

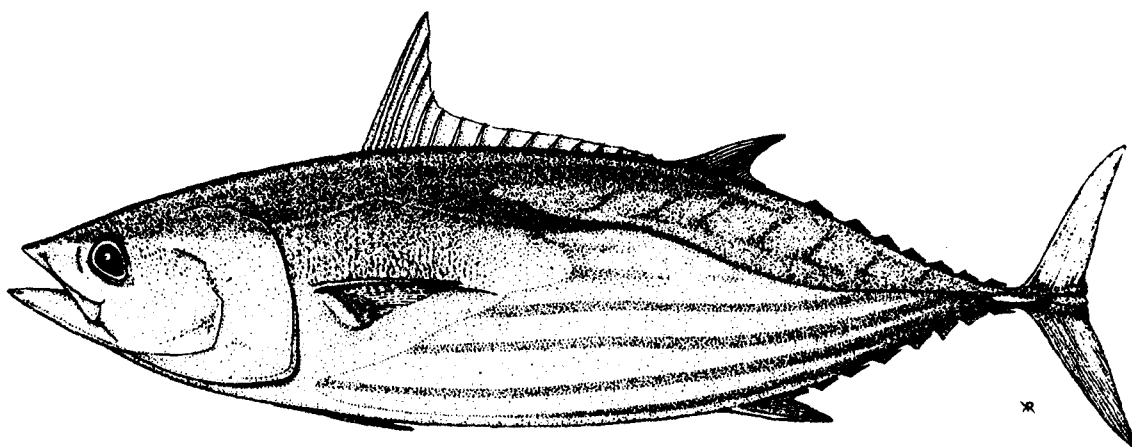
**TECHNICAL CONSULTATION ON THE COLLECTION AND EXCHANGE
OF FISHERIES DATA, TUNA RESEARCH AND STOCK ASSESSMENT**

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WORKING PAPER 2

REVIEW OF DATA HELD BY THE SPC OCEANIC FISHERIES PROGRAMME

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Introduction

The tuna fisheries in the western and central Pacific Ocean are characterised by their diversity in target species, gear types, fishing nations and coastal states. The area accounts for roughly half of the world catch of the four primary commercial species of tuna (albacore, bigeye, skipjack and yellowfin); the catch during 1994 was 1.3 million mt.

The Oceanic Fisheries Programme (OFP) of the South Pacific Commission (SPC) and the OFP's precursor, the Skipjack Survey and Assessment Programme (SSAP), have been responsible for the collection of tuna fisheries data in the SPC region since the SSAP was established in 1977. Several types of data have been collected, including annual catch statistics for each fleet, catch and effort logsheet data, landings data, port sampling data (including length-frequency and species composition data) and observer data (including detailed information on fishing effort, length-frequency, species composition, by-catches and discards, and other biological data). The OFP also holds extensive tagging data, most of which were collected from 1977 to 1980, during the SSAP, and from 1989 to 1992, during the Regional Tuna Tagging Project (RTTP). Other types of data held by the OFP include the regional register of fishing vessels, which is maintained by the Forum Fisheries Agency (FFA), and oceanographic data.

The annual catch statistics compiled by the OFP are routinely published in the SPC Tuna Fishery Yearbook; the draft of the 1995 edition of the Yearbook, which contains historical as well as current statistics, is presented as Information Paper 1.

Tables 1–5 list the catch and effort logsheet data held by the OFP, as well as the landings data, port sampling data and observer data, summarised by fleet. More detailed information on these types of data (including the number of data records for each fleet, stratified by source of data and by year) can be found in the OFP Data Catalogue (Information Paper 2).

Annual Catch Statistics

The annual catch statistics published in the SPC Tuna Fishery Yearbook are obtained from four main sources. First, the statistics for several fleets, including the foreign offshore longline fleets and the domestic fleets of certain SPC members, are compiled from logsheet data and landings data for individual vessels held by the OFP. Second, historical statistics for certain distant-water fleets are determined from logsheet data aggregated over vessels and by time and area, which have been provided to the OFP by the distant-water fishing nations. Third, the statistics for several fleets which are not adequately covered by logsheet and landings data held by the OFP, are obtained directly from the governments of the fishing nations. Fourth, when catch statistics are not available from government sources, they are obtained from industry sources.

