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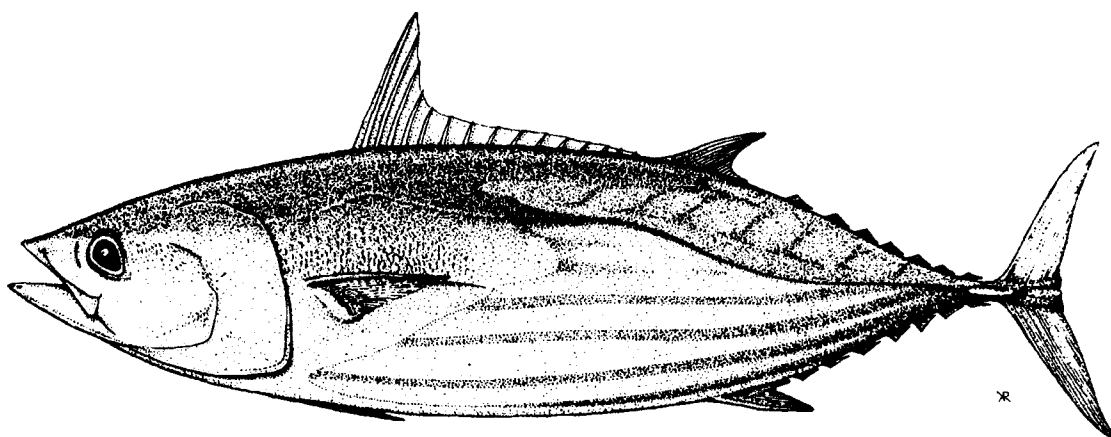


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**REPORT OF THE NINTH MEETING OF
THE STANDING COMMITTEE ON TUNA AND BILLFISH**

Noumea, New Caledonia
22-23 July 1996

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Oceanic Fisheries Programme
South Pacific Commission
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I. AGENDA

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II. SUMMARY OF DISCUSSIONS

1. PRELIMINARIES

1.1 Opening Address

1. Dr Tony Lewis, Oceanic Fisheries Coordinator of the South Pacific Commission (SPC) Oceanic Fisheries Programme (OFP), opened the meeting and welcomed participants to Noumea.

1.2 Appointment of Chairman and Rapporteurs

2. Mr Peter Ward was appointed chairman. In his opening address, the chairman reminded the meeting of the role of the Standing Committee as a vehicle for sharing scientific data and information, which was fundamental to the commitment to scientific research, review and advice. He also mentioned the importance of future direction, referring to the deliberations of the *Technical Consultation on the Collection and Exchange of Fisheries Data, Tuna Research and Stock Assessment*, held during the previous week.

3. The Secretariat offered to provide the rapporteurs for the meeting. Mr Peter Williams was appointed head rapporteur.

1.3 Meeting Procedures

4. The chairman indicated that due to unforeseen circumstances the meeting, normally allocated three days, was to be conducted over one and a half days. As such, participants were requested to keep presentations brief.

1.4 Adoption of the Report of the Eighth Standing Committee on Tuna and Billfish

5. The meeting formally adopted the report of the Eighth Standing Committee on Tuna and Billfish (Noumea, New Caledonia, 16-18 August 1995), Working Paper 1, without amendment.

6. The meeting was advised by the Secretariat that the action items and recommendations coming from SCTB 8 were to be addressed by the following agenda items :

SCTB 8	SCTB9 Agenda Item
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2. OVERVIEW OF WESTERN PACIFIC TUNA FISHERIES

2.1 *National fishery reports*

7. Dr. Lewis introduced this agenda item by providing a brief overview of developments in tuna fisheries in the SPC region during 1995.

8. During 1995, the total catch in the SPC statistical area was approximately 950,000 metric tonnes. This was a fall of approximately 40,000 t over the 1994 catch level and about 100,000 t under the 1991 record for the region. The catch of skipjack was similar to the 1994 level and accounted for 70% of the total catch by volume. In contrast, the catch of yellowfin was down by approximately 30,000 t on the 1994 catch. By gear, overall longline catch was slightly less than in 1994, pole-and-line showed a slight increase in overall catch and purse seine was down by approximately 50,000 t.

9. There was continued growth of domestic fleets during 1995 and some decline in the number of vessels in the offshore fleets of the Peoples Republic of China and Taiwan. The number of vessels in the distant-water longline fleets remained stable during 1995, although there were increased catches of albacore by these vessels during this period.

10. National fishery reports were then presented and the summaries of these are listed in alphabetical order.

2.1.1 Australia

11. Mr. Peter Ward reviewed the status of the Australian tuna fisheries, referring to Background Paper 1. Catches of tropical tuna and billfish in the north-eastern Australian fishing zone are small compared with those in the wider Western Pacific. Their appearance off Australia's east coast varies seasonally and from year-to-year. Catches of yellowfin tuna, for example, are often linked to the incursion of warm water (18-22°C) from the Coral Sea southwards along the east coast.

12. Annual catches of tuna and billfish in the north-eastern Australian fishing zone range between 3000 and 11 000 t, averaging about 7500 t a year. Despite the progressive introduction of restrictions, distant-water Japanese longliners fishing under bilateral access agreements with Australia continue to account for most of the catch. For example, they reported almost 60% of the total yellowfin catch of 3048 t in 1995. Most of the remainder is taken by Australians using longline in coastal waters. Large distant-water style longliners chartered by Australian companies reported only 73 t of yellowfin in 1995. Recreational anglers also take small catches of yellowfin, but this probably amounts to less than 5% of the total yellowfin catch. Recreational angling accounts for a far greater proportion of the marlins—about half of the total black marlin catch, for example.

13. Tuna and billfish are taken by a variety of other methods, such as pole-and-line, purse seine and trolling. Pole-and-line and purse seine are used to take skipjack tuna off southern New South Wales. The annual skipjack catch reached 6000 t in the early 1990s then fell below 1500 t a year. In 1995 vessels using pole-and-line and purse seine reported catching 1270 t of skipjack.

14. Catch statistics, however, do not reflect the social and economic importance of tuna and billfish in Australia. The Australian longline fishery specialises in air-freighting fresh tuna to the lucrative sashimi markets of Japan. The large yellowfin and bigeye tuna taken from temperate waters of the eastern Australian fishing zone have a high oil content and command high prices as sashimi. Recreational anglers prize yellowfin, marlins and sailfish and as many as 5000 anglers fish for these species in north-eastern Australia.

15. In the ensuing discussion, it was noted that the increase in striped marlin catches in the recreational and longline fisheries off the east coast of Australia during recent years, occurred at a similar time when there was observed increases in striped marlin catch rates in the recreational fisheries in Mexico, and an easing of El Nino conditions throughout the Pacific. In the Hawaiian fisheries, striped marlin catches have remained stable at around 500 t per year during recent years. It was noted that increases in blue marlin catch rates during last La Nina period (1988-1989) were observed off the east coast of Australia, with corresponding decreases in striped marlin catches, which tends to contradict the current situation in Australia.

2.1.2 Cook Islands

16. Mr Josh Mitchell presented the report on tuna fisheries in the Cook Islands. During 1995, an overall catch of approximately 137 t was taken by locally-based longline vessels fishing within the Cook Islands EEZ. The two vessels operating during this period targeted tuna for the fresh chilled and sashimi markets overseas. Both longline vessels are around 100-200 GRT and are licensed to fish under a joint-venture arrangement. The 1995 catch by species included 29 t of albacore, 13 t of bigeye, 18 t of yellowfin, 29 t of marlin, 27 t of swordfish, 8 t of mahimahi, 3 t of wahoo and 3 t of spearfish (Source : unloadings data). The catch was air freighted to markets in the mainland USA, Hawaii, Japan and New Zealand; some of the catch was also made available for the local market.

17. Onshore developments during 1995 saw the establishment of two fish processing plants, as well as some refrigeration and ice-making facilities. An economic appraisal of the industry was conducted by FFA in early 1995. In addition, the computerised database was improved (with technical assistance from SPC) allowing the user to plot sets, analyse and plot CPUE data, and review transshipment data for management purposes. A database has also been set up to collect tuna and billfish catch data from artisanal fisheries in the Cook Islands.

18. The first half of 1996 has seen further growth in the industry, with the first 100% locally owned longliner commencing operations in early March of this year. A further two longliners are scheduled to start fishing during the coming months. A resource profile is scheduled to be undertaken by the South Pacific Commission to assess the status of tuna and billfish stocks within the Cook Islands waters.

2.1.3 Federated States of Micronesia

19. Mr Bernard Thoulag presented an overview of the FSM tuna fisheries during 1995, referring to Background Paper 3. There was an increase in the total catches for all three gear types that operated in FSM waters during 1995 compared to 1994 levels. The increase for total purse seine catch (195,183 t) was around 4%; for longline the total catch (17,255 t) was a 10% increase over 1994 catch, and there was close to a three-fold increase in the pole-and-line catch (17,408 t) compared to 1994 catch.

