

**SOUTH PACIFIC COMMISSION**

**TWENTIETH REGIONAL TECHNICAL MEETING ON FISHERIES**  
(Noumea, New Caledonia, 1 – 5 August 1988)

**REPORT ON THE**  
**STANDING COMMITTEE ON TUNA AND BILLFISH**

**AGENDA ITEM 1 – PRELIMINARIES**

1. Mr Jon Jonassen, Acting Secretary General, in the absence of the Secretary General, formally opened the meeting with an address welcoming the participants.
2. The Meeting agreed that the country to chair the Annual Regional Technical Meeting on Fisheries (RTMF) would also chair the Standing Committee on Tuna and Billfish (SCTB) so as to provide a close link between the two meetings.

**AGENDA ITEM 2 – BACKGROUND TO SCTB**

3. The Fisheries Co-ordinator presented the background of the SCTB citing the evolution of the Tuna and Billfish Assessment Programme. A meeting of member countries and distant-water fishing nations (DWFNs) held by the South Pacific Commission in 1984 put forth the idea of the SCTB and subsequently the 18th and 19th RTMFs finalised the terms of reference and composition of the SCTB, which were approved by the Twenty-Seventh South Pacific Conference as follows:

### **Terms of Reference of Standing Committee on Tuna and Billfish**

The intended role of this Committee is purely advisory and consultative. Its work will assist in the conduct of pelagic fisheries research through the provision of expertise, information and technical advice.

The Committee shall advise the Regional Technical Meeting on Fisheries on biological research on stocks which support oceanic fisheries for tuna and billfish in the SPC region by:

- (i) assisting with the rigorous scientific review of the work of the TBAP and suggesting improvements to the scope and techniques of the TBAP's research;
- (ii) assisting with and advising on the acquisition of relevant data to the TBAP, specifically that relating to fishing activities on the high seas surrounding the EEZs of SPC member countries;
- (iii) arranging collaboration between SPC staff and outside workers on problems of mutual interest.

### **Composition of Standing Committee on Tuna and Billfish**

It is expected that the composition of the Committee would vary according to the specific tasks before it. In general, however, it shall consist of the following members:

- (i) Tuna and Billfish Assessment Programme Chief Scientist or his representative;
- (ii) A representative from the Forum Fisheries Agency;
- (iii) Scientists from countries with a commitment to tuna fishing in the SPC region, specifically including both Island states and distant-water fishing nations;
- (iv) Technical experts invited by the Fisheries Co-ordinator as necessary to assist in analysis of specific problems.

4. The Chairperson requested that participants introduce themselves and make a brief statement about the country/organisation they represent.

### **AGENDA ITEM 3 – GENERAL REVIEW OF TUNA AND BILLFISH RESEARCH IN THE SPC REGION**

#### **— Tuna and Billfish Assessment Programme research**

##### *—Statistics Project*

5. The Tuna and Billfish Assessment Programme Fisheries Statistician outlined the main activity of the Statistics Project as processing daily catch-effort data as submitted on logsheets under requirements of access arrangements between countries and DWFNs. The details of this Project are given in SPC/Fisheries 20/WP.2. Regular output from the Project includes country summary reports, trip reports, gear summaries and catch-effort maps. A new publication, the *Regional Tuna Bulletin*, is planned for quarterly release; the first edition will be distributed to the 20th RTMF for comment (SPC/Fisheries 20/WP.10). Recent activities include the development of micro-computer databases for installation in member countries requesting this service. A catalogue of data holdings by the Tuna Programme is given in SPC/Fisheries 20/Information Paper 2.

6. The issue of coverage of SPC data holdings was presented. Estimated low coverage rates (purse seine 50%, pole-and-line 22% and longline 12%) may be due to:

- i) incomplete submission of logsheets to member countries.
- ii) non-reporting from high seas areas.

7. Prospects for improving coverage include:

- i) access to data submitted under the terms of the Multilateral Fishing Treaty with the United States purse seiners operating in the EEZs of South Pacific Forum countries.
- ii) encouragement of increased longline logsheet submission.
- iii) access to unloading data from canneries and transshipment ports.
- iv) cross validation between telex and logsheet data.

8. The Fisheries Statistician expressed concern about the lack of data previously available through publications of tuna fisheries data by Japan and Korea. Such publications ceased in 1980.