The difficulties encountered when compiling the annual catch statistics can be summarised as follows:

- Preliminary estimates for the most recent year are not available from certain distant-water fishing nations, because those government agencies have not established data collection or data processing procedures to allow them to do so. For these fleets, the logsheet and landings data held by the OFP are incomplete, either because fishing on the high seas is not reported under bilateral access agreements, or because of the time lag between fishing and the receipt of logsheets by the OFP; therefore, logsheet and landings data for these fleets cannot be used to estimate the catch in the most recent year. This problem exists for the Japanese, Korean and

Taiwanese distant-water longline fleets, the Japanese pole-and-line fleet, and the Korean purse-seine fleet. Although near real-time catch statistics and landings data are held by longline fishing companies, the number of vessels and companies is large; therefore, the problems with the collection and processing of near real-time catch and landings data for the distant-water longline and pole-and-line fleets are considerable. On the other hand, if data collection procedures are introduced effectively, in any fishery, they soon become routine. For example, such procedures for near real-time monitoring of vessels targeting southern bluefin have been implemented by the Fisheries Agency of Japan. It should be noted that preliminary estimates of annual catches have been regularly provided to the OFP for the Japanese and Taiwanese purse-seine fleets by National Taiwan University and the Fisheries Agency of Japan respectively.

- Catch statistics for certain recently-introduced domestic fleets of SPC members are not available because the government agencies have not yet implemented effective procedures for logsheet and landings data collection. This problem exists for the purse-seine fleet of the Federated States of Micronesia, the Kiribati purse seiner, the Marshall Islands longline fleet, the Palauan pole-and-line vessel, the Papua New Guinea longline and purse-seine fleets, the Tongan longline fleet, and the Vanuatu purse-seine fleet
- The OFP has not received any data from New Zealand for several years, either annual catches or logsheet data; this has largely been due to the restructuring of the former Ministry of Agriculture and Fisheries, which gave rise to the new Ministry of Fisheries. The OFP has made an official request for estimates of annual catches and logsheet data to the new Ministry, and it is expected that the backlog of data will be provided to the OFP in due course.
- The problems in obtaining annual catch statistics for the Russian purse-seine fleet and the domestic fisheries of Indonesia are essentially problems of communications. It would appear that neither fax nor telephone can be relied upon. While recent catch statistics for Russia and Indonesia have not yet been obtained, it is expected that they will eventually be provided, once the requests from the OFP have been conveyed.
- While most of the historical catch estimates in the Yearbook are reliable, the statistics for the Taiwanese purse-seine fleet from 1983 to 1991 were estimated by the OFP, by assuming, for lack of more precise information, that each vessel active caught 4,000 mt annually. The catch by this fleet increased to approximately 176,000 mt in 1991, which represents 17 per cent of the catch in the SPC statistical area in that year. It is therefore important that the crude statistics currently published in the Yearbook for 1983–1991 be replaced with more reliable estimates, which might possibly be obtained from industry.
- The annual catch statistics in the Yearbook for the Taiwanese distant-water longline fleet have been determined from logsheet data aggregated by 5° x 5° by month, provided to the OFP by National Taiwan University (NTU). These data have been published by NTU as *raised* catch data, i.e. as representing the total catch or effort within sub-areas, rather than just the sum of the available logsheet data, which may not be complete. However, it appears that there are considerable differences between the annual catch estimates determined from the 5x5 data and those determined from landings data. A scientist from NTU stated at the Sixth Meeting of the South Pacific Albacore Research Group, held in March 1996, that the 5x5 catch data were reliable only in a relative sense among sub-areas, rather than in an absolute sense, and that the landings data were more reliable in an absolute sense.

