WESTERN PACIFIC YELLOWFIN RESEARCH GROUP

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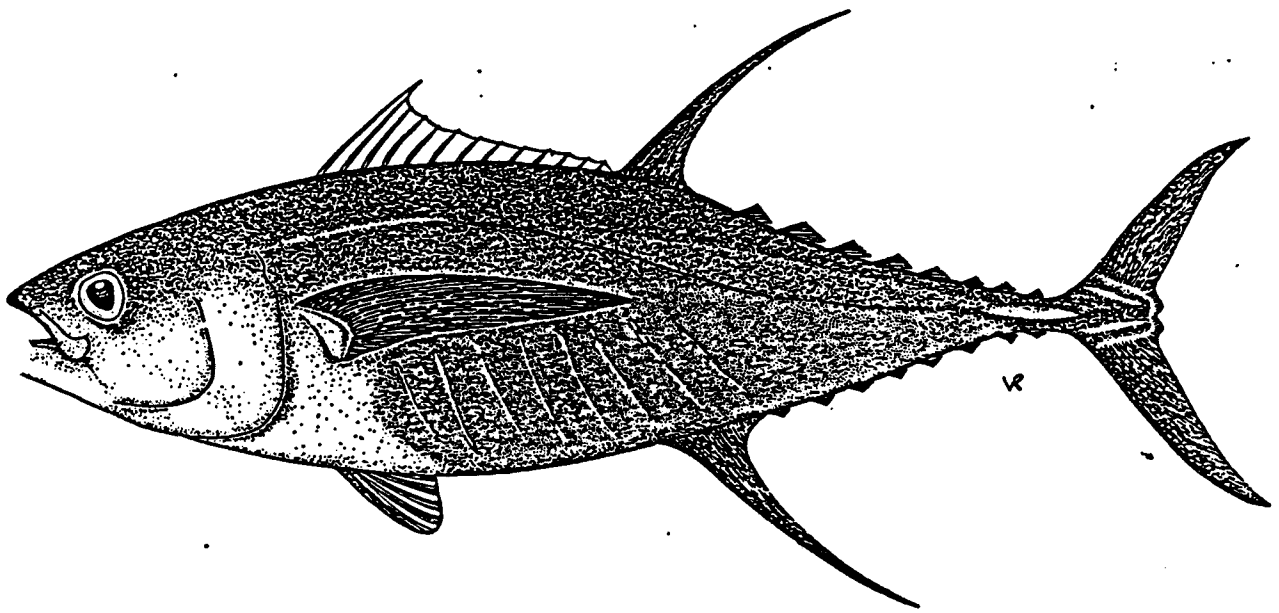
BACKGROUND PAPER 1

STATUS OF TUNA FISHERIES IN THE SPC AREA DURING 1990, WITH ANNUAL CATCHES SINCE 1952



Tuna and Billfish Assessment Programme
South Pacific Commission
Noumea, New Caledonia

June 1991

LIST OF TABLES

LIST OF TABLES continued

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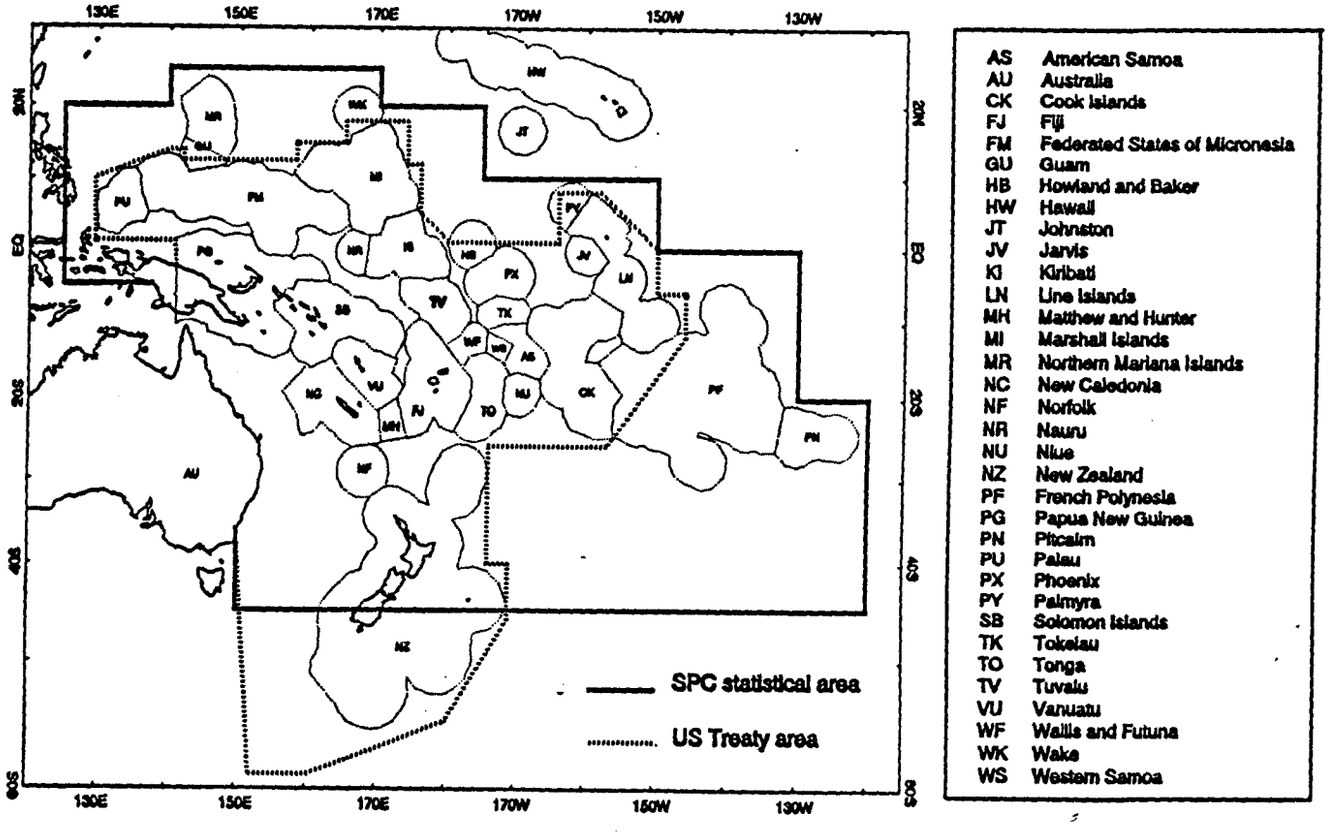

Figure 1. SPC statistical area

INTRODUCTION

Commercial tuna fisheries in the SPC statistical area (Figure 1) commenced with the arrival of the Japanese in the early part of the century (Matsuda and Ouchi 1984). Development of Japanese offshore fisheries started in the Meiji Era (1868-1912); prior to World War I, traditional tuna fisheries had gradually expanded from coastal to offshore areas and to distant-waters. With government assistance, Japanese fishermen had, by 1922, explored skipjack (*Katsuwonus pelamis*) fishing grounds around Saipan, Truk and Pohnpei. During the 1920s and 1930s, the Japanese steadily increased their presence in the SPC region, with supply bases and processing plants to service longline and pole-and-line fleets on several of the islands under the control of the Japanese trusteeship, which was established following World War I.

In 1942, Japanese fishing vessels in the region came under government control. Japanese longliners did not return to the SPC region until 1952, when the last of the boundaries to the movements of Japanese fishing vessels that had been imposed following World War II as part of the postwar occupation policy was removed. In the late 1950s, the Taiwanese entered the longline fishery with the purchase of used Japanese vessels. The Koreans did the same during the mid-1960s. In the early 1970s, the Japanese distant-water pole-and-line fishery, which had operated in the SPC region from 1922 until World War II, expanded rapidly, both in numbers of vessels and in geographic area fished.

The Japanese first conducted purse-seine test-fishing around 1960; following a year-round feasibility study carried out in 1974, the fleet increased, to 17 vessels in 1980 and 41 vessels, including single and group seiners, in 1990. By the mid-1980s, the distant-water purse seine fishery in the SPC region also included vessels from Australia, Korea, Indonesia, the Philippines, Taiwan and the United States. In late 1990, the purse seine fleet numbered approximately 190 vessels.

In addition to longline, pole-and-line and purse seine vessels, trollers and driftnet vessels fish for tuna in the SPC statistical area. New Zealand trollers have fished for albacore (*Thunnus alalunga*) in the Tasman Sea since 1973. American trollers and New Zealand trollers have fished for albacore in the Sub-Tropical Convergence Zone since 1985. Driftnet fishing in the SPC statistical area began when the Japanese targeted albacore during the 1982/83 season. Taiwanese driftnet vessels entered the albacore fishery during the 1987/88 season.

While the early development of tuna fisheries in the region depended almost entirely on distant-water fleets, domestic operations, often joint-venture companies with Japan, subsequently became important. Domestic pole-and-line vessels fished in Papua New Guinea during 1971-1981 and 1984-1985. In Fiji, a pole-and-line fleet was established in 1976; while chartered Taiwanese longliners had operated in Fijian waters since 1975, domestic longliners began fishing in Fiji in 1987. The Kiribati pole-and-line fleet was established in 1979. New Caledonian pole-and-line vessels operated from 1981 to 1983; the New Caledonian longline fleet has grown consistently since 1983. Single vessel operations have existed in Tonga (a longliner) and Tuvalu (a pole-and-line vessel) since 1982. The largest domestic fishery is in Solomon Islands, where up to 35 pole-and-line vessels, including chartered Okinawan vessels, have operated since 1971 and purse seiners since 1984.

Small-scale commercial tuna fisheries, supplying local markets, exist in most Pacific Island countries. Subsistence catches are known to be significant in some areas, though catch statistics for subsistence fisheries are generally lacking.

Estimates of annual catches by countries or territories fishing for tuna in the SPC statistical area using driftnet, longline, pole-and-line, purse seine and troll are presented below. Whenever possible, statistics provided by governments of the fishing nations were included. However, many of the statistics included herein are from other sources. When no sources were available, an attempt was made to estimate catches from the information at hand. Extensive use was made of data held in the Regional Tuna Fisheries Database, which contains daily catch and effort data collected from SPC member countries covering domestic fleets, and foreign fleets operating under access agreements. Caution should be used in interpreting the statistics presented herein; in particular, most estimates for 1990 should be considered as preliminary. Maps depicting the distribution of fishing effort were produced from data held in the Regional Tuna Fisheries Database; however, coverage of foreign fleets is generally poor, particularly in high seas areas.

DRIFTNET

JAPAN DRIFTNET

The fleet of Japanese driftnet vessels has operated in the South Pacific, targeting on albacore, since the 1982/83 season (Table 1). The number of vessels active increased to 65 during the 1988/89 season, then declined to 20 vessels during the 1989/90 season, following the decision by the Fisheries Agency of Japan to restrict fishing effort.

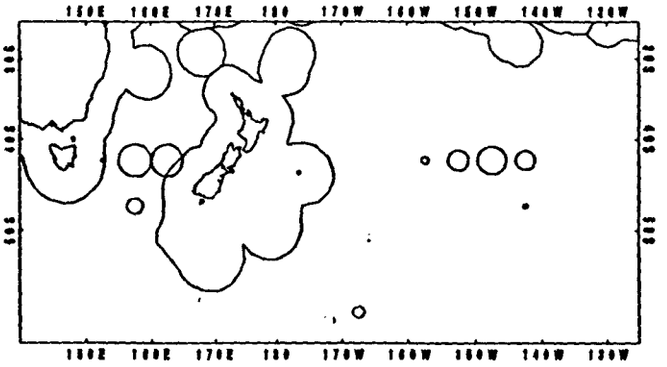

Figure 2. Japan driftnet effort during the 1989/90 season

Catches of albacore peaked during the 1988/89 season at 13,263 mt; the catch during the 1989/90 season was 5,567 mt. During the 1988/89 season, catch rates increased in the Tasman Sea and the Sub-Tropical Convergence Zone, while they decreased in the area off the coast of New Zealand.

Under the recent decision by the Fisheries Agency of Japan, no vessels operated during the 1990/1991 season.

KOREA DRIFTNET

Only one driftnet vessel from Korea has fished in the South Pacific (Table 2). The vessel fished for albacore during the 1988/89 season, and caught 172 mt.

TAIWAN DRIFTNET

Taiwanese driftnet vessels commenced fishing for albacore in the South Pacific during the 1987/88 season (Table 3). Fishing effort peaked during the 1988/89 season, resulting in a catch of albacore

of 8,520 mt, then declined considerably. During the 1989/90 season, 11 vessels caught 2,710 mt of albacore.

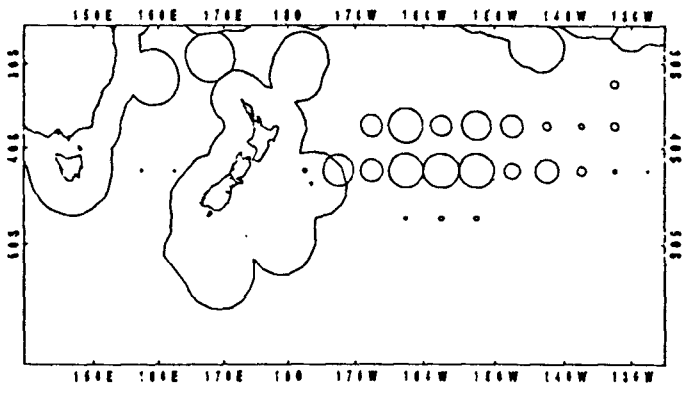

Figure 3. Taiwan driftnet effort during the 1988/89 season

LONGLINE

AUSTRALIA LONGLINE

Sporadic experimental longline fishing for tunas by small domestic vessels occurred off south-eastern Australia during the 1960s and 1970s. The fishery expanded rapidly during the 1980s following the successful export of yellowfin (*Thunnus albacares*) and bigeye (*Thunnus obesus*) to the fresh-chilled sashimi markets of Japan. (Anon 1990a)

The Australian longline fleet is currently comprised of three types of vessels: domestic vessels, wholly Australian-owned ex-Japanese vessels, and Australian/Japanese joint-venture vessels. In March 1990, 176 domestic vessels were endorsed to fish in the east-coast longline fishery. These vessels fall into four broad categories (Anon 1990b):

- planing-type longliners are the typical longline vessel in New South Wales; though longlining for tuna is the principal activity, they are often involved in poling, droplining or trapping;
- multi-purpose vessels participate in a number of fisheries throughout the year, catching tuna when they are present in local waters;
- trawlers only catch tuna when they are plentiful and the trawl fishery is quiet;
- purpose-built deep sea boats work further offshore, droplining for demersal species when not longlining for yellowfin, bigeye and southern bluefin (*Thunnus maccoyii*).

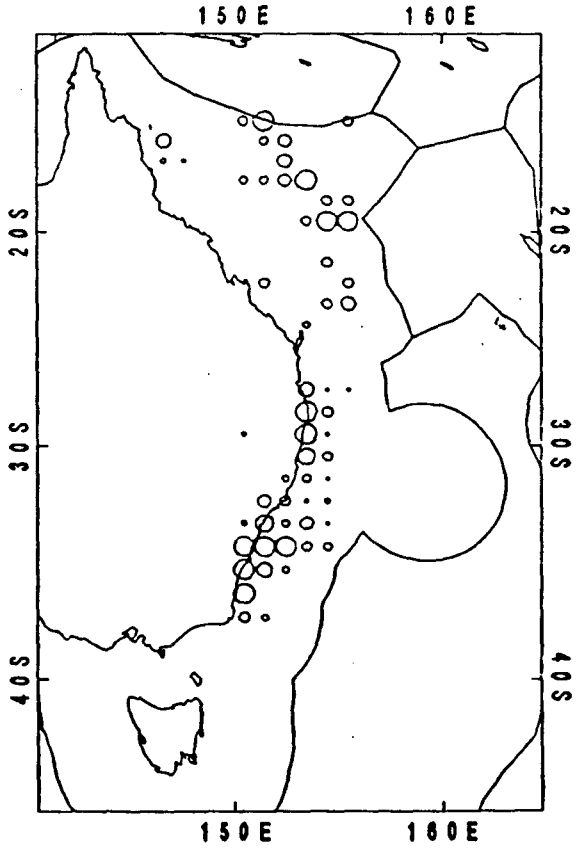

Figure 4. Australia longline effort, 1990

Longlining by domestic vessels is centred on coastal waters of New South Wales and southern Queensland, generally within 60 nautical miles of the coast. Vessels normally return to port each day, although two or three day trips have recently become common. In comparison to the ex-Japanese and joint-venture

vessels, which shoot between 1800 to 3000 hooks per set, the domestic vessels use only about 200 to 500 hooks. High-quality catches of yellowfin, bigeye and striped marlin are flown to the fresh-chilled sashimi markets of Japan, while other species, such as broadbill swordfish (*Xiphius gladius*) and albacore, are sold on the domestic market. (Bureau of Rural Resources, 1989)

The hooking rate for the domestic vessels is usually greater than for the ex-Japanese vessels, 4.59 fish per 100 hooks in 1990 for the domestic vessels (Table 4), due in part to the greater selectivity by the domestic vessels in the areas fished.

There are currently five ex-Japanese longliners in the Australian fleet, however, only two vessels are covered by 1990 data held at SPC.

Statistics for the domestic vessels are presented in Table 4. Catch rates for the domestic vessels appear to have increased consistently, from 3.62 fish per 100 hooks in 1987 to 4.59 fish per 100 hooks in 1990. Domestic vessels caught at least 596 mt in 1989.

FIJIAN LONGLINE

In 1989 and 1990, major investments were made in Fiji for the purpose of catching yellowfin and bigeye for export. About 11 longliners were actively fishing in 1990, with perhaps twice that number of investment proposals yet to be implemented (Table 6). Exports of fresh longline-caught tuna were expected to be around 600—1,000 mt in 1990, despite a reportedly poor fishing season. The domestic longline fishery was declared a limited entry fishery in 1989, due to the lack of infrastructure facilities and to fears that the vessels, many of which are multipurpose demersal/pelagic longliners, may stress the deepwater snapper resource. (Anon 1990c) Chartered Taiwanese vessels have operated in Fijian waters since 1975; these vessels are discussed under *Taiwan longline* below.

