when we consider that the current total catch of the area is possibly between 1/100th and 1/50th of this figure it does help to create an air of optimism.

- (2) Another thought concerns the problem of coordination. When one looks at a chart of the vast SPC area and its hundreds of small islands the very word "coordination" seems to take on a new meaning. I am sure there can be no question at the present stage of coordination in the sense of a physical overlap of areas of responsibility. What is important would seem to be the avoidance of duplication. The whole of the SPC area might be likened to a single organised being in which there is sub-division of labour between the elements, the lines of communication representing the nerve-net, and the SPC itself representing the central coordinating ganglion. It would seem to me to be unimportant which territory for example undertakes the development and evaluation of a new type of craft, or a new processing technique, provided the work is done just once, and the data made available to all.
- (3) This approach to the work within the SPC area, without in any way minimising the value of the SPC, does emphasise the importance of the territorial programmes. Fisheries development cannot be expected in the absence of fisheries administrations staffed by sufficient numbers of adequately trained personnel, and although there has been substantial progress in the SPC area, yet how thinly spread the technical ability still seems to be. A recent major step forward is of course the establishment of the University of the South Pacific with its potential ability to train men in the South Pacific for the South Pacific, and I am sure we can look forward to close liaison between the South Pacific Commission and the University.
- (4) Following this train of thought, vast areas, island populations, few and new personnel, we arrive inevitably at the problem of geographic isolation. I see that a recommendation of the last Fisheries Technical Meeting was that regular meetings of Fisheries Officers of the territories should take place at intervals, if possible not exceeding two years. This seems to me to have been a wise recommendation, and one which bears not only on the work of the SPC itself, but also on the work of territorial staffs posted to lonely outstations. Geographic isolation will become a problem of even greater importance in a few years time if adequate steps are not taken during the construction of territorial services to alleviate the situation.

A problem that is not unique to the South Pacific, but which appears to be present here in a severe form, is not a technical question at all but a sociological one, namely how do you persuade fishermen to fish when they see no advantage in it? If all the fishermen of the SPC area could be persuaded to fish full-time I believe the catch would virtually double overnight, and I can think of no single technical problem the resolution of which would have such a dramatic effect. However, as it is not a technical problem, although technical elements may be involved in its resolution, I will not pursue it any further but we might consider it later in the meeting.

I could not close without saying a word or two of appreciation of the efforts which have been put into preparing for this Meeting by Mr Hinds, the SPC Fisheries Officer. I am sure we are all very sympathetic to his recent problems respecting the change of venue. Although we are not where we expected to be, nevertheless Noumea is a delightful place and I am certain we will have both an instructive and an enjoyable time.

Thank you.



## P R O C E E D I N G S

### AGENDA ITEM 1 - NEW DEVELOPMENTS, PRESENT STATUS AND PROBLEMS IN THE TERRITORIES

1. The Meeting heard statements from the representatives of the several territories within the area covered by the South Pacific Commission and noted that the major problems were essentially consistent throughout. The particular problems are dealt with on a subject-to-subject basis within the body of this Report.
2. The Meeting recognised the serious sociological problems which arise during fisheries development and noted that these may be minimised by stimulating specialisation within a community. The work of the Territorial Fisheries Officers must be closely linked with those responsible for social development in the territories.

### AGENDA ITEM 2 - SUPPORTING MEASURES FOR FISHERIES WITH PARTICULAR REFERENCE TO CO-OPERATIVE SOCIETIES AND CREDIT ORGANISATIONS

3. The Meeting heard statements from the representatives of the territories and identified two major problems:
  - (1) The concept "co-operation" and the development of the co-operative spirit;
  - (2) Staffing, in particular numbers and appropriate training, particularly in accountancy.
4. It was considered that the greatest contribution which the South Pacific Commission could make would be the promotion of adequate training facilities for territorial co-operative staffs. It was considered that in due course there may be advantage in forming an association of co-operatives within the SPC area but that the time for this was not yet ripe.