Catch and Effort Logsheet Data

Two types of catch and effort logsheet data are held by the OFP. First, SPC member countries and territories provide 'raw' catch and effort logsheet data to the OFP, i.e. catch and effort data for individual vessels at an operational level (each set for longline and purse-seine, each day fished for pole-and-line and troll). Second, certain distant-water fishing nations provide logsheet data aggregated over vessels and by time and area ($5^{\circ} \times 5^{\circ}$ for longline and troll, $1^{\circ} \times 1^{\circ}$ for pole-and-line and purse seine). The following points should be noted:

Raw logsheet data

- While most fleets currently active are covered by at least some raw logsheet data held by the OFP, the coverage varies considerably. Fleets of SPC member countries and territories for which the coverage of raw logsheet data are poor include the longline fleets of the Marshall Islands, New Caledonia, Papua New Guinea, Tonga and Vanuatu, the pole-and-line fleets of Kiribati and Palau, and the purse-seine fleets of Kiribati, Papua New Guinea, the Philippines, Russia and Vanuatu. As discussed in the previous section, logsheet data for the domestic fleets of New Zealand have not been provided for several years; however, these data have been requested of the new Ministry of Fisheries and should be obtained in due course.
- The raw logsheet data collected by SPC members under bilateral access agreements, and provided to the OFP, for the Korean and Taiwanese purse-seine fleets, exhibit high coverage of fishing activities in international waters. Under the terms of the United States multilateral treaty, the raw logsheet data for the American purse-seine fleet also cover international waters. On the other hand, the raw logsheet data provided to SPC members covering the Japanese longline, pole-and-line and purse-seine fleets, the Korean longline fleet and the Taiwanese distant-water longline fleet, exhibit no coverage, or poor coverage, of international waters. No raw logsheet data for the American troll fleet are held by the OFP.

Aggregated logsheet data from distant-water fishing nations

- No aggregated logsheet data covering the purse-seine fleets of Korea, the Philippines, Russia and Taiwan have been provided to the OFP by the governments of those fishing nations. Logsheet data for the Korean purse-seine fleet since the start of the fishery in 1980 are held by the National Fisheries Research and Development Agency of Korea. It would appear that logsheet data for the Philippines purse-seine fleet are not collected by the Philippines government. It is not known for which years purse-seine logsheet data are held by Russian and Taiwanese agencies. (The OFP holds raw logsheet data for the Korean, Philippines and Taiwanese purse-seine fleets, and a small amount of data for Russian purse seiners, provided by SPC members, but prior to 1992 for the Taiwanese purse-seine fleet and 1993 for the Korean purse-seine fleet, the raw logsheet data held by the OFP suffer from either non-reporting or under-reporting or both; the coverage of raw logsheet data for the Philippines and Russian purse-seine fleets held by the OFP continues to be poor.) No aggregated logsheet data covering the offshore longline fleets of China and Taiwan have been provided of the OFP, although the coverage and quality of the raw logsheet data for these fleets provided by SPC members have been high.
- The logsheet data aggregated by time-area strata provided to the OFP cover international waters. The aggregated data covering the Japanese longline and purse-seine fleets are raised to approximate total catch and effort within time-area strata, whereas the aggregated logsheet data covering the Korean longline fleet, the Japanese pole-and-line fleet, and the American troll fleet, are unraised. As discussed in the previous section, the aggregated logsheet data covering the

Taiwanese distant-water longline fleet are reportedly raised; however, there are large discrepancies between total catches determined from the aggregated logsheet data and those determined from landings data.

- Aggregated logsheet data provided by distant-water fishing nations for longline and pole-and-line fleets are usually provided to the OFP after a lag of two years from the time of fishing. In contrast, aggregated logsheet data for the Japanese purse-seine fleet for 1994 were provided with a lag of only six months.