JAPAN LONGLINE

In the period after World War I, when Japanese fishermen expanded their fishing grounds into the SPC region, initially skipjack pole-and-line fishing was the dominant form of fishing. However, by 1926 almost all Japanese tuna longliners were converted to power-driven vessels. In 1932/33, the Japanese government conducted the first mothership operation for tuna longline fishing in the area from the Nicobar islands to Timor, proving the economic feasibility of the operation. By 1939, there were 72 Japan-based tuna longliners fishing in the SPC area, taking yellowfin, bigeye and swordfish. After World War II, Japanese longlining expanded rapidly, once the restrictions to vessel movements were lifted in 1952. By 1960, in addition to the Japan-based fleet, there were Japanese longliners based in Pago Pago, American Samoa, and Santo, Vanuatu (then the New Hebrides), while mothership operations extended as far as south as New Zealand. The expansion of the longline fleet continued until about 1970. In 1980 the industry decided to reduce the number of distant-water tuna vessels by 20 per cent, in response to changing economic conditions, including increased fuel costs, rising crew costs, extended duration of fishing trips due to declining catch rates, restrictions imposed by extended jurisdiction and stagnating market conditions for fisheries products in Japan (Fujinami 1987). The number of distant-water longliners licensed in Japan fell from 997 in 1970 to 762 in 1984.

The Japanese longline fleet currently operating in the SPC statistical area consists of two groups of vessels. The number of distant-water vessels (150-500 gross tonnes), based in Japan, declined throughout the 1980s, continuing the trend which began in the 1970s, as less efficient vessels were retired in response to rising costs of fishing (Table 7). Since 1987, the Guam-based vessels (all under 100 gross tonnes, many around 20 gross tonnes), which fish mainly in the waters of the Federated States of Micronesia, have grown in number (Table 8). Distant-water longliners caught an estimated 60,431 mt in the SPC area in 1990; Guam-based vessels transhipped 9,101 mt in 1990, an increase over previous years.

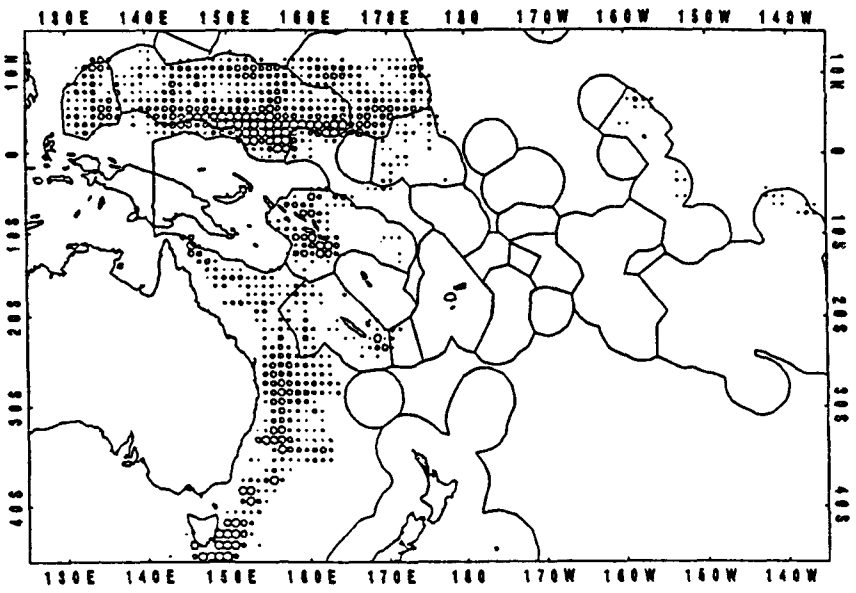

Figure 5. Japan longline effort, 1990

Between 15°N and 10°S, where the fishery in SPC member countries consists mostly of the smaller Guam-based longliners, usually targeting on yellowfin and bigeye, the data held in the Regional Tuna Fisheries Database indicate that the catch rate for all species during 1990 was 1.79 fish per 100 hooks, compared to 1.74 fish per 100 hooks during 1989. The catch rate for yellowfin appears to have declined somewhat, to 0.89 fish per 100 hooks during 1990 from 1.04 fish per 100 hooks during 1989, while the catch rate for bigeye increased, to 0.85 fish per 100 hooks from 0.62 fish r 100 hooks.

South of 10°S, the long-distance vessels covered by data held at SPC fish off the east coast of Australia, with a small number of vessels fishing in the waters of Solomon Islands. Catch rates for yellowfin for long-distance vessels fishing south of 10°S (within the SPC statistical area) increased during 1990, while catch rates for albacore declined.

KOREA LONGLINE

Korean longliners began fishing in the Pacific Ocean in 1958. During the 1960s, used Japanese vessels were purchased and began supplying American canneries from foreign ports (Uyemae 1975). During the late 1960s and early 1970s, the species composition of the catch changed, as vessels switched from targeting on albacore, for sale to canneries, to targeting on yellowfin and then bigeye, using deep longlining, for sale on the sashimi markets of Japan. While Korean longliners continue to supply albacore to American canneries (Ito and Yamasaki 1988), in 1986, for example, albacore represented only 20 per cent of the catch in the SPC statistical area, while bigeye and yellowfin accounted for 38 per cent and 34 per cent respectively (Table 9).

Estimates of the number of vessels active in the SPC statistical area are unavailable. However, it would appear from the number of vessels covered by data held in the Regional Tuna Fisheries Database that they have declined only slightly. It has been reported by the National Fisheries Research and Development Agency that 124 vessels were active in the Pacific Ocean during 1988 (Kim, personal communication, 1989), of which 37 vessels unloaded 11,000 mt at Pago Pago, American Samoa (Namkoong, PRO 93/3/3, March 1989).

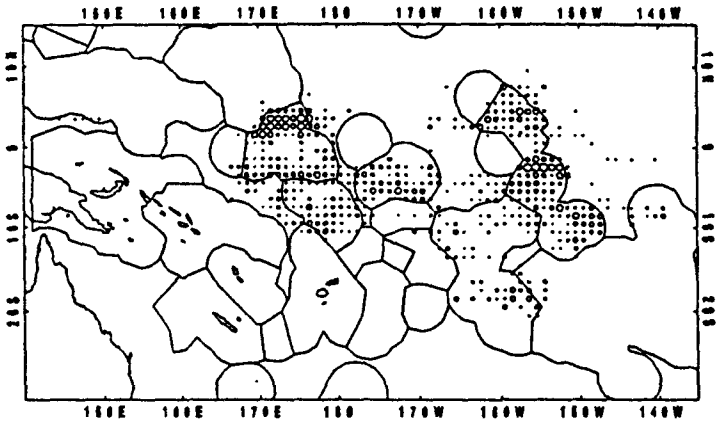

Figure 6. Korea longline effort, 1990

Between 15°N and 10°S, Korean longliners covered by data held at SPC operate in the waters of Kiribati (including Phoenix Island and the Line Islands), Tuvalu, the Cook Islands and French Polynesia. The data available indicate that the average catch rate for all species combined at low latitudes during January—November was 1.33 fish per 100 hooks, compared to 1.00 fish per 100 hooks during the same period in 1989.

South of 10°S, vessels covered by data held at SPC operate in the waters of the Cook Islands and French Polynesia. The limited data available indicate that the catch rate for albacore during January—September 1990 was 0.66 fish per 100 hooks, compared to 0.88 fish per 100 hooks during the whole of 1989.

NEW CALEDONIA LONGLINE

The fleet of longliners based in Nouméa, New Caledonia, has grown from one vessel in 1983 to six vessels in 1990 (Table 10). The fleet fishes almost exclusively in the waters of New Caledonia, targeting on albacore for the local market and on yellowfin and bigeye for the Japanese sashimi markets.

The total catch by the New Caledonian fleet during 1989 was 1,148 mt, compared to approximately 1,300 mt in 1988.

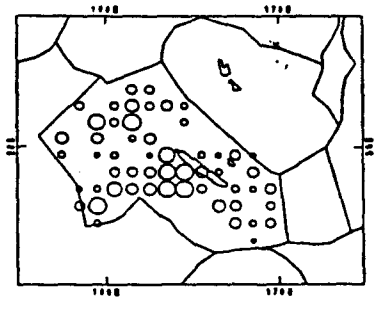

Figure 7. New Caledonia longline effort, 1989

The data held in the Regional Tuna Fisheries Database indicate that the catch rate for all species combined declined considerably, from 6.74 fish per 100 hooks during 1988 to 3.26 fish per 100 hooks during 1989. The catch rate for albacore declined from 3.81 fish per 100 hooks in 1988 to 2.15 fish per 100 hooks during 1989, while the catch rate for yellowfin also declined, from 2.08 fish per 100 hooks in 1988 to 0.59 fish per 100 hooks during 1989.

SOLOMON ISLANDS LONGLINE

Beginning in 1973, tuna longline trials were carried out in Solomon Islands waters (Anon 1985). The trials were conducted by two 250 gross tonne vessels over six trial periods, which concluded in 1977. The success of the trials lead to the introduction of two further vessels under charter to Solomon Taiyo Ltd (STL); these operations concluded in 1981. Shortly afterwards, National Fishing Development Ltd (NFD) began operating two longliners donated to the Solomon Islands under Japanese aid. The NFD longliners were 144 gross tonnes with a fish hold capacity of 65 tonnes. The NFD operations ceased in 1985.

The species composition during 1981-1985 averaged 69 per cent bigeye, 12 per cent yellowfin and 3 per cent albacore (Table 11). The greatest annual catch was obtained in 1980, when a total of 818 mt was caught.

Vhile domestic vessels have not fished since 1985, Japanese longliners have fished successfully in Solomon Islands waters, under access agreements, since 1978 (Anon 1989a).

TAIWAN LONGLINE

The Taiwanese longliners fishing in the SPC statistical area fall into two groups. The vessels based in Guam, Palau and Taiwan, mostly 20-80 gross tonnes, target on yellowfin and bigeye. Vessels based in Guam and Palau have fished in the waters of the Federated States of Micronesia and Palau, while vessels based in Taiwan have fished in those areas and also in waters to the west of Taiwan, towards the South China Sea. Most of the catch by Guam- and Palau-based vessels is transhipped to the sashimi markets in Japan. During 1990, Guam- and Palau-based vessels caught an estimated 7,204 mt (Table 12).

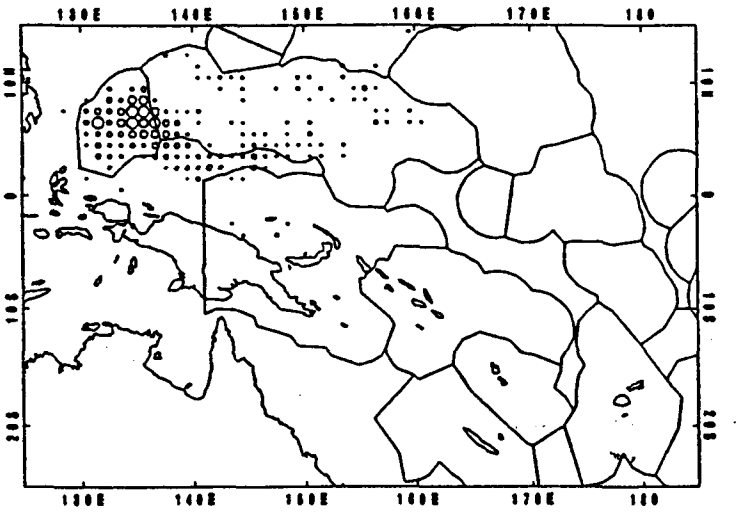

Figure 8. Taiwan longline effort, 1990

The distant-water vessels, mostly 150-250 gross tonnes, fish from base ports in American Samoa, Fiji and Taiwan, and target on albacore. Their catches are sold primarily to canneries in Pago Pago and Levuka. Distant-water vessels caught an estimated 12,378 mt in 1990 (Table 13).

Few data covering the distant-water longliners are held in the Regional Tuna Fisheries Database, therefore Figure 8 does not depict the distribution of fishing effort of these vessels, but only the Guam- and Palau-based vessels.

Catch rates for the distant-water vessels declined consistently during the 1960s and 1970s, from 5.43 fish per 100 hooks in 1967 to 3.61 fish per 100 hooks in 1979. During the early 1980s, catch

rates were variable, ranging from 1.95 to 4.57 fish per 100 hooks. Since 1986, albacore catch rates have declined consistently, from 4.35 fish per 100 hooks to 1.79 fish per 100 hooks in 1989.

TONGA LONGLINE

Tonga's single longline vessel, 33.7 metres, was built of GRP construction in Japan in 1981. Since fishing began, in 1982, catches have averaged 306 mt annually, with a peak in 1985 of 370 mt (Table 14). Albacore, the target species, are regularly sold to the Pacific Fishing Company cannery in Levuka, Fiji, and the canneries in American Samoa.

From data available in the Regional Tuna Fisheries Database, the catch rate during January—May 1990 was 2.12 fish per 100 hooks, down from 3.08 fish per 100 hooks during the same period in 1989. The catch rate for albacore during January—May 1990 was 1.24 fish per 100 hooks, down from 2.07 fish per 100 hooks during the same period in 1989.

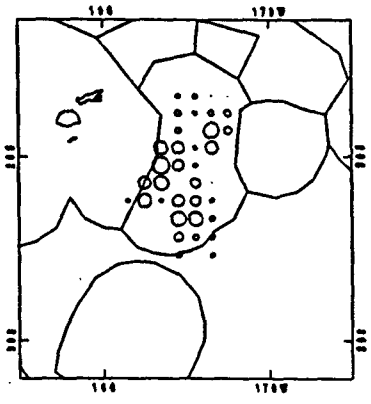

Figure 9. Tonga longline effort, 1989

POLE-AND-LINE

AUSTRALIA POLE-AND-LINE

Pole-and-line fishing occurs off the south coast of New South Wales on a seasonal basis, from December through March. According to the data available in the Regional Tuna Fisheries Database, provided by the Australian Fisheries Service (which may under-represent pole-and-line catch and effort in recent years), in the late 1970s and early 1980s about 20 vessels caught skipjack and, to a lesser extent, yellowfin, while pole-and-line fishing for southern bluefin (Table 15). From 1982 to 1985, the number of vessels poling declined considerably as the southern bluefin fishery off New South Wales collapsed and the target species changed to skipjack and yellowfin. In recent years, nly a few vessels have operated.

FIJI POLE-AND-LINE

The Fijian pole-and-line fishery commenced in 1976, with fishing operations managed by the national fishing company, Ika Corporation, and the catch sold to the Pacific Fishing Company (PAFCO) cannery in Levuka, which government has controlled since 1986 (but which was originally 70 per cent Japanese-owned). The fleet has consisted of vessels owned by Ika Corporation, chartered Japanese vessels, and other private vessels. The number of vessels active in Fijian waters has fluctuated, rising to 14 vessels in 1982, then declining to 6 vessels in 1986, then rising again to 8 vessels in 1988 (Table 16). The fishery is seasonal, usually from November through August; the catch is usually comprised of about 90 per cent skipjack and 10 per cent yellowfin.

The activities of the fleet have usually been restricted to Fijian waters; however, during the poor fishing season of 1980, two chartered Japanese vessels fished in the waters of Tuvalu (Anon 1980).

In response to the poor 1989/90 season, some restructuring of the fleet has occurred; several pole-and-line vessels may convert to longlining and Ika Corporation is considering fishing outside Fijian waters (Anon 1990c).

Annual catches peaked in 1989 at 5,883 mt; the catch rate was 4.2 mt per day, compared to the 1976-1989 average of 3.0 mt per day. The 1990 catch declined to 4,029 mt; from data available for 1990 in the Regional Tuna Fisheries Database, which cover only January-July, the catch rate declined to 2.8 mt per day.

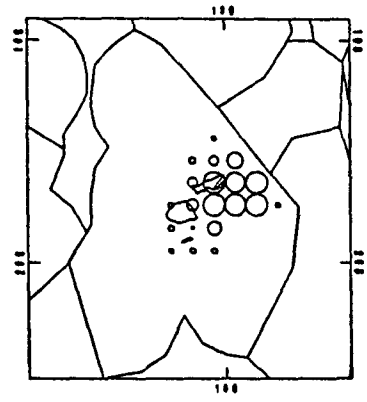

Figure 10. Fiji pole-and-line effort, 1989

JAPAN POLE-AND-LINE

Japanese pole-and-line fishing started in the Western Central Pacific in 1922, with bases on several islands included in the Japanese trusteeship established at the end of World War I (Matsuda and Ouchi 1984). Skipjack fishing was accelerated during the 1920s by the construction of *katsuobushi* processing plants on Saipan, Truk, Pohnpei and Palau. The highest pre-war catch of skipjack was recorded as 28,688 mt in 1937. In 1940, there were 128 licensed pole-and-line vessels. With oil, water, live-bait and food supply bases in the region, distant-water tuna fisheries became year-round operations. The size of vessels increased, and fishing grounds expanded to almost all areas under the Japanese trusteeship, and waters around Papua New Guinea, Solomon Islands and major fishing grounds in Southeast Asia.