9. Discussion concentrated on means for obtaining access to DWFNs high seas data, details of data collection procedures in the Republic of China and Japan, data coverage from the Republic of China's newly developed purse seine fishery, and data from drift gill-net operations in international waters of the region. The representative from the Japan Far Seas Fisheries Research Laboratory (FSFRL) offered to provide figures on the proportion of tuna fishing effort spent within EEZs of member countries in contrast with high seas. The representative from the Republic of China offered to provide reports for the fishing activities of their fleets, including the purse seine fishery, on request.

*—Tuna and Billfish Research Project*

10. The Acting Chief Scientist listed the priority areas of the Project as outlined in SPC/Fisheries 20/WP.2. The major activity of the Project over the next three years will concern the Regional Tuna Tagging Project (SPC/Fisheries 20/WP.5). A new initiative of the Project is to undertake in-country tuna resource assessments on an annual basis for countries supplying data to SPC. The first confidential report has been made for Papua New Guinea and every effort will be made to complete the remaining reports before the end of the year.

11. The scientist from the Institut français de recherche pour le développement en coopération (ORSTOM) attached to the TBAP presented his work on tuna-environment studies. The main focus of the investigation relates the oceanographic database maintained by ORSTOM to the catch-effort database maintained by the TBAP.

12. The representative of France stressed the importance of comprehensive consideration of stock structure when conducting stock assessment. In particular, the impact of yellowfin fisheries in the Philippines and Indonesia should be considered when SPC defines a western Pacific tuna fishery statistical area.

13. The representative from the Indo-Pacific Tuna Programme (IPTP) mentioned plans to conduct tagging programmes in the Philippines and Indonesia and agreed that collaboration between IPTP and the TBAP should be fostered. It was pointed out that cooperation between ASEAN nations and Pacific Island Countries could be facilitated through the Western Pacific Fisheries Consultative Committee.

14. The representative of Tuvalu cautioned that the SPC, in pursuit of collaboration with extra-regional organisations, should not lose track of country requirements.

15. Participating member countries and other agencies presented brief descriptions of their current tuna-related research activities within the region.

16. Data collection methods of the Inter-American Tropical Tuna Commission (IATTC) were discussed, in particular, with respect to data coverage from ports of unloading. It was emphasised that cooperation of non-IATTC members was as good as that from members.

17. It was mentioned that Japan is a member of IATTC and its scientists have regularly worked on Japanese data at the IATTC's laboratory since the early 1960s. The representative from IATTC stated that no observers have been placed on longline or surface fishing vessels specifically to collect tuna fishery data. However, a marine-mammal observation programme on purse seiners has been in place for about ten years and these observers have recently commenced the collection of gonad data from yellowfin tuna.

18. A question was raised concerning differences in the apparent longline yellowfin catch rates between the FSFRL data and data that the TBAP hold. In particular, the SPC data show a decrease in catch rates since 1979, whereas catch rates calculated by FSFRL indicate no declining trend during this period. The FSFRL suggested that this issue should be looked at jointly by scientists from the two organisations in the future.

19. The representative from the National Marine Fisheries Service (NMFS) explained the southern albacore troll fishery, currently monitored by way of voluntary logsheet submission and records of unloading receipts. It was also stated that there was concern among American troll fishermen about increased drift gillnetting in high seas areas.

#### **AGENDA ITEM 4 – FISHERIES INTERACTION STUDIES ON SKIPJACK AND YELLOWFIN TUNA**

20. The TBAP Acting Chief Scientist introduced the problem of interaction between tuna fisheries and presented SPC/Fisheries 20/Information Paper 5. Three approaches to studying interaction were presented.

- i) The use of descriptive fishery statistics such as CPUE by size, gear, time and area strata;
- ii) The use of age or size-structured models such as multi-gear yield per recruit analysis. The need to consider the entire stock structure and all fisheries was emphasised.
- iii) Conducting tagging studies. Several analytical models were presented, compared and discussed.

21. Regardless of which method is used, however, complete catch and effort data are required in the analysis.

22. A discussion ensued on different methods for analysing tagging data. The use of diffusion models which estimate age specific mixing rates based on an integrated analysis of intensive tagging and detailed catch by age statistics is conceptually promising, however, analytical difficulties can cause problems.

23. It was stressed that the definitive analysis of SPC skipjack tagging data is precluded by the lack of complete fishery statistics during the period of the Programme. Several important analyses of the fisheries had been possible, however, and these were presented and discussed.