### AGENDA ITEM 3 - TRAINING

5. The Meeting recognised the need for two broad approaches to fisheries training:
  - (a) Vocational training for adults;
  - (b) Broader based training for adolescents.
6. It also recognised that the degree of specialised fisheries training required within the fishing industry differs between the personnel but that three broad classifications can be made:
  - (a) Personnel requiring fisheries-specific training. This group includes for example, fishermen and processing and handling operatives;
  - (b) Personnel requiring a knowledge of fisheries. This group includes for example boat-builders and gear manufacturers;

- (c) Personnel requiring no fisheries-specific training but without whom the industry cannot operate. This group includes for example engine mechanics and plant operatives.

7. Within the SPC area the greatest need was for training in outboard and diesel engine operation, maintenance and repair, and equally high priority was given to the need for a training course designed specifically for engine mechanics and to a travelling instructor to visit the islands. It was considered that both approaches were needed.

8. It was recognised that training in fish handling and processing was also required in some territories but this was accorded a lesser priority.

9. A discussion to evaluate previous training revealed that the South Pacific Commission's endeavours had been successful and had met past requirements, but it was felt that greater benefit could be obtained from the visit of a specialist to a territory to teach by demonstration rather than from transporting trainees from individual territories to a central training point, and the Meeting recommended that preference should be given to this course of action in the future.

#### AGENDA ITEM 4 - FERRO-CEMENT AND OTHER NON-TRADITIONAL CONSTRUCTION MATERIALS

10. The Meeting noted that some of the materials which are being introduced into boat construction offer no advantages over traditional materials but a definite interest was shown in the use of ferro-cement. It considered that where natural materials were scarce and maintenance was a problem, ferro-cement offered distinct advantages.

11. The Meeting considered that an investigation should be carried out into the possible use of natural fibres and coral lime as alternative reinforcing and bonding materials in the ferro-cement technique.

12. The Meeting proposed that an evaluation project should be formulated for action, in which a fishing vessel would be constructed with the object of:

- (a) Assessing the applicability of the construction technique to the South Pacific area including a cost comparison in relation to other forms of construction;
- (b) Proving the advantages of construction in this medium by practical sea trials of the vessel when constructed.

13. It was considered that the South Pacific Commission should initiate action along these lines and liaise with the Fisheries Officers of the Territories and International Agencies on the design of a suitable vessel for the project. This project was accorded second priority only to the training for engine mechanics.

#### AGENDA ITEM 5 - SURVEY OF MARINE TURTLE RESOURCES AND POSSIBILITIES OF TURTLE FARMING FOR PROTEIN AND LUXURY EXPORT PRODUCTS

14. The Meeting noted that the green turtle (Chelonia mydas) in particular is a valuable source of food in the Pacific but that there is a danger of the stocks being over-exploited. It was agreed unanimously that a survey of marine turtle resources should be instituted and the possibilities of turtle farming be investigated.

AGENDA ITEM 6 - FISH CULTIVATION AND THE POSSIBILITY OF  
MULLET FARMING IN SELECTED LAGOONS

15. The Meeting noted that the territories of the SPC region have vast tidal mangrove areas lying idle and it was felt that steps should be taken to bring this potentially valuable area of the shore line into production. In view of the work being done by the Indo-Pacific Fisheries Council (IPFC) in this field it was considered that the first step should be to establish close liaison with that organization in order to collate and disseminate pertinent information to the territories. The matter should be reconsidered in the light of this information at a later Technical Meeting.

AGENDA ITEM 7 - TAHITIAN PEARL SHELL LURE SKIPJACK TECHNIQUE  
IN AREAS OF SHORT BAIT SUPPLY THROUGHOUT THE SOUTH PACIFIC

16. Some territories showed considerable interest in the application of the pearl shell lure technique to their areas and although the problem of short bait supply is not present throughout the South Pacific area, nevertheless the Meeting considered that the services of an expert should be obtained and that he should demonstrate the technique to interested territories.