20. The increases in the purse seine catches are interesting in that the Korean and Taiwanese fleets, which constitute over 40% of regional purse seine vessels, operated for only part of the year. For pole-and-line vessels, catches in FSM waters had previously been on a constant decline since 1991, corresponding to limited effort. The big increase in pole-and-line catches was achieved in only the first half of the year.

2.1.4 Fiji

21. Mr Iliavi Tuwai presented the report of tuna fisheries in Fiji, referring to Background Paper 4. During 1995, there was an increase of over 600 t in the overall Fijian longline catch (3,068 t) compared to 1994 catch; 48 vessels were active in this fishery. The 1995 tuna catch by the 14 Taiwanese longline vessels based out of Levuka was 4,117 t with an estimated 40% of this catch taken in Fijian waters.

22. During the past year, recommendations from an FAO consultancy (with input from the OFP) established a Total Allowable Catch (TAC) for the major tuna species and a limit on the number of longline vessels (Effort) operating in Fijian waters. The total number of longline vessels is currently limited to 80. The TAC for albacore is currently set at 3,000 t, 2,000 t for yellowfin, and 2,000 t for bigeye. The present TAC for albacore could probably be increased based on new information available from stock assessment work on albacore in the region, although it should be noted that much of the landed albacore catch is taken outside the Fiji EEZ.

23. There were 9 vessels active in the Fijian pole-and-line fishery during 1995, taking an overall catch of 4,885 t; this was an increase of more than 1,596 t over the 1994 catch and constituted a record catch. The 1995 catch is less than 50% of the TAC, currently set at 10,000 t Skipjack was the major component of the catch at 4,319 t.

24. It was noted in the ensuing discussion that the establishment of the TAC level in the Fijian fisheries was not based solely on biological assessment, but also on the need to address the socio-economic situation. It was suggested that any future development of national TACs in the region be coordinated, a situation foreshadowed in current regional discussions.

2.1.5 French Polynesia

25. Mr Dauphin presented an overview of tuna fisheries in French Polynesia, referring to Background Paper 5. The tuna fishery in French Polynesia is divided up into two broad categories, the **offshore oceanic fleets**, which include distant-water Korean longline vessels and larger domestic vessels fishing over 50 nm from their home port, and the **near-shore oceanic fleets**, which include the multi-purpose longline/pole-and-line, troll/pole-and-line and the *poti-marara*, which engage in bottom-fishing, trolling and harpooning.

26. During 1995, 55 Korean longline vessels operated in French Polynesian waters for a total catch of 2,206 t, including about 2,000 t of tuna; bigeye (1,340 t) were the main component of the tuna catch. The nominal catch for the domestic offshore fleets during 1995 was 2,500 t, including 1,000 t and 500 t of marketable tuna and billfish, respectively. The total catch for near-shore oceanic fisheries during 1995 was approximately 2,000 t, including 1,000 t of skipjack and 500t of other tuna species.

27. Coverage during 1995 of the Korean distant-water, the domestic offshore and domestic near-shore fleets was 95%, 80% and 30%, respectively. Future efforts will be directed to improving the coverage of the near-shore oceanic fisheries.

28. An tuna ecology study, called ECOTAPP (Study of tuna behaviour through acoustics and longline fishing), has been implemented by the government, in co-operation with ORSTOM (French Institute of Research for Development in Co-operation) and IFREMER (French Institute of Research for Development into the Exploration of the Sea), to provide guidance on how best to exploit the tuna resources within the French Polynesian EEZ. This study, which began in June 1995, is scheduled to last for three years.

2.1.6 Japan

29. Dr Okamoto presented an overview of the Japanese longline fishery in the Western Pacific Yellowfin Research Group (WPYRG) area, referring to detailed catch statistics provided in Background Paper 6. For 1993 and 1994, the catch of yellowfin and bigeye were near their lowest for the past two decades. In contrast, good catches of albacore were taken in the area north of 20°N for the first half of these years.

30. For 1995, Dr Okamoto provided a summary of Japanese longline activity in three of the WPYRG sub-areas, highlighting the number of vessels in operation, the seasonal variation in catches and an indication of the size composition of the target tuna species.

31. Dr Miki Ogura then reported on the pole-and-line fishery in the WPYRG area, referring the meeting to Background Paper 6. For 1994, the catches of skipjack, yellowfin and bigeye were 93,446 t, 3,936 t and 1,878 t, respectively. 1994 showed the continuing trend in the decline of catches, mainly due to the decrease in the number of vessels operating in the fishery. The preliminary estimate for 1995 skipjack catch was 112,000 t.

32. For the purse seine fishery, 1995 catches for skipjack, yellowfin and bigeye were 138,607 t, 43,284 t, and 1,200 t, respectively. As for the longline and pole-and-line fisheries, a description of the Japanese purse-seine activity during 1995 was provided.

33. Longline catch and effort data, aggregated by 5°x5° square and month, up to and including 1995, pole-and-line catch and effort data, aggregated by 1°x1° square and month, up to and including 1994, and purse seine catch and effort data, aggregated by 1°x1° square and month up to and including 1995, have been provided to SPC.

34. Research studying the effect of the oceanic environment, particularly current, on the shape of the longline gear was conducted during the past year using small depth data loggers. This research is expected to continue during the coming year. There was some discussion on the use of the hooks per basket as an indicator of depth. It was noted that, while hooks per basket provide some indication of fishing depth, there are other characteristics of the setting procedures (for example, line shooting speed in relation to vessel setting speed) that play a role in how deep the longline is set. Unfortunately, due to time constraints, further discussion on this topic was halted and some concern was expressed that more time should be allocated in future SCTBs to present national research initiatives.

35. In regards to the size composition data presented in Background Paper 6, it was noted that the proximity of the two modes in the bigeye length frequency histogram was probably an artifact of aggregating all port sampling data collected from purse seine vessels for the year.

36. It was noted that several national fishery presentations referred to the SPC statistical area, while others referred to the species stock areas, for example, the WPYRG sub-areas. It was therefore suggested that a policy decision was required to define a standard area of interest for the national fishery reports presented at future SCTBs.

2.1.7 Kiribati

37. Mr Johnny Kirata presented the current status of tuna fisheries in Kiribati. The tuna fishery in Kiribati can be categorized into 3 main groups, namely the foreign fishing vessels, domestic or locally based vessels and the artisanal fleet. The tuna catch and effort for 1995 have been influenced by the easing of El Nino conditions during the year. For the surface fisheries, the USA and Korean purse seine catch dropped to a total of 4,208 t and 0 t, respectively during 1995, whereas the Japanese pole and line catch increased from 530 t to a total of 7,017 t for the same period. During years of El Nino condition, catches within Kiribati waters have been very high for purse seiners but low for pole-and-line vessels. For the sub-surface fishery, the distant water longline fleets of Korea and Japan also had experienced decreases in overall catch; the provisional total catches for these fleets during 1995 are 5,087 t and 1,628 t, respectively

38. The locally based commercial fishery consists of 4 government owned pole-and-line boats and one purse seine vessel in a joint venture with a Japanese fishing company. However, only two of the pole-and-line boats actually fished in 1995: one in Fiji and the other in the Solomon Islands. The third did not operate for the whole year after it ran aground in the middle of 1994 and the fourth, which is the smallest of the fleet, is undergoing modifications to be refitted for use as a fresh sashimi tuna longline boat. The joint-venture purse seine vessel, which started fishing towards the middle of 1994, has been fishing mostly in FSM, PNG and the high seas.

39. The remaining category, which is the artisanal fishery, is comparatively small. This fishery consists of over 200 small skiffs powered by outboard engines, either 25HP or 40HP. Trolling, and sometimes poling with lured lines, are the methods used in this fishery.

2.1.8 Korea

40. Dr Moon provided a brief overview of Korean Fisheries, referring the meeting to Background Paper 7. The 1995 catch of the Korean fisheries for the Pacific tuna and tuna-like species was estimated to be about 204,000 t with 184 vessels showing about 10% decrease compared to the previous year. A total of 154 longliners participated in fishing for tunas in the Pacific Ocean and recorded about 29,000 t of catch in the SPC area in 1995, a decrease of 12.4% over the previous year. Species composition of longline catch was 52.6% bigeye, 32.4% yellowfin, 0.1% albacore and 14.8% others. Catch of bigeye decreased from 19,600 t in 1994 to 15,400 t in 1995, whereas that of yellowfin remained at a similar level of about 9,000 t in 1994. Catch per unit effort of longline in 1995 was calculated to be 1.39 fish / 100 hooks, a decrease of 3.5% from the 1994 figure.

41. In 1995, 30 purse seine vessels operated around the SPC area. The total catch of this fishery amounted to 175,000 t, a decrease of 10.0% from the 1994 catch. Catch by species showed that

skipjack was 137,800 t, a 5.3% decrease over the 1994 volume and yellowfin was down by 24.0% to 37,600 t.