24. A paper discussing the use of descriptive fisheries statistics to detect fishery interaction was presented (SPC/Fisheries 20/WP.17).

25. Fishing depth is an important factor influencing longline yellowfin catch rates. The yellowfin caught by deep longline gear tend to be somewhat larger than those caught by shallow longline gear.

26. For purse seine fishing, yellowfin associated with logs are generally considered smaller than those that are free swimming. This phenomenon has been also observed in other tropical tuna fisheries.

27. Based on Japanese data held by the SPC, a decrease in longline yellowfin catch rates was observed in an area where the purse seine fishery was intense, while in an area where no purse seine fishery existed, catch rates were stable. In the area with both fisheries, however, catch rates were decreasing before the purse-seine fishery began so the cause of the decline is not certain.

28. It is desirable to account for factors which influence catch rates so that catch rates can be used as abundance indices. This has been done successfully with longline data which incorporate depth of fishing, depth of thermocline, geographic area, and seasonality of the fishery. An extension would be to adjust for the effect of purse-seine catches when analysing catch rates of longline vessels, but unfortunately there is not sufficient coverage of the purse-seine fishery in the SPC database to allow this analysis to proceed at present.

29. Seasonal trends in CPUE by month are the opposite for longline and purse seiners (school fish). Catch rates for purse seiners are higher in the northern winter and lower in the northern summer, while those for longline gear show the opposite trend. These may be related to spawning behaviour.

30. The representative from the FSFRL noted the differences in the catch rate trends in the different areas with respect to differences in purse-seine fishing intensity. He suggested that this may indicate some separation of stocks.

31. The representative from France remarked on the fact that for almost all stocks of tunas and billfish the longline CPUE decreased dramatically during the first years of the fishing. He said this was certainly not caused by purse seining, because in many cases there was no purse-seine fishery at the time that the decreases occurred.

32. The Acting Chief Scientist next reported on some findings about interaction among South Pacific skipjack fisheries. This material is covered in SPC/Fisheries 20/Information Paper 4. The main points were: The amount of exchange of fish between two areas depends on how close the two areas are to each other, the amount of movement of the fish, the natural mortality rate, and the fishing mortality rate.

33. The interactions between countries, in order of magnitude, were estimated as follows: Federated States of Micronesia to Marshall Islands, Northern Mariana Islands to Federated States of Micronesia, Federated States of Micronesia to Northern Mariana Islands, Palau to Federated States of Micronesia, New Zealand to Fiji. In general, the percentages of skipjack throughput in one country due to immigration from another are rather low, but this could change as the amount of fishing increases and fishing takes place closer to boundaries of adjacent areas.

34. Applying the analysis presented in SPC TBAP Technical Report 13 it was suggested that skipjack in the Solomon Islands fishery had a higher survival rate and lower natural mortality and emigration rates than those exploited by the Papua New Guinea fishery.

35. The SPC Skipjack Survey and Assessment Programme (SSAP) data are among the best in the world. Much more could be done with these data, however, if complete data on catch and effort were available. The importance of complete and accurate catch and effort data to complement tag release and recovery data should be emphasised.

36. The case of eastern Atlantic yellowfin purse-seine and longline fisheries during recent years was presented to the Meeting. During recent years, this fishery has shown the complexity of the relationship between biomass and CPUE and the possible effects of environmental variability on the catchability of fish by different gear. These effects increase the difficulties of interpreting the results of interaction studies.

37. The purse seine and longline interactions in the yellowfin fishery were discussed by the Committee. It has been observed in studies conducted elsewhere (eastern Atlantic and eastern Pacific) that for fish tagged in surface fisheries the recovery rate in the longline fishery was very low. This difference cannot be explained entirely by losses of tags, nor by non-reporting of tags by longline gear given that all fish are individually handled on longliners. There is some suggestion that the low recovery of tags on yellowfin caught by longliners can be explained in complete mixing, caused by geographical or vertical segregation of the respective exploited fractions of stocks.

38. The representative of Tonga raised the important issue of interaction between the industrial and artisanal fisheries. It was pointed out that two activities may be important in addressing this question: 1) the use of tuna environment data to correlate possible changes in catchability to artisanal fisheries, and 2) examine the exchange of tuna between inshore and offshore areas, particularly beyond twelve miles.

39. It was also pointed out that the planned studies, because they are designed to study interaction, will be more efficient for that purpose than were the Skipjack Survey and Assessment Programme's experiments, which had different objectives.