AGENDA ITEM 8 - FIJI FISHERMEN'S CO-OPERATIVE VENTURE TO  
OPERATE A COLLECTION VESSEL AND ICE SILOS FOR MOVEMENT OF  
BETTER QUALITY FISH TO MAIN MARKETS

17. The Meeting agreed that fish handling, transportation and marketing are a problem in the South Pacific area. General interest in the Fiji project was expressed, and it was requested that the South Pacific Commission should circulate information on its progress.

AGENDA ITEM 9 - EDIBLE OYSTER CULTIVATION

18. The Meeting, being aware of the considerable economic potential of edible oyster production, considered that training should be fostered in a number of separate aspects associated with edible oyster cultivation. Possible sites considered for training centres for territorial personnel and commercial operators were New South Wales and Hawaii, and the Meeting recommended that the Commission should organize training, especially in the following fields:

- (a) Improved techniques of modern oyster cultivation -  
for territorial fishery personnel and commercial operators;
- (b) Biological studies of the edible oyster -  
for research personnel;
- (c) Quality control -  
for fisheries officers, commercial operators and research personnel.

Training in all these aspects was accorded a high priority. It was noted that the culture of other edible molluscs and commercial shell species was also of importance in certain territories and it was felt that further investigation in this field was warranted.

19. The Meeting requested that the experiences of French Polynesia in these fields should be collated, and distributed by the South Pacific Commission.

AGENDA ITEM 10 - DEVELOPMENT OF MARINE CROCODILE CATCHING AND  
PROCESSING METHODS IN THE PALAU GROUP OF ISLANDS

20. Only two territories, Papua and New Guinea and the Caroline Islands, were seriously concerned with this project and the Meeting recommended that the relevant officers of the two territories should liaise to further their mutual interests.

AGENDA ITEM 11 - FISHERIES CONSERVATION OFFICER  
AND EDUCATIONAL FACILITIES

21. After a lengthy discussion in which the need to strengthen the South Pacific Commission Fisheries Staff emerged, the Meeting elected a Sub-Committee to consider how best extra staff could be used to share the responsibilities of the work. As a result of the Report of this Sub-Committee, the Meeting agreed that it was impracticable to define precise areas of responsibility and in order to provide an element of continuity, taking into consideration the extensive travel which each officer is required to undertake, that duties should be assigned according to their degree of immediate urgency.

22. In view of these requirements, it was recommended that an additional officer should be appointed, who should be of graduate status and have experience in teaching. He would be required to specialise in fishing management, and extension and educational programmes. It was considered this recommendation should be accorded a high priority.

AGENDA ITEM 12 - PRELIMINARY SURVEY OF SPINY LOBSTER RESOURCES  
IN SELECTED ISLAND GROUPS

23. The Meeting discussed the economic possibilities of the industry and the serious depletion of stocks which has taken place. The biology of the early life history of the spiny lobster was discussed and it was noted that further studies and an assessment of stocks are necessary for any form of future conservation regulations which may be required. The Meeting requested New Caledonia and French Polynesia to make available their research findings as soon as possible.

AGENDA ITEM 13 - STUDY OF BECHE-DE-MER (TREPANG) INDUSTRY  
TO DETERMINE METHODS OF EXPANSION AND IMPROVEMENT  
IN RELATION TO POSSIBLE CONSERVATION NEEDS

24. The Meeting discussed difficulties in the identification of species, processing, and marketing, and it was recommended that the South Pacific Commission should approach the Chinese Chamber of Commerce in Hong Kong and Singapore with the object of obtaining the services of an adviser capable of improving the present status of the industry in the South Pacific area.

AGENDA ITEM 14 - REEF AND LAGOON FISHERIES PROJECT

25. The Meeting, taking into account the resolutions of the Thirtieth (1967) Session of the South Pacific Commission, reviewed in detail the antecedents of the proposal and agreed that in the light of increased knowledge and modern developments in technology, the earlier approach to the problem might be considered as less optimistic than the circumstances warranted. It was considered that given the application of modern research practice and modern fisheries technology there existed an excellent potential for economic development in the reef and lagoon environment, despite the fragility of some elements of the naturally occurring resources.