Landings Data and Port Sampling Data

Since the early 1990s, the OFP has assisted with the implementation of programmes in SPC member countries and territories to collect information on the amounts landed by individual vessels and to conduct sampling of the landings. The OFP has provided technical and/or financial support for, and has obtained landings and/or port sampling data from, programmes in Koror (Palau); Guam; Yap, Chuuk, Pohnpei and Kosrae (Federated States of Micronesia); Majuro (Marshall Islands); Tarawa and Kiritimati (Kiribati); Kavieng, Madang, Rabaul and Wewak (Papua New Guinea); Honiara, Noro and Tulagi (Solomon Islands); Noumea (New Caledonia); Levuka and Suva (Fiji); Nuku'alofa (Tonga), and Papeete (French Polynesia). These programmes cover almost all fleets which unload in the SPC region. Landings and length-frequency data obtained primarily in Pago Pago (American Samoa) for the American purse-seine fleet under the multilateral treaty have been provided to the OFP by FFA and the National Marine Fisheries Service of the United States.

The following points should be noted:

- All Japanese pole-and-line vessels and purse-seiners, and most longliners, unload in ports outside the SPC region, except for a small number of longliners which unload at Kiritimati (Kiribati). As a result, no landings data, nor length-frequency data from port sampling, are held by the OFP for these vessels. It would appear that landings data are not used by the Fisheries Agency of Japan to verify catch and effort logsheet data on a regular basis. Length-frequency data for the Japanese fleets are held by the Fisheries Agency, but these data have not been provided to the OFP, except for some albacore length-frequency data which were provided for a specific research project.
- Similarly, most Korean longliners and many Taiwanese distant-water longliners unload in ports outside the SPC region. Therefore, for these vessels, only landings data and port sampling data from Levuka (Fiji), Pago Pago (American Samoa) and Papeete (French Polynesia) are held by the OFP.

Observer Data

The OFP holds observer data from the United States multilateral treaty observer programme, which is managed by FFA, and the observer programmes of the Micronesian Maritime Authority, the Marshall Islands Marine Resources Authority, the *Service des affaires maritimes, de la marine marchande et des pêches maritimes* of New Caledonia, the Palau Maritime Authority, the National Fisheries Authority of Papua New Guinea, and the Solomon Islands Fisheries Division.

Since the implementation of the observer programme of the South Pacific Regional Tuna Resource Assessment and Monitoring Project (SPRTRAMP) in February 1995, the OFP has collected observer data from four scientific observers employed under the project.

While the OFP holds data collected during observer trips on the vessels of many fleets active in the region, few observer data for the Japanese distant-water longline fleet, and no data for the Korean and Taiwanese distant-water longline fleets, are held by the OFP. It is particularly important to cover these fleets by observers in order to monitor bycatches and discards. The placement of observers on these vessels, which is usually a condition of licensing under bilateral access agreements, is complicated due to the fact that the vessels usually fish in more than one Exclusive Economic Zone during a single trip and because the vessels can spend months at sea. In spite of these problems, the OFP hopes to place an observer on a Taiwanese distant-water longliner based in Levuka in the near future.

Tagging Data

Tables 3–5 of the OFP Data Catalogue (Information Paper 2) list the number of tag releases and recaptures for individual cruises of the Skipjack Survey and Assessment Programme, the Regional Tuna Tagging Project and several in-country tuna tagging projects conducted by the OFP. The OFP also holds albacore tagging data provided by the former New Zealand Ministry of Agriculture and Fisheries, the United States National Marine Fisheries Service and the New South Wales Fisheries Research Institute. In addition to tag release and recapture data, extensive holdings of biological data (e.g. stomach contents, sex and maturity stage data, length data, blood and tissue samples for genetic analysis, morphometric data) have also been collected during the SPC tagging programmes.

Oceanographic Data

The various sets of oceanographic data held by the OFP include the following:

- World Ocean Atlas 1994, CD-ROM data sets, National Oceanographic Data Center, Ocean Climate Laboratory, NOAA: Temperature, salinity, oxygen and nutrients (phosphate, nitrate, silicate) data for surface and different depth levels. Data are monthly or seasonal climatological series with a resolution of one or five degrees square.
- Jet Propulsion Laboratory/NASA: Monthly mean distributions of satellite-derived sea surface temperature and phytoplankton pigment concentration (Nimbus-7 CZCS: 1978-1986); monthly climatological and real-time series.
- TOGA CD-ROM package, Jet Propulsion Laboratory, Physical Oceanography Distributed Active Archive Center: A set of six CD-ROM containing in situ and numerical model data for the years 1985 through 1990, including temperature, sea level, drifting buoy data, wind pseudo-stress, precipitation estimates and cloud products.
- ORSTOM XBT database: Temperature profiles; data until 1990 are included in the TOGA CD-ROM.
- Ocean General Circulation Model, NOAA: Monthly series (1982-1995) for temperature, salinity and oceanic currents for surface and 27 depths levels; data available on anonymous ftp ([nic.fb4.noaa.gov](ftp://nic.fb4.noaa.gov) in directory `pub/ocean/clim2/ra4`).
- Ocean General Circulation Model OPA7, LODYC, CNRS—ORSTOM—Université P. et M. Curie.
- Monthly climatological series for depth of mixed-layer and oceanic currents (limited access).

Vessel Attributes

The OFP holds the FFA regional register of fishing vessels, which contains information on all vessels licensed to fish in the region. Attributes common to all gear types include gross registered tonnage, engine power, and crew size. The longline vessel attributes included in the register include length of mainline, type of mainline, and the presence of a line-shooter. The pole-and-line vessel attributes include the presence of bird radar, bait well capacity, the presence of automatic polers, and rated vessel speed. The purse-seine vessel attributes include net dimensions, power block net pull, purse winch bare drum line pull, the presence of bird radar, the presence of a Doppler current meter, helicopter model, and rated vessel speed.

Data Verification

Verification of raw logsheet data provided to the OFP by SPC members is possible with the landings data and port sampling data collected in ports throughout the SPC region. The OFP has provided summaries of logsheet and landings data to SPC members, for individual vessels, which indicate gaps in the time series of both types of data, and which compare the total catches reported on logsheets to the totals landed.

The OFP is currently implementing a data retrieval system which will allow the catches and species composition reported on logsheet data to be automatically corrected with landings data and port sampling data. The retrieval system for 'corrected' data will be integrated with various OFP applications, such as the SPC Regional Tuna Bulletin.

The observer data held by the OFP contains information on bycatches and discards. However, coverage of observer data for all fleets, except the American purse-seine fleet, is poor at present. With increased coverage, it may be possible to determine reliable estimates of average rates of bycatch and discards, on a fleet-wide basis, which could then be used to adjust estimates of annual catches for each fleet, and perhaps even raw logsheet catch data.

In due course, the use of vessel monitoring systems, such as Inmarsat and Argos, will become more widespread in the region. The data collected through these systems can be used to verify the positions reported on logsheets, at least to a moderate level of accuracy. At present, no Inmarsat or Argos data are held by the OFP.

Release of Catch and Effort Data Held by the OFP

Until recently, the procedure followed by the OFP for releasing aggregated catch and effort data, wherein the OFP was required to obtain authorisation from the sources of the data before any aggregated data could be released, was time-consuming and inconvenient to the scientists who requested data from the OFP. Following a recommendation made at the Eighth Meeting of the Standing Committee on Tuna and Billfish, held at SPC headquarters from 16 to 18 August 1995, the OFP requested authorisation from all sources of catch and effort data held by the OFP to release catch and effort data, aggregated by time-area strata, to scientists external to the OFP, for research purposes, at the discretion of the OFP.

The responses to the request for authorisation to release data at the discretion of the OFP are summarised in Table 6. Sixteen responses have been received out of a total of 19 requests; 14 responses were favorable to the request from the OFP, while two responses, from Japan and New Zealand, were unfavorable. The authorisation received from the 14 countries which responded

favorably will streamline considerably the release of aggregated catch and effort data to external scientists.

Conclusion

Of the several types of data held by the OFP, the most important, insofar as it is used for a wide range of statistical and research purposes by the OFP, is the raw logsheet database. The raw logsheet database is extensive; in April 1996, it contained 1.68 million records of fishing operations covering 5,832 tuna fishing vessels, during the period from 1970 to the present. The OFP has maintained this database with full respect for the confidentiality of the data. As a guiding principle, only catch and effort data aggregated over vessels and by time-area strata are released to external scientists, and only for research purposes.