## **AGENDA ITEM 5 – COLLABORATIVE RESEARCH ON TUNA AND BILL-FISH IN THE SPC REGION**

40. The discussion on this item began with the Chair pointing out earlier references to collaborative research and the special need for it in interaction studies. The Acting Chief Scientist described the proposed TBAP tagging programme from inception through to the proposal and funding stage and noted that funds may be available as early as November 1988. He outlined the need for tagging effort in the area between Papua New Guinea and the Federated States of Micronesia where the DWFN purse-seine fleets concentrate, to investigate the interaction between purse-seine and longline fisheries. Plans for in-country tagging were outlined. Tagging and tag recovery procedures and the need for accurate fisheries data were described. A discussion ensued on collaborative efforts for assistance, particularly on tag recovery, and on tagging techniques and problems which must be faced. Of particular note on the question of tag recovery was the cooperation offered by the representatives of FSFRL, IPTP and the Republic of China to maximise tag recoveries.

41. The mechanism by which the best possible catch and effort data could be obtained was addressed by the meeting. It was noted that further valuable analyses of SSAP data could be done if additional fisheries data were available. The representative from the FSFRL stated that the Japan International Cooperation Agency (JICA) was seeking funds for a Japanese scientist to work at SPC for six months in 1989 to enable a re-analysis of skipjack tagging data in conjunction with Japanese surface fishery data. Further consultations are required to determine the logistics and degree of data aggregation to be permitted by the Japan Fisheries Agency.

42. The representative of the Federated States of Micronesia suggested that, during the course of access negotiations, Pacific Island Countries stress to DWFNs the need for more complete catch and effort data for scientific studies, and greater cooperation in tag recoveries. This was supported by the representative of Solomon Islands.

43. The United States was requested to examine providing purse seine data parallel to that of Japan for the purpose of skipjack tagging analyses; the representative for the United States agreed to carry the request back.

44. The representative from NMFS suggested that consideration be given to the use of purse seiners for tagging tunas. The representative from IATTC described a method that had been used for tagging marine mammals caught in purse seines, and stated that that method might be useful for tagging tunas.

45. TBAP scientists and all countries having fisheries for small yellowfin in the area should pay special attention to the possibility of small bigeye misidentified as yellowfin in their catches. This misidentification, which has been demonstrated in other oceans, could raise serious problems in any future interaction study on both yellowfin and bigeye.

46. The representative of ORSTOM recommended that FAO's Expert Consultation on Tuna Fishery Interaction be funded. The meeting agreed that the SCTB will send a letter to FAO supporting the Consultation.



47. A draft agenda for the Second South Pacific Albacore Research (SPAR) workshop was considered. The meeting agreed that an additional item should be added concerning a review of albacore research results and fisheries in other regions. Possible dates and attendance were discussed and the agenda agreed upon. It was suggested that electronic mail be used to have preliminary discussions before the SPAR workshop.

#### **AGENDA ITEM 6 – ARRANGEMENTS FOR FUTURE SCTB MEETINGS**

48. The Secretariat outlined several advantages in separating the SCTB and the RTMF in the future and proposed that the next meeting of the SCTB be held at a venue outside Noumea, prior to the RTMF during the month of June.

49. The meeting recommended that future meetings be extended in duration to three days.

50. The representative of the Federated States of Micronesia recommended that scientists from DWFNs be encouraged to attend future meetings, and this suggestion was also endorsed by the meeting.

#### **AGENDA ITEM 7 – OTHER BUSINESS**

51. No other business was discussed.

## **RECOMMENDATIONS**

Recognising the desire of close cooperation and collaboration between DWFNs and SPC member countries, the SCTB *recommended* that scientists or other representatives from DWFNs be encouraged to attend future meetings of the Committee.

The SCTB *recommended* that, considering the importance of fishery interaction issues in the SPC area and other regions, the FAO be requested to fund an expert consultancy on the topic of tuna and billfish fishery interactions.

The first meeting of the SCTB *recommended* that succeeding meetings:

- a) be held separately from the annual SPC RTMF to enable time for preparation between the two meetings;
- b) should be held over three days to permit sufficient time for more detailed presentation and discussion of scientific results and preparation of the final meeting report;
- c) accept the procedure that the Chair of SCTB meetings be provided by the country supplying the Chair to the annual RTMF.