2.1.9 New Caledonia

42. Mr Regis Etaix-Bonnin presented the national fisheries report for New Caledonia, referring to Background Paper 8. In 1995, only 7 local longline vessels operated in the exclusive economic zone of New Caledonia, of which 2 were freezer vessels. The total catches calculated through customs statistics on exports and landings recorded on the local market show an increase in yellowfin catch of 750 t and a decrease for albacore (330 t). Ninety metric tonnes of bigeye were caught in 1995 and the total catch reached 1,420 t in comparison to 1,600 t in 1994.

43. Three different markets are targetted : (i) Japan for sashimi-grade tuna and marlins (this includes albacore taken during the austral winter), (ii) canneries based in the Pacific Ocean, for the low quality tuna, and (iii) the local market for by-catch, and tuna and billfish not suitable for the sashimi market.

44. Up until now the Japanese sashimi market has been the main market of the New Caledonian tuna longline fishery. Further development in the local fishery is pending assessment of a proposal to establish a local processing industry.

2.1.10 New Zealand

45. Dr Talbot Murray provided a brief overview of recent developments in tuna fisheries in New Zealand waters.

46. During the past 3-5 years, several significant developments have occurred in New Zealand tuna fisheries. The purse seine fishery for skipjack has changed its targeting to other coastal pelagic species (jack mackerel, blue mackerel and kahawai) due to an apparent absence of surface schooling skipjack in New Zealand waters. The decline (from several thousand tonnes about 5 years ago) reflects an unexplained change in availability. Other changes in New Zealand tuna fisheries include the progressive reduction in foreign licensed longlining (to 1 vessel in 1995) and an increase in domestic longlining for south bluefin and bigeye tuna (to about 40 vessels in 1995). Albacore trolling continues to be the largest NZ tuna fishery, although effort by NZ vessels has largely stopped in the STCZ. The area fished for albacore in the EEZ has shifted northwards and broadened around the North Island with a resultant change in landing ports. Tuna catches in 1995 by New Zealand included 6,228 t of albacore, 59 t of bigeye and 136 t of yellowfin tuna.

47. It was noted that the restrictions on landing marlin in the longline fishery, which has been in force since 1990, has coincided with an observed increase in the relative abundance of striped marlin in recent years.

48. In regards to the demise of the domestic skipjack fishery, it was noted that no restrictions had been placed on the fleet and, according to reports from troll vessels, the problem was related to there being less diffuse schools of larger fish during the past 5 years than before.

2.1.11 Papua New Guinea

49. Mr Joel Opnai reported on recent developments in the Papua New Guinea (PNG) tuna fisheries.

50. During 1995, Korean, Philippine and Taiwanese purse seine vessels continued to fish in PNG waters. Two purse seine vessels, with Taiwanese interests, were registered and flagged in PNG, and began fishing operations under the preferential access (FSM) arrangement. There were also two Vanuatu flagged purse seine vessels fishing in PNG waters during 1995 under this arrangement. The opening of a 100 t per day tuna cannery in Madang next year will require the issue of 50 purse seine licenses to ensure the supply of raw product to the cannery.

51. The implementation of the Fisheries Act 1994 during 1995 stimulated development in the domestic longline fishery with an increase in the licensing period from one to five years. In the coming year, further interest in the domestic longline fishery is expected, with the possibility of access to Asian Development Bank loans for private fishing companies.

2.1.12 Taiwan

52. Dr Lu provided an overview of the Taiwanese fisheries operating in the region during 1995, referring to Background Paper 10.

53. The total catch by the Taiwanese purse seine fleet during 1995 was 174,716 t, comprising 142,604 t of skipjack, 30,786 t of yellowfin and 1,326 t of other species.

54. The Taiwanese distant-water longline fleet comprise of vessels between 150 and 250 GRT. These vessels are based out of Levuka, Fiji and Pago Pago, American Samoa and target albacore tuna for the canneries located at these ports. The preliminary estimate for albacore catch by this fleet for 1995 is about 17,000 t.

55. The Taiwanese offshore fleet consists of around 450 small longline vessels (50-70 GRT) mostly based out of Pacific island countries and operating in tropical waters stretching from the Philippines/Indonesia through to the Marshall Islands. This fleet target bigeye and yellowfin tuna. Coverage for this fleet is not as high as for those previously mentioned and the total catch for all areas during 1995 has been estimated to be about 30,000 t.

2.1.13 Tonga

56. Mr. Taniela Koloa reported on recent developments in tuna fisheries in Tongan waters, referring to Background Paper 11.

57. There are currently no foreign vessels licensed to operate in Tongan waters (except for the US purse seine fleet operating under the multilateral treaty). The offshore domestic longline fleet increased from 1 to 4 vessels during 1994. The main catch from this fleet is albacore, which is normally offloaded to canneries in American Samoa. This fleet will increase in the coming year with the imminent arrival of two more vessels.

58. Recent research (1994) on assessing the prospects of small-scale tuna longlining on seamounts in Tonga has indicated that, under appropriate conditions (i.e. market, shore-base facilities), there is

potential for a fleet of 15-30 vessels producing 1,500-3,000 t per annum. There are currently 5 longline vessels targetting bigeye and yellowfin tuna on seamounts in Tongan waters. The target catch from these vessels is bound for the sashimi market of Japan and the fresh fish markets of Hawaii and mainland USA.

59. Landings data from these vessels will be provided to the OFP in the future.

2.1.14 United States of America

60. Dr Sakagawa presented the national fishery report for the United States, referring to Background Paper 12. The following is a summary of this paper.

61. There are two categories of U.S. fisheries that catch tropical tunas in the central-western Pacific, large-scale purse seine and small-scale and artisanal. The large-scale purse seine fishery accounted for approximately 97% of the 1995 U.S. central-western Pacific tropical tuna catch and small-scale and artisanal fisheries only 3%.

62. Large-scale purse seiners have operated in the central-western Pacific since 1988 under the South Pacific Regional Tuna Treaty. The vessels are of 1,000 to 1,800 t carrying capacity and fish a wide area of the central-western Pacific extending from 10°N to 10°S latitude and 155°W to 140°E longitude. The majority of the catch is skipjack tuna (79%), with lesser quantities of yellowfin and bigeye tunas (21%). Since 1995, the number of vessels fishing has fluctuated between 42 and 49, and the total catches of yellowfin, skipjack and bigeye tunas peaked in 1991 at 215,800 t, remained close to 200,000 t in 1992 to 1994, then dropped to 166,900 t in 1995.

63. U.S. small scale and artisanal fisheries that catch tropical tunas operate within the EEZs of Hawaii, Guam, Northern Mariana Islands, and use longline, troll, handline or pole-and-line fishing gear. In 1995, Hawaii-based small-scale and artisanal fisheries caught approximately 5,200 t of tropical tunas and Guam, Northern Mariana Island and American Samoa, only 290 t. Forty percent of the 1995 catch was yellowfin tuna, 20% skipjack tuna and 40% bigeye tuna. The future provision of logsheet data by US longline vessels operating out of Pacific island countries will be handled through the High Seas Compliance Act.

64. The recent decline in the swordfish fishery in Hawaii was due in part to a change in targetting bigeye tuna and also that some of the swordfish fleet returned to the Atlantic swordfish fishery to ensure licence eligibility under ICCAT. There was also an observed reduction in the swordfish CPUE in 1994, but some recovery during 1995. It was noted that the Pacific Ocean catch of swordfish has increased dramatically in the last few years to an all-time peak high of about 30,000 t. This "interesting phenomenon" is due for further review at the upcoming 2nd Swordfish Symposium, to be held in Honolulu during March, 1997.

2.2 Economic overview of tuna industry developments

65. Mr. Karl Staisch presented a report on the economic conditions of the tuna fisheries of the region, referring to Working Paper 5.

66. During 1995, the value of tuna catches in the region (excluding Australia and New Zealand) was estimated to be US\$1.7 billion, with longline accounting for US\$850 million and purse seine US\$750 million.

67. The estimated 1995 purse seine catch in the region was around 780,000 t a drop of about 8% on the previous year's catch. The drop in effort by the US fleet (25-30 per cent) mainly contributed to this decline. Cannery prices for skipjack were again volatile during 1995, fluctuating between a low of US\$650 per t to a high of US\$1,100 per t.

68. The catch of longline **freezer** vessels during 1995 was estimated to be 110,000 t. The catch composition was 40 percent bigeye, 30 percent yellowfin and 25 percent albacore, which provided an estimated value of around US\$590 million. Supplies of **fresh/chilled** bigeye (40 percent) and yellowfin (60 percent) increased by about 4,000 t on the previous year to reach 82,000 t. It is estimated that the region is now supplying around 30-40 per cent of Japan's total imports of fresh yellowfin and bigeye tuna. It was noted that Indonesia, and to a lesser extent Malaysia, provide a large proportion of the remainder of fresh yellowfin and bigeye product to the Japan markets

69. It was suggested that a trend analysis, over a 5 year time frame, would be a useful addition to future economic overviews of the tuna fisheries in the region. (see Action Item 5 in Section V).

2.3 Status of stocks

70. Dr John Hampton briefly reviewed current situation regarding the stock status of the four main species of tuna caught in the western and central Pacific Ocean - skipjack, yellowfin, bigeye and albacore, referring the meeting to Working Paper 3.