The coverage by raw catch and effort logsheet data held by the OFP is generally good, except for certain distant-water fleets for which raw logsheet data covering international waters are not available. The coverage rate for raw logsheet data held at SPC, for the SPC statistical area for 1994, is 79 per cent (58 per cent for longline, 58 per cent for pole-and-line, 85 per cent for purse seine, 0 per cent for troll). With the addition of the data for certain distant-water fleets covering international waters, and data for certain of the recently-developed domestic fleets of SPC members, the raw logsheet data held by the OFP will be relatively complete for the western and central Pacific Ocean.

Table 1. Driftnet data held by the SPC Oceanic Fisheries Programme.

FISHING NATION	PERIOD WHEN FISHERY ACTIVE	SOURCE OF DATA	CATCH AND EFFORT LOGSHEET DATA			LANDINGS DATA	PORT SAMPLING	OBSERVER DATA
			STRAT	HIGH SEAS	YEARS COVERED	YEARS COVERED	YEARS COVERED	YEARS COVERED
JAPAN	1982-1990	JFA	5X5	YES	1983-1990	—	—	1988-1990
		SPC	—	—	—	—	1989	—
TAIWAN	1987-1991	NTU	5X5	YES	1988-1989	—	—	—

Notes to Tables 1-5:

The source of data is listed as 'SPC' for all sources which are SPC member countries and territories, except the United States of America; otherwise the sources of data are as follows:

- the American Tunaboat Association (ATA);
- the Bureau of Fisheries and Aquatic Resources of the Philippines (BFAR);
- the Department of Fisheries and Oceans of Canada (DFO);
- the Fisheries Agency of Japan (JFA);
- the Forum Fisheries Agency (FFA);
- the National Fisheries Research and Development Agency of Korea (NFRDA);
- the National Marine Fisheries Service of the United States (NMFS);
- National Taiwan University (NTU);
- the Pacific Research Institute of Fisheries and Oceanography of Russia (TINRO);
- the Pacific Tuna Development Foundation of the United States (PTDF); and
- the Research Institute for Marine Fisheries of Indonesia (RIMF).

The codes for the time-area stratification of catch and logsheet data (STRAT) are as follows

- time and position of individual sets (SET);
- noon position for a day fished or searched (DAY);
- 1° latitude by 1° longitude by month (1X1); and
- 5° latitude by 5° longitude by month (5X5).

Categories for which no data are held by the SPC Oceanic Fisheries Programme are noted with '—'. Categories which are not applicable — for example, whether high seas data are held by the OFP (HIGH SEAS), when the fishery is not active on the high seas — are left blank. When the first or last year that a fishery was active is unknown, it is given as '19??'.

Table 2. Longline data held by the SPC Oceanic Fisheries Programme. See the notes to Tables 1–5, which follow Table 1.

