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**THIRD STANDING COMMITTEE ON TUNA AND BILLFISH
(Noumea, New Caledonia, 6-8 June 1990)**

REPORT

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Noumea, New Caledonia, 6-8 June 1990

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CONTENTS

	Page
I. INTRODUCTION	1
II. AGENDA	3
III. LIST OF PARTICIPANTS	5
IV. SUMMARY OF DISCUSSIONS	9
V. RECOMMENDATIONS	25
VI. LIST OF WORKING PAPERS PRESENTED AT THE MEETING	27

ANNEXES

1. Opening address by Mr Atanraoi Baiteke, Secretary-General, South Pacific Commission	29
2. Review of 1989 Action Sheet	31
3. Regional Tuna Tagging Project – Summary of objectives	37
4. Preliminary estimates of catches of tuna in the western tropical Pacific in 1989	39
5. 1990 Action Sheet	43

I. INTRODUCTION

The Standing Committee on Tuna and Billfish (SCTB) was approved by the Fourth Committee of Representatives of Governments and Administrations, and has met annually since 1988. The intended role of the SCTB is purely advisory and consultative. Its work assists in the conduct of pelagic fisheries research through the provision of expertise, information and technical advice. The SCTB advises the Regional Technical Meeting on Fisheries (RTMF) on biological research on stocks that support oceanic fisheries for tuna and billfish in the SPC region by:

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

The Third Meeting of the SCTB was held at South Pacific Commission headquarters, Noumea, New Caledonia on 6–8 June 1990.

II. AGENDA

1. PRELIMINARIES
 - 1.1 Opening address
 - 1.2 Appointment of Chairman and Rapporteurs
2. REPORT ON 1989 DRAFT ACTION SHEET
3. SPC TUNA AND BILLFISH ASSESSMENT PROGRAMME ACTIVITIES
 - 3.1 RTTP
 - 3.2 In-country tagging projects
 - 3.3 Data coverage of regional tuna fisheries
 - 3.4 Oceanography and tuna fisheries
 - 3.5 South Pacific albacore
4. PIN/DWFN/ASEAN COLLABORATION ON TUNA AND BILLFISH RESEARCH
 - 4.1 TBAP/Japan FSFRL Collaborative Study
 - 4.2 WPFCC activities
 - 4.3 Development of the SCTB Database
5. STOCK STATUS OF WESTERN TROPICAL PACIFIC TUNAS
6. FAO EXPERT CONSULTATION ON THE STATUS OF STOCKS AND INTERACTIONS OF PACIFIC OCEAN TUNA RESOURCES
7. REPORT ON SPAR ACTIVITIES
8. FUTURE DIRECTIONS FOR SCTB

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IV. SUMMARY OF DISCUSSIONS

1. PRELIMINARIES

1.1 Opening address

1. Mr. Atanraoi Baiteke, Secretary-General of the South Pacific Commission, formally opened the Meeting with an address welcoming participants and outlining the role of Standing Committee in assisting the work of the SPC's Tuna and Billfish Assessment Programme (TBAP). The full text of the opening address is given in Annex 1.

1.2 Appointment of Chairman and Rapporteurs

2. Apologies were received on behalf of Korea, Kiribati, Taiwan and the Forum Fisheries Agency. The Representative of the Federated States of Micronesia, Mr. Peter Sitan, as incoming Chairman of the Twenty-second Regional Technical Meeting on Fisheries, assumed the Chair.

3. Rapporteurs were appointed as follows:

Agenda Item 2	-	Mr. Albert Caton, Australia
Agenda Item 3	-	Dr. Tim Adams, Fiji
Agenda Items 4-8	-	Mr. Andrew Richards, Papua New Guinea

4. The preliminary agenda was adopted.

2. REPORT ON 1989 DRAFT ACTION SHEET

5. A report on the previous Standing Committee on Tuna and Billfish was tabled as Working Paper 1. Items 1-15 from the 1989 Action Sheet were discussed, with Items 16-24 considered under Agenda Item 7. These discussions are summarised in Annex 2.

3. SPC TUNA AND BILLFISH ASSESSMENT PROGRAMME ACTIVITIES (TBAP)

3.1 RTTP – Work programme and progress report

6. The SPC Chief Fisheries Scientist, Dr Antony Lewis, gave a summary of Working Paper 2 and referred committee members to a handout summarising the goal, objectives, strategies and analytical methods of the Regional Tuna Tagging Project (RTTP) (Annex 3) and to documents prepared by the TBAP during 1989-90 (Working Paper 14).

7. Briefly, the TBAP's main current activity is the RTTP, made possible by a grant from the European Community under Lome III. Fieldwork started in December 1989 and the chartered Tuvalu pole and line vessel *Te Tautai* had released 21,000 tagged fish in the five months of operation to date. Operations had generally followed the approved Work Plan. Progress had been good, particularly in a season when many commercial catches had been poor. The project

was on schedule for its target of 40,000 yellowfin to be tagged and released in the main western tropical Pacific fishing areas by the end of the twenty-month charter. The Committee was referred to several Activity Reports for further details.

8. The RTTP had concentrated its efforts during the first five months in the waters of Papua New Guinea, Solomon Islands and Federated States of Micronesia. Later, the vessel would visit Palau and Philippines before returning to Federated States of Micronesia waters. Before the first ten-month charter period was completed, it was also expected that the vessel would work in Marshall Islands, Kiribati and Tuvalu waters. The second ten-month charter period would begin in January 1991, with the tentative schedule of country visits being Kiribati, Marshall Islands, Federated States of Micronesia, Papua New Guinea, Indonesia, Philippines, Palau and back to northern Papua New Guinea.

9. Although the RTTP had been successful to date, it would be desirable to tag larger yellowfin (>70 cm) in order to increase the available analytical options. This problem was addressed in several ways, including trials on tagging the larger yellowfin caught by purse seiners, using different fishing techniques and targeting the tagging vessel on areas and times where larger yellowfin are more likely to be found.

10. Other activities of the TBAP were summarised, including in-country tagging activities, monitoring levels of exploitation, South Pacific albacore research, and tuna biology and ecology, but full discussion of these activities was deferred to the more detailed presentations to follow under Agenda Item 3.

11. The ability of SPC to respond so flexibly to recent dramatic changes in the South Pacific albacore surface fishery was commented upon. The Chief Fisheries Scientist acknowledged that a number of circumstances (late implementation of the RTTP caused by the delay in funding, the help of certain countries in providing observer support, and the rapid response from funding bodies in supporting this high-profile activity) contributed towards this.

12. Other discussion centred on the necessity of obtaining the best possible estimates of tag recovery reporting rates, and thus improving one of the deficiencies inherent in the previous Skipjack Survey and Assessment Programme (SSAP) tagging work. SPC was pursuing this using several strategies including: tag-seeding, in collaboration with the National Marine Fisheries Service (NMFS); comparing the returns from different fleets, and from vessels with and without observers on board. Double-tagging experiments were being carried out to estimate tag-shedding rates.

3.2 In-country tagging projects

13. The SPC Principal Fisheries Scientist, Dr John Hampton, presented Working Paper 4 (A preliminary analysis of the Solomon Islands In-country Tagging Project data) as part of a response to Item 1 on the 1989 Action Sheet, where SCTB requested that examples be drawn from the Solomons project to illustrate the methodology to be used in the RTTP. The Committee was referred to individual Cruise Reports in Background Papers 5, 7 and 30.

14. Three cruises using a Solomon Taiyo Ltd vessel, and two cruises by the RTTP charter vessel had led to the release of over 8,000 tagged tuna (mainly skipjack). Enough tags had now been returned (566) from the tuna tagged on the first cruise to make a preliminary analysis.

15. Major points were:—

- The maximum likelihood technique used to fit the model was sounder than the least-squares approach used in the 1980 SPC Skipjack Survey and Assessment Programme (SSAP);
- Preliminary analysis based on tag returns from the whole fishery were not inconsistent with the SSAP estimates of standing stock, throughput etc., and the observed number of tags recovered fitted well with the expected numbers, over time;
- However, when the data were analysed for the pole-and-line and the purse seine fisheries separately, there were appreciable differences between the observed and the expected tag returns. The assumption that the tagged skipjack represent a random sample of the untagged population available to both gears, which was implicit in this analysis, was probably invalid. The differential vulnerability of skipjack associated with fish-aggregation devices (FADs) (around which most of the fish were tagged) to the different gears used was likely to be important in this respect. Ways of accounting for this were being explored. Stratifying the data by FAD and non-FAD associated releases was likely to be a useful approach;
- A major question to be answered by this project is how far Solomon Islands can develop its skipjack fishery. This preliminary analysis was consistent with the 1980 SSAP study, suggesting that an annual catch of around 65,000 tonnes could be taken (at a fishing mortality equal to natural mortality). It was stressed that detailed analyses of the entire data set were necessary before final estimates could be obtained.