71. Fishery indicators (CPUE) for skipjack show no indication that the fisheries have been significantly impacted, but changes in purse seine technology complicate the interpretation of CPUE as an index of abundance. Most of the information on fishery impacts come from SPC tagging experiments which suggest that exploitation levels remain low to moderate. In the coming year, there is expected to be more production from PNG-FSM-Solomons Islands area as a result of the change from El Nino to La Nina conditions. It is possible that the prolonged El Nino could have impacted skipjack reproductive success, suggesting skipjack recruitment should be monitored, if possible. The situation for skipjack is largely appropriate for yellowfin, though the status of the adult stock is more uncertain given some decline in longline CPUE over recent years. It was noted that, based on the tagging data, the decline in longline CPUE is unlikely to be primarily a result of increases in purse seine catch.

72. Longline CPUE for bigeye shows a quite different trend in the eastern (decreasing) compared to the western (stable) Pacific. Surplus production model fits to the data suggest that recent catch levels are in the region of, and possibly exceed, the estimated MSY. However, there are serious deficiencies in current knowledge of Pacific bigeye which continue to hinder reliable assessment. Among these, poor knowledge of stock structure, basic biological parameters such as growth and mortality rates, and details of the catch by the various surface fisheries are the most serious problems. Greater research efforts and improved cooperation are required to resolve these questions. It was also noted that future work will necessarily involve incorporating surface fishery bigeye catches (i.e. separating from the yellowfin catch) into the data used for stock assessment work.

73. New information regarding albacore was obtained during the past year from continuing stock assessment work. Analyses of tagging data and a length-based age structured model provide reasonably consistent estimates of growth and mortality rates, which suggest that albacore are slow growing and long-lived relative to tropical tunas. The fisheries potential of albacore is therefore more restricted by comparison with these species. The exploitation rates of albacore were also determined

by tagging and age-structured models to be less than 10%, indicating that the current level of exploitation can be sustained. It was also noted that there appears to be strong correlation of higher recruitment in La Nina years, and corresponding lower levels of recruitment during El Nino periods.

74. During the ensuing discussion, it was noted that, while there have been no observed yellowfin tag recaptures in the Indian Ocean, a large through-flow of water from the Pacific Ocean passes through the Indonesian archipelago into the Indian Ocean, and could possibly provide transport for tuna larvae/juveniles. It was suggested that future modelling work could possibly incorporate this through-flow (i.e. currents) to include Indonesia as an extension to the western Pacific Ocean.

75. It was noted that skipjack stock assessment could be carried out using the surplus production model, although it appears that the length-based, age-structured approach would be more suitable, providing there was sufficient ageing information available to supplement the size data.

76. It was noted that large numbers of bigeye were tagged in only two areas during the RTTP (i.e. the Coral Sea and Kiribati), and this was the main reason why only movement and growth analyses of bigeye based on tagging data have been conducted. There has, however, been some assessment work done on the Australian east coast area, using the Coral Sea bigeye tag-recapture data.

77. Eastern Pacific Ocean (EPO) purse seine vessels have, in recent years, employed a new technique for targetting bigeye under logs, which has seen the bigeye catch in the EPO reach an all-time high of 33,000 t during 1995. Recent production model analysis of the hypothetical EPO bigeye stock gives higher estimates of MSY than analyses performed by Dr Miyabe. The results of simulations of future catches, if longline and surface fishing effort continued at existing levels, depend on the assumed level of natural mortality; at low natural mortality (<0.4 per year), the current total catch levels are predicted to decline. If natural mortality was higher (0.6-0.8 per year), total catch would not be affected (although the longline component and the stock size would decline).

78. The estimate for natural mortality of bigeye, based on the Coral Sea tagging data, was quite low. One hypothesis, which assumed that the fishery in the Coral Sea had not changed targetting practices during the past 5 years, estimated natural mortality at less than 0.1. The alternative hypothesis, that targetting practices had changed in the fishery and were related to the increase in CPUE over the 5 year period, estimated natural mortality at 0.5.

2.4 Current status of data held at SPC

79. Mr Tim Lawson gave a brief overview of the current status of data held at SPC, including annual catch statistics, catch and effort logsheet data (both raw data and data aggregated by time-area strata), landings data, port sampling data, and observer data. The following points were noted:

- The provision of preliminary estimates of annual catches by governments of fishing nations has improved considerably, with 1995 estimates now available for the Japanese longline and purse-seine fleets, the Korean longline and purse-seine fleets, and the Taiwanese purse-seine fleet. However, preliminary estimates of annual catches continue to be difficult to obtain from government sources for certain fleets, such as the Japanese pole-and-line and the Taiwanese distant-water longline fleets, and several recently-established domestic fleets of SPC members.

- Annual catch statistics and logsheet data have not been provided for the domestic New Zealand longline, purse-seine and troll fleets for several years, primarily because of changes to the structure of the Ministry of Agriculture and Fisheries. The OFP has made an official request to the new Ministry of Fisheries, and it is expected that the backlog of data will be provided in due course.
- The coverage by raw logsheet data (i.e. data covering longline and purse-seine sets, and pole-and-line and troll days fished, by individual vessels) held by the OFP has reached 79 per cent of the total catch in the SPC statistical area. However, the coverage varies considerably among fleets. The coverage for several recently-established domestic fleets of SPC members, and for distant-water longline, pole-and-line and troll fleets in international waters, is low.
- Historical catch and effort data for the Korean purse-seine fleet are held by the National Fisheries Research and Development Agency (NFRDA) of Korea; however, these data have not yet been provided to the OFP. The NFRDA has indicated that these data will be provided in aggregated format in the near future.
- The timeliness of aggregated catch and effort data for Japanese fleets provided to the OFP has improved considerably; aggregated Japanese longline and purse-seine data for 1995 were provided in July 1996. However, aggregated data for other distant-water fleets are provided with a lag of up to three years.
- Landings data, and length-frequency data collected during port sampling, are held by the OFP covering most fleets operating in the region; however, landings and length-frequency data for Japanese vessels, most of which unload in Japan, are lacking.
- The amount of observer data held by the OFP is increasing, particularly through the work of the SPRTRAMP observer programme; however, observer coverage for all fleets, except the American purse-seine fleet, is low.

80. The following requests for catch and effort data aggregated by time-area strata were received during 1995/96:

- A request for two maps showing the distribution of fishing effort by Japanese distant-water longliners in the Pacific Ocean, aggregated by $5^{\circ} \times 5^{\circ}$, in 1980 and 1990, was received from Ms Sabrina Virly, *Institut français de recherche scientifique pour le développement en coopération*, Centre ORSTOM de Nouméa, on 12 October 1995. The release was authorised by the Fisheries Agency of Japan on 23 October 1995.
- The SPAR database was released to Pascal Bach, ORSTOM, Papeete (French Polynesia), Chien-Hsiung Wang, National Taiwan University, and Tony Kingston, Forum Fisheries Agency, Honiara (Solomon Islands), at the Sixth Meeting of the South Pacific Albacore Research (SPAR) Group, Rarotonga (Cook Islands), on 8 March 1996.
- In his fax of 9 April 1996, Mr Mark Mitsuyasu, Fisheries Management Officer, Western Pacific Fisheries Management Council, Honolulu (United States of America), requested catch statistics covering the American purse-seine fleet, and other fleets, in the EEZs of American Samoa, Guam, Howland and Baker, Jarvis, Johnston, Northern Marianas, Palmyra, and Wake. The OFP does not

release data aggregated by EEZ to third parties; therefore, Mr Mitsuyasu was directed to the Forum Fisheries Agency or the United States National Marine Fisheries Service, which also hold data for the American purse-seine fleet.

- Public domain longline data, aggregated by 5° longitude by 5° latitude, covering the Japanese fleet from 1962 to 1980, the Korean fleet from 1975 to 1993, and the Taiwanese fleet from 1967 to 1993, were released to Ms Kitty Simonds, Executive Director, Western Pacific Fisheries Management Council, Honolulu (United States of America), on 22 April 1996.

81. It was noted that the inclusion of species breakdown of by-catch in the SPC Tuna Fishery Yearbook tables (Action Item 2 from SCTB 8) was not attempted during the past year, as there remains insufficient by-catch data to determine estimates at the species level. For purse seine, the logbook reporting of by-catch is poor and the observer coverage of by-catch is inadequate for all fleets. For pole-and-line vessels, it is known that the by-catch level is low. For longline, the logbook coverage of the distant-water fleets in international waters is lacking, and for the offshore longline fleets, there have been some problems with by-catch species identification.

82. As there is not expected to be any improvement in the logbook coverage of by-catch in the near future, it was suggested that this action item be modified to make use of observer data in providing indications of by-catch levels by fleet, area and time period (Action Item 3 for SCTB 9 in Section V).