26. To achieve this potential, a new and dynamic approach was necessary and it was considered that possibilities existed for the invention of wholly new methods and technology the design and application of which would be rendered possible by a comprehensive and continuing review of the knowledge already existing and that which could be acquired through a comprehensive survey of the fisheries of the region.

27. The Meeting recognised the need for a two-pronged approach, including on the one hand the application, mainly in short term projects, of existing knowledge and techniques, and on the other hand a somewhat longer term approach involving in part existing knowledge and techniques but allowing scope for the invention or development of more imaginative methods.

28. The Meeting further expressed the view that there existed a high potential for the application and where necessary modification of techniques for the culture of a wide range of aquatic organisms within the lagoon environment.

29. Attention was drawn by several delegates to the rapidly increasing indigenous population and the critical shortage of locally available food-stuffs on certain of the island groups. The alleviation of this situation could only be accomplished by immediate and extensive application of assistance and the Meeting considered that the most appropriate means of achieving this would be through the establishment of an agency specifically charged with responsibility for initiating and assisting the rational development of all the potentially utilisable aquatic resources, those of the reef and lagoon and those of the immediate offshore waters.

30. As a preliminary to active intervention, the agency would need to undertake a detailed survey of all existing situations, and to compile and analyse these in order to permit a detailed and more precise identification of the specific problems. The Meeting recognised that these problems would be of two main types, the first having wide application over all or a major part of the area, the other being more restricted and of significance to only one or possibly two territories.

31. The concept of and need for precise research into both the environment and the resources was emphasised strongly and the Meeting held that both research and the application for development purposes of existing knowledge and techniques should be conducted concurrently, the reaction of the living resources being kept under continued surveillance.

32. The Meeting drew attention to the development of academic institutions in the region and recognised the part such institutions might be encouraged to play in the development of research and survey studies.

33. Arising from its deliberations the Meeting drafted the following proposal:

Project for the establishment and operation of a South Pacific Islands Fisheries Development Agency

Objectives of the Agency

- (a) To initiate and co-ordinate appropriate action programmes both collective and individual within the territories of the South Pacific area designed to develop the utilisable aquatic resources of the area with special reference to the reef and lagoon resources and primarily for the benefit of the peoples of the area.
- (b) To advise and assist individual territories in the formulation and implementation of development projects.
- (c) To find funds and expertise for the implementation of collective and individual territorial projects and/or to assist territorial governments to obtain such funds and expertise through whatever agency is most appropriate.
- (d) To establish and operate an intelligence service through which information relevant to the fisheries of the area may be collected, collated, analysed and disseminated for the economic benefit of the territories and the area as a whole.

Implementation of the Project

34. It is envisaged that the project would be developed in two phases:

Phase I, possibly for a period of up to two years, during which the more precise identification of the problems would be undertaken, the intelligence service developed, a staff of specialists recruited, and ad hoc advice and assistance rendered to the territories in respect of small more or less localised development projects. Concurrently, steps would be taken to establish the essential research basis for the acquisition and analysis of fundamental information leading to the precise formulation of those major problems now retarding the development of the rational management of the resources.

Phase II. This would involve action programmes supported by continuing research in the broad sense to implement projects as formulated and defined initially during Phase I. These action programmes would involve not only the services of a central specialised group but also the employment as required of consultants for shorter or longer periods necessitated by the individual projects.

Counterpart requirements

35. The South Pacific Commission would be required to provide at least interim accommodation, i.e. during Phase I, for the central specialised group as well as secretarial services and such counterpart personnel at technical and professional level as might be required during the development of the project.

36. Individual territories would provide counterpart requirements either individually or collectively as the case may be in relation to the development projects.

37. It was recommended that the South Pacific Commission, if possible in consultation with a UNDP official, should prepare a formal application for UNDP financial assistance.

AGENDA ITEM 15 - ASSESSMENT OF STOCKS OF COMMERCIAL SEaweEDS IN SOUTH PACIFIC, IN CONJUNCTION WITH UNIVERSITY OF HAWAII

38. The Meeting was informed of discussions with the staff of the University of Hawaii of proposals to institute a training course for territorial fisheries department staffs in seaweed identification as a preliminary step towards conducting a co-ordinated survey of the seaweed resources of the South Pacific area.