16. The influence of FADs on the pattern of tag recoveries was discussed at length by the meeting. Interest was expressed in the use of such tagging data to directly investigate the influence of FADs on tuna behaviour, but the number of unobservable processes linked with FAD association made it likely that sonic tagging and other studies would be necessary for full understanding. Examples were given from other fisheries to show the great variability in the behaviour of fish around FADs and seamounts. It was noted that FADs were only introduced into the Solomons fishery in the early 1980s; it was previously a pole-and-line fishery only.

17. With reference to the broader-ranging RTTP, it was expected that FAD-associated influences might be significant, particularly in Papua New Guinea, and that an extra complication would be the need to take into account the influence of seamounts and floating logs.

18. A request was made that SPC rework the 1980 SSAP data using the maximum likelihood analysis referred to here, for comparison, and that the results be included in the project report.

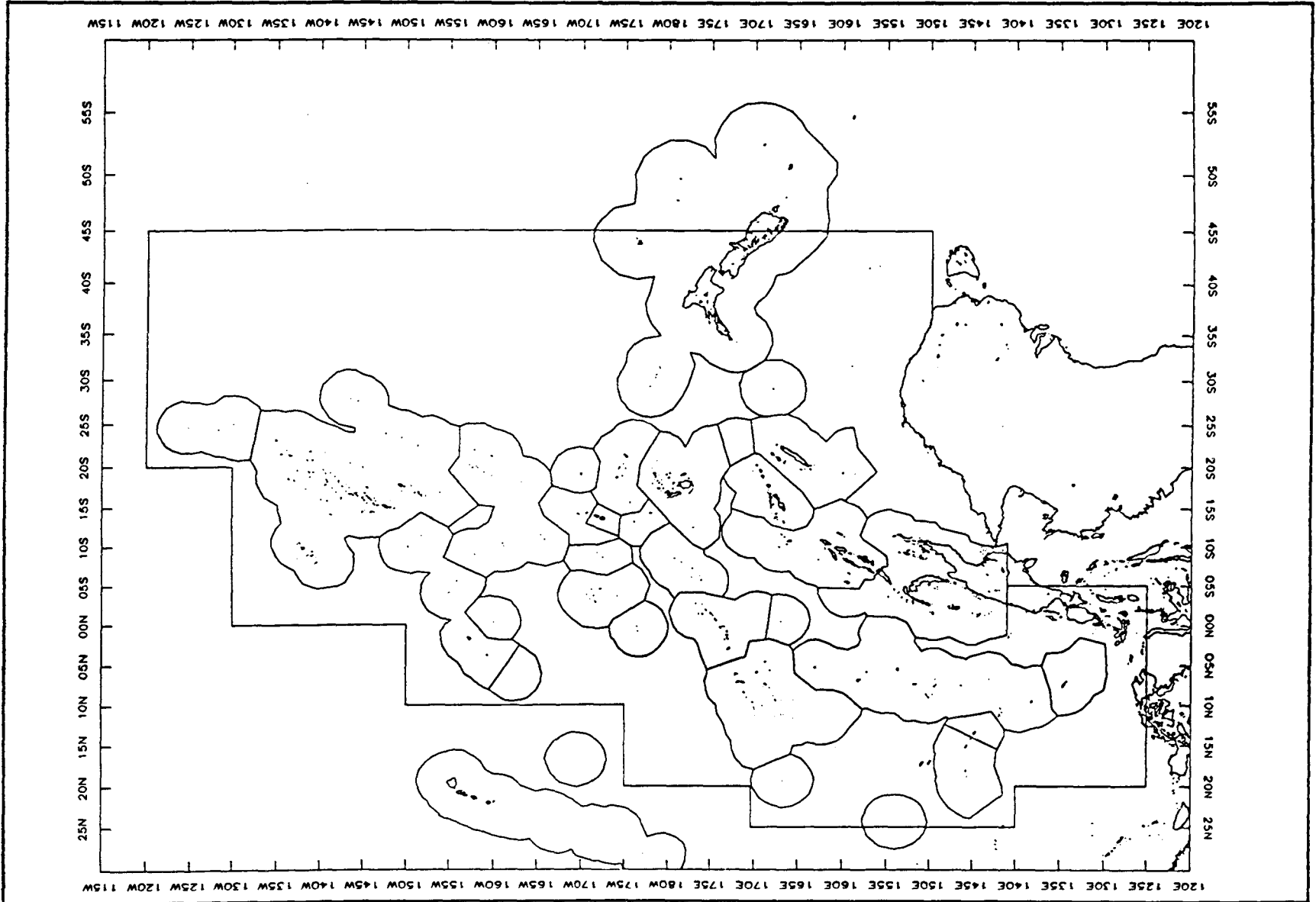
3.3 Data coverage of regional tuna fisheries

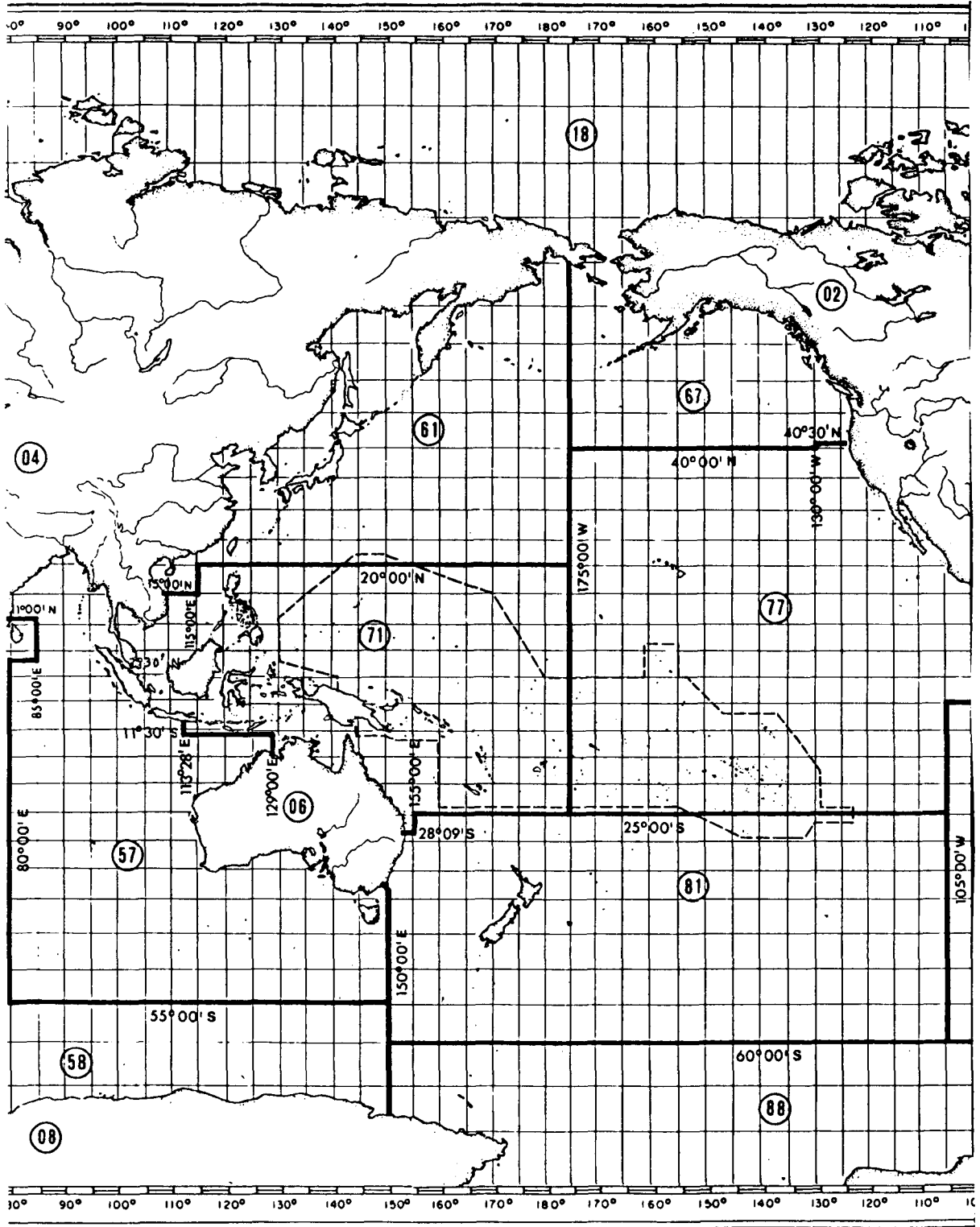
19. Mr Timothy Lawson, SPC Fisheries Statistician, summarised several papers dealing with data coverage:

- WP.3 — Activities of the SPC Fisheries Statistics Project

- WP.5 – Data catalogue
 - WP.6 – Availability of regional tuna fisheries data
 - WP.7 – Catches of tuna in the western tropical Pacific 1965–88
 - WP.8 – Estimates of catches of tuna in the western tropical Pacific 1989 (summarised in Annex 4)
 - BP.23 – *Regional Tuna Bulletin* (4th quarter, 1989).
20. The major task of the Fisheries Statistics Project was in maintaining databases:
- The SPC/FFA Regional Tuna Fisheries Database, containing confidential daily catch/effort logsheet data collected under access agreements or from domestic vessels, was the major commitment. Staff had so far managed to keep abreast of data-entry requirements;
 - The SCTB Database, proposed at last year's SCTB, was intended to be a summary database, aggregated to a level acceptable to all SCTB participants, and available to all contributors on an equal basis. It was intended to provide a forum for the freer exchange of summary catch/effort data and to promote true international cooperation in research and management; however, several crucial contributions from major distant-water fishing nations (DWFNs) were lacking. Discussion was deferred to Agenda Item 4.3;
 - The South Pacific Albacore Research (SPAR) Database, which was a clearing-house for aggregated albacore-related data;
 - The Transshipment Database, which had recently run into technical problems with data supply from Northern Marianas and Guam. These were expected to be remedied shortly.
21. Almost all daily catch/effort data available from SPC member countries had been incorporated in the Regional Tuna Fisheries Database. However, coverage of high seas areas within the SPC statistical area (Figure 1) was poor. Within EEZs of SPC member countries, coverage of Korean and Taiwanese vessels also remained poor.
22. Committee members were requested to seek additional data sources (such as port unloadings) to assist the cross-checking of data.
23. Other activities of the Fisheries Statistics Project included the *Regional Tuna Bulletin*, assisting with the development of national fisheries statistical systems, and providing support for other SPC fisheries projects.
24. The major development of note in the latest *Regional Tuna Bulletin* was the apparent dramatic drop in albacore catch rates by the longliners of Taiwan during the latter half of 1989.
25. In discussion, the staff of the Fisheries Statistics Project were complimented on the volume and timeliness of their output despite the usual lag of up to four months before data were received.

SPC Statistical Area





FAO Statistical Area

26. It was noted that FAO had proposed major changes in its statistical areas, and that FAO Statistical Area 74 would be broadly congruent with the SPC statistical area. This would simplify comparisons between contemporary SPC and FAO statistical summaries, but some concern was expressed that historical comparisons might be more difficult.

27. On the question of confidence in the reliability of the catch data detailed in Working Paper 7, the SPC Fisheries Statistician felt that the overall total should be close to the real amount, but that the figures from some countries might be inaccurate due to the misclassification of DWFN vessels operating under access agreement as domestic vessels. In several cases, raising factors had to be applied, based on the estimated percentage of data coverage.

3.4 Oceanography and tuna fisheries

28. The Representative of France and ORSTOM Tuna Scientist, Mr Renaud Pianet, said that not much new information had become available since the 1989 RTMF. The oceanographic database had been updated to 1989, and work was being planned on the comparatively strong La Niña phenomenon of 1988. Western Pacific yellowfin catches by purse seiners showed a marked negative spike in 1988, and this was followed by a similar phenomenon in the Indian Ocean fishery in 1989.

29. The Representative of Solomon Islands asked if there were any oceanographic data to explain the low skipjack catch rates experienced so far for 1990 in the Solomons. No correlation was yet possible, but the data from early 1989 suggested that a new El Niño might be expected at the end of 1990 or the start of 1991.

3.5 South Pacific albacore

30. SPC had given an increased priority to albacore research over the past two years in response to the concern expressed by member countries. Advice had been given at three consultations over the past year, and SPC would provide a venue for the Forum Fisheries Agency (FFA) to host the third meeting on international albacore management arrangements in October 1990, immediately following the first meeting of the Scientific Advisory Group on Albacore (SAGA)¹ (9–12 October).

31. An SPC albacore research project had now been formalised, under funding from the International Centre for Ocean Development (ICOD), and it was hoped to recruit an albacore scientist and technical assistant within two months. The various activities of this project, including tagging, should enable an albacore stock assessment within three years. This would include estimates of productivity, potential for exploitation and interaction effects.

32. SPC had continued to co-ordinate the southern albacore observer programme and had observer reports from U.S. and New Zealand troll vessels, as well as from the JAMARC driftnet research vessel, in the 1989/90 season. It was hoped that the observer programme could be expanded in future, particularly to the commercial driftnet and longline fleets.

¹ The first SAGA meeting will be similar in style and content to the 1989 SPAR Workshop, but will have extended Pacific Islands representation.

33. SPC-sponsored port sampling had started in Fiji on troll and longline unloadings at the PAFCO cannery, and also onboard the Tongan longliner, *Lofa*. No sampling of commercial driftnet catches was possible since New Caledonia had ceased to be a transshipment point. However, port sampling by SPC of the albacore landed in New Caledonia by local longliners was now under way and would complement the *Lofa* data in a study on the seasonality of spawning. It was hoped that this study would resolve the questions raised by the hard-part ageing studies reported at the 1989 SPAR meeting.

34. A proposal to undertake albacore tagging work in the sub-tropical convergence zone was still awaiting funding.

35. The Australian delegation stated that material could be available from the sampling of longliners in the Australian Fisheries Zone to assist in ageing and gonad studies.

Action Item 1: SPC to approach the Australian Government requesting the assistance of Australian observers on longliners in the Australian Fishing Zone in the sampling of albacore for ageing and gonad studies.

36. The Representative of NMFS felt that full advantage should be taken of the opportunity to gather data, and monitor effects downstream, resulting from the great pulse in driftnet fishing effort, but expressed concern that the TBAP might be overextending itself and would need to spread the burden.

37. The Chief Fisheries Scientist stated that the TBAP did indeed feel exposed but that there should be limited overlap of resources between the Albacore Project and the terminal portion of the RTTP. The SPC had had to act quickly, but was making every effort to collaborate with, and draw support from all SPAR collaborators towards the aim of making SPAR/SAGA fully functional.

4. PIN/DWFN/ASEAN COLLABORATION ON TUNA AND BILLFISH RESEARCH

4.1 TBAP/Japan FSFRL Collaborative Study

38. Referring to SCTB Working Papers 9 and 10, SPC's Principal Fisheries Scientist, Dr John Hampton, gave the historical background to and incentive for the Collaborative Study and its specific objectives in relation to the initial work. These were:

- (a) Comparison of Japanese and U.S. purse seine size and species composition data;
- (b) Comparison of catch, effort, CPUE, gear efficiency and areas of operation of the different purse seine fleets operating in the western Pacific, namely Japan, U.S., Korea and Taiwan;
- (c) Construction of preliminary abundance and concentration indices for the Japanese purse seine fishery, in particular comparing results using complete Japanese statistics and relevant data held in the Regional Tuna Fisheries Database.

39. Results of the Collaborative Study were presented and the main findings highlighted. These included the finding that the proportion of bigeye in the U.S. purse seine catch reported

as yellowfin was 29 per cent (by number) in 1988. Japanese log books reported consistently much lower levels of bigeye catch.

40. It was concluded that the collaborative study had made good progress but there was still much work to be done. It was pointed out that the study had been hindered to a large extent by the continued unavailability of U.S. purse seine data prior to June 1988 and the poor data coverage of the Taiwanese and Korean fleets.

41. Initial discussion centred on the El Niño/La Niña phenomena and their possible effects on purse seine catches. The lower yellowfin catch rates by the Taiwanese fleets were noted. The tendency of Taiwanese vessels to set mainly on logs was mentioned as a possible reason for this.

42. The Representative of Japan's National Research Institute of Far Seas Fisheries presented a companion paper on the operation and CPUE of Japanese purse seiners in the western tropical Pacific. A series of figures from the paper was presented and discussed.