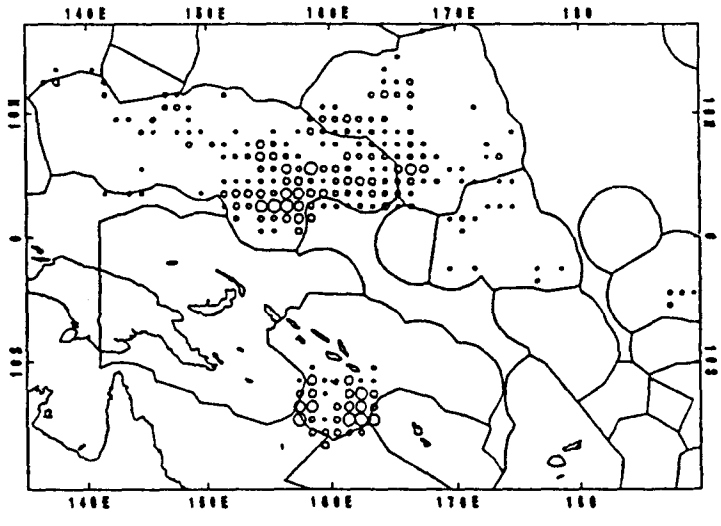

Figure 11. Japan pole-and-line effort, 1990

With Japan's involvement in World War II, the fisheries were put under government control in 1942. As a result, 60 per cent of all vessels and all overseas bases were lost. After the war, the areas accessible to Japanese fishing vessels were controlled. The boundaries, known as "McArthur's Lines" were not removed until 1952. In 1953, the Japanese government passed a special law for licensing to promote distant-water tuna fisheries. However, southward expansion of the pole-and-line fishery was long limited to north of the Equator; expansion to the South Pacific came only after 1970.

During the 1970s, catches in the SPC statistical area grew rapidly, from 65,711 mt in 1972 to 144,212 mt in 1974 (Table 17). The fishery peaked at 160,047 mt in 1977. Thereafter, the fishery contracted in response to rising costs of fishing and reduced access to fishing grounds resulting from the implementation of Exclusive Economic Zones by SPC member countries. The number of

vessels covered by data held in the Regional Tuna Fisheries Database, which is an indicator of the vessels active in the SPC statistical area, declined from 317 vessels in 1980 to 61 vessels in 1990.

Since the early 1980s, as fishing effort in the SPC statistical area decreased, catch rates appear to have increased, suggesting that less-efficient vessels left the fishery. Catch rates remained relatively high until 1990, when poor fishing resulted in reduced fishing effort in the SPC region and forced many of those vessels that remained to explore new areas.

The catch rate for all species combined during 1990 was 7.0 mt per day, down considerably from 10.7 mt per day during 1989. Catch rates for skipjack dropped below 3.0 mt per day during January and February 1990, then increased during March 1990. Catch rates during the fourth quarter of 1990 have been higher than during the fourth quarter of 1989, but far below catch rates during the fourth quarter of 1988.

KIRIBATI POLE-AND-LINE

Involvement in commercial tuna fishing in Kiribati commenced in late 1970. Surveys under the auspices of the Japan International Cooperation Agency (JICA) and the Food and Agriculture Organization of the United Nations (FAO) indicated good prospects for viable fishing operations. The government took delivery of a 35 metre Japanese pole-and-line vessel in 1979 (Anon 1979). A government-owned fishing company, Te Mautari Ltd, was established in 1981, with two Japanese-style pole-and-line vessels. The fleet grew to five vessels in 1988, when two vessels constructed in Fiji were added. Since 1987, several of the vessels have fished in the waters of Fiji on a seasonal basis, usually from November to April. In late 1990, four of the five vessels fished in the waters of Solomon Islands.

Catches have been variable in recent years: 434 mt in 1987, 1,536 mt in 1988, 2,273 mt in 1989 and 569 mt in 1990 (Table 18). Following poor fishing and mechanical problems in 1990, the fleet was forced to discontinue fishing at the beginning of 1991.

NEW CALEDONIA POLE-AND-LINE

Early surveys of the skipjack and baitfish resources of New Caledonia were made by the Japan Marine Fishery Resource Research Center (JAMARC); this work identified seasonal variation in the abundance of baitfish and skipjack, with both sufficiently abundant in summer to support a pole-and-line fishery for skipjack. Later survey work in 1980 by a pole-and-line vessel owned by StarKist suggested that skipjack might be sufficiently abundant in winter to support commercial operations. Additional surveys were undertaken by the *Office de la Recherche Scientifique d'Outre-Mer* (ORSTOM); they provided evidence of the winter presence of yellowfin to complement the occurrence of skipjack in summer.

The pole-and-line fleet was established in 1981 with one vessel; it expanded to three vessels in 1982. While catch rates were comparable with those achieved by Fijian vessels today (Table 19), the fishery closed in 1983 due to economic conditions prevalent at the time (Hallier 1984).

PAPUA NEW GUINEA POLE-AND-LINE

Following the promising results obtained by six Japanese research cruises from 1968 to 1970, and the recommendations of a United Nations Development Programme (UNDP) team which visited the area in 1969, joint-venture fishing operations were encouraged. Fishing commenced first out of Manus and Madang for a short period, then out of Kavieng, New Ireland, in 1970 (Tuna Programme 1983). The fishery grew from one joint-venture company and 2,431 mt caught in 1970 to four companies and 41,780 mt caught in 1974 (Table 20). Okinawan-style (59 gross tonnes) pole-and-line vessels were predominant in the fishery, catching 90 per cent skipjack while operating in groups serviced by a mothership with freezer and storage facilities. catches were unloaded, usually on a daily basis, to the mothership for freezing and subsequent transhipment to freighters. Apart from a small proportion of the catch which was processed locally and exported as *katsuobushi*, the catch was exported as frozen whole fish. The fishery ceased operations in 1981, then recommenced in October 1984 and continued until late 1985.

PALAU POLE-AND-LINE

The Van Camp Sea Food Company established cold storage facilities at Koror in 1964 for the transhipment of tuna landed by Okinawan pole-and-line vessels owned by Van Camp. The fleet operated until 1982. According to data held in the Regional Tuna Fisheries Database, the maximum numbers of vessels was reached in 1981, when 36 vessels were active (Table 21). Catches grew from 1,178 mt in 1964 to 8,442 mt in 1970; thereafter catches were variable.

SOLOMON ISLANDS POLE-AND-LINE

After a successful survey conducted in 1971 by Taiyo-Gyogyo, a joint-venture agreement with the Solomon Islands government was signed into effect in November 1972 (Meltzoff and LiPuma 1983), creating Solomon-Taiyo Ltd, with 75 per cent Japanese ownership (Matsuda and Ouchi 1984). In March 1973 fishing operations by STL began, with eight chartered Okinawan pole-and-line vessels, and, in August of that year, a shore facility at Tulagi opened, with a 600 mt cold store, ice plant and brine freezer. By the end of the year, a cannery was operative, as well as an *arabushi* smoked fish processing plant. In January 1976, a second shore base opened at Noro, with larger and more modern facilities.

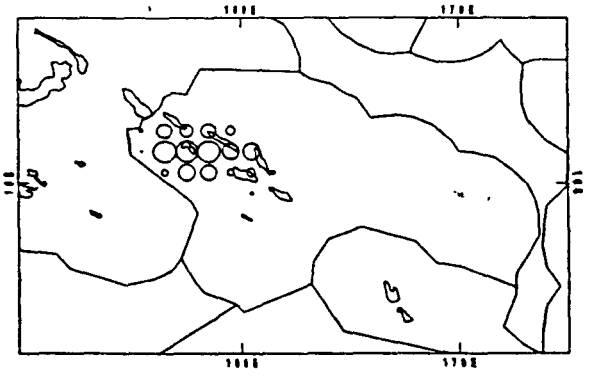

Figure 12. Solomon Islands pole-and-line effort, 1990

Funded in part by the Asian Development Bank and by Solomon Taiyo Ltd, the National Fisheries Development Corporation (NFD) began fishing operations in 1979 with two pole-and-line vessels donated by Japan, with the catch sold to STL. Five years later, in 1984, the NFD fleet included 9 vessels, of which 2 were chartered vessels and 7 company-owned. NFD was sold in 1990 to

British Columbia Packers Ltd and is now operated in association with its subsidiary, Mar Fishing Company, in the Philippines.

Catches usually consist of about 95 per cent skipjack, 2 to 3 per cent yellowfin, with the remainder rainbow runner (*Elegatis bipinnulatus*), dolphinfish (*Coryphaena hippurus*) and island bonito (*Euthynnus affinis*). Skipjack catches during the 1970s were variable (Table 22), ranging from 4,711 mt at the start of the fishery in 1971 to 23,801 mt in 1979. In the 1980s, when both STL and NFD were active, catches averaged 25,900 mt per year.

The total catch in 1990 was 21,558, the lowest annual catch since 16,951 mt were taken in 1982. The low catch was due to reduced fishing effort and to a below average CPUE; the average catch rate during 1990 was 3.5 mt per day, compared to the average CPUE during 1971-1989 of 4.0 mt per day.

TUVALU POLE-AND-LINE

In 1981, the National Fishing Corporation of Tuvalu (NAFICOT) was proclaimed as a statutory body (Schupp 1984). A 173 gross tonne pole-and-line vessel, *Te Tautai*, was received through bi-lateral aid from the Japanese government. The crew has included a Tuvaluan master, responsible for daily management and operations, and, as part of a training and advisory programme, a Japanese master, masterfisherman and chief engineer. From the start of operations, April 1982, the *Te Tautai* operated in Fijian waters, with management during the time spent in Fiji established under an agreement with Ika Corporation. While in Fiji, most of the catch was sold to the Pacific Fishing Company (PAFCO) cannery in Levuka; the remainder was sold for local consumption in Fiji and Tuvalu. The *Te Tautai* fished in Solomon Islands during most of 1987 and 1988; the annual catch peaked at 1,090 mt while in Solomon Islands waters (Table 23). Since December 1989, the *Te Tautai* has been under charter to the South Pacific Commission for the Regional Tuna Tagging Project.

PURSE SEINE

AUSTRALIA PURSE SEINE

Data in the Regional Tuna Fisheries Database covering the activities of Australian purse seiners off the east coast of Australia, in the SPC statistical area, go back to 1975 (Table 24), though it is known that purse seiners caught skipjack tuna prior to 1975. In most cases, skipjack catches have been incidental catches while targeting on southern bluefin. In early 1991 there were 10 vessels endorsed to operate in the east coast tuna purse seine fishery, with 8 permitted to fish within 50 nautical miles of the coast and 2 permitted to fish outside 50 nautical miles (Australian Fisheries Service 1991). During the 1990/91 skipjack season, 6 of these vessels fished.

Since at least 1988, Australian purse seiners have fished outside the Australian Fishing Zone (AFZ), in the waters of Papua New Guinea and Solomon Islands (Table 25). Two vessels fished in Solomon Islands in 1988, with disappointing results (Anon 1989a). At least 6 vessels have operated in Papua New Guinea during 1990, of which 5 also fished in the waters of the Federated States of Micronesia during late 1990.

INDONESIA PURSE SEINE

Since at least 1984, French-built purse seiners (632-765 gross tonnes) have been operated by an French-Indonesian joint-venture company (Anon 1988). Since at least 1987, three vessels have operated in the waters of SPC member countries, fishing in Indonesian waters, and the high seas, when not fishing in zones of SPC member countries.

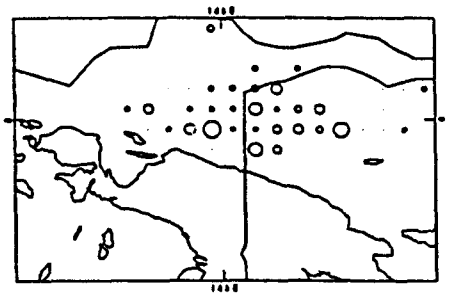

Figure 13. Indonesia purse seine effort, 1989

In 1988, their total annual catch was just over 13,000 mt (Table 26); 3,859 mt, or 30 per cent, were reported on daily catch and effort logsheets to have been caught in the waters of SPC member countries. In 1989, the vessels were ›ent from the SPC area from July through November, returning in December 1989 and staying through March 1990.

JAPAN PURSE SEINE

The purse seine method was first adopted by Japan in 1948, targeting for skipjack and yellowfin in coastal waters; by 1952 some 13 companies operated 16 seiners (Habib 1984). Purse seine test-fishing in the SPC area began around 1960 (Matsuda and Ouchi 1984). After a successful operation in 1964, three 300 gross ›nne purse seiners joined the operation. Between 1964 and 1974, up to six seiners fished around Micronesia and Papua New Guinea during the northern winter months each year; catches were small, 3,392 mt in 1974 (Table 27), due to unfamiliarity with purse seine fishing conditions in the SPC area (Watanabe 1983, from Doulman 1987). The Japan Marine Resource Research Center (JAMARC) was established in 1971; from 1974 to 1976, JAMARC conducted an economic feasibility study of a year-round purse seine fishery for tuna around the Federated States of Micronesia, Palau and Papua New Guinea. By 1980, the number of vessels had grown to 11 commercial vessels and 3 survey vessels.

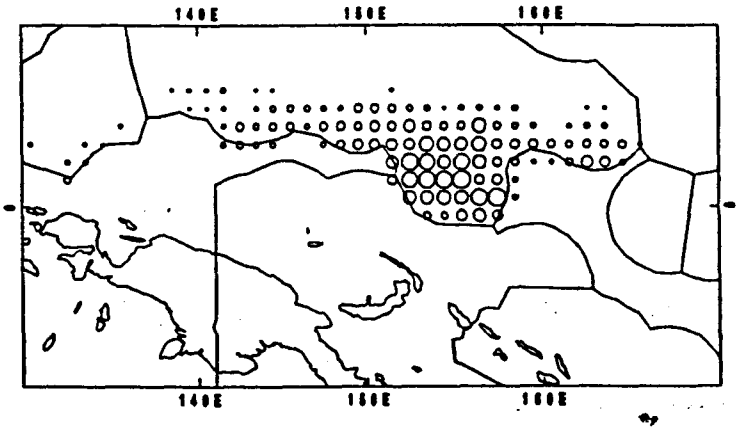

Figure 14. Japan purse seine effort, 1990

To ensure that disruption to pole-and-line and longline fisheries and markets were minimized, in 1981 the Fisheries Agency of Japan required that local and distant-water pole-and-line vessels be retired in order to qualify for purse seine licences; for example, the Federation of Japan Tuna Fisheries Cooperative Associations (Nikkatsuren) was required to retire 25 distant-water pole-and-line licences in order to qualify for 5 purse seine licenses (Habib 1984). Since 1985, the numbers of single seiners licensed by the Fisheries Agency of Japan to fish in the SPC area has been limited

to 31 vessels; two or three other vessels with special licenses for exploratory fishing have fished occasionally in the SPC area (Anon 1989b). At the outset of the fishery, almost all Japanese purse seiners were of the same type, 499 gross tonnes with a carrying capacity of 550 tonnes; in recent years several 550 tonne capacity purse seiners have been replaced with vessels of 750 tonne capacity.

Japanese group seiners operate with one catcher vessel, usually 116 gross tonnes, one or two carrier vessels of about 325 gross tonnes, and an anchor vessel of 45 gross tonnes. The fishery is seasonal, with vessels usually operating in the region from February through May. Group seiners first operated in the region in 1980, in the Federated States of Micronesia. The numbers of group seiners licensed by the Fisheries Agency of Japan to fish in the SPC area has been limited to 7 groups.

The catch by Japanese single seiners in 1979 was 35,546 mt (Table 28). During the 1980s, the catch increased considerably, to just under 100,000 mt in 1982 and to 162,894 mt in 1988. The annual catch by group seiners is small in comparison with single seiners; during 1980-1986, the period for which reliable statistics are available, the group seiner catch peaked in 1984 at 15,741 mt.

The catch rate for single seiners averaged 19.7 mt per day during 1979-1990; the catch rate in 1990 was above average, at 24.5 mt per day. The catch rate for group seiners averaged 17.2 mt per day during 1982-1990; the catch rate in 1990 was above average, at 19.23 mt per day.

KOREA PURSE SEINE

The Korean purse seine fleet is comprised almost entirely of American-built vessels that were purchased from American owners (Anon 1989b). During the initial stages of the fleet expansion, vessels were bought from American canning companies during a period of recession in the tuna industry; payments for the vessels were arranged in instalments based on the catches. According to an industry report, the Korean purse seine fleet consisted of 16 active vessels in 1987, of which 12 were ex-United States vessels, two were ex-French, and two were new American fleet vessels that had never operated under the American flag (Doulman 1987). In recent years, the Koreans have purchased new vessels constructed in the United States. The fleet grew gradually from 1980 through 1986. Thereafter the number of vessels increased to 23 in 1988, to 28 in 1989, and to 38 vessels by late 1990 (Anon 1989b, Forum Fisheries Committee 1991).

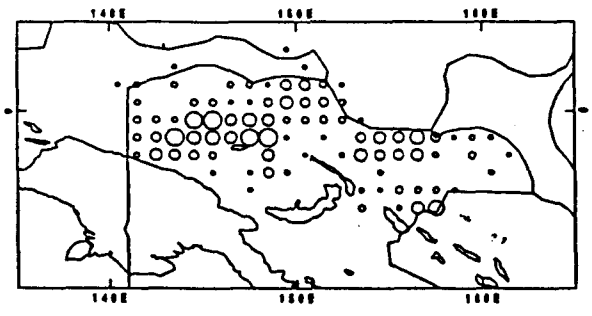

Figure 15. Korean purse seine effort, 1990

While Korean purse seiners have been active in the SPC area since at least 1980, monitoring of catch and effort by Korean purse seiners has been hampered due to lack of data. The coverage of the activitiès of Korean purse seiners in the SPC area by data held in the Regional Tuna Fisheries Database has been estimated to be only about 25 per cent. The poor coverage is attributed to activities in high seas areas, which are not required to be reported under access agreements with

SPC member countries, and to non-reporting of activities within the EEZs of member countries. Under-reporting of catches on the logsheets that are received may also be taking place.

During 1988, data were received at SPC covering 19 vessels, whereas at the end of 1988, the fleet comprised 23 vessels. During 1989, five more vessels were added to the fleet, while only 22 vessels are covered by data held at SPC. The fleet expanded to 38 vessels in 1990; however, so far only 13 vessels are covered by data held at SPC.

Catches increased gradually from 1980, reaching about 37,062 mt in 1986 (Table 29). Since 1987, the catch increased considerably, to 78,524 mt in 1988, then to 128,000 mt in 1989. The total catch in 1990 may reach 152,000 mt.

MEXICO PURSE SEINE

Two Mexican purse seiners fished under an agreement with the Federated States of Micronesia in 1984. The vessels fished for 167 days and caught 3,191 mt, for an average catch rate of 19.1 mt per day (Table 30).