39. The Meeting expressed interest in the proposal, but was of the opinion that such a course would be of most benefit to trained botanists or algologists and could not support such a training course at this time. However, it requested the South Pacific Commission to examine the possibility of acquiring and disseminating information on seaweed culture.

AGENDA ITEM 16 - DEMONSTRATION OF SCAD MACKEREL FISHING METHODS BY HAWAIIAN FISHING EXPERT TO GROUPS OF ISLAND FISHERMEN

40. The Meeting noted that the species which can be taken by the use of these techniques are important food and bait fishes. In some territories they may be the only local bait suitable for long lining for tuna. The Meeting gave high priority to the demonstration of these methods (next only to the proposed projects on engine ~~motor~~ repair and ferro-cement boat construction), and recommended that a specialist be appointed to tour areas where it is thought that such additional skills would enhance the catching ability of the local fishermen. The details of this project should be formulated by the South Pacific Commission Fisheries Programme Officer.

AGENDA ITEM 17 - INTRODUCTION OF RAFT AND SURROUND NET METHODS OF CATCHING DOLPHIN FISH

41. The Meeting agreed that the introduction of the raft and surround net method for catching dolphin fish (Coryphaena hippurus) appears to have a useful application in the South Pacific area, not only for the capture of dolphin fish but also for other potentially important species of similar habits, and recommended that efforts should be made by territorial fisheries departments to test the method under their local conditions.

AGENDA ITEM 18 - CULTIVATION OF GIANT CLAM FOR FOOD AND SHELL EXPORT IN SELECTED LAGOONS

42. The Meeting noted considerable interest in the harvesting and culture of the large reef clams (Tridacnidae) in several of the territories and proposed that the South Pacific Commission might consider the inclusion of a project for the cultivation of these molluscs in such programmes for development as might be referred to UNDP for assistance.

AGENDA ITEM 19 - HIGH SEAS TUNA INDUSTRY

43. The Meeting considered a comprehensive history and trends in modern development of the high seas tuna fishing industry in the Indo-Pacific. It noted that large quantities of tuna were being caught in the Maldivian Islands of the Indian Ocean using unpowered craft.

44. The Meeting also noted however that the lack of suitable live bait in certain areas limits the development of skipjack fishing methods, and it was recommended that territorial fisheries departments should assemble all the available information on the status of skipjack fisheries and the availability of bait fishes.

45. The Meeting considered that, of the possible tuna resources, the skipjack (Katsuwonus pelamis) offered the best opportunity for development by the territories of the South Pacific, being a readily available supplement to the currently over-exploited reef and lagoon stocks of those regions adjacent to areas of high urban populations. The considerable stocks of little tuna (Euthynnus affinis) were also noted and it was recommended that they should not be neglected.

46. In order to determine the most effective way of developing these resources, the Meeting recommended unanimously that UNDP assistance be sought to undertake feasibility studies in selected areas, and further recommended that the South Pacific Commission should assist in the preparation of an application to the UNDP supported by the interested territories.

AGENDA ITEM 20 - ICHTHYOSARCOTOXISM

47. It was recognised that the term "ichthyosarcotoxism" embraced a wide field and it was considered that the subject should be looked at in two contexts:

- (a) "Ciguatera": a condition in humans resulting from the ingestion of certain tropical fish which are normally harmless, essentially sporadic in its occurrence, rarely fatal, but which can cause acute suffering.
- (b) All other forms of sarcotoxism (flesh poisoning) which have potentially lethal effects.

48. The Meeting noted that neither of these two forms of ichthyosarcotoxism was an over-riding limitation on the potential economic development of reef and lagoon fisheries, but it was recognised that in certain areas ciguatera had very serious socio-economic implications. On the other hand the other forms of this poisoning were a relatively insignificant deterrent.

49. Little evidence was given to the Meeting to indicate that ciguatera is spreading and it was noted that the sickness has been recognised as a hazard from earliest recorded times.