43. Discussion centred on characteristics of Japanese purse seine operations, with special emphasis on set type differences and adjustment of CPUE (catch per day) to remove the effects of improvement in gear efficiency and concentration of effort resulting from information sharing.

44. The success of the collaborative study was noted but it was felt that it could have been improved if other data had been available. The question of how to utilise the remaining three months of the study was raised and the urgency of preparing a proposal for it was stressed. It was agreed that a lot more work remained to be done, but a joint proposal to the Japanese Government would have to optimise time for the benefit of both sides. The meeting gave strong support for the continuation of this co-operation. It was suggested that the question of whether the SPC database provides a good representative sample of data available in Japan could be a focus of work to be done in the remaining three months.

Action Item 2: SPC and the National Research Institute of Far Seas Fisheries to prepare a joint proposal regarding the second three-month period of the collaborative study for submission to the Japanese Government for funding approval before the end of 1990.

4.2 WPFCC Activities

45. The SPC Fisheries Coordinator outlined the historical background and objectives of the Western Pacific Fisheries Consultative Committee (WPFCC). The informality and flexibility of the WPFCC and its success to date were emphasised. The Tuna Research Workshop and the Action Plan for tuna research co-operation were seen as being particularly effective.

46. The role of the WPFCC in facilitating the participation of delegates from ASEAN nations at SCTB 2 and 3 was noted. Future WPFCC assistance was expected in arranging co-operative tagging programmes by the SPC in the Philippines and Indonesia. Gratitude was expressed for the personal contributions of the WPFCC Director, Mrs Elvira Baluyut and the Pacific Economic Co-operation Conference Fisheries Task Force Coordinator, Dr Gordon Munro.

47. Preparations for the next regular meeting of the WPFCC in Port Moresby, Papua New Guinea were outlined. The committee was informed that the meeting would take place on 2–3 July 1990 and be immediately followed by a consultative meeting between Pacific Latin-American and Pacific Island Nations (PINs) on 4–5 July. Agenda items would include further co-operation in tuna research and training opportunities between ASEAN and Pacific Island Nations.

4.3 Development of the SCTB Database

48. The TBAP's Fisheries Statistician spoke to SCTB Working Paper 6. Deficiencies in the SCTB Database were highlighted and countries were invited to assist in addressing these and in some cases, permitting transfer of information to the SCTB Database. It was stated that the SCTB Database was established, but required a great deal of development.

49. The question of distribution of information to contributors to the database was raised. Some of the possible methods were:

- (a) Any country providing data should have access to all other data;
- (b) More complicated schemes could be devised to limit the data flow, so that the type of data available to the participant would depend on the type of data contributed by the participant;
- (c) Data supply could be on the basis of a request to SPC which would then seek authorisation from the relevant country or countries.

50. Discussion initially centred on whether the demand for information from the database justified the effort of setting it up. It was suggested that for monitoring purposes alone the effort was justified and that demand for information would increase as questions regarding stock status arose in the region.

51. The objectives of the SCTB Database and the difference between this database and the SPC/FFA Regional Tuna Fisheries Database were questioned. In response to the query, it was noted that the second meeting of the SCTB held in Suva, Fiji on 19–21 June 1989, concluded that:

- (a) *SPC had succeeded in gathering most of the daily catch and effort logsheet data available through SPC member countries for the SPC/FFA Regional Tuna Fisheries Database, but*
- (b) *These data from local fleets, or collected under access agreements, still did not adequately cover the activities by DWFNs in the region.*

52. SCTB 2 had therefore discussed the establishment of a common database consisting of aggregated data provided by all fishing nations (including DWFNs). This would be separate from the data currently assembled by SPC in the SPC/FFA Regional Tuna Fisheries Database (which were contributed only by SPC/FFA member countries). The tuna fishing nations which had operated in the region included: Australia, Fiji, Indonesia, Japan, Kiribati, Korea, Mexico, New Caledonia, New Zealand, Philippines, Solomon Islands, Soviet Union, Taiwan, Tonga, Tuvalu and the United States.

53. After much discussion, the following points represented the consensus at SCTB 2:

- (a) *The establishment of a common database would be extremely useful and would solve current problems of inadequate coverage of the tuna fisheries in the region;*
- (b) *Data should be provided at a level of aggregation consistent with levels of aggregation used by other tuna research organisations, i.e. by five-degree square and month for longliners and gillnetters and by one-degree square and month for other gear types;*
- (c) *Data held in the common database should be made available to all countries that provide data to the common database, subject to the minimum level of aggregation (i.e. five-degree square and month for longliners and gillnetters and one-degree square and month for other gear types).*

54. Discussion moved to the question of the long-term potential for success of the SCTB Database. It was suggested that rather than having an on-going database, it might be better to collect information only when a specific need or objective was identified, with collaborative effort leading to report preparation under a deadline.

55. The PIN perspective on data provision was outlined and the possibility that high seas catch reporting might become a condition of access for DWFNs was highlighted. Co-operation on this matter between the Nauru Group nations was mentioned. This would involve future rather than historical data collection.

56. The necessity for SPC to provide timely advice to member countries on stock status was emphasised. The role of the SCTB Database in this respect was considered vital. The co-operation between countries on the albacore question was noted. An alternative view was expressed that the albacore question differed in certain economic and political respects from tropical tunas. The Committee was urged not to under-estimate the power of goodwill in the provision of data.

57. The Representative of the Philippines commented on the data collection arrangements now prevailing in his country. He explained that the present collection method and level of detail precluded its use for stock assessment purposes. No data would therefore be available for 1988/90, though in 1991 there was a possibility of funds being available for this purpose.

58. It was decided by the Committee that the Secretariat should draft a letter for the Chairman's signature to the Secretary of the Philippines Department of Agriculture, supporting the stand by the Bureau of Fisheries and Aquatic Resources (BFAR) on data collection, since it now involved only commercial catches of certain species groupings. Copies would be sent to BFAR, the Director of the Bureau of Agricultural Statistics and the Director of the WPFCC.

Action Item 3: *The Chairman, on behalf of SCTB, to point out to the Philippines Government the inadequacies of the present fisheries data collection system, and stress the desirability of a return to the previously more comprehensive data collection system under BFAR direction.*

59. The Australian delegation informed the committee that the Australian Fisheries Service (AFS) had advised that Australian purse seine vessels were not presently fishing in high seas areas. Provisions for the collection of high seas data were being incorporated in the Act to

create the Fisheries Management Authority. Log books would be re-drafted to be consistent with SPC log books.

60. The Representative of the Philippines was requested to supply catch and effort data to SPC for the SCTB Database. The Representative of the Philippines promised that the sampling data collected by BFAR at the following ports would be provided:

- (a) Navotas Fish Port
- (b) Zamboanga City
 - Labuan
 - Recodo
 - Baliwasan
- (c) Opal, Misamis Oriental
- (d) General Santos City.

61. At present he was confident that coverage of commercial catch was about 60 per cent.

62. The question of improving data coverage was re-examined and it was suggested that pre-conditions for the supply of data to the SCTB Database by DWFNs be tabled. Previously stated pre-conditions for data provision were noted, as were the terms of reference for the SCTB in relation to this subject. The notion of a formal meeting of countries involved to examine the issues was mooted, since statistics were seen to be not only of scientific value but closely connected with economic and political issues.

63. As a way of resolving the situation, it was suggested that as an intermediate step, collaboration on specific subjects might be established to work on 'temporary' databases. This would allow a dual approach where, through collaboration, specific subjects could be examined while the SCTB Database could continue to be developed.

Action Item 4: *SPC to approach DWFNs to determine the best means to facilitate the provision of data to the SCTB Database.*

5. STOCK STATUS OF WESTERN TROPICAL PACIFIC TUNAS

64. The SPC's Principal Fisheries Scientist presented SCTB Working Papers 11, 12 and 13, outlining the present status of the yellowfin, skipjack and bigeye tuna stocks, respectively. For yellowfin, the review supported the conclusion of Suzuki (1989) that total catches of the order of 200,000–220,000 mt should be sustainable. The need to consider catches in the Philippines and Indonesia, and the possible impact of yellowfin management on purse seine catches, still primarily skipjack, were highlighted.

65. In the case of skipjack, information based on results from the SSAP indicated that in the area currently occupied by the major fisheries, catches of the order of 1,000,000 mt per year might be sustained under certain conditions. There were two qualifications to the notion that there is room for expansion in the fishery. These were the assumption that there has been no

change in skipjack population characteristics since the SSAP research, and that skipjack interactions between fisheries might result from increased exploitation.