NEW ZEALAND PURSE SEINE

The purse seine fishery for skipjack in New Zealand takes place during the southern summer months. From statistics provided by the Ministry of Agriculture and Fisheries, the New Zealand purse seine fleet, excluding chartered American vessels, caught 4,750 mt during the 1989/90 season (Table 31).

PHILIPPINES PURSE SEINE

Two companies in the Philippines operate purse seiners in the waters of SPC member countries. An estimated 13 vessels fished in Papua New Guinea during 1990, including two Philippine-flagged vessels which operated in a Papua New Guinea joint-venture, with Korean and Singapore interests, based in Madang, Papua New Guinea. One vessel operated in the waters of the Federated States of Micronesia during 1990.

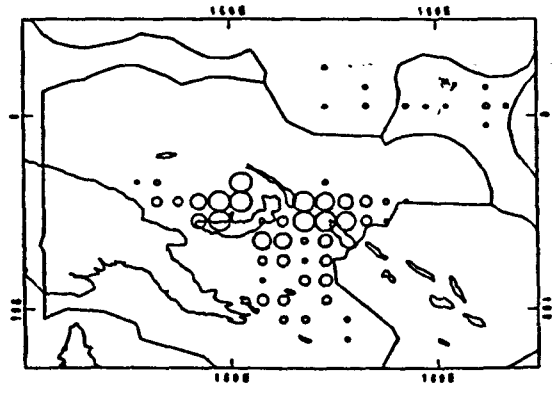

Figure 16. Philippines purse seine effort, 1990

The activity of purse seiners from the Philippines in the SPC statistical area has in the recent past been sporadic, with the vessels moving between the Philippines and Papua New Guinea; during 1990, however, about half of the fleet fished continuously in the waters of Papua New Guinea. The Philippine vessels in Papua New Guinea fishery make extensive use of payaos (anchored rafts) to attract the fish.

The total catch by the fleet in 1989, both inside and outside the SPC area, was about 33,070 mt. The catch during 1990 declined to about 26,906 mt from about 33,070 mt in 1989 (Table 32). The catch rate dropped to 8.3 mt per day in 1990 from 11.1 mt per day in 1989; the average catch rate during 1985-1990 was 8.8 my per day.

SOLOMON ISLANDS PURSE SEINE

Taiyo Fishery Company of Japan first approached the Solomon Islands government about establishing a purse seine fishery in Solomon Islands in 1978 (Anon 1985). In 1980, trials were conducted by a Japanese group seine operation, including a purse seiner of 112 gross tonnes, two refrigerated carrier vessels, each with a fish hold capacity of 125 mt, and support vessel of 38 gross tonnes. Deployment of fish aggregating devices (FADs) was an integral part of the trials; 45 FADs were placed during the first survey period. Following the trials, Solomon Taiyo Ltd (STL) purchased the purse seiner and associated vessels in 1984.

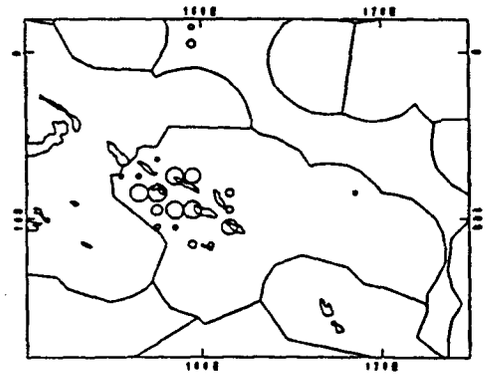

Figure 17. Solomon Islands purse seine effort, 1990

Two single seiners of 500 gross tonnes, built by National Fisheries Development Ltd (NFD), began fishing in 1988. Two Australian purse seiners were chartered by NFD in 1988; the results, however, were disappointing, with only 52 mt caught. A 995 gross tonne Taiwanese purse seiner has been chartered by STL since 1987.

The group seiner increased its catches consistently, from 962 mt in 1980 to 7,333 mt in 1988 (Table 33); the total catch is 1990 was 5,220 mt. The catch rate, while high, has declined in recent years, from 42.6 mt per day in 1988 to 32.4 mt per day in 1990.

The single seiners have been less successful, with annual catches of only 4,126 mt in 1988, ,760 mt in 1989 and 2,958 mt in 1990 (Table 34). While the catch rates for the single seiners have been not been especially poor, 16.4 mt per day in 1990, the number of days fished has been low.

SOVIET UNION PURSE SEINE

Over a twelve month period in 1985 and 1986, 7 vessels from the Soviet Union fished under an access agreement with Kiribati. The vessels caught only 5,539 mt, with an average catch rate of 4.4 mt per day (Table 35).

Vessels from the Soviet Union have also fished under an access agreement with Vanuatu, which commenced in 1987 and lasted for twelve months. The Soviet Union paid US $ 1.5 million in access fees and recorded a total catch of 12 mt; daily catch and effort data were not provided (Forum Fisheries Agency 1989).

The Soviet fleet is known to have fished in the high seas area between Papua New Guinea and the Federated States of Micronesia during September and October 1990 from two tags that were

released by the SPC Regional Tuna Tagging Programme (RTTP) and recovered during fishing operations by Soviet crewmembers.

TAIWAN PURSE SEINE

Taiwanese purse seiners are similar to Japanese purse seiners in their structure and fishing gear employed (Anon 1989b). The fleet grew from 3 vessels in 1980 to 25 vessels in 1989; in 1990, there were 32 vessels fishing in the SPC area (Table 36). The fleet is expected to increase to 37 vessels during 1991.

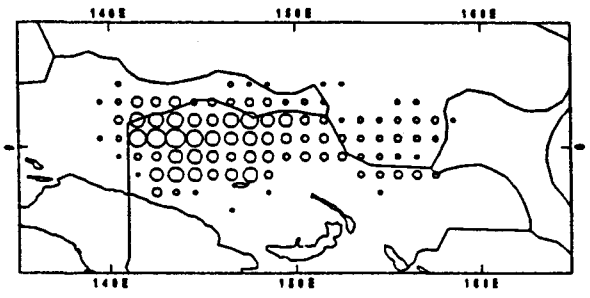

Figure 18. Taiwan purse seine effort, 1990

While coverage of the number of days fished by Taiwanese purse seiners by data held at SPC has been relatively good, it would appear that the catches recorded on logsheets provided to SPC member countries are under-reported. Catch rates for American and Japanese single purse seiners during 1990 were 17.9 and 24.5 mt per day respectively. According to the data provided to SPC member countries, the catch rate during 1990 for Taiwanese purse seiners, which are of roughly the same size class as the Japanese vessels, was only 3.8 mt per day.

If it is assumed that the Taiwanese vessels each catch about 4,000 mt annually, the total catch in 1990 should be about 128,000 mt.

UNITED STATES PURSE SEINE

Though American tuna clippers explored areas of the Central Pacific beginning in 1932, when a San Diego-based tuna clipper fished in the SPC area around Christmas Ridge, the earliest test-fishing in the region by an American purse seiner was that conducted in 1950 and 1951 by the Pacific Ocean Fishery Investigation (POFI) initiative in the Phoenix, Line and Hawaiian islands (Felando 1987). In 1970, purse seine trials were conducted in the waters of Palau, at the invitation of the Van Camp Sea Food Company. Seven seiners participated in exploratory fishing around Palau and in the Philippines, though the trials were not successful. Exploratory fishing was conducted around the Marquesas Islands, beginning in 1971. The vessel found good quantities of surface tuna, but the schools were difficult to catch; the shallow nets were better suited to fishing conditions in the Eastern Pacific. Between 1974 and 1983, the Pacific Tuna Development Foundation (later the Pacific Fisheries Development Foundation), a nonprofit corporation formed in 1974 by government and industry, sponsored 11 exploratory charters. In 1974, a PTDF-chartered vessel spent approximately two months in the vicinity of the Marquesas Islands testing a new purse seine design (Living Marine Resources 1975). Test-fishing was also conducted in New Zealand waters by an American seiner in 1974-1975; the New Zealand trials later resulted in regular visits by American seiners to New Zealand for the January-March skipjack season.

The American purse seine fleet was firmly established in the SPC area by the time of the agreement concluded between the American Tunaboat Association and three SPC member countries, Palau, the Federated States of Micronesia and the Marshall Islands; the agreement allowed American

seiners to fish in the EEZs of the three countries from July 1980 through June 1982. Since the implementation of the U.S. Multilateral treaty on Fisheries between the United States and Pacific Island nations in June 1988, the American purse seine fleet has been permitted to fish in the EEZs of the 16 Pacific island countries party to the treaty.

Catches increased from 4,785 mt in 1979 to 81,770 in 1982 (Table 37). After an exodus of vessels from the Eastern Pacific to the Western Pacific, in response to poor fishing thought to be largely due to an El Niño event, in 1983, 39 vessels fished in the SPC area and caught an estimated 141,016 mt. The next year, 1984, 52 vessels caught 155,391 mt. Thereafter, catches declined as some of the vessels returned to the Eastern Pacific. From 1985 to 1989, the annual catch averaged about 113,000 mt.

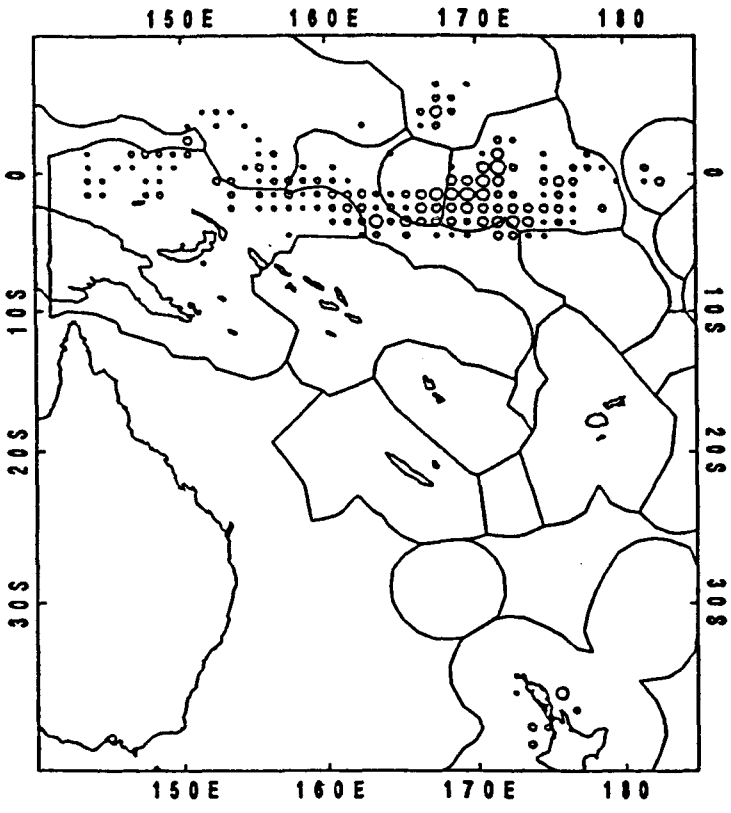

Figure 19. United States purse seine effort, January-July 1990

In response to the announcement on 12 April 1990 that the three largest American tuna canning companies had decided not purchase tuna caught in association with dolphins, it was expected that several purse seiners that previously operated in the Eastern Pacific would move to the Western Pacific. At the beginning of 1990, there were 35 vessels active in the SPC area, and no vessels inactive; by the end of the year, there were 38 vessels active and 3 vessels inactive (NMFS,1991).

During 1990, 38 American purse seiners fished in the SPC area and caught 162,230 mt, including 105,660 mt (65 per cent) of skipjack and 56,670 mt (35 per cent) of yellowfin, compared to the 1989 total catch of 139,865 mt. In the past, the usual fishing grounds have been in the northern waters of Papua New Guinea and the southern waters of the Federated States of Micronesia. The fishery in 1990 was exceptional in that good catches of large yellowfin were taken to the east, around Howland and Baker Islands, the Phoenix Islands, and as far as the Line Islands.

TROLL

NEW ZEALAND TROLL

New Zealand trollers have fished for albacore since at least the 1973/74 season (Table 31). The number of vessels has been variable in recent years, dropping from about 100 vessels during the 1986/87 season to about 25 vessels during the 1987/88 season; during the 1989/90 season, about

125 vessels were active (Table 38). In past years, the fishing grounds were located off the west coast of New Zealand and in the Tasman Sea; in recent years, a number of New Zealand vessels have fished in international waters the east of New Zealand. The albacore catch during 1973/74-1989/90 averaged 1,734 mt; the 1989/90 catch, 3,341 mt, was above average.

UNITED STATES TROLL

Exploratory fishing and scientific surveys were conducted by the National Marine Fisheries Service (NMFS) in 1986 with a view to establishing the potential for an albacore fishery in southern waters; American jigboats have fished northern albacore for over 75 years (Laurs and Nishimoto 1989). Further survey work was conducted in 1987, in conjunction with 7 jigboats; the vessels caught 748 mt, with an average catch rate of 2.5 mt per day (Table 39).

In response to the successful results from the surveys, 43 vessels participated in the 1987/88 season, catching 3,527 mt. Most fishing took place from mid-January to the end of March in the area between 35°S and 40°S. During the 1989/90 season, 49 vessels caught 4,637 mt.

Catch rates declined from 2.5 mt per day during the 1986/87 season to 1.2 mt per day during the 1988/89 season; catch rates increased to 1.7 mt per day during the 1989/90 season.

SOUTHEAST ASIA

INDONESIA

Domestic tuna fisheries in the eastern waters of Indonesia consist of several gear types (Naamin and Bahar 1990). State enterprise companies for skipjack pole-and-line fishing are located in Sorong, Ambon and Bitung, while joint-ventures, private companies and the artisanal fisheries are based in Biak, Sorong, Ambon, Ternate and other areas. The joint-venture pole-and-line vessels based in Biak are 300 gross tonnes; state enterpise vessels are mostly 30 gross tonnes; private companies and artisanal vessels range in size from 3 to 30 gross tonnes. A total of 616 pole-and-line vessels ranging from 3 to 30 gross tonnes fished in 1989.

Since 1985, the longline fishery has developed rapidly, increasing to 136 vessels in 1989. While the regular longline fleets consists of vessels ranging from 50 to 100 gross tonnes, a fleet of smaller vessels, from 1 to 30 gross tonnes, has been introduced. Hand-line vessels, ranging from 1 to 3 gross tonnes, numbered 463 in 1989.

A French-Indonesian joint-venture company based in Biak operates three purse seiners, in addition to four pole-and-line vessels. The purse seiners have been licensed to fish in the waters of SPC member countries (Table 26). About 290 artisanal purse seiners operate off East Java. About 200 gillnet vessels, ranging from 3 to 6 gross tonnes, fished in 1989.

Annual catches of tuna and tuna-like species have increased consistently in Indonesia. The total catch of skipjack in 1989 was 101,115 mt, an 18 per cent increase over 1988; the total catch of yellowfin was 57,995 mt in 1989, a 55 per cent increase over 1988 (Table 40).

PHILIPPINES

Fishing vessels in the Philippines are categorized on the basis of their size; those below three gross tonnes are considered *municipal* vessels, while those over three gross tonnes are considerd *commercial* vessels. Municipal vessels are licensed by municipalities; commercial vessels obtain licenses from the Bureau of Fisheries and Aquatic Resources (BFAR). From 1984 to 1989, the commercial sector contributed slightly over 50 per cent of all tuna landings.

The major municipal gear catching tuna is handline, followed by small ringnet and gillnet (Barut and Arce 1990). The most important commercial gear types are purse seine and ringnets operated in conjunction with fish-aggregating devices (FADs). While the total number of municipal vessels is unknown, about 8,000 handliners recently fished for sashimi-grade tuna from General Santos City.

The number of commercial vessels has been variable. The number of purse seiners peaked at 516 in 1982, then declined to 286 in 1988. Ringnet vessels increased consistently, from 143 vessels in 1978 to 524 vessels in 1988; the number of vessels dropped slightly in 1989.

Ringnet, bagnet, handline and longline vessels are almost all less than 100 gross tonnes. The composition of the purse seine fleet has changed over the years. In 1980, there were 409 vessels, of which 20 per cent were over 100 gross tonnes, while in 1988, 46 per cent of the 286 vessels were over 100 gross tonnes.

Skipjack catches in the Philippines have increased considerably, though not consistently, from 45,084 mt in 1979 to to 64,654 mt in 1989 (Table 41). Yellowfin catches have followed a similar pattern, increasing from 49,224 mt in 1979 to 62,146 mt in 1989.

DISCUSSION

The quality of the estimates of annual catches presented in Tables 1-41 varies considerably (Table 42). The estimates for fleets of SPC member countries tend to be good, while those for distant-water fleets tend to be poor. For recent years, the lack of reliable estimates of annual catches for a number of the distant-water purse seine fleets (Indonesia, Japan, Korea, Philippines, Taiwan) is especially problematic. Nevertheless, a rough indication of the status of the fishery during 1990 and of the trends in catch can be derived (Tables 43-49).

The purse seine fishery during 1990 was marked by a considerable increase in fishing effort. The Korean fleet increased by 10 vessels, from 28 in 1989 to 38 in 1990, while the Taiwanese fleet increased by 7 vessels, from 25 in 1989 to 32 in 1990. The fleet of seiners from the Philippines which were active in the SPC area during 1990 numbered 15 vessels. In contrast, the number of vessels active in the American fleet, which was expected to increase dramatically following the "dolphin-safe" announcement of April 1990, had increased by only two, from 36 in 1989 to 38 by late 1990. The number of Japanese single seiners remained relatively constant at 32 vessels.

Due to the increase in fishing effort, and to high catch rates, the preliminary estimate of the catch by purse seiners during 1990 is 707,208 mt, including 525,822 mt of skipjack and 181,386 mt of

yellowfin[1]. The estimate of the purse seine catch for 1990 represents an increase of 123,000 mt over the 1989 estimate of 584,297 mt. Catch rates for the Japanese fleet averaged 24.5 mt per day during 1990, the highest average catch rate for that fleet during 1979-1990; the catch rate for skipjack was 19.9 mt per day, well above the 1979-1990 average of 14.9 mt per day, while the catch rate for yellowfin was 4.4 mt per day, slightly below the 1979-1990 average of 4.7 mt per day.