50. The introduction of new species may result in new fisheries, but in view of the limited knowledge of the biochemical mechanisms which cause ciguatera, it is impossible to guarantee that such introductions will alleviate the scourge.

51. In view of this situation, and recognising the fundamental value of the research which has been and is being devoted to the problem of ciguatera, the Meeting recommended that all possible effort should be directed towards coordinating and supporting increased endeavours in this field wherever possible.



52. The attention of the Meeting was directed to a meeting of experts on ichthyosarcotoxism to be convened in Rangiroa, French Polynesia, in mid-August and it was noted that some of the current participants would be taking part in that meeting.

AGENDA ITEM 21 - ANY OTHER BUSINESS

(a) Marine mechanics training

53. The Meeting was informed of existing and proposed training facilities in this important field in Honiara (British Solomon Islands Protectorate), and Nouville (New Caledonia) and recommended them to the attention of the territorial governments.

(b) Mother of Pearl shell and pearl cultivation

54. The Meeting appreciated the results which have been achieved in this field in the Cook Islands by the introduction of improved culture techniques initiated by the local Fisheries Officer, and recommended that the South Pacific Commission should seek ways of providing tangible support for this work in the form of equipment and qualified scientific assistance.

(c) Compendium of the fisheries of the South Pacific area

55. The Meeting endorsed the recommendation of the Second Technical Meeting (1962) and noted that only limited action had been taken to compile this reference book. Accordingly, it recommended that effective action should be taken to collect the necessary material for inclusion in such a work.

56. The Meeting further recommended that this proposed publication should be designed to have wide appeal, but special emphasis should be given to its suitability as a training manual for future territorial staffs.

(d) Canoe design

57. The Meeting recognised that traditional fishing canoes will have a major part to play in the development of the fisheries of the area for some time to come, but noted that, with the use of modern concepts, technology and materials, there was room for increased efficiency in canoe design.

58. Accordingly the Meeting recommended that a Fisheries Officer having exceptional experience of these craft should undertake a detailed study which will indicate the areas in which these benefits can best be applied.

(e) Further Technical Meetings

59. The Meeting noted that since 1952 only three Technical Fisheries Meetings had been convened, and considered that, in view of the relative isolation of the Fisheries Officers in charge of territorial programmes throughout the SPC area, serious consideration should be given to increasing the frequency of meetings at which a review of common problems and exchange of information could be made, and plans for future action could be more effectively worked out.

60. In view of this, the Meeting recommended that, where possible, a Technical Meeting to assess and re-evaluate fisheries development plans should be held every two years. Seminars on selected special topics should be conducted in conjunction with each of these meetings in which indigenous fisheries personnel should be encouraged to take an active part.

61. The Meeting further recommended that the first of these joint assemblies should be convened in 1970, noted that Port Moresby would be an appropriate venue, and considered that the subject of the seminar should be Fishing Gear Technology. Other special subjects of common technical interest which could form the basis of future seminars were noted, including improved fishing craft design, construction, and operation; fish processing and handling; and diversified mariculture.

62. Finally, the Meeting recommended that wherever possible SPC Technical Fisheries Meetings and Seminars should be held in close association with meetings held by international agencies in the region. This would give local indigenous fisheries personnel an opportunity to make essential professional contacts.

#### ACKNOWLEDGEMENT

63. The Meeting wished to place on record its sincere appreciation of the work of the South Pacific Commission staff over and beyond the normal call of duty.