66. There was very little information currently available on bigeye tuna stocks. It was noted that Japanese scientists considered there was a single Pacific-wide stock. Some catch statistics existed for the 1–4 kg and 20+ kg size ranges, but little was known of the spatio-temporal distribution of the intermediate-sized fish.

67. Discussion centred on how best to gather relevant data on bigeye tuna for purposes of stock assessment. There was a discussion on the importance of the mis-identification of small bigeye on purse seine logsheets and targeting of longliners on either bigeye or yellowfin tuna for economic reasons. It was noted that NMFS had developed diagnostic clues to separate port-sampled bigeye and yellowfin tuna at small sizes.

Action Item 5: SPC to compile available information on Pacific bigeye tuna and make this available in an appropriate form on a timely basis.

6. FAO EXPERT CONSULTATION ON THE STATUS OF STOCKS AND INTERACTIONS OF PACIFIC OCEAN TUNA FISHERIES

68. The Representative of New Zealand, who had been asked to represent FAO at SCTB, briefed the meeting on progress with the organisation of the Expert Consultation.

69. Documents summarising progress were distributed to the meeting and the report of the preliminary meeting of the Consultation, held in Noumea in November 1989, was made available.

70. The meeting discussed the relationship between the activities of the Consultation and those of the TBAP and concluded that they were essentially complementary and supportive.

71. The question of the extent to which the working groups of the Consultation might wish to use the TBAP databases was raised. It was noted that this matter had not been discussed at the preliminary meeting but that any requests for access would be accommodated within the normal procedures. Any requests for detailed data would require clearance from the countries concerned.

72. The intention of the Consultation to prepare review papers on the status of stocks was noted. The Representative of the Australian Centre for International Agricultural Research (ACIAR) noted that this would be done well before the Consultation and that discussion of such assessments was not intended to be a major part of the Consultation, which clearly would focus on interaction issues.

73. The Chief Fisheries Scientist reported that a date of March 1991 for the Consultation had been suggested by SPC. No response to this suggestion had yet been received.

74. A proposal to carry out a study of western Pacific skipjack movement and fishery interactions was tabled for discussion by the Committee. The proposal was prepared during the preliminary meeting of the Consultation and was intended as an activity of the Consultation's Working Group on Pacific Skipjack.

75. The proposal was to develop models to elucidate movement and other population characteristics of skipjack in the Pacific, based on the data sets held by SPC and by the Tohoku Fisheries Laboratory in Japan. It was noted by the meeting that if successful, the model could be modified for other purposes such as the examination of small scale interactions in in-country tagging experiments and could be used in the analysis of the RTTP results.

76. After discussion the meeting agreed to support the proposal in principle and the representative for FAO was asked to report that agreement to FAO.

Action Item 6: *SPC to submit to FAO for funding a proposal to study western Pacific skipjack movement and fishery interaction, noting the support of SCTB for the proposal.*

77. Discussion turned to the role of SCTB, and in particular a suggestion that the achievement of the terms of reference of the SCTB could be enhanced by holding, as a regular part of the meeting, stock assessment workshops on selected species. Inclusion of such activities would be aimed at enhancing the acquisition of data and at improving collaboration between scientists of DWFNs, PINs and regional organisations.

78. Discussion focused on the extent to which such activities were consistent with the role of SCTB and the ability of TBAP resources to co-ordinate such activity.

79. The meeting then agreed that it was most appropriate to discuss the matter further under Agenda Item 8.

7. REPORT ON SPAR ACTIVITIES

80. It was felt that to a large extent, this agenda item had been covered in discussions of the Action Items 16 to 24, summarised in Annex 3.

81. Events culminating in the establishment of SAGA had overtaken future SPAR meeting arrangements. The first SAGA meeting was scheduled for 9–12 October 1990 in Noumea.

8. FUTURE DIRECTIONS FOR SCTB

82. Continuing from the discussions in Agenda Item 6, the SPC's Chief Fisheries Scientist presented background as to why discussion of SCTB's future was felt necessary. Apart from recent developments in attempting to establish a two-tier management structure for one tuna species in the South Pacific, it seemed clear that acquisition of data through SCTB had been only partly successful. With a reduction of its role in this area, it risked becoming only a TBAP review group.

83. The role to be addressed by the SCTB was suggested as being two-fold: *administrative*, in terms of review, and *technical*, involving the facilitation of collaborative efforts. It was suggested by some participants that there was some value in trying to review the status of stocks each year.

84. It was felt that the TBAP work on albacore could still be reviewed by SCTB but that the collaborative work had devolved to SPAR/SAGA.

85. It was agreed that a strategic work plan for the next five years should be developed as a framework to signpost the future work of the TBAP. This should be brought to the attention of the Regional Technical Meeting on Fisheries (RTMF), despite the tacit agreement regarding the continuity of the TBAP. The draft plan could be based on the mission statement produced following the review of the TBAP in 1987, with no substantial departure from current directions. The draft plan would be presented to the RTMF for review. Changes to current TBAP research priorities would only be suggested if there were good reasons for doing so.

86. The draft plan would be produced by a small drafting group composed of the SCTB Chairman, SPC's Chief Fisheries Scientist and the Representatives of New Zealand and Papua New Guinea. A draft working paper should be ready prior to the RTMF in August, and eventually be circulated to all SCTB members.

87. Considering the increasingly urgent requirements for a stock assessment of western Pacific yellowfin, it was felt that a collaborative workshop on yellowfin should tentatively be set down for 1992. Prior to this, a working group should be established which would draw on information presented at the FAO Expert Consultation scheduled for the first quarter of 1991. Correspondence between members of the working group should produce a body of work which could be allocated at the 1991 SCTB meeting.

88. It was suggested that a comprehensive review of the RTTP should be held at an appropriate time (probably 1993) independently from the proposed workshop. By 1993, the analysis of the RTTP results should be completed and would then be available for detailed review and discussion.

89. Rigorous reviews of the TBAP work programme should be carried out by SCTB, and be facilitated by the advance distribution of review papers to committee members. The papers to be sent should be those crucial to the issues that need to be addressed. The option of using a smaller group to review particular areas of the TBAP work programme, such as the tagging work, should be retained.

90. In order to facilitate this review and place the work of the TBAP into perspective, the SCTB should consider a brief statement by TBAP on the status of particular fisheries by gear type, including economic factors contributed by FFA and environmental factors contributed by ORSTOM. SCTB members should provide estimates of their total catches by species by gear type prior to the SCTB to allow the TBAP to compile the fisheries status reports.

Action Item 7: *TBAP to compile fisheries status reports, by gear type and species, for consideration at the next meeting of the SCTB. SCTB member countries and all fishing nations are urged to provide these catch estimates when requested by the TBAP.*

Action Item 8: *FFA to be invited to contribute economic and marketing data to an annual review of western Pacific tuna fisheries by SCTB.*

9. OTHER MATTERS

91. The fate of the Action Sheet was discussed and its use to the SPC secretariat committee members considered. It was suggested that action items be identified next to agenda items in

next year's SCTB agenda and the list of action items attached. The action items and recommendations to RTMF could then be identified and recorded during the clearing of record of the meeting. It was agreed that the distinction between action items and recommendations to RTMF be clearly made.

92. The venue and timing of the next meeting of the SCTB were considered. It was agreed that it be held in early June, 1991 at a venue to be decided. The suggestion was made that it be held in one of the DWFNs. Funding of the meeting was seen as the paramount factor in the choice of venue.

V. RECOMMENDATIONS

Recommendation 1

The Standing Committee on Tuna and Billfish, noting that the present Tuna and Billfish Assessment Programme technically expires in September 1991, strongly recommended its continuation on a longer term basis. It further recommended that a strategic plan for the next five-year period (1992–96) be prepared to guide the future direction of this programme, and proposed that the Standing Committee on Tuna and Billfish be authorised to develop a draft document for consideration by the 1991 Regional Technical Meeting on Fisheries. It was emphasised that the draft plan should reflect the current programme directions and initiatives, and use, as a starting point, the existing Tuna and Billfish and Assessment Programme mission statement.

Recommendation 2

The Standing Committee on Tuna and Billfish, in recognising the increasing need for a comprehensive assessment of yellowfin stocks in the Western Pacific region, proposed a scientific workshop on yellowfin, tentatively scheduled for 1992, and recommended that a special working group, operating on a similar basis to the South Pacific Albacore Research workshop and fostering collaborative research action among group members, be established to develop a work plan and arrangements for the workshop.