**LIST OF PARTICIPANTS  
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**Australia  
Australie**

Dr Meryl Williams  
Assistant Director  
Fisheries Resources Branch  
Bureau of Rural Resources  
Department of Primary Industries and Energy  
CANBERRA, ACT 2600

**Federated States of Micronesia  
Etats Federes de Micronesie**

Mr Peter Sitan  
Executive Director  
Micronesian Maritime Authority  
P.O. Box D  
Kolonja  
PONAPE 96941

Mr Mike Gawel  
Chief Marine Resources Division  
Department of Resources and Development  
P.O. Box D  
Kolonja  
POHNPEI 96941

**Forum Fisheries Agency (FFA)  
Agence des pêches du Forum (FFA)**

Mr Andrew Wright  
Research Coordinator  
Forum Fisheries Agency  
P.O. Box 629  
HONIARA  
Solomon Islands

**France**

Dr Alain Fonteneau  
Institut français de recherche scientifique  
pour le developpement (ORSTOM)  
213, rue Lafayette  
75010 PARIS  
France

**Indo Pacific Tuna Development and  
Management Programme (IPTP)**

Mr T. Sakurai  
Programme Leader  
Indo Pacific Tuna Development and Management  
Programme  
P.O. Box 2004  
Colombia  
Sri Lanka

**Inter American Tropical Tuna  
Commission  
Commision Inter-américaine du thon  
des tropique**

Dr William Bayliff  
Inter-American Tropical Tuna Commission  
c/- Scripps Institution of Oceanography  
La Jolla  
California  
USA 92093

**Far Seas Fisheries Research  
Laboratory**

Dr Sigeiti Hayasi  
Director  
Far Seas Fisheries Research Laboratory  
5-7-1 Orido Shimizu-Shi 424  
SHIZUOKA Prefecture  
Japan

**Kiribati**

Mr Teekabu Tikai  
Acting Chief Fisheries Officer  
Fisheries Division  
Ministry of Natural Resources and Development  
P.O. Box 276  
Bikenibeu  
TARAWA

**National Marine Fisheries Service**

Dr George Boehlert  
Director, Honolulu Laboratory  
National Marine Fisheries Services  
National Oceanic and Atmospheric Administration  
Department of Commerce  
HONOLULU, Hawaii 96822-2396

Mr Doyle Gates  
Pacific Islands Coordinator  
National Marine Fisheries Service  
National Oceanic and Atmospheric Administration  
Department of Commerce  
HONOLULU, Hawaii 96822-2396

**New Zealand  
Nouvelle-Zélande**

Dr Talbot Murray  
Fisheries Research Centre  
Ministry of Agriculture and Fisheries  
P.O. Box 297  
WELLINGTON

**Palau**

Mr Toshiro Paulis  
Chief  
Marine Resources Division  
Ministry of National Resources  
P.O. Box 100  
KOROR 96940

**Papua New Guinea  
Papouasie-Nouvelle-Guinée**

Mr A. Richards  
Acting Chief Biologist  
Department of Fisheries and Marine Resources  
P.O. Box 165  
KONEDOBU

**Republic of China**

Mr Chung Hai Kwoh  
Fisheries Specialist  
Council of Agriculture Executive Yuan  
32 Nanhai Road  
TAIPEI  
Taiwan (107)  
Republic of China

**Solomon Islands  
Iles Salomon**

Mr Sylvester Diake  
Acting Senior Fisheries Officer (Resource  
Management)  
Fisheries Division  
Ministry of Natural Resources  
P.O. Box G24  
HONIARA

Mr Paul Nichols  
Acting Principal Fisheries Officer (Resource  
Management)  
Fisheries Division  
Ministry of Natural Resources  
P.O. Box G24  
HONIARA

**Tonga**

Mr Viliami Langi  
Fisheries Officer  
Fisheries Division  
Dept of Agriculture, Fisheries and Forests  
P.O. Box 14  
NUKU'ALOFA

**Tuvalu**

Mr Elisala Pita  
Chief Fisheries Officer  
Fisheries Division  
Ministry of Commerce and Natural Resources  
Vaiaku  
FUNAFUTI

**SPC Secretariat**

Mr Barney Smith  
Fisheries Coordinator

Mr John Hampton  
Senior Fisheries Scientist

Mr Richard Farman  
Fisheries Research Scientist

Mr James Ianelli  
Fisheries Research Scientist

Mr Tim Lawson  
Fisheries Statistician