LIST OF RECOMMENDATIONS

		Paragraph
A. <u>For the attention of the South Pacific Commission</u>		
(a) <u>Training</u>		
-	Training for territorial co-operative staffs	4
-	Training for outboard and diesel engine mechanics	7
-	Training in fish handling and processing	8
-	Training methods	9
-	Training in aspects of edible oyster cultivation	18
(b) <u>Research and Survey</u>		
-	Survey of marine turtle resources and turtle farming	14
-	Expansion of the Beche-de-mer industry	24
-	Establishment of a South Pacific Islands Fisheries Development Agency	25 - 37
-	Giant clam cultivation	42
-	Development of skipjack and little tuna resources	43 - 46
-	Support for research into ichthyosarcotoxism	51
-	Support for Mother of Pearl and pearl cultivation	54
(c) <u>Craft and Gear</u>		
-	Alternative reinforcing and bonding materials in the ferro-cement technique	11
-	Ferro-cement fishing boat evaluation project	12 - 13
-	Demonstration of Tahitian pearl shell lure skipjack technique	16
-	Demonstration of scad mackerel fishing methods	40
-	Improved canoe design	58
(d) <u>Collection and dissemination of information</u>		15, 17, 19, 23, 39
(e) <u>Other</u>		
-	Strengthening of SPC Fisheries staff	21 - 22
-	Compendium of the fisheries of the South Pacific Area	55 - 56
-	Frequency and object of Technical Fisheries Meetings	59 - 62
B. <u>For the attention of territorial governments</u>		
-	Development of marine crocodile catching and processing methods	20
-	Spiny lobster resources	23
-	Trials of raft and surround net methods for catching dolphin fish	41
-	Development of skipjack and little tuna resources	43 - 46
-	Training in the field of marine mechanics	53

SOUTH PACIFIC COMMISSION

TECHNICAL MEETING ON FISHERIES

A G E N D A

1. New developments, present status and problems in the territories.
  2. Supporting measures for fisheries with particular reference to co-operative societies and credit organisations.
  3. Training.
  4. Ferro-cement and other non-traditional construction materials.
  5. Survey of marine turtle resources and possibilities of turtle farming for protein and luxury export products.
  6. Fish cultivation and the possibility of mullet farming in selected lagoons.
  7. Tahitian pearl shell lure skipjack technique in areas of short bait supply throughout the South Pacific.
  8. Fiji Fishermen's co-operative venture to operate a collection vessel and ice silos for movement of better quality fish to main markets.
  9. Edible oyster cultivation.
  10. Development of marine crocodile catching and processing methods in the Palau Group of Islands.
  11. Fisheries conservation officer and educational facilities.
  12. Preliminary survey of spiny lobster resources in selected island groups.
  13. Study of bêche-de-mer (Trepang) industry, to determine methods of expansion and improvement in relation to possible conservation needs.
  14. Reef and lagoon fisheries project.
  15. Assessment of stocks of commercial seaweeds in South Pacific, in conjunction with University of Hawaii.
  16. Demonstration of scad mackerel fishing methods by Hawaiian fishing expert to groups of island fishermen.
  17. Introduction of raft and surround net methods of catching dolphin fish.
  18. Cultivation of giant clam for food and shell export in selected lagoons.
  19. High seas tuna industry.
  20. Ichthyosarcotoxism.
  21. Any other business.
-

SOUTH PACIFIC COMMISSION

TECHNICAL MEETING ON FISHERIES

LIST OF PARTICIPANTS

Mr A.E. ADAMS	Fisheries Officer, Department of Agriculture, Suva, Fiji.
M. J. BARRAU	Conseiller technique au développement rural auprès du Haut-Commissariat de la République Française dans l'Océan Pacifique, Chef du Service de l'Agriculture de la Nouvelle-Calédonie et Dépendances, Nouméa, Nouvelle-Calédonie.
M. Ph. BOURRET	Laboratoire d'Océanographie, Centre ORSTOM, Nouméa, Nouvelle-Calédonie.
M. M. CORBASSON	Chef du Service des Eaux et Forêts de la Nouvelle-Calédonie, Nouméa, Nouvelle-Calédonie.
Mr W. GRANGER	Programme Director (Economic), South Pacific Commission, Nouméa, New Caledonia.
Dr D.N.F. HALL	Fisheries Adviser, Ministry of Overseas Development, London, United Kingdom.
Mr V.T. HINDS	Fisheries Programme Officer, South Pacific Commission, Nouméa, New Caledonia.
Dr I. KASAHARA	Project Officer, United Nations Development Programme, New York, U.S.A.
M. C. LE BIGOT	Administrateur principal des Affaires Maritimes, Chef du Service de la Marine Marchande, Papeete, Polynésie Française.
M. M. LEGAND	Directeur du Laboratoire d'Océanographie, Centre ORSTOM, Nouméa, Nouvelle-Calédonie.
Mr R. POWELL	Fisheries Officer, Government of the Cook Islands, Rarotonga, Cook Islands.
Dr A.M. RAPSON	Chief, Division of Fisheries, Department of Agriculture, Stock and Fisheries, Port Moresby, Territory of Papua & New Guinea.