83. Further discussion suggested that the quality of by-catch data collection should be emphasized, and there should be some prioritization of by-catch species. Consistent with these points, it was suggested that the OFP should prepare a strategic and operational plan for monitoring by-catch and circulate this prior to the next meeting (Action Item 4 for SCTB 9 in Section V). It was noted that the plan should be integral with the overall OFP work plan and consider the current resources available. It was also suggested that each country prepare an update on billfish and by-catch from domestic fleets for inclusion in their national fishery statement for SCTB 10 (Action Item 5 for SCTB 9 in Section V).

84. There was a request from Tonga for the OFP to provide information on the amount of tuna resource passing through their economic zone waters. It was noted that this type of request has been satisfied in the past by the production of National Fishery Assessment reports, and that this important OFP activity will continue with the imminent arrival of the new Fisheries Research Scientist. Nonetheless, this request was considered important enough to include as an Action Item to be addressed prior to SCTB 10 (Action Item 7 for SCTB 9 in Section V).

3. OFP WORK PROGRAMME REVIEW 1995-96, AND WORK PLAN FOR 1996-97

85. Dr Lewis introduced this section by noting that Working Paper 2 detailed the OFP Work Programme achievements of 1995-96, and the Work Plan for 1996-97.

3.1 *Statistics and monitoring*

86. Mr. Tim Lawson gave a brief presentation on the activities of the OFP Fisheries Statistics Section during the past year. The on-going activities of this section include :

- The maintenance of the Regional Tuna Fisheries Databases (OFP Data Catalogue, Information Paper 2), including the catch and effort logsheet database, catch and effort data aggregated by time-area strata, the South Pacific Albacore Research (SPAR) database, length-frequency data, unloading data and tagging data;
- Support of port sampling programmes, which now cover 23 ports throughout the region; one of the problems that will continue to be addressed during the coming year is to ensure the timely provision of data from port sampling sites;
- Publishing the quarterly SPC Regional Tuna Bulletin, containing monthly catch and effort statistics determined from logsheet data held at SPC;
- Publishing the SPC Tuna Fishery Yearbook, containing estimates of annual catches compiled from various sources. This publication has become an informative and authoritative document on regional tuna fisheries statistics;
- Providing support for national tuna fishery statistics systems. During the past year, four countries were visited and considerable work has been done in the development of a new tuna fishery data retrieval interface;
- Providing information to ad hoc requests for tuna fishery statistics by member countries; and,
- Liaison with other fisheries agencies concerning fisheries statistics, including Forum Fisheries Agency (FFA) and the Food and Agricultural Organization (FAO) of the United Nations.

87. During the past year, the OFP requested authorisation for release of the specified data from all sources of non-public domain data held at SPC (Action Item 1 from SCTB 8). Sixteen responses were received out of a total of 19 requests; 14 responses were favourable, while two responses, from Japan and New Zealand, were unfavourable. However, data from Japan and New Zealand can still be released with authorisation from these sources. Table 1.1 of Working Paper 2 provides a summary of the responses to the request for authorisation to release the specified data.

88. Mr Peter Sharples provided a brief overview of the port sampling and observer programme activities during the past year. He noted that there were now four SPRTRAMP observers and during the past year they were active on 34 fishing vessels in SPC member countries spending 642 days at sea (a summary of their activities is provided in Table 1.2 of Working Paper 2). Other significant activities during the year included the development of standardised regional longline and purse-seine observer data collection forms, and the training of national observers, in conjunction with the FFA Observer Manager, with three workshops held in Kiribati, Palau and Papua New Guinea.

89. It was noted that, in addressing Action Item 5 of SCTB 8, some attempts had been made to contact distant-water fishery nations directly for scientific observer placements, but distant-water fishing nations remain reluctant to accept observers, other than through their bilateral arrangements with Pacific island countries. The thrust of the OFP programme in the coming year will be to place observers aboard vessels of fleets for which observer data has so far been difficult to obtain, such as distant-water longline fleets of Korea and Taiwan. To facilitate this, the OFP will seek the cooperation of members to assist in placement of SPRTRAMP observers, whilst maintaining their integrity as strictly scientific observers who have no compliance role aboard their host vessels.

90. It was noted that the collection of size composition data in the port of Guam, and the monitoring of unloadings from Taiwanese longline vessels based out of Pago Pago, were the two most significant port sampling monitoring issues to be addressed during the coming year. Work looking at variations in length-frequency data collected from the offshore longline fleets in the region will continue in the coming year. This work should determine if modifications to the current sampling protocol is required.

91. There was some discussion on the coverage of observers in the region. It was noted that an estimated 200 full-time observers would be required to obtain five per cent coverage in the region. The lack of resources poses a problem, and it was suggested that the aims of the regional approach will be to look at representative coverage. It was noted that the US treaty observer programme currently achieve around twenty per cent coverage of US purse seine fleet, and compliance duties of the treaty observers consume only about 1-2% of their activities, which would leave most of their time for scientific data collection.

92. On the question of availability of observer data, it was noted that the observer data received from national programmes are confidential and require authorisation from the member country before it can be released to third parties. However, it was noted that summarised observer data would soon be available in the OFP port sampling and observer newsletter.

3.2 Biological research

93. A brief overview of the biological research activities conducted by the OFP was provided by Dr John Hampton, who referred the meeting to section 2 of Working Paper 2.

94. The project dealing with the age and growth of tropical tunas currently involves the reading of otolith samples taken from bigeye and yellowfin. This work commenced in June 1996 with the arrival of the SPRTRAMP Biological Technician. To date, about thirty yellowfin otolith samples have been embedded in resin, and twenty of these are now ready for examination under microscope. This technique of growth analysis also appears feasible for wahoo (*Acanthocybium solandri*) and will be used in the SPR TRAMP post-graduate studentship researching the biology and ecology of wahoo. During the coming year, it is expected that further otolith sampling will be undertaken by SPRTRAMP observers, and collaborative work with CSIRO (Hobart) will be undertaken to compare and validate results of otolith readings or to improve and simplify the technique.

95. Tissue samples were taken from bigeye in nine locations throughout the Pacific during late 1995 for the studies of stock structure in the Pacific Ocean. It is expected that results from the mtDNA analysis of these tissue samples and subsequent statistical analysis of these data will occur during coming months and comparisons to information from other sources, for example tagging data, will be done at this time.

96. Dr Patrick Lehodey then presented an overview of his recent work on environmental determinants of tuna fishery production in the western equatorial Pacific. Several additional data sets were incorporated into the model during the past year. To get the required resolution to sufficiently represent the general circulation (i.e. current patterns) of the Pacific Ocean, data from an ocean general circulation model (OGCM) was included in the model. The linear model of skipjack catch was improved to take into account different environmental parameters (i.e. sea temperature and salinity, depth of thermocline, depth of a limit oxygen value). Phytoplankton concentration data measured by satellite was also used in the model to represent primary production, and in determining

a “hypothetical secondary production”, which can be assumed to broadly encompass the range of potential skipjack prey items.

97. A general linear model (GLM) was used to seek the best relationship between skipjack catches and the following environmental parameters : sea surface temperature, sea surface salinity, the depth of the mixed layer, the depth of the 3.5 ml/l oxygen concentration, the average between these two depths, the phytoplankton pigment concentration and the “hypothetical secondary production”.

98. A validation of the model was performed by comparing predicted values and the log of actual catch data for the eastern Pacific Ocean, and then for the entire Pacific Ocean. The model explains the distributions of catches in the eastern and western Pacific, despite the large differences in environmental conditions between the two areas. These results seem to confirm that the distribution of suitable prey is a key factor that interacts with the temperature parameter to define “zones of well-being” where skipjack are abundant.

99. Future work in this area is expected to include the investigation of inter-annual variations (*El Nino-La Nina*), the possibility of incorporating near real-time environmental data into the model, and a closer working relationship with ORSTOM scientists in modelling of the lower trophic levels which would extend the application of the model to other tuna species.

3.3 Assessment and modelling

100. Dr John Hampton gave a brief overview of the assessment and modelling activities conducted by the OFP, referring the meeting to section 3 of Working Paper 2.

101. Considerable progress had been made on the development of tuna movement models during the past year. These include the development of an analysis of yellowfin tagging data using the movement model, the extension of the model area for both skipjack and yellowfin analyses to 110°E-150°W and 40°N-40°S, and the inclusion of a specific natural mortality coefficient for the Philippines region to allow for the relatively small fish (with apparently higher natural mortality rate) tagged in that area.

102. After discussions at the 1994 SCTB and WPYRG meetings, it was decided that the idea of tagging longline-caught yellowfin should be pursued for investigations on possible interaction between surface and longline fisheries. During the past year, attempts to tag yellowfin from commercial longliners were disappointing due to low catch rates of suitably sized fish. While some tagging from longliners might be undertaken in the future on an ad hoc basis, it does not seem that a designed tagging experiment of the scale necessary to shed light on the vulnerability question will be possible. However, the rapidly developing technology of archival tags could offer the best opportunity to investigate this question. There were noted problems to overcome, for example offering sufficient reward to ensure the recovery of archival tags, but it was acknowledged that the idea is merely a proposal at this stage and further investigation will continue.