In contrast to the purse seine fishery, the pole-and-line fishery experienced poor catches during 1990, which resulted in reduced effort by the Japanese fleet in the SPC area. Compared to 1988 and 1989, when the catch rate for Japanese pole-and-line vessels reached 11.7 mt per day and 10.7 mt per day respectively, the catch rate during the first quarter of 1990 was only 5.6 mt per day. As a result, the number of Japanese vessels fishing in the waters of SPC member countries declined more than usual, from 45 in March 1990, to 20 in April, to only 5 in May. The catch rate for the Solomon Islands pole-and-line fleet was 3.5 mt per day, down slightly from the 1971-1990 verage of 4.0 mt per day. Due to poor catches and the decrease in fishing effort, the preliminary estimate of the total 1990 catch, for all fleets combined, is 103,254 mt, down considerably from the estimated 1989 catch of 152,435 mt.

With few data forthcoming from the distant-water longline fishing nations in recent years, and the lack of complete, or even representative, data for the longline fleets of Japan, Korea and Taiwan in the Regional Tuna Fisheries Database, an assessment of the status of the longline fishery is problematic. The preliminary estimate of the total catch by the longline fishery in 1990, 85,821 mt, is consistent with the catches during 1985-1989. The longline fishery would thus appear to have been relatively stable in recent years. Catch rates for Japanese, Korean and Taiwanese longliners determined from data held in the Regional Tuna Fishery Database, though probably not representative of the fleets as a whole, have not shown any trends in recent years, which would support the conclusion of stability in the longline fishery to 1990.

The driftnet fishery was marked by a dramatic decline in the number of vessels active during the 1989/1990 season. The albacore catch by driftnet vessels dropped from 24,946 mt in 1989 to 8,277 mt in 1990. At the Third South Pacific Albacore Research Workshop, held in October 1990, it was suggested that the stock of albacore in the South Pacific was responding to the reduced trend in exploitation (SPC 1990). In particular, it was noted that the catch rate for troll vessels targeting southern albacore rose during the 1989/90 season, after declining consistently since the 1986/87 season. The total catch of albacore by American trollers during the 1989/90 season increased to 5,102 mt, from 3,810 mt during the 1988/89 season, in part due to the increase in the catch rate, but also to a slight increase in the number of vessels active, 49 in 1989/90 compared to 46 in 1988/89. While the American troll catch increased, the New Zealand catch declined, to 3,341 mt in 1989/90 from 5,202 mt in 1988/89. The overall troll catch thus declined, from 9,012 in 1988/89 to 8,443 mt in 1989/90.

The annual catch of the four principal species (albacore, bigeye, skipjack and yellowfin) in the SPC area was 902,259 mt in 1990. The preliminary estimate for 1990 represents a 6.2 per cent increase over the catch during 1989 of 849,354 mt. The catch in the SPC area together with the catch in the waters of Indonesia and the Philippines reached approximately 1,188,169 mt in 1990. Historical

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[1] Catches of bigeye and albacore are not recorded separately for purse seiners in Tables 24-37. Catches of yellowfin may include about 10 per cent bigeye.

trends in the catch by species and in the catch by gear type are shown in Figures 20 and 21 respectively.

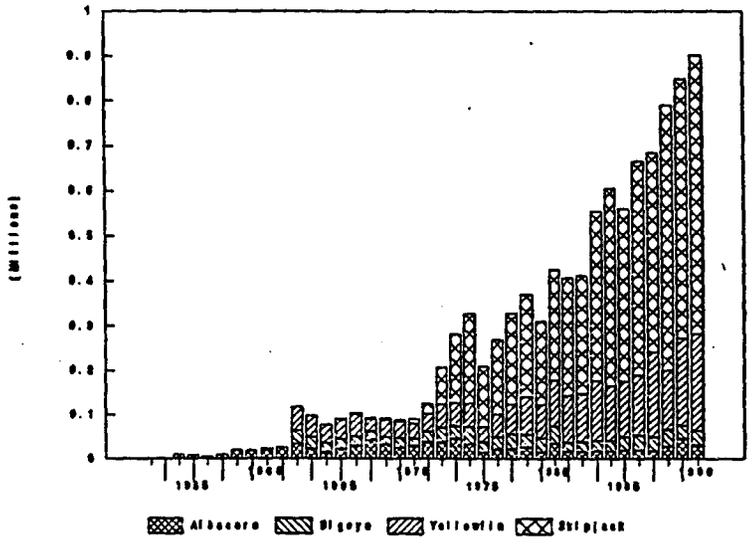

Figure 20. Annual catches (mt) by species in the SPC statistical area

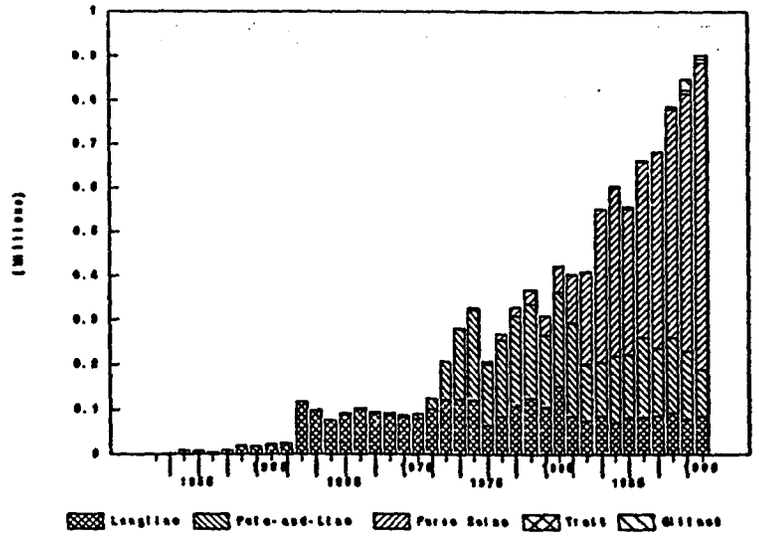

Figure 21. Annual catches (mt) by gear type in the SPC statistical area

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Table 1. Catches of albacore by driftnet vessels of Japan

YEAR	VESSELS ACTIVE	DAYS FISHED	ALB	CPUE TASMAN SEA	CPUE OFF NEW ZEALAND	CPUE EAST AREA
1982	..	...	..	...	...	...
1983	..	...	..	...	...	...
1984	..	...	..	...	...	...
1985	..	...	..	...	...	...
1986	..	...	..	...	...	...
1987	..	...	..	...	...	...
1988	..	...	..	...	...	...
1989	..	...	..	...	...	...
1990	..	...	..	...	...	...

SEASON	VESSELS ACTIVE	DAYS FISHED	ALB	CPUE TASMAN SEA	CPUE OFF NEW ZEALAND	CPUE EAST AREA
1982/83	..	...	32	...	...	...
1983/84	17	...	1,581	256	277	136
1984/85	15	...	1,928	585	351	...
1985/86	12	...	1,936	461	437	...
1986/87	11	...	919	517	168	...
1987/88	21	...	4,271	906	...	...
1988/89	65	3,247[1]	13,263	602	373	895
1989/90	20	1,211[1]	5,567	646	87	1,128

Units: CPUE, number of fish per day

SOURCES

All statistics were reported at SPAR 3 by the National Research Institute of Far Seas Fisheries (SPC 1990, Watanabe 1990), except:

1. The number of days fished for 1988/89 and 1989/90 were determined from data provided to SPC by the National Research Institute of Far Seas Fisheries (Watanabe, October 1990).

Table 2. Catches of albacore by driftnet vessels of Korea

YEAR	VESSELS ACTIVE	DAYS FISHED	ALBACORE MT	ALBACORE CPUE
1988	..	...	...	...
1989	..	...	...	...

SEASON	VESSELS ACTIVE	DAYS FISHED	ALBACORE MT	ALBACORE CPUE
1988/89	1	...	172	...

Units: CPUE, metric tonnes per day

SOURCES

The number of vessels and the catch of albacore in 1988/89 was provided by the National Fisheries Administration of Korea (Kim, personal communication, June 1989); the estimate is for the catch in the "South Pacific".

Table 3. Catches of albacore by driftnet vessels of Taiwan

YEAR	VESSELS ACTIVE	DAYS FISHED	—ALBACORE— MT	CPUE
1987	...	...	...	...
1988	...	...	...	...
1989	...	...	...	...
1990	...	...	...	...

SEASON	VESSELS ACTIVE	DAYS FISHED	—ALBACORE— MT	CPUE
1987/88	7[1]	...	1,000[1]	...
1988/89	65[1]	11,511[2]	8,520[2]	0.7[2]
1989/90	11[1]	...	2,710[3]	...

Units: CPUE, metric tonnes per day

SOURCES

1. The catch of albacore in 1987/88 and the number of vessels active in 1987/88-1989/90 were estimated by TBAP and reported to SPAR 3 (SPC 1990).

2. Statistics for 1988/89 are from catch and effort data provided by the Tuna Research Center, National Taiwan University, to the SCTB Database and the SPAR Database (Hsu, PRO 93/3/36, January 1991).

3. The catch of albacore in 1989/90 was provided by National Taiwan University (Hsu, PRO 93/3/36, May 1991).

Table 4. Catch statistics for domestic longliners of Australia, excluding ex-Japanese vessels

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1985	1	...	...	...	..	...	...	..	...	...	..	...	...	...
1986	12	15	–	–	–	–	–	–	7	1.17	100	–	7	1.17
1987	61	385	29	0.82	9	18	0.05	6	229	2.30	72	40	316	3.62
1988	60	375	23	0.66	7	9	0.03	3	244	2.68	76	44	320	3.78
1989	91	660	61	1.03	10	7	0.02	1	484	2.64	81	44	596	3.96
1990	67	329	18	0.68	6	5	0.02	2	236	3.47	81	31	290	4.59

Units: HOOKS, thousands; CPUE, numbers of fish per 100 hooks

Table 5. Catch statistics for ex-Japanese longliners of Australia

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1987	3	...	...	...	..	...	...	..	...	...	..	...	...	...
1988	2	...	...	...	..	...	...	..	...	...	..	...	...	...
1989	2	...	...	...	..	...	...	..	...	...	..	...	...	...
1990	2	...	...	...	..	...	...	..	...	...	..	...	...	...

Units: HOOKS, thousands; CPUE, numbers of fish per 100 hooks

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, which were provided by the Australian Fisheries Service. Though not known precisely, coverage during 1986—1987 is considered to be low, while coverage during 1989—1990 is considered high.

In accordance with the standard policy on confidentiality of data at the Australian Fisheries Service, statistics for Australian longliners have not been included for years during which the number of vessels that are covered by the data is less than five.

The catches of albacore in 1987-1989 were reported by the Bureau of Rural Resources to SPAR 3 (SPC 1990) as 200 mt, 200 mt and 590 mt respectively. The discrepancy between these estimates and the estimates from the logbook data reported in the table above is thought to be due in part to under-reporting of albacore on the logbooks and in part to the inclusion of catches of albacore by other fisheries in the SPAR 3 estimates.

Table 6. Catch statistics for longliners of Fiji

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1988	..	...	...	...	..	...	...	..	...	...	..	...	...	...
1989	..	...	...	...	..	...	...	..	...	...	..	...	...	...
1990	11	...	...	...	..	...	...	..	...	...	..	...	...	...

Units: HOOKS, thousands; CPUE, numbers of fish per 100 hooks

SOURCES

The number of vessels in 1990 was taken from Anon (1990c).

Table 7. Catch statistics for longliners of Japan, excluding Guam-based vessels

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1952	...	...	210[1]	...	..	...	...	..	...	...	..	...	...	...
1953	...	...	1,091[1]	...	..	...	...	..	...	...	..	...	...	...
1954	...	...	10,200[1]	...	..	...	...	..	...	...	..	...	...	...
1955	...	...	8,420[1]	...	..	...	...	..	...	...	..	...	...	...
1956	...	...	6,220[1]	...	..	...	...	..	...	...	..	...	...	...
1957	...	...	9,764[1]	...	..	...	...	..	...	...	..	...	...	...
1958	...	...	21,558[1]	...	..	...	...	..	...	...	..	...	...	...
1959	...	...	19,344[1]	...	..	...	...	..	...	...	..	...	...	...
1960	...	...	23,756[1]	...	..	...	...	..	...	...	..	...	...	...
1961	...	...	25,628[1]	...	..	...	...	..	...	...	..	...	...	...
1962[5]	...	161,070	34,526	1.55	22	29,818	0.58	19	53,327	1.26	34	37,586	155,256	3.89
1963[5]	...	152,144	21,980	1.04	17	27,739	0.57	21	49,715	1.24	38	32,931	132,366	3.33
1964[5]	...	114,674	15,276	0.96	15	20,276	0.55	20	41,270	1.37	41	24,100	100,921	3.35
1965[5]	...	135,561	16,404	0.87	15	22,607	0.52	21	41,563	1.16	38	27,761	108,335	3.01
1966[5]	...	130,384	19,157	1.06	19	18,268	0.44	18	46,966	1.37	47	16,268	100,658	3.11
1967[5]	...	107,380	14,418	0.97	22	14,983	0.43	22	24,209	0.86	36	13,333	66,943	2.51
1968[5]	...	100,691	7,783	0.56	13	13,969	0.43	23	28,051	1.06	45	11,939	61,741	2.29
1969[5]	...	101,981	5,485	0.39	9	17,518	0.54	28	29,340	1.09	46	10,967	63,309	2.23
1970[5]	...	101,177	6,307	0.45	10	13,841	0.43	22	28,256	1.06	44	15,440	63,843	2.23
1971[5]	...	112,483	4,891	0.31	8	16,230	0.45	27	26,439	0.89	44	13,000	60,561	1.86
1972[5]	...	123,027	3,721	0.22	6	22,335	0.57	34	27,091	0.84	41	12,846	65,992	1.82
1973[5]	...	102,922	3,079	0.22	5	15,415	0.47	26	28,809	1.06	49	12,007	59,309	1.97
1974[5]	...	138,433	3,484	0.18	5	21,348	0.48	32	28,868	0.79	43	12,791	66,491	1.63
1975[5]	...	113,267	2,174	0.14	4	19,336	0.53	35	25,127	0.84	46	8,149	54,785	1.65
1976[5]	...	127,441	2,626	0.15	4	22,034	0.54	35	29,165	0.87	46	10,003	63,828	1.71
1977[5]	...	111,865	1,510	0.10	2	24,595	0.69	34	40,425	1.37	55	6,818	73,348	2.28
1978[5]	...	119,408	1,773	0.11	2	20,439	0.53	23	58,240	1.85	65	9,834	90,286	2.67
1979[5]	...	146,477	2,288	0.11	3	26,846	0.57	31	46,932	1.22	53	11,877	87,943	2.07
1980[5]	...	173,364	3,154	0.13	3	27,251	0.49	26	60,583	1.33	57	15,748	106,737	2.14
1981	...	...	4,856[1]	...	6	19,165[3]	...	24	49,003[2]	...	61	6,954	79,978	...
1982	...	...	4,900[1]	...	7	22,122[3]	...	31	38,162[2]	...	53	7,240	72,424	...
1983	...	...	4,928[1]	...	7	20,186[3]	...	29	40,193[2]	...	58	3,552	68,859	...
1984	...	...	3,607[1]	...	7	16,767[3]	...	31	28,433[2]	...	52	5,712	54,519	...
1985	...	...	3,746[1]	...	6	21,641[3]	...	35	30,766[2]	...	50	5,895	62,048	...
1986	...	...	4,466[1]	...	8	23,917[3]	...	42	24,872[2]	...	43	4,196	57,451	...
1987	...	...	4,085[1]	...	6	27,332[3]	...	39	34,111[6]	...	49	4,029	69,557	...
1988	...	...	6,894[1]	...	9	31,300[4]	...	41	28,741[6]	...	39	8,900[4]	75,835	...
1989	...	...	5,100[1]	...	8	22,927[3]	...	36	29,318[6]	...	46	6,608	63,953	...
1990	...	...	5,100[7]	...	8	22,927[7]	...	38	29,318[7]	...	49	3,086	60,431	...

Units: HOOKS, thousands; CPUE, numbers of fish per 100 hooks

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. Catches of albacore in 1952-1961 and 1981-1989 were reported by the National Research Institute of Far Seas Fisheries to SPAR 3 (SPC 1990); these estimates are for the Pacific Ocean, south of the Equator.

2. Catches of yellowfin for 1981-1986 were taken from Suzuki (1988); these estimates are for FAO Area 71.

3. Catches of bigeye for 1981-1987 and 1989 were taken from FAO Yearbooks (FAO 1974-1990) for FAO Area 71; it is assumed that the catch of bigeye by Japan in Area 71 was taken entirely by longline.

Table 7 continued

4. The catch of bigeye and other species for 1988 was provided by the National Research Institute of Far Seas Fisheries (Tsuji, personal communication, August 1990). The estimates are for an area bordered by 25°N, 25°S, 130°E and 180°. The catch of other species includes billfish and sharks.

5. The number of hooks and CPUE for albacore, bigeye and yellowfin, for 1962-1980, were determined from data published by 5° square by the Fisheries Agency of Japan (1962-1980), for an area approximating the SPC statistical area. The catch estimates published by the Fisheries Agency of Japan are given in numbers of fish; these were converted to the catch in kilogrammes using average weights (kg) determined from logsheet data in the Regional Tuna Fisheries Database for 1980:

SPECIES	WEIGHT
YELLOWFIN	26.32
ALBACORE	13.83
BIGEYE	32.08
SKIPJACK	6.19
BLUEFIN	37.00
STRIPED MARLIN	78.68
BLUE MARLIN	44.00
BLACK MARLIN	89.96
SWORDFISH	54.59
SAILFISH	22.42
SHARK	23.03
OTHER	36.07

6. Estimates of the catch of yellowfin for 1987-1989 were determined by subtracting the purse catch of yellowfin in the SPC statistical area from the catches of yellowfin reported in FAO Yearbooks (FIDI, personal communication, May 1991) for Area 71.