Mr W.M. SUTHERLAND

Managing Director of Ferro-Cement Ltd.,  
Auckland, New Zealand. .

Mr J.A. TUBB

Regional Fisheries Officer,  
FAO Regional Office for Asia and the Far East,  
and  
Secretary of the Indo-Pacific Fisheries  
Council,  
Bangkok, Thailand.

SPC STAFF

Mrs D. WRIGHT

Chief, Interpreter/Translator

Mrs J. DES MOUTIS

Interpreter/Translator

Miss S. ZENTNER

Interpreter/Translator

Mlle S. EXBROYAT

Conference Officer

Mme M. NOELLAT

Stenographer

Mlle C. BAUDOIN

Stenographer

---

SOUTH PACIFIC COMMISSION

TECHNICAL MEETING ON FISHERIES

LIST OF WORKING PAPERS

- SPC/Fisheries/Tech.1 USE OF CONCRETE by James (U.K.), extracted from "Fishing Boats of the World", London, 1967.
- SPC/Fisheries/Tech.2 OCEAN FISH CULTURE by A.M. Rapson, Chief, Division of Fisheries, Department of Agriculture, Stock and Fisheries, Konedobu, Territory of Papua and New Guinea.
- SPC/Fisheries/Tech.3 FISHERIES PROGRAMME - BRITISH SOLOMON ISLANDS PROTECTORATE by F.M. Spencer, Director of Agriculture, British Solomon Islands Protectorate.
- SPC/Fisheries/Tech.4 GUIDELINES FOR THE RATIONAL UTILIZATION OF MARINE TURTLES IN THE PACIFIC ISLANDS by J.R. Hendrickson, Director, The Oceanic Foundation, Hawaii.
- SPC/Fisheries/Tech.5 NOTES ON CULTIVATION OF MULLET IN HAWAIIAN FISH PONDS by J.N. Ellis, Oceanic Institute, Waimanalo, Hawaii.
- SPC/Fisheries/Tech.6 MARINE INDUSTRIES OF FIJI - A REPORT by A.E. Adams, Fisheries Officer, Department of Agriculture, Suva, Fiji.
- SPC/Fisheries/Tech.7 A NEW CONCEPT IN FAST FISHING PLATFORMS by A.M. Rapson, Chief, Division of Fisheries, Department of Agriculture, Stock and Fisheries, Konedobu, Territory of Papua and New Guinea.
- SPC/Fisheries/Tech.8 CLAM CULTURE AS PRACTISED ON PONHAM AND MONK ISLANDS, MANUS by A.M. Rapson, Chief, Division of Fisheries, Department of Agriculture, Stock and Fisheries, Konedobu, Territory of Papua and New Guinea.
- SPC/Fisheries/Tech.9 FISHERMEN TRAINING IN THE PACIFIC ISLANDS - FIJI by A.E. Adams, Fisheries Officer, Department of Agriculture, Suva, Fiji.
- SPC/Fisheries/Tech.10 THE CONCEPT OF A REEF AND LAGOON FISHERIES INSTITUTE by V.E. Brock, Director, Hawaii Institute of Marine Biology, University of Hawaii.
- SPC/Fisheries/Tech.11 SOME OBSERVATIONS ON BASIC RESEARCH AND PROBLEMS RELATED TO THE DEVELOPMENT OF THE FISHERIES IN THE SOUTH PACIFIC ISLAND GROUPS by M. Legand, Directeur de Recherches au Centre ORSTOM de Nouméa.
- SPC/Fisheries/Tech.12 CANOES OF THE PACIFIC ISLANDS by R. Powell, Fisheries Officer, Government of the Cook Islands.
-