103. During the first year of the development of an integrated model for yellowfin assessment, work has progressed in three areas : 1. Obtaining preliminary fits of a length-based model, MULITFAN CL, modified for South Pacific albacore (the SPARCLE model), to similarly structured yellowfin data; 2. Improving the computational efficiency of the software; and 3. Adding spatial structure, seasonally variable catchability, density-dependent growth and length-dependent selectivity to the model for application to yellowfin. The coming year will see a continuation of enhancing the model

and a goal to obtain, at least, a preliminary “best fit” to the yellowfin data, which can then be used to investigate relevant management questions. It is expected that the model and its application to western and central Pacific yellowfin will be fully documented in the coming year.

104. As noted in the presentation on the status of albacore stocks, there has been considerable progress with stock assessment work on this species during the past year. It is expected that further enhancements to the SPARCLE model will be undertaken in the coming year. These include testing more realistic parameterisations of natural mortality rate than are currently used, and incorporating various enhancements to the database, such as the addition of catch and length-frequency data not previously available.

105. During the past year, the Coral Sea tagging data were analysed in conjunction with local environmental and fisheries data, and a draft report produced in collaboration with CSIRO. The major results and conclusions of this work have been written up in a draft report that will be finalised in the coming year.

106. No National Fisheries Assessments (NFA) were completed during the past year due to the unavailability of funds to fill the vacant position devoted to the preparation of these assessments. However, summary reports on the tuna resources of Papua New Guinea and Fiji were prepared with the support of the South Pacific Project Facility (SPPF), to support tuna investment in tuna fishery development in those countries. With the recent appointment of a Fisheries Research Scientist dedicated to the production of NFAs, the outstanding country requests should be dealt with during the coming year. It was noted that it may be possible to incorporate the regional bioeconomic modelling work undertaken by the OFP into the National Fisheries Assessment in the future.

107. Considerable work on editing the tag-recapture database was performed during the past year. A significant achievement in the editing task was an improvement in the accuracy of recapture location for 2,195 (55%) of the returns. An OFP technical report providing a detailed summary of the tag-recapture database will be produced in the coming year. It was suggested that an FTP repository site could be established on the INTERNET to hold contributions of tagging data that would be accessible to collaborating agencies.

108. The project concerning bioeconomic modelling of western Pacific tuna fisheries contains two components of OFP involvement : the Solomon Islands Model, which involves the estimation of the optimal (profit maximising) levels of effort by domestic pole-and-line and purse seine fleets in the Solomon Islands; and, the Regional model, which involves the estimation of the optimal (access revenue maximizing) levels of effort by distant-water fishing nation purse seine, pole-and-line and longline fleets on a regional level.

109. The results of work on the Solomon Island model appear to indicate that profitability of the fishery could be increased by increasing purse seine effort over the average level that existed during the period July 1989 to October 1991. It was noted that this model could be applied to Papua New Guinea fisheries in terms of access for purse seine vessels rather than maximising profits for a domestic fleet (as in the Solomon Islands case). It was also noted that this type of analysis attempts to provide information on maximising profits which don't take into account the social aspects for retaining a pole-and-line fishery.

110. Dr Michel Bertignac presented an overview of his work on regional bioeconomic modelling. The first task of his work during the past year was to extend the model to include several species

(skipjack, yellowfin and bigeye). The second task was to incorporate environmental variables into the movement model. This involved incorporating an index of "favourable habitat" determined from the project on environmental determinants of the fishery production in the western Pacific, undertaken by Dr Lehodey, into the model. The results obtained from the model to date suggest that food availability and sea-surface temperature are two elements that are important in the description of skipjack distribution, and consequently, need to be incorporated in the simulation. Several different aspects of the model will be further investigated in the coming year.

3.4 Reporting and liaison

111. The meeting was referred to section 4 of Working Paper 2 for an overview of recent activities in this important service area.

3.5 SPR TRAMP

112. Dr Lewis provided a brief overview of the funding and staffing status of the *South Pacific Regional Tuna Resource Assessment and Monitoring Project* (SPR TRAMP). The project, now into the third of a five year life, is fully implemented and integrated into the OFP. With no Lomé IV funds beyond the year 2000, the project will definitely end in 1999. EU has approved the progress of the project to date.

113. There are currently 9 staff employed with the project, 2 senior scientists, a port sampling/observer supervisor, 4 scientific observers, a data research officer and a bio-technician. The project will provide funds for a post-graduate studentship (Master of Science) that has been offered to Iliavi Tuwai from Fiji. The work for this study will be undertaken jointly with the OFP and the University of South Pacific and will look at the biology and ecology of wahoo. A second studentship will be offered in the coming year.

4. OFP FINANCIAL AND STAFFING STATUS

114. Dr Lewis reported on the current financial and staffing status of the Oceanic Fisheries Programme, referring the meeting to Working Paper 5.

115. Donor contributions to the OFP for the current year (Year 15) were about 600,000 CFP units. However, with the large amount of funds provided for external projects, notably SPR TRAMP, the overall OFP budget is currently around US\$1.4 million. Year 15 began on October 1st 1995 with a carry-over surplus from Year 14 which has contributed to an optimistic outlook; additional funding for this period, made available from Australia, will be used to support the Fisheries Research Scientist (FRS) position, vacant for more than 18 months. It was noted that New Zealand was unable to contribute to the OFP for the first time since 1981, although this shortfall has been partly covered by short-term consultancies and the surplus that has been carried over for 2 years.

116. It was noted that only two of the four high-priority OFP activities are currently securely funded. With Year 16 beginning in October 1996, an additional 150,000-200,000 CFP units must be found to maintain existing activities. There was some concern over the medium to long term funding from the main traditional donors, Australia and France. It was noted that, while it may be possible to obtain funding support from one-off specific projects, there was no funding from the traditional

donors assured beyond 1999. It is hoped that the evolving management arrangements in the region may ultimately provide support for the services of the OFP.

117. OFP staff were now close to full complement, although two senior scientist positions continue to be unfilled. The current situation regarding SPC core funding for OFP positions was discussed. It was noted that, even though recommendations to CRGA through RTMF had been attempted in the past, previous management viewed the OFP as a high profile programme, which could more readily attract external funding in comparison to other SPC programmes. However, a team reviewing institutional management at SPC during recent months were surprised that the OFP had not one position under core funding, which indicated some hope for the future.

118. There was some concern expressed on the medium to long term funding of the OFP and the meeting strongly suggested that the two recommendations from SCTB8 be suitably updated and carried forward with strong endorsement to reflect the gravity of the situation. (see Recommendations 1 and 2 in Section IV).

5. INTERNATIONAL INITIATIVES RELATIVE TO OFP

5.1 *Technical consultation outcome*

119. Consideration of the outcome of the *Technical Consultation on the Collection and Exchange of Fisheries Data, Tuna Research and Stock Assessment*, held during the week previous to SCTB 9, was deferred to Agenda Item 6.

5.2 *Interim Scientific Committee on North Pacific Tuna and Tuna-like species*

120. Dr Gary Sakagawa provided a summary of the meeting of the Interim Scientific Committee (ISC) on North Pacific Tuna and Tuna-like species, held in Tokyo, Japan, during May 1996.

121. The ISC is currently set up under a semi-formal agreement (MOU) between Japan and the US with the purpose of enhancing scientific research of north Pacific stocks and working towards a process by which a management scheme would eventually be put in place. The meeting decided that four working groups should be established and action items developed during the next two years leading up to next meeting to be held in 1998; the proposed working groups (with leaders in parentheses) are Statistics (Japan), Swordfish (US), Bigeye (Japan) and Northern Bluefin (Japan). Group members, at this stage, include the Peoples Republic of China (PRC), Japan, Korea, Canada, Mexico, USA, I-ATTC and SPC. It was noted that ISC representation for several north Pacific island countries was not considered at this meeting, but may be considered in the future, in addition to the Philippines and Indonesia. The inclusion of Taiwan will necessarily require some future resolution regarding status. Until the situation with Taiwan is resolved, the established North Pacific Albacore Workshops will continue to be conducted in the usual manner. Marlin and yellowfin tuna would not be included in the work of the ISC, at this stage. Immediate future work of the ISC include sponsorship of the I-ATTC bigeye workshop, to be held in November, and sponsorship of the upcoming Swordfish Symposium, to be held in Honolulu early next year.

122. There was some concern expressed regarding the possible overlap of proposed stock areas for the ISC with other existing scientific groups (for example, the WPYRG). In particular, it was noted that there may be evidence of stock separation for bigeye between the east and west Pacific, but not so for the north and south, which appeared to be the division inferred by the ISC.

5.3 *Review of institutional arrangements in the marine sector*

123. Mr. Julian Dashwood provided a historical perspective of the Review of Regional Institutional Arrangements in the Marine Sector.

124. The review was first mooted in late 1992, but work did not commence until mid 1994. The first draft of the study was not available for review prior to presentation at the May 1995 FFC, and hence no comment was possible. Thereafter, the final report was available for review in August 1995 and was tabled at the CRGA/SPC conference convened in October 1995. Further review at the May 1996 FFC raised little comment.