A list of Action Items resulting from the meeting is given in Annex 6.

VI. LIST OF WORKING PAPERS PRESENTED TO THE MEETING

- WP.1 Report of the Standing Committee on Tuna and Billfish, Suva, Fiji, 19–21 June 1989
- WP.2 Tuna and Billfish Assessment Programme
- WP.3 Activities of the SPC Fisheries Statistics Project
- WP.4 Preliminary analysis of Solomon Islands In-Country Tagging Project data
- WP.5 Data catalogue
- WP.6 Availability of regional tuna fisheries data
- WP.7 Catches of tuna in the western tropical Pacific, 1965–1988
- WP.8 Estimates of 1989 catches of tuna in the western tropical Pacific
- WP.9
and
WP.10 SPC/NFSFRL collaborative study
- WP.11 Stock status of yellowfin in the western tropical Pacific
- WP.12 Stock status of skipjack in the western tropical Pacific
- WP.13 Stock status of bigeye in the western tropical Pacific and data requirements for stock assessment
- WP.14 Bibliography - Tuna and Billfish Assessment Programme publications, 1989–90

**OPENING ADDRESS BY MR ATANRAOIBAITEKE,
SECRETARY-GENERAL, SOUTH PACIFIC COMMISSION**

It is my pleasure, on behalf of the South Pacific Commission, to welcome you to this Third Standing Committee on Tuna and Billfish, which brings together scientists and administrators involved in tuna research from all parts of the Pacific and beyond. I welcome with pleasure our member countries who are here, those with established tuna fisheries and thus a keen interest in tuna research matters – Federated States of Micronesia, Solomon Islands, Papua New Guinea, Fiji, Tonga and New Caledonia. It is a particular pleasure to welcome fisheries scientists from Indonesia and the Philippines, as well as more familiar presences from Japan, Australia, New Zealand and agencies with special interest in tuna matters such as FAO and NMFS. Our sister organisation FFA could not be with us on this occasion and sends its apologies.

The Standing Committee on Tuna and Billfish was convened for the first time in August 1989. Its origins can be found in a meeting of coastal states and distant water-fishing nations in 1984 and is a response to the perceived need to provide expertise, information and technical advice to the internationally recognised Tuna and Billfish Assessment Programme, and by extension to our member countries in the region. The Committee's role is purely advisory and consultative, with attendance by invitation.

The specific terms of reference of the Committee, to remind you briefly, are as follows:

- (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 by the TBAP, specifically those 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.

I should also point out that this is a Standing Committee whose work is thus on-going, between meetings such as this. For this reason, an Action Sheet is prepared at each meeting which identifies work to be implemented. These Action Items are then reviewed as a logical starting point for the succeeding meeting.

The TBAP is one of the largest and most visible programmes in SPC, a reflection of its importance to our member countries and of the importance of the tuna and billfish resources to both island states and the fishing nations represented here. We believe the TBAP, and its predecessor the Skipjack Survey and Assessment Programme, have served the region well, in providing sound scientific advice to countries on the development and management of tuna resources, which are still not adequately known in many cases, and in gathering the necessary statistical data on which to formulate such advice.

Whilst much remains to be done, we at SPC take considerable pride in the work and the achievements of the TBAP. It cannot however fulfill its challenging mandate without the full co-operation of countries harvesting the tuna resources within the region, and, because of the highly migratory nature of the resource, countries in adjacent areas as well. In most cases, this co-operation has been forthcoming and indeed continues to improve.

The work of the TBAP must remain responsive to changing priorities in research and management, and to island countries' needs associated with developments in the fisheries themselves. The rapid development of the southern albacore fishery, for example, has seen research on this resource assume much higher priority in our work over the past two years. Similarly, the rapid increase in the size of purse seine fleets operating in the western tropical Pacific and the corresponding increase in the yellowfin catch has caused concern to some of our member countries. The results of the recently initiated Regional Tuna Tagging Project (RTTP) will be particularly timely in this respect. We hope also to take advantage of your presence here this week to review briefly the current status of stocks of the main tropical tuna species.

The TBAP cannot operate in isolation, and close contact needs to be maintained with agencies sharing similar responsibilities in tuna research from other parts of the Pacific and indeed the world. We are pleased to have been able to work closely with the National Institute of Far Seas Fisheries Research of Japan this year on problems of mutual interest, and have been particularly pleased with how the WPFCC has developed as a vehicle for consultation with our South-East Asian neighbours who fish stocks in common with our region. We are grateful also for ORSTOM's continuing support in the important fishery oceanography area, where our areas of expertise complement each other, and the closer co-operation which is developing with NMFS.

I must say in conclusion that the Standing Committee is an opportunity not only for you to provide guidance and advice to the TBAP, but also to share information and experience in a neutral non-political forum, to identify priorities for future work, and possibly to frame management advice, or at least develop co-operative approaches leading to this. We are confident this aspect of the Committee's work will continue to grow in importance, as tuna fisheries continue to expand in the region and become increasingly complex.

I thank you all for accepting our invitation to participate in this Committee and for giving your valuable time to attend. I look forward very much to hearing the results of your expert discussions over the next three days and wish you well.

REVIEW OF 1989 ACTION SHEET

Action Item 1: *SPC to produce, where appropriate, a clear statement of experimental design and new techniques to be incorporated in the work of the RTTP, illustrated by examples drawn from the Solomon Islands in-country experiment, to be presented at the next SCTB.*

An outline of the RTTP goal, strategies and methodology (Table 1) was provided in conjunction with a review of the preliminary analysis of the Solomon Islands in-country tagging experiment (WP.4).

Action Item 2: *SPC to formalise a group drawn from relevant organisations and countries, with SCTB members as nucleus, to exchange tagging data, distribute tag rewards, collect recapture data, and implement vernacular publicity.*

While no formalised group had been established, a great deal of on-going liaison had been maintained, by correspondence and personal contact, with relevant organisations and countries; publicity material had been prepared in numerous languages; the effectiveness of this approach was already evident by the 1,000 tag recoveries, across all fleets.

Action Item 3: *SPC to remind member countries of the 1988 request to emphasise the value of the RTTP and research co-operation in general, during access negotiations with DWFNs.*

Presumably countries had taken note of the request; a specific example of the incorporation of a co-operation requirement was evident in the Federated States of Micronesia bilateral agreement with Japan, whereby research activity (tagging) by an SPC scientist on purse seiners had been incorporated in the agreement.

Action Item 4: *SPC to remind member countries of the 1988 request to use national observers to publicise the RTTP (and other tagging experiments) when aboard foreign vessels.*

On-going tag recoveries returned by observers provided a practical indication that they were cooperating in the RTTP. It was recognized that this would need to be an ongoing activity, perhaps fostered by a regular publicity bulletin.

Action Item 5: *SPC to circulate to SCTB members a draft report of the SPC/FSFRL collaborative study of longline/purse-seine interaction study before the next SCTB meeting, and to present the results of the study at that meeting.*

Draft reports could not be circulated inter-sessionally but were provided as working papers (WP.9 and WP.10) for consideration under Agenda Item 4.1.

Action Item 6: *Republic of China to report on progress with establishing data collection for purse seiners and gillnetters and, if possible, to make available to SPC any summary statistics that may exist on catch and effort in the SPC statistical area by purse seiners, gillnetters and the fleet of smaller longliners.*

Correspondence between SPC and the National University of Taiwan indicated that 1988 gillnet fishery data would be processed at the Tuna Research Centre and would probably be provided to SCTB. Longline statistics would continue to be published as in the past. No data for purse seiners or the small vessel longline fleet were available through the National University of Taiwan. However, data for small longliners might be available through direct contact with provincial or marketing groups in Taiwan. The absence of purse seine data was of concern in view of the current doubling in size of the purse seine fleet each two years.

Action Item 7: *SPC again to formally request all DWFNs operating, or previously operating, fleets in the SPC statistical area for a breakdown of fleet effort between regional EEZs and the remainder of the SPC statistical area, if such data have not already been supplied and are known to exist.*

Korean and Taiwanese purse seine data were not available from government sources, but their longline data were available in a form permitting this breakdown historically. Japanese breakdowns were provided to SCTB 2 and U.S. data currently available permitted the breakdown of effort required. Details of historic U.S. purse seine effort breakdown were not pursued as a separate issue as it was considered that this prejudiced the approach for broader access to historic data (see Item No. 9).