7. Estimates for 1989 have been used as preliminary estimates for 1990.

Table 8. Catch statistics for longliners of Japan, based on Guam

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1987[2]	...	...	...	0.01	..	1,615	0.51	54	1,277	0.46	43	108	3,000	1.02
1988[2]	...	...	...	0.00	..	2,153	0.40	54	1,703	1.01	43	144	4,000	1.47
1989	...	10,491	29	0.01	1	2,255	0.65	51	1,977	0.79	45	179	4,440	1.48
1990[1]	114	...	2	0.00	0	5,456	0.74	60	3,294	0.66	36	349	9,101	1.43

Units: HOOKS, thousands; CPUE, numbers of fish per 100 hooks

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. The number of vessels active and catch estimates for 1990 were determined from transhipment statistics provided by the Department of Commerce, Guam.

2. Catch statistics for 1987-1988 were estimated from the total annual amount of tuna transhipped in Guam, for all fleets combined, estimated by the Port Authority of Guam and provided by the Department of Commerce, assuming that 60 per cent of the total was transhipped by Japanese longliners and applying the species composition for 1989 (Harris, PRO 93/3/8, June 1991).

Table 9. Catch statistics for longliners of Korea

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1958	...	...	...	...	..	...	...	..	...	...	..	...	...	...
1959	...	...	...	...	..	...	...	..	...	...	..	...	...	...
1960	...	...	...	...	..	...	...	..	...	...	..	...	...	...
1961	...	...	...	...	..	...	...	..	...	...	..	...	...	...
1962	...	...	...	...	..	...	...	..	...	...	..	...	...	...
1963	...	...	...	...	..	...	...	..	...	...	..	...	...	...
1964	...	...	...	...	..	...	...	..	...	...	..	...	...	...
1965[3]	...	...	6,405	...	..	700	...	..	2,000	...	..	...	9,105	...
1966[3]	...	...	10,817	...	..	2,900	...	..	3,000	...	..	...	16,717	...
1967[3]	...	...	13,717	...	..	3,200	...	..	1,900	...	..	...	18,817	...
1968[3]	...	...	10,138	...	..	600	...	..	5,300	...	..	...	16,038	...
1969[3]	...	...	9,963	...	..	2,500	...	..	3,500	...	..	...	15,963	...
1970[3]	...	...	11,599	...	..	2,500	...	..	2,000	...	..	...	16,099	...
1971[3]	...	...	14,482	...	..	4,700	...	..	5,300	...	..	...	24,482	...
1972[3]	...	...	14,439	...	..	7,800	...	..	11,800	...	..	...	34,039	...
1973[3]	...	...	17,452	...	..	8,900	...	..	12,000	...	..	...	38,352	...
1974[3]	...	...	12,194	...	..	14,444	...	..	15,104	...	..	...	41,742	...
1975[1]	...	4,809	185	0.19	7	1,803	0.70	63	725	0.39	26	128	2,840	1.35
1976[1]	...	15,522	2,010	0.70	20	3,998	0.56	40	3,600	0.63	36	459	10,068	1.96
1977[1]	...	39,218	3,914	0.70	18	8,001	0.62	37	9,230	0.85	42	597	21,741	2.20
1978[1]	...	31,884	6,902	1.43	26	7,159	0.65	27	10,497	1.07	40	1,592	26,149	3.29
1979[1]	...	24,983	1,962	0.54	13	4,694	0.55	31	7,223	1.06	48	1,241	15,120	2.27
1980[1]	...	56,501	5,997	0.61	20	7,737	0.38	26	15,109	0.87	50	1,111	29,954	1.90
1981[4]	...	...	4,340	...	24	6,467	...	35	6,199	...	34	1,398	18,404	...
1982[4]	...	...	4,340	...	24	6,467	...	35	6,199	...	34	1,398	18,404	...
1983[1]	...	26,609	4,619	1.17	33	3,610	0.46	26	4,953	0.78	36	701	13,882	2.49
1984[1]	...	38,542	3,485	0.68	22	5,792	0.47	36	5,405	0.59	34	1,419	16,101	1.84
1985[1]	...	48,438	4,969	0.80	23	8,217	0.52	37	7,074	0.60	32	1,688	21,948	2.00
1986[2]	...	38,650	4,285	0.86	20	8,250	0.65	38	7,363	0.78	34	1,785	21,683	2.41
1987[4]	...	...	4,340	...	24	6,467	...	35	6,199	...	34	1,398	18,404	...
1988[4]	...	...	4,340	...	24	6,467	...	35	6,199	...	34	1,398	18,404	...
1989[4]	...	...	4,340	...	24	6,467	...	35	6,199	...	34	1,398	18,404	...
1990[4]	...	...	4,340	...	24	6,467	...	35	6,199	...	34	1,398	18,404	...

Units: HOOKS, thousands; NO, thousands of fish; CPUE, numbers of fish per 1000 hooks

SOURCES

1. Statistics for 1975-1980 and 1983-1985 were determined from data published by the National Fisheries Research and Development Agency of Korea (NFRDA 1980, 1981, 1985, 1988), for an area approximating the SPC statistical area.

2. Statistics for 1986 were determined from data covering the activities of Korean longliners in the Pacific Ocean, which were provided by the National Fisheries Administration of Korea (Kim, personal communication, June 1989). The area used approximates the SPC statistical area.

3. Catches of bigeye and yellowfin for 1965-1974 were taken from FAO Yearbooks for FAO Areas 71 and 81. Catches of albacore for 1965-1974 were taken from SPC (1989).

4. The average catches during 1983-1986 were used as estimates of catches during 1981-1982 and 1987-1990.

Table 10. Catch statistics for longliners of New Caledonia

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1983	1	89	12	0.7	22	1	0.0	2	7	0.3	14	34	54	2.0
1984	2	300	112	1.9	57	9	0.1	5	25	0.3	13	49	195	2.6
1985	3	536	131	1.2	33	15	0.1	4	119	0.8	30	135	400	2.5
1986	2	646	179	1.4	33	17	0.1	3	151	0.6	28	202	549	2.7
1987[1]	3	1,408	563	1.8	42	33	0.1	2	448	1.0	33	307	1,351	3.4
1988[1]	4	1,020	584	3.0	45	18	0.0	1	436	1.3	34	259	1,297	4.5
1989[1]	4	1,336	566	2.0	49	24	0.0	2	248	0.5	22	310	1,148	3.0
1990[2]	4	...	566	...	...	24	...	...	248	...	..	310	1,148	...

Units: HOOKS, thousands; CPUE, numbers of fish per 100 hooks

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. Statistics for 1987-1989 were provided by the Service de la Marine Marchande, Noumea.

2. Catches for 1989 were used as preliminary estimates for 1990.

Table 11. Catch statistics for longliners of Solomon Islands

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1973[1]	2	...	4	...	3	16	...	12	91	...	69	21	132	...
1974	0	–	–	–	–	–	–	–	–	–	–	–	–	–
1975	0	–	–	–	–	–	–	–	–	–	–	–	–	–
1976[1]	2	...	6	...	3	25	...	12	146	...	69	35	212	...
1977[1]	2	...	9	...	3	34	...	12	198	...	69	46	287	...
1978[1]	2	...	9	...	3	36	...	12	207	...	69	48	300	...
1979[1]	2	...	21	...	3	86	...	12	493	...	69	115	715	...
1980[1]	2	...	25	...	..	98	...	12	564	...	69	131	818	...
1981[2]	2	176	2	0.0	1	25	0.2	12	146	1.6	70	36	209	2.0
1982[2]	2	595	8	0.1	2	24	0.1	6	306	1.7	76	65	403	2.3
1983	2	635	19	0.2	3	34	0.2	6	443	2.6	80	55	552	3.1
1984	2	756	19	0.2	5	57	0.2	16	213	1.0	58	76	366	1.7
1985	2	393	12	0.2	5	46	0.3	19	151	1.6	62	33	242	2.3

Units: HOOKS, thousands; CPUE, numbers of fish per 100 hooks

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. The total catch for 1973-1980 were taken from Anon (1985); the catches by species were determined by applying the average species composition for 1981-1985, determined from data held in the Regional Tuna Fisheries Database for Solomon Islands longliners for 1981-1985.

2. The total catch for 1981-1982 were taken from Anon (1985); the catches by species were determined by applying the species composition determined from data held in the Regional Tuna Fisheries Database for Solomon Islands longliners for 1981-1982.

Table 12. Catch statistics for Taiwanese longliners less than 100 gross tonnes transhipping in Guam and Palau

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1987[2]	...	...	...	...	..	3,270	...	45	3,676	...	51	258	7,204	...
1988[2]	...	...	...	...	..	3,270	...	45	3,676	...	51	258	7,204	...
1989[2]	...	...	...	...	..	3,270	...	45	3,676	...	51	258	7,204	...
1990[1]	...	...	...	...	..	3,270	...	45	3,676	...	51	258	7,204	...

Units: HOOKS, thousands; CPUE, numbers of fish per 100 hooks

SOURCES

..l statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. Catches for 1990 were estimated from transhipment statistics provided by the Guam department of Commerce; 219 Taiwanese longliners transhipped 1,635 mt of bigeye, 1,838 mt of yellowfin and 129 of other species from Guam during 1990; the estimates in the table above were determined by assuming the same amount was also transhipped from Palau during 1990.

2. Catch estimates for 1990 were used as estimates for 1987-1989, due to lack of data for previous years.

Table 13. Catch statistics for Taiwanese longliners greater than 100 grt

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1964	...	...	...	...	..	...	...	..	...	...	..	...	...	...
1965	...	...	...	...	..	...	...	..	...	...	..	...	...	...
1966	...	...	...	...	..	...	...	..	...	...	..	...	...	...
1967[1]	...	18,274	14,423	4.41	75	1,893	0.38	10	2,059	0.52	11	799	19,174	5.43
1968[1]	...	21,635	14,986	3.94	64	2,093	0.29	9	5,050	0.91	22	1,134	23,263	5.35
1969[1]	...	15,477	9,787	3.68	59	1,058	0.21	6	4,758	1.25	29	938	16,541	5.50
1970[1]	...	17,455	12,260	4.08	71	744	0.22	4	2,997	0.65	17	1,331	17,332	5.22
1971[1]	...	35,428	19,669	3.47	61	2,088	0.21	7	8,938	1.25	28	1,311	32,006	5.02
1972[1]	...	39,480	21,182	3.31	59	2,990	0.27	8	9,758	0.97	27	1,697	35,627	4.64
1973[1]	...	51,603	26,917	3.16	66	3,748	0.21	9	8,594	0.68	21	1,703	40,961	4.12
1974[1]	...	51,710	18,388	2.45	67	2,596	0.20	10	5,115	0.46	19	1,155	27,253	3.17
1975[1]	...	37,756	12,803	2.22	71	1,331	0.14	7	3,085	0.37	17	916	18,136	2.78
1976[1]	...	38,996	18,078	2.84	76	1,270	0.14	5	3,399	0.33	14	1,034	23,781	3.48
1977[1]	...	34,985	17,738	3.47	79	1,046	0.10	5	2,804	0.32	13	735	22,323	3.96
1978[1]	...	30,741	16,176	3.79	60	967	0.11	4	3,629	0.47	13	6,312	27,084	4.77
1979[1]	...	28,223	11,484	2.71	60	1,094	0.15	6	3,025	0.50	16	3,396	19,000	3.61
1980[1]	...	62,178	25,838	2.89	72	2,503	0.13	7	5,128	0.37	14	2,398	35,867	3.48
1981[1]	...	33,249	10,592	2.35	75	899	0.09	6	1,586	0.20	11	1,012	14,089	2.77
1982[1]	...	22,589	9,007	2.79	82	416	0.06	4	764	0.13	7	799	10,985	3.15
1983[1]	...	16,258	7,412	3.27	87	231	0.05	3	518	0.13	6	370	8,530	3.56
1984[1]	...	19,515	6,525	2.31	84	327	0.06	4	575	0.12	7	367	7,795	2.54
1985[1]	...	13,500	5,534	2.89	84	213	0.06	3	607	0.21	9	198	6,552	3.19
1986[2]	...	14,743	8,316	4.35	91	172	0.04	2	513	0.15	6	179	9,180	4.57
1987[2]	...	19,652	9,633	3.41	90	185	0.03	2	641	0.13	6	224	10,683	3.59
1988[2]	...	28,491	12,308	3.01	87	184	0.02	1	1,260	0.20	9	370	14,122	3.27
1989[2]	...	30,234	7,400	1.79	84	338	0.03	4	750	0.11	8	345	8,833	1.95
1990	...	...	9,680[3]	...	..	512[3]	...	..	1,249[3]	...	..	937[3]	12,378[3]	...

Units: HOOKS, thousands; CPUE, numbers of fish per 100 hooks

SOURCES

1. Statistics for 1967-1985 were determined from data aggregated by time-area strata published by the National Taiwan University (Tuna Research Center 1974-1986) for an area approximating the SPC statistical area.

2. Statistics for 1986-1989 were determined from unpublished data aggregated by time-area strata provided to SPC by National Taiwan University (Hsu, personal communication, January 1991) for an area approximating the SPC statistical area.

3. Catches for 1990 were provided by the National Taiwan University (Hsu, personal communication, April 1991); these estimates represent landings in American Samoa and Fiji during 1990. The catch of other species for 1990 includes landings of 319 mt of blue marlin, 132 mt of skipjack, 100 mt of swordfish, 100 mt of sharks and 78 mt of striped marlin.

Table 14. Catch statistics for longliners of Tonga

YEAR	VESSELS ACTIVE	HOOKS	ALBACORE MT	ALBACORE CPUE	ALBACORE %	BIGEYE MT	BIGEYE CPUE	BIGEYE %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1982	1	...	106[1]	1.2	42	18[1]	0.1	7	81[1]	0.6	32	47[1]	252[1]	2.5
1983	1	...	143[1]	2.6	60	17[1]	0.2	7	48[1]	0.6	20	30[1]	238[1]	4.0
1984	1	...	135[1]	4.0	44	28[1]	0.5	9	55[1]	1.2	18	89[1]	307[1]	8.0
1985	1	...	174[1]	1.9	47	15[1]	0.1	4	44[1]	0.3	12	137[1]	370[1]	3.3
1986	1	...	206[1]	3.8	68	12[1]	0.1	4	33[1]	0.3	11	52[1]	303[1]	4.9
1987	1	...	252[1]	3.4	71	14[1]	0.1	4	32[1]	0.2	9	57[1]	355[1]	4.3
1988	1	...	242[1]	3.1	76	6[1]	0.1	2	26[1]	0.2	8	45[1]	319[1]	3.9
1989	1	...	195[1]	2.1	65	12[1]	0.1	4	27[1]	0.3	9	66[1]	300[1]	3.0
1990	1	486	191	2.5	66	13	0.1	5	36	0.3	12	48	288	2.8

Units: HOOKS, thousands; CPUE, numbers of fish per 100 hooks

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. Total annual catches were provided by the Ministry of Fisheries, Nuku'alofa. Catches by species were estimated by applying the species composition for data held in the Regional Tuna Fisheries Database to the totals provided by the Ministry of Fisheries.

Table 15. Catch statistics for pole-and-line vessels of Australia

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1976	9	65	46	0.7	35	1	0.0	1	84	131	2.0
1977	20	134	31	0.2	3	–	–	–	1,165	1,197	8.9
1978	14	205	146	0.7	14	16	0.1	2	870	1,032	5.0
1979	10	66	–	–	–	–	–	–	268	268	4.1
1980	9	62	–	–	–	–	–	–	446	446	7.2
1981	17	192	108	0.6	11	–	–	–	867	975	5.1
1982	20	254	196	0.8	24	5	–	1	626	827	3.3
1983	13	151	109	0.7	44	–	–	–	141	251	1.7
1984	8	57	78	1.4	81	5	0.1	6	13	96	1.7
1985	1	..	...	...	..	...	...	..	...	...	...
1986	2	..	...	...	..	...	...	..	...	...	...
87	2	..	...	...	..	...	...	..	...	...	...
1988	1	..	...	...	..	...	...	..	...	...	...
1989	2	..	...	...	..	...	...	..	...	...	...
1990	..	..	...	...	..	...	...	..	...	...	...

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, which were provided by the Australian Fisheries Service. Catches of southern bluefin comprise 99 per cent of the catches listed as "OTHER". The coverage rate, though not known precisely, is probably low.

In accordance with the standard policy on confidentiality of data at the Australian Fisheries Service, statistics for Australian pole-and-line vessels have not been included for years during which the number of vessels that are covered by the data is less than five.

Table 16. Catch statistics for pole-and-line vessels of Fiji

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1976	..	...	658[1]	2.4	89	84[1]	0.3	11	–	742[1]	2.7
1977	..	...	1,560[1]	2.6	91	151[1]	0.2	9	–	1,711[1]	2.8
1978	..	...	2,115[1]	2.6	84	409[1]	0.7	16	–	2,524[1]	3.3
1979	8[3]	...	3,091[1]	...	88	403[1]	...	12	1[1]	3,495[1]	...
1980	11[3]	...	2,263[1]	1.9	91	233[1]	0.2	9	4[1]	2,500[1]	2.0
1981	12[3]	...	5,222[1]	1.7	90	599[1]	0.2	10	–	5,821[1]	1.9
1982	14[3]	...	3,844[1]	2.2	82	814[1]	0.3	17	7[1]	4,665[1]	2.5
1983	..	...	3,621[1]	2.4	87	562[1]	0.3	13	2[1]	4,185[1]	2.7
1984	..	...	3,992[1]	3.3	87	580[1]	0.4	13	–	4,572[1]	3.7
1985	7[3]	...	3,219[1]	2.8	82	724[1]	0.4	18	4[1]	3,947[1]	3.2
1986	6[3]	...	2,288[1]	2.1	73	823[1]	0.6	26	4[1]	3,115[1]	2.8
1987	8[3]	...	3,474[1]	3.4	89	411[1]	0.3	11	1[1]	3,886[1]	3.7
1988	8[3]	...	3,761[1]	3.0	88	527[1]	0.3	12	–	4,288[1]	3.3
1989	8[3]	...	5,369[1]	3.8	91	507[1]	0.4	7	7[1]	5,883[1]	4.2
1990	9[1]	...	3,507[1]	...	87	516[1]	...	13	6[1]	4,029[1]	...