125. It was noted that the recommendations from the review have now been largely overtaken by events on the international scene, primarily with the efforts towards establishing a regional management arrangement. The good working relationship that the OFP currently enjoys with the scientific sector of fishing nations was another reason cited for the need to keep scientific work (OFP) separate from management. Other arguments against the move were the existing high-level working relationship between SPC and FFA, the problem of catering for the US and French territories in any form of amalgamation, and problems with the current major donors of the OFP accepting any possible relocation to FFA.

126. It was noted that, under the current climate, the OFP would build a corporate identity of its own in the future.

6. FUTURE OF THE SCTB AND WPYRG

127. The meeting was asked to consider the future of the SCTB and WPYRG meetings, with reference to the outcome of the *Technical Consultation on the Collection and Exchange of Fisheries Data, Tuna Research and Stock Assessment*, held during the previous week. Dr Hampton presented the press release of the Technical Consultation (APPENDIX 1) to introduce this topic.

128. Participants were asked to give a brief overview of important issues relevant to the future of SCTB meetings. Comments and recommendations from this discussion would then be passed on to a sub-committee, formed to consider the format of future meetings.

129. The following are a summary of the significant points raised during this discussion.

- The current format of SCTB meetings was identified as a useful forum to (i) review the OFP from an administrative perspective, (ii) peer review the research work of the OFP, and (iii) enable useful exchange of information and allow interaction between fishing nations and coastal states. It was hoped that this basic formula would continue in the future.
- The amount of time allocated to the SCTB meetings has not been sufficient in the past, and it was suggested that a **thematic approach** to future meetings might be appropriate. In deciding the future format, it was suggested that the implementation seek to be proactive, ensure flexibility to facilitate any necessary change, and have the right mixture of formality and informality to encourage more open discussion.
- It was suggested that future SCTB meetings allow participation on an equal basis.

- It was suggested that some of the procedural matters could be streamlined, for example, the distribution of papers prior to the meeting might obviate the need to spend too much time on administrative matters during the meeting.
- There were several statements highlighting the need to minimize political input in the efforts towards the establishment of a regional scientific arrangement.

130. It was noted that a future regional management arrangement would influence the future of SCTB meetings, and that this should be an important consideration of the sub-committee in their deliberations. After further discussion, it was suggested that the OFP prepare a paper for SCTB 10 outlining requirements and procedures for the establishment of a Fisheries Statistics Working Group and working groups for albacore, skipjack, yellowfin and billfish (as described in Working Paper 4 of the Technical Consultation). This paper should take into consideration the likely effects on existing arrangements (e.g. SCTB, WPYRG and SPAR), and be aware of compromising scientific research, which was identified as the showcase of the programme and should be of primary concern.

131. The sub-committee members nominated to review the format of future SCTB meetings, and related issues, were Dr John Sibert, Dr Gary Sakagawa, Mr Sylvester Diake, Mr Bernard Thoulag and Dr Antony Lewis.

132. The question of funding for future participation at Standing Committee meetings was raised. It was noted that some funding had been provided in the past, but it has not been possible to provide funding for participants for the last 3 years. Best efforts to secure funding will continue as a priority, but there is no guarantee that funds will be available in the future. It was suggested that other sources of funds may be available to countries for future participation, for example, EDF and the provision of funds from the multilateral treaty.

7. REPORTS BY OTHER ORGANISATIONS

7.1 *Australian Institute of Marine Science*

133. Dr Dave McB Williams presented an overview of relevant activities performed by AIMS. He noted that only 2 of the 30 doctorate scientists currently working with AIMS are fish specialists, although he added that there is some expertise in billfish research. Two studies currently underway are, a preliminary study on black marlin interaction in the recreational fisheries, and a study looking at relationships between the tuna and billfish (based on catch data from Japanese longline vessels, 1954-1979) and physical oceanographic data, for an area in the Indian Ocean bounded by 0°-35°S and 100°-135°E. For the latter study, it is hoped that similar comparative research will be done for the Coral Sea area in the future.

7.2 *Food and Agriculture Organization of the United Nations*

134. Dr Jacek Majkowski outlined FAO's activities of relevance to SCTB. He noted that the Proceedings of the 2nd FAO Expert Consultation on Interactions of Pacific Tuna Fisheries and the Atlas of Pacific Commercial Catches of Tunas, Billfishes and Swordfish will be published by FAO this year. Also, this year, FAO will be involved in the organisation of the First Meeting of the Indian Ocean Tuna Commission and the World Meeting on Bigeye Tuna. Pointing out that information on tuna and tuna-like species will be an integral part of FAO's digital atlas, he mentioned that input

information for the atlas is now being collated. He indicated also that FAO would be pleased to collaborate, with tuna research institutions, in the organisation of (i) an Expert Consultation on Technical Aspects of the Precautionary Approach to Tuna Fisheries, and (ii) the World Meeting on Tunas, which were recommended by the ICCAT Tuna Symposium to be held in 1988 and 2000.

7.3 *Forum Fisheries Agency*

135. Mr Karl Staisch provided a brief overview of the US Multilateral Treaty Observer Programme. He noted that 32 of the 45 US purse seine vessels active during the previous licencing period were covered at one stage or another. A total of 2,286 days were spent on vessels during the year and data collected for 1,925 fishing days with an average of about 50 days per trip (range 10-97 days). FFA and SPC have also been involved in the development of national observer programmes. Observer training workshops were conducted in Kiribati, Palau and PNG during the past year, and a further workshop is proposed for November 1996.

136. There was some concern expressed as to whether observers should be concentrating on the collection of size measurements on purse seine vessels or dedicating more time to quantifying by-catch and discards in the set. It was noted that port sampling was probably more cost effective for collecting size data, but a definitive answer on the future data collection protocol for observers was deferred until further research into this area has concluded.

7.4 *Inter-American Tropical Tuna Commission (I-ATTC)*

137. Dr Robin Allen gave a brief presentation on the activities of the I-ATTC, referring the meeting to a paper presented in the Technical Consultation on the Collection and Exchange of Fisheries Data, Tuna Research and Stock Assessment, held in Noumea during the previous week.

138. He noted that the 100% observer coverage, in association with the international dolphin conservation programme (IDCP), had provided substantial data for biological and stock assessment work undertaken by the Commission. For example, data collected by observers have been used in the quantification of purse seine by-catch and feeding studies of large predators. OFCF funding was secured to extend the research facility in Panama, which can now hold large yellowfin for reproductive biological research.

139. The member countries were endeavouring to implement two declarations from a meeting held in October 1995. If successful, this would provide a legally binding basis for the IDCP and lead to a revised convention for the IATTC which would incorporate the principles of the Law of the Sea, as reflected in UNCLOS, and be consistent with the UN Implementing Agreement.

7.5 *Pelagic Fisheries Research Program, University of Hawaii*

140. Dr John Sibert provided a brief overview of the current activities of the Pelagic Fisheries Research Program of the University of Hawaii. As an introduction, he noted that the Program provided the Western Pacific Fisheries Management Council (WPFMC) with information to formulate management policy for the four U.S. Pacific states/territories (Hawaii, Northern Marianas, Guam and American Samoa); the work of the Program is also complimentary to the work of Honolulu Laboratory of the National Marine Fisheries Service (NMFS).

141. Since 1993, the Program has undertaken 35 projects on various subjects of biological, modelling, economics and socio-economic studies. It is planned that new solicitation for research proposals will occur towards the end of this year. In November 1995, the program hosted a symposium in Hawaii and is expected to hold another during November 1997.

142. In response to a question regarding the establishment of a post-graduate course in Tropical Marine Science with the University of Hawaii, Dr Sibert indicated that this was still on-line, but was progressing slowly through the system.

8. OTHER BUSINESS

143. Dr Chi-lu Sun reminded participants of the ICCAT albacore workshop to be held in Taipei during November 1996, and extended an invitation to all interested parties.

III. REVIEW OF SCTB8 RECOMMENDATIONS AND ACTION ITEMS

RECOMMENDATION 1

SCTB urged the OFP to continue efforts to secure a long term funding base for the program.

It was noted that funding of any kind could not be assured beyond 1999. This recommendation remains high priority.

RECOMMENDATION 2

The OFP should secure, as a priority, funding support for those activities identified as high priority, but not currently funded.

The SCTB8 subcommittee on prioritisation identified four Level 1 priority (i.e. high-priority) activities (page 27 of the Report of the Eight Meeting of the Standing Committee on Tuna and Billfish). It was noted that only two of these high-priority activities are currently funded, and efforts to secure funding continue.

ACTION ITEM 1

The OFP seek authority from sources of non-public domain data held at SPC to release tuna fishery catch and effort data, broken down by fleet (i.e. fishing nation and gear type, such as Japanese purse seine), but aggregated over all vessels within a fleet and by 5° latitude and 5° longitude and month, to qualified scientists for research purposes, at the discretion of the OFP.