Action Item 8: *SPC and IPTP to discuss the best way in which summaries of data pertaining to the SPC area could be provided and, if required, approach Indonesia and the Philippines directly regarding an exchange of data with SPC.*

SPC and IPTP decided that a direct approach by SPC to Indonesia and the Philippines was appropriate. The matter was raised with the two countries and followed up with personal representations when opportunity arose, but data had not been forthcoming. Representatives of Indonesia and the Philippines stated that statistics would be provided.

Action Item 9: *SPC to request NMFS to construct annual estimates of U.S. purse seine catch in the SPC statistical area for the period 1978-88, and to provide these estimates to SPC.*

While estimates were not yet available, NMFS planned to complete them in time for the FAO Expert Consultation on Interactions in Pacific Tuna Fisheries scheduled for early 1991.

Action Item 10: *SPC to reopen dialogue with the American Tunaboat Association, with assistance from NMFS, concerning acquisition of 1978-88 U.S. purse seine catch data for the SPC statistical area, and negotiate a level of aggregation acceptable to both parties with assurances of confidentiality.*

Good progress had been made by way of personal liaison between TBAP and ATA, until the early 1990 change in packers' purchasing policy diverted the association's attention. A possibility that the association might not continue in its present form could mean that negotiations would need to begin anew. NMFS had also been pursuing this issue. There seemed to be reasonable prospects for obtaining interim historic data in broad aggregations but the daily degree-square information remained a sensitive issue.

Action Item 11: SCTB requests that Australia take measures to expand its data collection programme to include Australian vessels operating in tuna fisheries in the SPC statistical area outside the Australian Fishing Zone.

The Australian Fisheries Service, responsible for Australian tuna log book collections, will become a statutory authority. The development of enabling legislation for that change will, *inter alia*, incorporate provision to enable the required data collection. Australia was prepared to seek voluntary provision of data on any high seas activities that eventuated in the interim. Australia vessel operations had largely been confined to member countries' zones, whose national collections would include catch details.

Action Item 12: JFSFRL to convey a request to Japanese authorities for regular provision to SPC of aggregated data (gillnet and longline 5° square by month; purse seine and pole-and-line 1° square by month) covering the activities of all Japanese fleets operating in the SPC statistical area.

The matter was still under consideration in Japan. The general principle applying to the release of data was that all countries provide existing data under the same aggregation conditions, with equal access for all those supplying data.

Action Item 13: SPC to work towards the implementation of a common regional tuna database, holding data aggregated to an acceptable level, which would be available to all contributing partners via a defined distribution network.

The SCTB database had been established. Data that should or could be incorporated were listed in WP.6, Table 2, but details regarding distribution required clarification.

Action Item 14: SPC to request Korea to advise SPC on progress in establishing data collection from purse seiners, and if possible, to provide SPC with data in the agreed common database level of aggregation for all fleets operating in the SPC statistical area.

SPC had written to Korea seeking data but had had no response. However, Korea did inform SPC that a statistical bulletin covering longliners up to 1987 would be published. With the Korean purse seine fleet numbering 30 and increasing, there was an urgent need for development of a purse seine data source.

Action Item 15: *SPC to extend invitations to DWFNs which have, or have had, fleets operating in the SPC area to attend future SCTB meetings, to facilitate scientific co-operation and data exchange for tuna resource assessment purposes.*

SPC had pursued the matter of co-operation vigorously with DWFNs but felt that personal representation, instead of correspondence, might foster broader co-operation. The USSR, which had previously operated in the region, needed to be included, but it was still of prime importance to foster the co-operation of Korea and Taiwan.

Action Item 16: *National Taiwan University (NTU) to pursue development and implementation of catch, effort, and size-composition data collection systems for the South Pacific albacore gillnet fleet.*

(Refer to Action Item 6 above). The National Taiwanese University had undertaken to compile data from 1988, and hopefully, this effort would flow over into 1989.

Action Item 17: *JFSFRL and NTU to initiate assessment of the availability and quality of any existing commercial catch data from South Pacific albacore gillnet fisheries.*

The National Research Institute of Far Seas Fisheries had addressed the item by increasing log book coverage and was developing activity estimates stratified as recommended by SPAR 2. Taiwan was developing a 1988 gillnet data set.

Action Item 18: *NMFS, New Zealand, Fiji, French Polynesia, Tonga, New Caledonia, Japan, Taiwan, and SPC to make efforts to continue and improve systems for collecting albacore size composition data.*

NMFS was continuing to draw together albacore length-frequency data for presentation at the next SPAR meeting. New port sampling work was occurring in Tonga, Fiji and New Caledonia. New Zealand would have data available from observers, market sampling and research vessels. Japan was increasing effort on length frequency sampling, particularly on driftnetters. Fiji had recently enacted legislation mandating the placement of observers on domestic longline vessels.

Action Item 19: *SPC to act as clearing house for the reception and distribution of albacore fishery statistics, and produce an annual summary of South Pacific albacore catches derived from these statistics.*

This SPAR 2 proposal had been largely superseded by the SPAR/SAGA catch/effort data and size monitoring guidelines established at the Second Consultation on Albacore Fisheries Management in Honiara, but in essence countries were in the process of developing data as required.

Action Item 20: *SPC, NMFS and New Zealand to co-ordinate tagging of as many albacore, in as broad a geographical area, as possible during the 1989/90 season using SPAR tags and tagging protocols.*

SPC was developing a tagging study with EEC funding support, hopefully to commence during the current season. New Zealand was tagging albacore when opportunities arose during research cruises and in the domestic fishery. Recoveries from the South Pacific releases amounted to seven tags (an improvement on past experiences with albacore), with one entire oxytetracycline-tagged fish recovered.

Action Item 21: NMFS to investigate the possibility of undertaking laboratory analyses of albacore gonads to determine seasonality of spawning and egg production.

NMFS had established a work plan for albacore gonad analysis at the La Jolla laboratory, as part of a project covering northern as well as southern albacore. A dedicated biologist should be recruited by the end of 1990. SPC might be able to request some assistance from ORSTOM if the gonad samples from the New Caledonia port sampling proved suitable.

Action Item 22: NMFS and New Zealand to continue work on validation and comparison of banding periodicities in otoliths and vertebrae.

The NMFS Honolulu laboratory would be starting work soon, covering both northern and southern Pacific albacore. New Zealand and USA would continue to communicate.

Action Item 23: New Zealand to continue production of satellite sea-surface temperature charts of the Subtropical Convergence Zone for the 1989/90 southern albacore season.

Provision of charts was possible routinely on a commercial basis. While some had been produced for the 1989/90 season, demand had been lower than for the prior season.

Action Item 24: SPC to maintain liaison with SPAR participants to determine the timing and venue of the next SPAR Workshop, depending both on developments in the albacore fishery and other relevant meetings to be held. In any event, the third SPAR meeting should be held before July 1991, with the likely venue in New Caledonia (SPC/ORSTOM) or United States (NMFS).

SPC convened the third SPAR meeting in Noumea in October 1990.

REGIONAL TUNA TAGGING PROJECT – SUMMARY OF OBJECTIVES

GOAL

The Project aims to assist countries to develop, manage and rationally exploit the renewable tropical resources of the South Pacific Commission region (the tuna resource constitutes the largest fishery resource available to member countries).