FISHING NATION	PERIOD WHEN FISHERY ACTIVE	SOURCE OF DATA	CATCH AND EFFORT LOGSHEET DATA			LANDINGS DATA	PORT SAMPLING	OBSERVER DATA
			STRAT	HIGH SEAS	YEARS COVERED	YEARS COVERED	YEARS COVERED	YEARS COVERED
AUSTRALIA	1977-1996	SPC	SET		1986-1995	—	—	—
CHINA	1988-1996	SPC	SET	YES	1988-1996	1991-1996	1991-1996	1993-1996
COOK ISLANDS	1994-1996	SPC	SET		1994-1995	1994-1995	—	1994
FSM	1991-1996	SPC	SET		1991-1995	1991-1996	1991-1996	1994
FIJI	1989-1996	SPC	SET		1989-1996	1994-1996	1991-1996	1994-1996
FR POLYNESIA	1990-1996	SPC	SET	YES	1992-1995	—	1991-1993	1993
JAPAN	1952-1996	JFA	5X5	YES	1962-1993	—	—	—
		SPC	SET	NO	1978-1996	1989-1996	1991-1996	1993-1996
KOREA	1958-1996	NFRDA	5X5	YES	1975-1993	—	—	—
		SPC	SET	YES	1979-1996	1989-1996	1991-1995	1992
MARSHALL IS	1992-1996	SPC	SET	YES	1992-1995	1993-1994	1993-1994	—
NEW CALEDONIA	1983-1996	SPC	SET	YES	1983-1996	1994-1996	1990-1996	1992
NEW ZEALAND	1977-1996	SPC	SET	YES	1979-1991	—	—	—
PNG	1993-1996	SPC	SET		1993-1996	—	—	1996
SOLOMON IS	1973-1985	SPC	SET		1981-1985	—	—	—
TAIWAN OFFSHORE	1977-1996	NTU	—	—	—	—	—	—
		SPC	SET	YES	1985-1996	1989-1996	1991-1996	1993-1996
TAIWAN DISTANT-WATER	1977-1996	NTU	5X5	YES	1967-1993	—	—	—
		SPC	SET	YES	1980-1996	1994-1996	1964-1996	—
TONGA	1982-1996	SPC	SET	YES	1982-1993	1996	1995-1996	1990, 1995
USA	1991-1996	NMFS	—	—	—	—	—	—
		SPC	SET	YES	1991-1996	1993-1996	1992-1996	1995
WESTERN SAMOA	1993-1996	SPC	SET		1993-1994	—	—	—
VANUATU	1996	SPC	SET		1996	—	—	—

Table 3. Pole-and-line data held by the SPC Oceanic Fisheries Programme. See the notes to Tables 1–5, which follow Table 1.

FISHING NATION	PERIOD WHEN FISHERY ACTIVE	SOURCE OF DATA	CATCH AND EFFORT LOGSHEET DATA			LANDINGS DATA	PORT SAMPLING	OBSERVER DATA
			STRAT	HIGH SEAS	YEARS COVERED	YEARS COVERED	YEARS COVERED	YEARS COVERED
AUSTRALIA	1977-1996	SPC	DAY		1976-1995	—	—	—
FIJI	1976-1996	SPC	DAY		1976-1995	1994-1996	1994-1996	—
FR POLYNESIA	1975-1996	SPC	—		—	—	—	—
JAPAN	1977-1996	JFA	1X1	YES	1972-1994	—	—	—
		SPC	DAY	NO	1978-1996	—	—	—
KIRIBATI	1979-1996	SPC	DAY	YES	1986-1993	1994-1996	—	—
NEW CALEDONIA	1981-1983	SPC	DAY		1981-1983	—	—	—
PALAU	1964-1996	SPC	—	—	—	—	1964-1982	—
PNG	1970-1985	SPC	DAY		1970-1985	—	—	—
SOLOMON IS	1971-1996	SPC	DAY		1981-1995	1995-1996	—	1984-1995
TUVALU	1982-1992	SPC	DAY	YES	1982-1988	—	—	1990-1992

Table 4. Purse-seine data held by the SPC Oceanic Fisheries Programme. See the notes to Tables 1-5, which follow Table 1.