During the past year, the OFP requested authorisation for release of the specified data from all sources of non-public domain data held at SPC. Sixteen responses were received out of a total of 19 requests; 14 responses were favourable, while two responses, from Japan and New Zealand, were unfavourable. However, data from Japan and New Zealand can still be released with authorisation from these sources. Table 1.1 of Working Paper 2 provides a summary of the responses to the request for authorisation to release the specified data.

ACTION ITEM 2

The OFP, where possible, include a species breakdown of by-catch in the SPC Tuna Fishery Yearbook tables beyond the current "other species" category.

The inclusion of species breakdown of by-catch in the SPC Tuna Fishery Yearbook tables was not attempted during the past year, as there remains insufficient by-catch data to determine estimates at the species level. For purse seine, the logbook reporting of by-catch is poor and the observer coverage of by-catch is inadequate for all fleets. For pole-and-line vessels, it is known that the by-catch level is low. For longline, the logbook coverage of the distant-water fleets in the SPC statistical area are lacking, and for the offshore longline fleets, there have been some problems with by-catch species identification.

As there is not expected to be any improvement in the logbook coverage of by-catch in the near future, it was suggested that this action item be modified to make use of observer data in providing indications of the level of by-catch.

ACTION ITEM 3

The OFP add summary tables of catches by year and species (including percentages) and catches by year and gear to the SPC Tuna Fishery Yearbook.

These tables have been added to the SPC Tuna Fishery Yearbook.

ACTION ITEM 4

Given the pressing need for an update of albacore resource and data issues, the OFP convene a SPAR meeting as early as possible in 1996.

The *Sixth South Pacific Albacore Research Workshop* was held in Rarotonga, Cook Islands, 5-7 March, 1996. Issues raised during presentations and discussions are contained in the report of the meeting, available from the OFP.

ACTION ITEM 5

The OFP develop formal agreements with fishery nations for the placement of SPR TRAMP Observers.

Some attempts have been made to contact distant-water fishery nations directly for scientific observer placements, but distant-water fishing nations remain reluctant to accept observers, other than through their bilateral arrangements with Pacific island countries. During the coming year, efforts to address these problems will be attempted through the coordination of observer placement with the Pacific island countries. It was noted that the scientific structure of a future regional fisheries management organisation or arrangement would address this matter.

ACTION ITEM 6

The OFP publish its review of by-catch and discards in western Pacific tuna fisheries as an OFP Technical Report.

The review of by-catch and discards in the western Pacific tuna fisheries is currently undergoing final editorial work and is expected to be available as a Technical Report in October 1996.

IV. SCTB9 RECOMMENDATIONS

RECOMMENDATION 1

SCTB 9 urged the OFP to continue efforts to secure stable funding for the program. SPC core-funding for critical positions within the OFP would provide considerable assistance in this regard.

RECOMMENDATION 2

The OFP should secure, as a priority, funding support for those activities previously identified as high priority, but not currently guaranteed funding. Maintenance of the catch/effort database and statistical monitoring has been identified as one such broad activity, for which funding is not guaranteed.

V. SCTB9 ACTION ITEMS

ACTION ITEM 1

The OFP prepare a working paper for SCTB10 regarding the establishment of a Fisheries Statistics Working Group and working groups for albacore, bigeye, skipjack, yellowfin and billfish. In this review, consideration should be given to how existing arrangements (e.g. WPYRG, SPAR) might be affected by the proposed structure.

ACTION ITEM 2

The sub-committee established by SCTB8 to review the format of future SCTB meetings should present its conclusions to SCTB10. In so doing, it should consider the background paper prepared under Action Item 1, as well as the following issues raised during SCTB9:

- the possible advantages of a thematic approach;
- the need to circulate papers in advance;
- the relevance of the current SCTB terms of reference, which were established in 1988;
- consider participation on an equal basis;
- the possibility of conducting some of the current SCTB agenda in other fora; and
- the need to discuss national research initiatives undertaken by fishing nations and coastal states

ACTION ITEM 3

The OFP present a summary of species by-catch data collected by observers at the next SCTB. This summary should include the level of coverage for the observer data and consider variations in by-catch by fleet, area and time period.

ACTION ITEM 4

Given the significance of by-catch issues, it was suggested that the OFP should prepare a strategic and operational plan for selectively monitoring by-catch and circulate this prior to the SCTB 10.

ACTION ITEM 5

The national fishery reports presented to SCTB9 were considered an increasingly valuable source of information. Future national fishery reports should consider the following points:

- national fishery reports by SPC members should give highest priority to information concerning their domestic fleets, including the total number of vessels active in each fleet, and the total catch, by species, of each fleet;
- national fishery reports for distant-water fleets should present information concerning the activities of their fleets within the SPC statistical area, with additional information for the Pacific Ocean beyond the SPC statistical area, where appropriate;
- all national fishery reports should include information on catches of billfish and other by-catch species; and,
- where possible, national fishery reports should include tuna fishery statistics for the past five years.

ACTION ITEM 6

The economic review of tuna industry development, prepared by FFA, should include trend analyses, within a 5 year time frame, for SCTB10.

ACTION ITEM 7

The OFP should be prepared to respond to requests for tuna resource assessments at a national level, providing adequate resources are available. Such assessments might include standing biomass and throughput estimates, where this is possible.

VI. LIST OF PAPERS

WORKING PAPERS

- WP 1 Report of the Eight Meeting of the Standing Committee on Tuna and Billfish
- WP 2 OFP Work Programme Review, 1995-96, and Work Plan, 1996-97
- WP 3 Status of stocks in the western and central Pacific Ocean
- WP 4 OFP Financial and Staffing Status
- WP 5 Economic Overview of Tuna Industry Developments

INFORMATION PAPERS

- INF 1* Draft of the SPC Tuna Fishery Yearbook, 1995
 - INF 2* OFP Data Catalogue
 - INF 3 Regional Tuna Tagging Project : Tagging Summary, April 1995 - July 1996
 - INF 4 Preliminary Analyses of South Pacific Albacore catch, effort and length-frequency data, using Age-structured, length-based model with spatial structure.
- * (Papers presented at the SPC/FFA Technical Consultation on the Collection and Exchange of Fisheries Data, Research and Stock Assessment, Noumea, New Caledonia, 15-19 July 1996)

BACKGROUND PAPERS

1. Tuna and Billfish of the North-Eastern Australian Fishing Zone
2. National Fisheries Report - Cook Islands
3. Summary of the Federated States of Micronesia Tuna Fishery
4. Tuna Industry of Fiji
5. Fisheries in French Polynesia
6. Japanese Tuna Fisheries in the Western Pacific Ocean in 1995
7. Korean Tuna Fisheries in the Western Pacific Ocean
8. New Caledonian Tuna Fisheries in 1995
9. Papua New Guinea National Fisheries Report
10. National Report of Taiwan/ROC
11. Tonga Tuna Fishing Industry
12. U.S. Fisheries Catching Tropical Tunas in the Central-Western Pacific Ocean, 1994-1995

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APPENDIX 1***Technical Consultation on the Collection and Exchange of Fisheries Data, Tuna Research and Stock Assessment***

Noumea, New Caledonia, 15-19 July 1996

PRESS RELEASE

Representatives from 17 Pacific island countries and territories and the four major distant-water fishing nations in the region met in Noumea, New Caledonia 15-19 July at a Technical Consultation on the Collection and Exchange of Fisheries Data, Tuna Research and Stock Assessment.

The Consultation was called to progress scientific arrangements to support the conservation and management of the tuna resources of the Western and Central Pacific Region. Since over 60% of the world's tuna resources are caught in our region, achieving this goal is of global significance. These same resources are a vital source of food for island countries, and represent the only major renewable resource available to support their economic development.

Overall, the Consultation was a very useful first step in the important process of establishing scientific arrangements supporting the conservation and management of tuna stocks of the Western and Central Pacific. Details as to the nature and organisation of such arrangements have been specified by the recently agreed United Nations Implementing Agreement in Straddling Fish Stocks and Highly Migratory Fish Stocks. This Agreement, in which the region played a major role, clearly defines how coastal states and distant water fishing nations are required to cooperate in the conservation and management of tuna and other fish stocks.

Agreement was reached on the broad principles governing the collection and exchange of fisheries data, scientific cooperation in tuna stock assessment and research. This cooperation will bring together scientists from coastal states, distant water fishing nations, and the Oceanic Fisheries Programme of the South Pacific Commission, (Noumea, New Caledonia). Particular reference was made of the need for assistance from developed countries to enhance opportunities for the participation of Pacific island states in all aspects of tuna research.

The work of SPC during the last 20 years as the main provider of scientific advice on tuna to the regions was acknowledged during the consultation. It was agreed that this accumulated experience and expertise would be utilised as an key component in any future scientific arrangements.

The consultations in Noumea are part of the ongoing dialogue amongst all parties to develop and agree on the most appropriate conservation and management measures for the region's vital tuna stocks.

The issue of the provision of scientific advice to support future management measures is likely to be on the agenda of the Multilateral High Level Conference on the Conservation and Management of the Tuna Stocks of the Central and Western Pacific, proposed to be held in 1997.

Friday 26th July 1996