Primary objectives	Strategies	Analysis
<p>1. To provide estimates of yellowfin population parameters for selected areas of currently intense fisheries.</p>	<p>1.1 To tag and release, in the area of most intense surface fishery activity (10°N-10°S, 125°-165°E), a representative sample of yellowfin, skipjack and if possible, bigeye tuna ($N_{VF} \sim 40,000$).</p> <p>1.2 To collect biological material to provide necessary information on age and growth, stock structure and production.</p> <p>1.3 To accumulate detailed time series of catch and effort data from all tuna fisheries in the SPC statistical area and adjacent areas since at least 1980.</p> <p>1.4 To obtain adequate information on size composition of all catches.</p>	<p>1.1 Fit (maximum likelihood) variable -F tag attrition model to provide estimates of natural mortality rate, catchability and/or equilibrium population.</p> <p>1.2 Fit (maximum likelihood) von Bertalanffy growth models to tag return and length at age data to provide estimates of growth parameters, their variability and measurement and model errors.</p>
<p>2. To estimate interactions between tuna fisheries in areas where several different fisheries operate concurrently.</p>	<p>2.1 As above.</p>	<p>2.1 Develop multi-gear yield-per-recruit model using parameters estimated above, to estimate the effect of one fishery upon another.</p> <p>2.2 Develop generalised movement model for predicting interactions between spatially separated fisheries.</p>
<p>3. To further use the description of tuna movements to predict interactions for projected fishery developments.</p>	<p>3.1 Tagging strategies, as above, and collection of catch/effort data.</p>	<p>3.1 Analyses 2.1 and 2.2.</p>

<p>4. To provide updated estimates of skipjack tuna population parameters for selected areas where fishing has increased since 1980.</p>	<p>4.1 In the first instance, to tag and release, in the largest domestic skipjack fishery (Solomon Islands) a representative sample of exploited skipjack ($N_{sk} \sim 10,000$).</p> <p>4.2 As skipjack will dominate catches in most areas, tagging and data collection strategies also apply.</p>	<p>4.1 Analyses 1.1, 1.2, 2.1 and 2.2.</p>
<p>5. To provide assessments of the potential for further expansion of tuna fishing in the region.</p>	<p>5.1 Monitor catches and fleet fishing strategies throughout the SPC area and relate tagging data to these.</p>	<p>5.1 Analyses 2.1 and 2.2.</p> <p>5.2 The development of an age- or size-structured population simulation model.</p>

**PRELIMINARY ESTIMATES OF CATCHES OF TUNA
IN THE WESTERN TROPICAL PACIFIC IN 1989**

Estimates are presented in Table 1 for the catches of tuna in 1989 for the major tuna fisheries in the western tropical Pacific Ocean.

SOURCES OF DATA

Australia

Longline Forthcoming

Fiji

Pole-and-line Landings at Pacific Fishing Company Ltd.
Purse seine Landings at Pacific Fishing Company Ltd.

Indonesia

Purse seine Catches are raised from the SPC/FFA Regional Tuna Fisheries Database, assuming a coverage rate of 30 per cent.

Others Forthcoming

Japan

Driftnet National Research Institute for Far Seas Fisheries
Longline Forthcoming
Pole-and-line Forthcoming
Purse seine National Research Institute for Far Seas Fisheries

Kiribati

Pole-and-line Forthcoming

Korea

Longline A total catch in 1989 of 140,000 mt by 140 longliners and 30 purse seiners was reported at the Second Consultation on Arrangements for South Pacific Albacore Fisheries Management, Honiara, Solomon Islands, 2-7 March 1990. The estimates in Table 1 were derived by assuming 105,000 mt were taken by purse seiners and 35,000 by longliners. The proportion by species for purse seiners was taken from the *SPC Regional Tuna Bulletin*, Fourth Quarter 1989, while the proportion by species for longliners was assumed to be the same as that for 1987 presented in the *SPC Regional Tuna Bulletin*, First Quarter 1988.
Purse seine

New Caledonia

Longline Marine marchande, Noumea, New Caledonia

New Zealand

Purse seine Ministry of Agriculture and Fisheries. Statistics are for the 1988/89 season for domestic vessels, which caught 4,474 mt of skipjack, and for the 1987/88 season for vessels chartered from the United States, which caught 2,500 mt of skipjack.

Troll Ministry of Agriculture and Fisheries. Statistics are for the 1988/89 season; 4,872 mt were caught within the New Zealand zone and 333 mt were caught outside the zone.

Philippines

Purse seine An estimate of 38,500 mt was obtained through personal communication with the two companies which operate purse seiners in Papua New Guinea. The proportion by species was taken from the *SPC Regional Tuna Bulletin*, Fourth Quarter 1989.

Others Forthcoming

Solomon Islands

Pole-and-line *SPC Regional Tuna Bulletin*, Fourth Quarter 1989

Purse seine *SPC Regional Tuna Bulletin*, Fourth Quarter 1989

Taiwan

Driftnet Forthcoming

Longline Forthcoming

Purse seine Catches are raised from the SPC/FFA Regional Tuna Fisheries Database assuming a coverage rate of 65 per cent.

United States

Troll Forthcoming

Purse seine SPC/FFA Regional Tuna Fisheries Database

Table 1. Preliminary estimates of catches (mt) of tunas in the western tropical Pacific Ocean in 1989

COUNTRY	GEAR	SKJ	YFT	BET	ALB	OTH	TOTAL
FIJI	POLE-AND-LINE	5,369	507	7	0	0	5,883
	PURSE SEINE	143	767	7	0	0	917
	TOTAL	5,512	1,274	14	0	0	6,800
INDONESIA	VARIOUS	91,760	34,920	0	0	0	126,680
	PURSE SEINE	2,107	500	0	0	0	2,607
	TOTAL	93,867	35,420	0	0	0	129,287
JAPAN	GILLNET	1,680	0	0	13,161	0	14,841
	LONGLINE	0	16,400	8,800	1,900	0	27,100
	POLE-AND-LINE	118,900	1,100	700	0	0	120,700
	PURSE SEINE	104,000	33,000	1,000	0	0	138,000
	TOTAL	224,580	50,500	10,500	15,061	0	300,641
KIRIBATI	POLE-AND-LINE	857	385	0	0	0	1,242
KOREA	LONGLINE	0	12,950	15,750	2,800	0	31,500
	PURSE SEINE	89,250	15,750	0	0	0	105,000
	TOTAL	89,250	28,700	15,750	2,800	0	136,500
NEW CALEDONIA	LONGLINE	0	248	24	566	310	1,148
NEW ZEALAND	PURSE SEINE	6,974	0	0	0	0	6,974
	TROLLERS	0	0	0	5,205	0	5,205
	TOTAL	6,974	0	0	5,205	0	12,179
PHILIPPINES	VARIOUS	57,906	57,515	0	0	0	115,421
	PURSE SEINE	22,715	15,400	0	0	385	38,500
	TOTAL	80,621	72,915	0	0	385	153,921
SOLOMON ISLANDS	POLE-AND-LINE	24,284	1,475	0	0	109	25,868
	PURSE SEINE	5,892	4,410	0	0	489	10,791
	TOTAL	30,176	5,885	0	0	598	36,659
TAIWAN	GILLNET	0	0	0	12,000	0	12,000
	LONGLINE	0	2,209	2,719	6,119	0	11,047
	PURSE SEINE	76,500	13,500	0	0	0	90,000
	TOTAL	76,500	15,709	2,719	18,119	0	113,047
UNITED STATES	PURSE SEINE	92,179	43,708	0	0	293	136,180
	TROLLERS	0	0	0	5,100	0	5,100
	TOTAL	92,179	43,708	0	5,100	293	141,280
GRAND TOTAL	GILLNET	1,680	0	0	25,161	0	26,841
	LONGLINE	0	31,807	27,293	11,385	310	70,795
	POLE-AND-LINE	149,410	3,467	707	0	109	153,693
	PURSE SEINE	399,760	127,035	1,007	0	1,167	528,969
	TROLLERS	0	0	0	10,305	0	10,305
	SUB-TOTAL	550,850	162,309	29,007	46,851	1,586	790,603
	VARIOUS	149,666	92,435	0	0	0	242,101
TOTAL	700,516	254,744	29,007	46,851	1,586	1,032,704	

SKJ skipjack BET bigeye OTH others
YFT yellowfin ALB albacore

1990 ACTION SHEET

- Action Item 1: SPC to approach the Australian Government requesting the assistance of Australian observers on longliners in the Australian Fishing Zone in the sampling of albacore for ageing and gonad studies.*
- Action Item 2: SPC and the National Research Institute of Far Seas Fisheries to prepare a joint proposal regarding the second three-month period of the collaborative study for submission to the Japanese Government for funding approval before the end of 1990.*
- Action Item 3: The Chairman, on behalf of SCTB, to point out to the Philippines Government the inadequacies of the present fisheries data collection system, and stress the desirability of a return to the previously more comprehensive data collection system under BFAR direction.*
- Action Item 4: SPC to approach DWFNs to determine the best means to facilitate the provision of data to the SCTB Database.*
- Action Item 5: SPC to compile available information on Pacific bigeye tuna and make this available in an appropriate form on a timely basis.*
- Action Item 6: SPC to submit to FAO for funding a proposal to study western Pacific skipjack movement and fishery interaction, noting the support of SCTB for the proposal.*
- Action Item 7: TBAP to compile fisheries status reports, by gear type and species, for consideration at the next meeting of the SCTB. SCTB member countries and all fishing nations are urged to provide these catch estimates when requested by the TBAP.*
- Action Item 8: FFA to be invited to contribute economic and marketing data to an annual review of western Pacific tuna fisheries by SCTB.*