FISHING NATION	PERIOD WHEN FISHERY ACTIVE	SOURCE OF DATA	CATCH AND EFFORT LOGSHEET DATA			LANDINGS DATA	PORT SAMPLING	OBSERVER DATA
			STRAT	HIGH SEAS	YEARS COVERED	YEARS COVERED	YEARS COVERED	YEARS COVERED
AUSTRALIA	1977-1996	SPC	SET	YES	1975-1995	—	—	—
FSM	1991-1996	SPC	SET	YES	1991-1996	1992-1996	1993-1994	1993-1994
INDONESIA	1984-1990	RIMF	—	—	—	—	—	—
		SPC	SET	YES	1986-1990	—	—	—
JAPAN	1960-1996	JFA	1X1	YES	1967-1994	—	—	—
		SPC	SET	NO	1979-1995	1992-1993	—	1993-1996
KIRIBATI	1994-1995	SPC	SET	YES	1994-1996	—	—	—
KOREA	1980-1996	NFRDA	—	—	—	—	—	—
		SPC	SET	YES	1980-1996	1993-1996	1993-1996	1993-1996
MEXICO	1984	SPC	SET	YES	1983-1984	—	—	—
NEW ZEALAND	1977-1996	SPC	SET	—	1975-1988	—	—	—
PNG	1994-1996	SPC	SET	YES	1994-1995	1995-1996	—	—
PHILIPPINES	1982-1996	BFAR	—	—	—	—	1993-1994	—
		SPC	SET	YES	1982-1996	1994	1991-1996	1995
RUSSIA	1985-1996	TINRO	—	—	—	—	—	—
		SPC	SET	YES	1985-1986, 1993-1994	1994	—	—
SOLOMON IS	1980-1996	SPC	SET	—	1984-1996	—	—	1985-1995
TAIWAN	1983-1996	NTU	—	—	—	—	—	—
		SPC	SET	YES	1983-1996	1993-1996	1993-1996	1993-1996
USA PRE-TREATY	1950-1988	PTDF	5X5	YES	1974-1980	—	—	—
		ATA	1X1	YES	1981-1988	—	—	—
		SPC	SET	YES	1983-1988	—	—	—
USA TREATY	1988-1996	FFA	SET	YES	1988-1996	1989-1996	1988-1996	1988-1996
VANUATU	1995-1996	SPC	SET	YES	1994-1996	—	—	1996

Table 5. Troll data held by the SPC Oceanic Fisheries Programme. See the notes to Tables 1-5, which follow Table 1.

FISHING NATION	PERIOD WHEN FISHERY ACTIVE	SOURCE OF DATA	CATCH AND EFFORT LOGSHEET DATA			LANDINGS DATA	PORT SAMPLING	OBSERVER DATA
			STRAT	HIGH SEAS	YEARS COVERED	YEARS COVERED	YEARS COVERED	YEARS COVERED
AUSTRALIA	1977-1996	SPC	DAY	—	1989-1995	—	—	—
CANADA	1988-1997	DFO	—	—	—	—	—	—
		SPC	—	—	—	—	—	—
FIJI	1987-1997	SPC	—	—	—	—	—	—
FR POLYNESIA	1988-1996	SPC	—	—	—	—	—	—
NEW ZEALAND	1977-1996	SPC	AREA		1982-1992	—	1992	1988-1991
USA	1986-1996	NMFS	5X5	YES	1986-1995	—	1987-1995	1987-1995

Table 6. Responses received by 1 July 1996 to requests for authorisation to allow the SPC Oceanic Fisheries Programme to release aggregated catch and effort data at the discretion of the OFP. No response is indicated by '...'. The US Treaty data can be released by the OFP if the Forum Fisheries Agency does not indicate otherwise within ten working days after FFA has been notified by the OFP of a request for data received by the OFP from an external scientist.

	COUNTRY	AGENCY	DATE RESPONDED	RESPONSE
1	AUSTRALIA	AFMA	08.12.95	Granted
2	COOK ISLANDS	MMR	27.10.95	Granted
3	FSM	MMA	09.01.96	Granted
4	FIJI	FISHERIES DIV	20.02.96	Granted
5	FR POLYNESIA	EVAAM
6	JAPAN	NRIFSF	07.11.95	Denied
7	KIRIBATI	FISHERIES DIV	12.12.95	Granted
8	MARSHALL IS	MIMRA	07.11.95	Granted
9	NEW CALEDONIA	MARINE MARCHANDE	23.10.95	Granted
10	NEW ZEALAND	MIN OF FISHERIES	24.05.96	Denied
11	PALAU	PMA	19.02.96	Granted
12	PNG	NFA	24.01.96	Granted
13	SOLOMON IS	FISHERIES DIV	09.02.96	Granted
14	TONGA	MIN OF FISHERIES
15	TUVALU	FISHERIES DEPT	15.02.96	Granted
16	UNITED STATES	ATA/USTF
17	VANUATU	FISHERIES DEPT	19.02.96	Granted
18	WESTERN SAMOA	FISHERIES DIV	27.02.96	Granted
19	US TREATY	FFA	27.02.96	Partial