Units: CPUE, metric tonnes per day

SOURCES

1. Estimates of catches for 1976-1990, and the number of vessels in 1990, were provided by the Fisheries Division, Fiji (Sharma, PRO 93/3/6, May 1990, June 1991). The catch estimates represent landings received at the Pacific Fishing Company Ltd. cannery in Levuka.

2. CPUE for all years were determined from data held in the Regional Tuna Fisheries Database.

3. The number of vessels active were taken from Annual Reports of the Fisheries Division, Fiji.

Table 17. Catch statistics for pole-and-line vessels of Japan

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1972[1]	...	13,330	63,167	4.7	96	1,158	0.1	2	1,386	65,711	4.9
1973[1]	...	19,085	117,070	6.1	98	1,536	0.1	1	714	119,319	6.3
1974[1]	...	23,849	141,636	5.9	98	1,293	0.1	1	1,283	144,212	6.0
1975[1]	...	24,076	103,707	4.3	97	1,920	0.1	2	1,426	107,052	4.4
1976[1]	...	20,283	111,694	5.5	97	2,410	0.1	2	1,198	115,302	5.7
1977[1]	...	32,459	153,579	4.7	96	4,816	0.1	3	1,652	160,047	4.9
1978[1]	...	21,495	131,322	6.1	98	1,534	0.1	1	778	133,635	6.2
1979[1]	...	21,106	99,280	4.7	98	1,441	0.1	1	940	101,661	4.8
1980	317	...	140,884[3]	5.6	96	6,143[2]	0.0	4	...	147,027	5.7
1981	279	...	138,989[3]	6.0	98	2,706[2]	0.0	2	...	141,695	6.1
1982	117	...	97,871[3]	4.9	98	1,531[2]	0.1	2	...	99,402	5.1
83	103	...	82,904[3]	8.7	99	1,030[2]	0.1	1	...	83,934	8.9
1984	94	...	108,354[3]	6.9	99	1,275[2]	0.1	1	...	109,629	7.0
1985	84	...	98,425[3]	5.2	97	3,229[2]	0.2	3	...	101,654	5.4
1986	83	...	136,124[3]	9.7	99	1,827[2]	0.1	1	...	137,951	9.8
1987	77	...	121,530[3]	7.7	99	1,500[5]	0.2	1	...	123,030	7.9
1988	63	...	129,197[3]	11.7	99	1,500[5]	0.1	1	...	130,697	11.7
1989	59	...	117,050[4]	10.6	99	1,500[5]	0.0	1	...	118,550	10.7
1990	61	...	76,193[4]	6.9	99	1,000[5]	0.1	1	...	77,193	7.0

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. All statistics for 1972-1979 were determined from data published by the Fisheries Agency of Japan (Fisheries Agency of Japan 1972-1979), for the SPC statistical area.

   Catches of yellowfin for 1980-1986 are from Suzuki (1988); these statistics are for FAO Area 71.

3. Catches of skipjack for 1980-1988 were determined by subtracting the catches of skipjack in the SPC statistical area by purse seiners (Table 22) from the catch of skipjack reported in the FAO Yearbooks (FAO 1982-1989) for Areas 71 and 77.

4. Preliminary estimates of the catch of skipjack for 1989 and 1990 were determined by adjusting the catch estimates for 1988 (for FAO Areas 71 and 77) by the ratio of skipjack CPUE in 1989 and 1990 to the skipjack CPUE in 1988.

5. The catch of yellowfin in 1987-1990 is a best guess.

Table 18. Catch statistics for pole-and-line vessels of Kiribati

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1979	1[1]	...	...	...	..	...	...	..	..	...	...
1980	..	...	...	...	..	...	...	..	..	...	...
1981	2[2]	...	...	...	..	...	...	..	..	780[2]	...
1982	..	...	...	...	..	...	...	..	..	...	...
1983	..	...	1,481[4]	...	..	253[4]	...	..	..	1,734[4]	...
1984	..	...	1,664[4]	...	..	588[4]	...	..	..	2,252[4]	...
1985	..	...	246[4]	...	..	580[4]	...	..	..	826[4]	...
1986	4	...	117[3]	0.7	49	123[3]	0.7	51	–[3]	240[3]	1.3
1987	4	...	278[3]	0.4	64	143[3]	0.2	33	13[3]	434[3]	0.5
1988	6	...	1,137[3]	1.5	74	384[3]	0.5	25	15[3]	1,536[3]	2.1
1989	5	...	1,682[3]	...	74	568[3]	...	25	23[3]	2,273[3]	...
1990	5	...	421[3]	...	74	142[3]	...	25	6[3]	569[3]	...

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. Anon (1979) reported that the Kiribati government took delivery of a 35 metre skipjack pole-and-line vessel, *Nei Manganibuka*, in 1979. However, no catch statistics are given.

2. Data for 1981 are from Anon (1982).

3. Total catches for 1987-1990 were provided by the Fisheries Division, Tarawa. The total catches for 1987-1990 were broken down to catches by species using the species composition determined from data held in the Regional Tuna Fisheries Database. Statistics for 1986-1987 represent the catches in the waters of Fiji only.

4. Catches for 1983-1985 were taken from statistics provided by the Fisheries Division, Tarawa (Mees, PRO 93/3/9, November 1985).

Table 19. Catch statistics for pole-and-line vessels of New Caledonia

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1981	1	40	226	5.6	99	3	0.1	1	-	228	5.7
1982	3	216	827	3.8	83	41	0.2	4	130	998	4.6
1983	3	113	414	3.7	84	25	0.2	5	53	492	4.4

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database.

Table 20. Catch statistics for pole-and-line vessels of Papua New Guinea

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1970	5	511	2,354	4.6	97	74	0.1	3	2	2,431	4.8
1971	29	4,060	16,862	4.2	99	112	0.0	1	28	17,003	4.2
1972	45	4,950	11,785	2.4	88	1,345	0.3	10	202	13,332	2.7
1973	43	7,863	27,300	3.5	96	916	0.1	3	280	28,496	3.6
1974	47	9,408	40,214	4.3	96	1,416	0.2	3	150	41,780	4.4
1975	48	6,435	15,625	2.4	90	1,744	0.3	10	29	17,398	2.7
1976	40	7,901	24,358	3.1	74	8,563	1.1	26	93	33,015	4.2
1977	51	9,736	20,106	2.1	82	4,009	0.4	16	296	24,411	2.5
1978	48	9,941	45,760	4.6	94	3,099	0.3	6	61	48,920	4.9
1979	45	8,184	23,976	2.9	89	2,881	0.4	11	88	26,945	3.3
1980	50	9,484	30,976	3.3	91	3,018	0.3	9	102	34,096	3.6
1981	44	7,861	27,207	3.5	87	4,205	0.5	13	–	31,412	4.0
1982	0	–	–	–	–	–	–	–	–	–	–
1983	0	–	–	–	–	–	–	–	–	–	–
1984[1]	..	683	2,470	3.6	90	274	0.4	10	...	2,744	4.0
1985[1]	..	...	8,370	...	90	930	...	10	...	9,300	...

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. The total catch for 1984-1985 and the number of days fished for 1984 were taken from Anon (1989c).

Table 21. Catch statistics for Okinawan pole-and-line vessels based in Palau

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1964	6	412	1,025	2.49	87	141	0.34	12	12	1,178	2.86
1965	31	1,399	2,497	1.78	91	173	0.12	6	72	2,742	1.96
1966	15	1,362	2,615	1.92	89	71	0.05	2	250	2,936	2.16
1967	20	1,399	3,354	2.40	95	52	0.04	1	123	3,529	2.52
1968	11	1,512	5,039	3.33	99	17	0.01	–	43	5,099	3.37
1969	9	1,193	4,629	3.88	88	133	0.11	3	497	5,258	4.41
1970	10	1,599	8,081	5.05	96	1	0.00	–	360	8,442	5.28
1971	20	1,639	2,133	1.30	92	10	0.01	–	175	2,318	1.41
1972	11	1,053	1,463	1.39	76	56	0.05	3	394	1,914	1.82
1973	12	1,160	2,309	1.99	84	41	0.04	1	399	2,749	2.37
1974	24	1,692	6,647	3.93	96	161	0.09	2	122	6,930	4.10
1975	21	1,790	5,971	3.34	90	298	0.17	4	346	6,614	3.70
1976	33	1,614	4,911	3.04	92	412	0.26	8	25	5,347	3.31
1977	23	1,119	3,592	3.21	89	420	0.37	10	32	4,043	3.61
1978	26	2,233	9,391	4.21	97	303	0.14	3	31	9,725	4.36
1979	21	1,752	5,687	3.25	100	1	0.00	–	4	5,692	3.25
1980	31	1,219	5,580	4.58	85	996	0.82	15	20	6,596	5.41
1981	36	1,651	6,931	4.20	73	2,480	1.50	26	22	9,433	5.71
1982	20	858	3,438	4.01	78	615	0.72	14	327	4,381	5.11

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database.

Table 22. Catch statistics for pole-and-line vessels of Solomon Islands

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1971	..	813[1]	4,570	...	97	141	...	3	...	4,711[1]	5.8
1972	..	3,356[1]	7,668	...	97	237	...	3	...	7,905[1]	2.4
1973	11[2]	1,944[1]	6,318	...	97	195	...	3	...	6,513[1]	3.4
1974	11[2]	2,182[1]	10,022	...	97	310	...	3	...	10,332[1]	4.7
1975	12[2]	2,419[1]	6,954	...	97	215	...	3	...	7,169[1]	3.0
1976	14[2]	3,495[1]	15,326	...	97	474	...	3	...	15,800[1]	4.5
1977	20[2]	4,741[1]	11,752	...	97	363	...	3	...	12,116[1]	2.6
1978	20[2]	4,656[1]	16,931	...	97	524	...	3	...	17,455[1]	3.7
1979	23[2]	5,085[1]	23,087	...	97	714	...	3	...	23,801[1]	4.7
1980	22[2]	4,993[1]	21,278	...	97	658	...	3	...	21,936[1]	4.4
1981	23	4,676	19,620	4.2	98	211	0.0	1	201	20,033	4.3
1982	25	5,034	16,464	3.3	97	227	0.0	1	259	16,951	3.4
1983	27	5,953	27,028	4.5	97	578	0.1	2	212	27,819	4.7
1984	31	6,284	29,541	4.7	99	338	0.1	1	91	29,969	4.8
1985	36	7,112	23,744	3.3	97	338	0.0	1	461	24,543	3.5
1986	34	7,490	36,159	4.8	96	565	0.1	2	964	37,689	5.0
1987	34	6,839	20,564	3.0	93	1,456	0.2	7	93	22,113	3.2
1988[3]	34	7,449	29,320	3.9	92	2,251	0.3	7	371	31,942	4.3
1989[3]	33	7,122	24,284	3.4	94	1,475	0.2	6	109	25,868	3.6
1990[3]	33	6,112	19,166	3.1	89	2,309	0.4	11	82	21,558	3.5

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database.

1. Days fished, total catch and total CPUE for 1971-1980 were taken from Anon (1988a). Catches of skipjack and yellowfin for 1971-1980 were estimated by arbitrarily applying a species composition of 97 per cent skipjack and 3 per cent yellowfin to the total catches presented in Anon (1989a).

2. The number of vessels active during 1973-1980 were taken from Anon (1985).

3. Estimates for 1988-1990 were determined from daily catch and effort logsheet data corrected with unloading data, provided by the Fisheries Department, Honiara.

Table 23. Catch statistics for pole-and-line vessels of Tuvalu

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1982[1]	1	68	163	2.4	75	53	0.8	25	–	217	3.2
1983[1]	1	122	286	2.3	85	51	0.4	15	–	337	2.8
1984[2]	1	...	513	4.5	95	27	0.2	5	–	540	4.7
1985[2]	1	...	4	...	100	–	–	–	–	4	...
1986[2]	1	...	378	1.7	97	12	0.1	3	–	390	1.7
1987[1]	1	153	542	3.5	85	90	0.6	14	5	637	4.2
1988[1]	1	190	1,069	5.6	98	21	0.1	2	1	1,090	5.7
1989[2]	1	...	142	...	95	7	...	5	–	149	...
1990	1	–	–	–	–	–	–	–	–	–	–

Units: CPUE, metric tonnes per day

SOURCES

1. All statistics for 1982-1983 and 1987-1988 were determined from data held in the Regional Tuna Fisheries Database; coverage by data in the Regional Tuna Fisheries Database for Tuvalu pole-and-line for these years is complete.

2. The total catches for 1984-1986 and 1989 were provided by the National Fishing Company of Tuvalu (NAFICOT) (Faulkner, PRO 93/3/22, March 1990); catches by species were estimated by applying the species composition determined from data held in the Regional Tuna Fisheries Database for Tuvaluan pole-and-line for 1984-1986, and by assuming a species composition of 95 per cent skipjack and 5 per cent yellowfin for 1989. Catches while under charter from October 1984 through May 1986 and December 1989 through December 1990 are not included.

Table 24. Catch statistics for purse seine vessels of Australia fishing in the Australian Fishing Zone

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1974[1]	..	...	1,900	...	..	...	...	..	...	1,900	...
1975	4	...	...	...	..	...	...	..	...	...	...
1976	2	...	...	...	..	...	...	..	...	...	...
1977	1	...	...	...	..	...	...	..	...	...	...
1978	2	...	...	...	..	...	...	..	...	...	...
1979	1	...	...	...	..	...	...	..	...	...	...
1980	1	...	...	...	..	...	...	..	...	...	...
1981	5	98	339	3.5	14	–	–	–	2,129	2,468	25.2
1982	5	50	101	2.0	10	–	–	–	864	965	19.3
1983	5	28	110	3.9	12	–	–	–	791	901	32.2
1984	2	...	...	...	..	...	...	..	...	...	...
1985	1	...	...	...	..	...	...	..	...	...	...
1986	1	...	...	...	..	...	...	..	...	...	...
1987	0	...	...	...	..	...	...	..	...	...	...
1988	2	...	...	...	..	...	...	..	...	...	...
1989	1	...	...	...	..	...	...	..	...	...	...
1990	..	...	...	...	..	...	...	..	...	...	...

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, which were provided by the Australian Fisheries Service. Coverage is know to be relatively low in most years.

In accordance with the standard policy on confidentiality of data at the Australian Fisheries Service, statistics for Australian purse seiners have not been included for years during which the number of vessels that are covered by the data is less than five.

1. The catch of skipjack during the 1974/75 season was taken from Blackburn and Serventy (1981), quoted in Tuna Programme (1984).

Table 25. Catch statistics for purse seine vessels of Australia fishing outside the Australian Fishing Zone

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1988[2]	3	36	101	2.8	77	30	0.8	23	0	131	3.6
1989	...	...	...	...	..	...	...	..	...	...	...
1990	6[1]	...	...	...	..	...	...	..	...	...	...

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database.

1. The number of vessels active in 1990 was provided by the Department of Fisheries and Marine Resources, Konedobu, and represents the number of vessels for which daily catch and effort logsheets covering fishing activities in 1990 have been received by Papua New Guinea under the access agreement for the Australian purse seiners (Richards, PRO 93/3/17, May 1991)

2. Statistics for 1988 include two vessels which fished in Solomon Islands waters and one vessel which fished in Papua New Guinea waters. The data for the vessels which fished in the Solomon Islands were taken from Anon (1989a); statistics for the vessel which fished in the Solomon Islands were determined from data held in the Regional Tuna Fisheries Database.

Table 26. Catch statistics for purse seine vessels of Indonesia licensed to fish in the waters of SPC member countries

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1984	...	...	...	...	..	...	...	..	...	...	...
1985	...	...	...	...	..	...	...	..	...	...	...
1986	3	...	7,121[2]	8.7	83	1,441[2]	1.7	17	-	8,562[2]	10.5
1987	3	...	11,050[2]	13.5	84	2,120[2]	2.5	16	-	13,170[2]	16.1
1988	3	...	11,050[1]	13.5	85	1,950[1]	2.3	15	-	13,000[1]	15.8
1989	3	...	10,313[2]	12.6	81	2,543[2]	3.0	19	-	12,856[2]	15.6
1990	3	...	10,790[3]	...	83	2,210[3]	...	17	...	13,000[3]	...

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database.

1. The total catch in 1988 was provided by PT Multi-Transpêche (Marcille, personal communication, 1989); catches for skipjack and yellowfin in 1988 were determined by applying the species composition from data held in the Regional Tuna Fisheries Database to the total catch. An unknown proportion of the total catch was taken outside the SPC area.

2. Catches for 1986-1987 and 1989 were estimated by adjusting the catches during 1988 by the ratio of the catch rates in 1986-1987 and 1989 to the catch rates in 1988. An unknown proportion of the total catch was taken outside the SPC area.

3. The catches for 1990 were estimated assuming three vessels caught vessel caught 13,000 mt, consisting of 83 per cent skipjack and 13 per cent yellowfin, the average species composition during 1986-1989 determined from data held in the Regional Tuna Fisheries Database for Indonesian purse seiners during 1986-1989. An unknown proportion of the total catch was taken outside the SPC area.

Table 27. Catch statistics for single purse seiners of Japan

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1973[4]	6	...	1,245	...	71	412	...	24	95	1,752	...
1974[4]	7	...	2,437	...	72	728	...	21	227	3,392	...
1975	7[4]	...	4,566[1]	...	73	1,664[1]	...	27	...	6,229[1]	...
1976	10[4]	...	10,353[1]	...	76	3,304[1]	...	24	...	13,658[1]	...
1977	13[4]	...	13,566[1]	...	73	4,989[1]	...	27	...	18,556[1]	...
1978	16[4]	...	23,249[1]	...	75	7,654[1]	...	25	...	30,903[1]	...
1979	16[4]	...	24,875[1]	10.9	70	10,671[1]	4.7	30	...	35,546[1]	15.8
1980	14[4]	...	31,391[1]	13.7	77	9,607[1]	3.4	23	...	40,999[1]	17.3
198*	24[4]	...	37,188[1]	10.6	63	21,730[1]	5.0	37	...	58,918[1]	15.7
198	33[4]	...	70,000[1]	11.5	71	28,774[1]	4.7	29	...	98,774[1]	16.3
1983	34[5]	6,581[1]	109,830[1]	16.7[1]	81	26,191[1]	4.0[1]	19	...	136,021[1]	20.7[1]
1984	41[5]	7,262[1]	110,052[1]	15.2[1]	78	30,836[1]	4.2[1]	12	...	140,889[1]	19.4[1]
1985	33[5]	7,209[1]	103,647[1]	14.4[1]	75	34,730[1]	4.8[1]	25	...	138,377[1]	19.2[1]
1986	34[5]	6,302[1]	108,486[1]	17.2[1]	75	39,724[1]	6.3[1]	25	...	148,210[1]	23.5[1]
1987	32[5]	6,450[1]	88,442[1]	13.7[1]	69	40,392[1]	6.3[1]	31	...	128,834[1]	20.0[1]
1988	33[5]	6,898[1]	137,965[1]	20.0[1]	85	24,928[1]	3.6[1]	15	...	162,894[1]	23.6[1]
1989	33[5]	...	115,300[2]	14.7	77	33,500[2]	5.0	22	1,035[2]	149,835[2]	19.9
1990	32[5]	...	141,952[3]	19.9	77	41,244[3]	4.4	22	1,274[3]	184,470[3]	24.5

Units: CPUE, metric tonnes per day

SOURCES

1. The number of days fished and CPUE for 1983-1988, and catches of skipjack and yellowfin for 1975-1988, were estimated during joint research conducted in 1989 by the SPC Tuna and Billfish Assessment Programme and the National Research Institute of Far Seas Fisheries. The area covered is bordered by 20°N-20°S and 120°E-180°.

2. Catches for 1989 were provided by the National Research Institute of Far Seas Fisheries (Tsuji, personal communication, August 1990). The estimates are for an area bordered by 25°N-25°S and 130°E-180°. The catch of other species includes 950 mt of bigeye.

3. Preliminary catch estimates for 1990 were determined by raising the catches for 1989 by the ratio of the catch rate in 1990 to the catch rate in 1989.

4. Catch statistics for 1973-1974 and the number of vessels during 1973-1982 are from the Fisheries Agency of Japan, quoted in Habib(1984). The number of vessels include one survey vessel in 1974-1975, two survey vessels in 1976, and three survey vessels in 1977-1982.

5. The number of vessels active for 1983-1990 were determined from data held in the Regional Tuna Fisheries Database. Purse seiners licensed in Japan for exploratory fishing may be included.

Table 28. Catch statistics for group purse seiners of Japan

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1980[1]	4	...	2,444	...	74	859	...	26	...	3,303	...
1981[1]	..	...	6,156	...	64	3,463	...	36	...	9,619	...
1982[1]	6	...	8,270	5.03	78	2,333	1.86	22	...	10,603	6.89
1983[1]	7	...	12,292	7.32	85	2,169	1.24	15	...	14,461	8.56
1984[1]	7	...	15,269	20.75	97	472	1.35	3	...	15,741	22.10
1985[1]	7	...	8,980	11.03	74	3,155	3.08	26	...	12,135	14.11
1986[1]	..	...	11,594	23.09	93	873	1.13	7	...	12,467	24.22
1987	5	...	10,547[2]	15.76	82	2,271[2]	3.11	18	...	12,818[2]	18.87
1988	7	...	19,507[2]	20.82	87	2,821[2]	2.76	13	...	22,328[2]	23.59
1989	3	...	5,903[2]	...	73	2,190[2]	...	27	...	8,093[2]	...
19[c]	7	...	15,871[2]	16.94	87	2,331[2]	2.28	13	...	18,202[2]	19.23

Units: CPUE, metric tonnes per day

SOURCES

1. Catches for 1980-1986 are from Nikkatsuren (1980-1984) and Siusan Shinchosha (1984-1986), quoted in Doulman (1987).

2. Skipjack and yellowfin catches were estimated by (1) adjusting the average catch per vessel during 1983-1985, 1,740 mt skipjack and 276 mt yellowfin, by the ratio of the catch rate in each year to the average catch rate for 1983-1985, 13.0 mt of skipjack per day and 1.9 mt of yellowfin per day, and (2) multiplying the adjusted average catch per vessel by the number of vessels active in the SPC area, as determined from data held in the Regional Tuna Fisheries Database. Catch rates for single purse seiners in 1989 were used in lieu of catch rates for group seiners in 1989, due to the lack of data for group seiners.

Table 29. Catch statistics for purse seiners of Korea

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1980[6]	..	...	1,643	...	100	–	...	–	–	1,643	...
1981[6]	..	...	3,109	...	100	–	...	–	...	3,109	...
1982[6]	..	...	11,559	...	81	2,711	...	19	...	14,270	...
1983[6]	..	...	15,427	...	79	4,101	...	21	...	19,528	...
1984[6]	..	...	13,722	...	78	3,870	...	22	...	17,592	...
1985[6]	..	...	11,270	...	87	1,684	...	13	...	22,954	...
1986[6]	..	...	25,573	...	69	11,489	...	31	...	37,062	...
1987[6]	16[7]	...	40,733	...	65	21,933	...	35	...	62,666	...
1988	23[1]	...	59,678[1]	...	76	18,846[1]	...	24	...	78,524[1]	...
1989	28[2]	...	88,320[4]	...	69	39,680[4]	...	31	...	128,000[4]	...
1990	38[3]	...	112,480[5]	...	74	39,520[5]	...	26	...	152,000[5]	...

Units: CPUE, metric tonnes per day

SOURCES

1. The number of vessels active and the total catch for 1988 was provided by the National Fisheries Administration of Korea (Kim, personal communication, June 1989). The total catch was broken down to the catches by species using the species composition determined from the SPC Regional Tuna Fisheries Database for 1988.

2. The number of vessels active in 1989 was taken from Anon (1989b).

3. The number of vessels active in 1990 was taken from Forum Fisheries Committee (1991).

4. The total catch for 1989 was taken from Forum Fisheries Agency (1990); the catches by species were estimated by applying the species composition determined from data for Korean purse seiners for 1989 held in the Regional Tuna Fisheries Database.

5. The total catch for 1990 was estimated by assuming an average of 4,000 mt were caught by each vessel active; the catches by species were estimated by applying the species composition determined from data for Korean purse seiners for 1990 held in the Regional Tuna Fisheries Database.

6. Skipjack catches for 1980-1987 were taken from FAO Yearbooks for FAO Area 71; yellowfin catches for 1980-1987 were estimated by adjusting the skipjack catches by the species composition determined from data for Korean seiners for 1980-1987 held in the Regional Tuna Fisheries Database.

7. The number of vessels active in 1987 was taken from Doulman (1987).

Table 30. Catch statistics for purse seiners of Mexico

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1984	2	167	2,017	12.1	63	1,174	7.0	37	-	3,191	19.1

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database.

Table 31. Catch statistics for purse seiners of New Zealand

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1983	7	277	5,581	20.1	96	239	0.9	4	5	5,825	21.0
1984	5	226	3,999	17.7	91	231	1.0	5	159	4,389	19.4
1985	5	164	2,289	14.0	78	170	1.0	6	459	2,918	17.8
1986	4	183	4,875	26.6	89	–	–	–	622	5,497	30.0
1987	3	157	4,178	26.6	91	1	0.0	0	429	4,608	29.4
1988	4	166	2,907	17.5	84	–	–	–	565	3,472	20.9
1989[1]	..	...	4,474	...	..	..	...	..	...	4,474	...
1990[1]	..	...	4,750	...	..	..	...	..	...	4,750	...

Unit, CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. The catch of skipjack for 1989 and 1990 were provided by the Ministry of Agriculture and Fisheries (McKoy, PRO 93/3/28, June 1990). The catches are for the 1988/89 and 1989/90 seasons respectively.

Table 32. Catch statistics for purse seiners of the Philippines

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1982[3]	1	...	...	...	..	...	...	..	...	...	...
1983[3]	0	...	...	...	..	...	...	..	...	...	...
1984[3]	3	...	...	...	..	...	...	..	...	...	...
1985[1]	5	1,473	9,148	6.2	73	3,331	2.3	27	...	12,479	8.5
1986[1]	5	1,609	6,989	4.3	81	1,630	1.0	19	...	8,619	5.3
1987[1]	5	1,606	12,035	7.5	76	3,867	2.4	24	...	15,902	9.9
1988[2]	9	2,750	20,588	7.5	75	6,829	2.5	25	...	27,417	10.0
1989[2]	10	2,980	21,434	7.2	65	11,636	3.9	35	...	33,070	11.1
1990[2]	11	3,261	18,880	5.8	70	8,026	2.5	30	...	26,906	8.3

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database.

1. All statistics for 1985-1987 were provided by an industry source (PRO 93/3/34, June 1991). A small proportion of the catch may have been taken outside the SPC area, in the waters of Malaysia and the Philippines.

2. The number of days fished and catch estimates for 1988-1990 were determined by raising statistics provided by an industry source (PRO 93/3/34, June 1991) by the number of vessels active covered in the Regional Tuna Fisheries Database. A small proportion of the catch may have been taken outside the SPC area, in the waters of Malaysia and the Philippines.

3. The number of vessels active for 1982-1988 were determined from data held in the Regional Tuna Fisheries Database.

Table 33. Catch statistics for group purse seiners of Solomon Islands

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1980[1]	1	60	497	8.3	52	449	7.5	47	16	962	16.0
1981[1]	1	129	1,486	11.5	52	1,342	10.4	47	45	2,873	22.3
1982[1]	1	127	1,598	12.6	52	1,444	11.4	47	49	3,091	24.3
1983[1]	1	173	2,800	16.2	52	2,530	14.6	47	85	5,415	31.3
1984[1]	1	178	3,050	17.1	56	2,397	13.9	44	–	5,447	30.6
1985[1]	1	188	2,824	15.0	49	2,882	15.3	50	57	5,763	30.7
1986[1]	1	177	3,267	18.4	55	2,258	12.8	38	418	5,943	33.6
1987[1]	1	192	3,183	16.6	52	3,300	17.2	45	850	7,333	38.2
1988[2]	1	156	3,655	23.4	55	2,991	19.2	45	510	6,646	42.6
1989[3]	1	168	3,094	18.4	48	3,347	19.9	52	10	6,451	38.4
1990[3]	1	161	2,441	15.2	47	2,774	17.2	53	5	5,220	32.4

Units: CPUE, metric tonnes per day

SOURCES

1. The total catches for 1980-1987 and the number of days fished were taken from Anon (1989a); catches by species were estimated by applying the species composition determined from data held in the Regional Tuna Fisheries Database for Solomon Islands group seiners for 1980-1987 to the total catches.

2. All statistics for 1988 were taken from Anon (1989a).

3. All statistics for 1989-1990 were determined from data held in the Regional Tuna Fisheries Database.

Table 34. Catch statistics for single purse seiners of Solomon Islands

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1987[1]	1	25	397	15.9	42	537	21.5	56	18	952	38.1
1988[1]	3	155	2,812	18.1	69	1,253	8.1	31	..	4,074	26.3
1989[2]	3	160	2,856	17.8	76	805	5.0	21	99	3,760	23.5
1990[2]	3	180	1,977	11.0	67	888	4.9	30	93	2,958	16.4

Units: CPUE, metric tonnes per day

SOURCES

1. All statistics for 1987-1988 were taken from Anon (1989a). Data for 1988 include one Taiwanese vessel on charter to Solomon Taiyo Ltd, but not two Australian vessels which conducted trials for a limited duration.

2. All statistics for 1989-1990 were determined from data held in the Regional Tuna Fisheries Database.

Table 35. Catch statistics for purse seiners of the Soviet Union

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1985	5	258	754	2.9	38	1,193	4.6	61	19	1,966	7.6
1986	7	996	3,427	3.4	96	137	.1	4	9	3,573	3.6
1987	..	...	...	...	..	...	...	..	..	...	...
1988	..	...	...	...	..	...	...	..	..	...	...
1989	..	...	...	...	..	...	...	..	..	...	...
1990	..	...	...	...	..	...	...	..	..	...	...

Units: CPUE, metric tonnes per day

)URCES

All statistics were determined from data held in the Regional Tuna Fisheries Database.

Table 36. Catch statistics for purse seiners of Taiwan

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1983	3	...	9,840	...	82	2,160	...	18	–	12,000	...
1984	6	...	20,160	...	84	3,840	...	16	–	24,000	...
1985	7	...	23,520	...	84	4,480	...	16	–	28,000	...
1986	10	...	34,400	...	86	5,600	...	14	–	40,000	...
1987	13	...	44,720	...	86	7,280	...	14	–	52,000	...
1988	19	...	66,880	...	88	9,120	...	12	–	76,000	...
1989	25	...	84,000	...	84	16,000	...	16	–	100,000	...
1990	32	...	104,960	...	82	23,040	...	18	–	128,000	...

Units: CPUE, metric tonnes per day

SOURCES

The number of vessels active were estimated from data held in the Regional Tuna Fisheries Database. Total catches were estimated assuming each vessel caught 4,000 mt annually; catches by species were determined by applying the species composition for data held in the Regional Tuna Fisheries Database for Taiwanese purse seiners during 1983-1990.

Table 37. Catch statistics for purse seiners of the United States

YEAR	VESSELS ACTIVE	DAYS FISHED	SKIPJACK MT	SKIPJACK CPUE	SKIPJACK %	YELLOWFIN MT	YELLOWFIN CPUE	YELLOWFIN %	OTHER MT	TOTAL MT	TOTAL CPUE
1976[1]	...	...	500	...	..	200	...	..	...	700	...
1977[1]	...	...	700	...	..	200	...	..	...	900	...
1978[1]	...	...	800	...	..	200	...	..	...	800	...
1979[1]	...	...	8,000	...	..	600	...	..	20	8,620	...
1980[1]	...	...	9,900	...	..	1,100	...	..	–	11,000	...
1981[2]	18	2,362	16,228	6.9	46	18,785	8.0	54	–	35,013	14.8
1982[2]	29	4,310	50,191	11.6	61	31,578	7.3	39	–	81,770	19.0
1983[1]	39[2]	...	104,100	12.9	..	49,600	7.7	..	...	153,700	20.6
1984[1]	52[2]	...	124,300	10.6	..	45,100	5.7	..	60	169,460	16.3
1985[1]	39[2]	...	87,700	12.8	..	29,000	3.8	..	...	116,700	16.6
1986[1]	...	...	93,500	...	..	36,600	...	..	...	130,100	...
1987[1]	...	...	79,800	...	..	66,400	...	..	...	146,200	...
1988[1]	32	...	99,400	14.8	..	25,200	3.1	..	...	124,600	17.9
1989	36	6,629	92,109	13.9	66	46,793	7.1	33	863	139,865	21.1
1990[3]	38[4]	...	105,660	...	65	56,670	...	35	...	162,230	...

Units: CPUE, metric tonnes per day

SOURCES

All statistics were determined from data held in the Regional Tuna Fisheries Database, except where noted.

1. Catch estimates for 1976-1980 and 1983-1988 were provided by the National Marine Fisheries Service (Sakagawa, PRO 93/3/30, June 1991); these statistics represent landings of tuna caught in the Central and Western Pacific. Since trips that start late in one year may land their catch in the next, landings in each calendar year may contain some catches from the previous year.

2. All statistics for 1981-1982 and the number of vessels during 1983-1985 were determined from data provided by the American Tunaboat Association.

3. Catch estimates for 1990 were provided by the National Marine Fisheries Service (Sakagawa, PRO 93/3/30, June 1991); these statistics are preliminary.

4. NMFS (1991) has reported 38 vessels active and 3 vessels inactive at the end of 1990.

Table 38. Catches of albacore by trollers of New Zealand

YEAR	VESSELS ACTIVE	DAYS FISHED	—ALBACORE— MT	CPUE
1973	...	...	...	...
1974	...	...	...	...
1975	...	...	...	...
1976	...	...	...	...
1977	...	...	...	...
1978	...	...	...	...
1979	...	...	...	...
1980	...	...	...	...
1981	...	...	...	...
1982	...	...	...	...
1983	...	...	...	...
1984	...	...	...	...
1985	...	...	...	...
[illegible]	...	...	...	...
	...	...	...	...
1988	...	...	...	...
1989	...	...	5,205[1]	...
1990	...	...	...	...

SEASON	VESSELS ACTIVE	DAYS FISHED	—ALBACORE— MT	CPUE
1973/74	..	...	898	...
1974/75	..	...	646	...
1975/76	..	...	25	...
1976/77	..	...	621	...
1977/78	..	...	1,686	...
1978/79	..	...	814	...
1979/80	..	...	1,468	...
1980/81	..	...	2,085	...
1981/82	..	...	2,434	...
1982/83	..	...	744	...
1983/84	..	...	2,773	...
1984/85	..	...	3,253	...
1985/86	..	...	1,911	...
1986/87	100	...	1,227	...
1987/88	25	...	330	...
1/89	200	...	5,202	...
.9/90	125	...	3,341	...

Units: CPUE, metric tonnes per day

SOURCES

1. The annual catch for 1989 was provided by the Ministry of Agriculture and Fisheries (McKoy, PRO 93/3/28, June 1990).

2. Seasonal catches and the number of vessels active were provided to SPAR 3 by the Ministry of Agriculture and Fisheries (SPC 1990).

Table 39. Catches of albacore by trollers of the United States[1]

YEAR	VESSELS ACTIVE	DAYS FISHED	—ALBACORE— MT	CPUE
1986	3	...	89	...
1987	20	...	865	...
1988	46	...	3,650	...
1989	49	...	4,464	...
1990[2]	49	...	4,208	...

SEASON	VESSELS ACTIVE	DAYS FISHED[3]	—ALBACORE— MT	CPUE
1985/86	2	83	89	1.0
1986/87	7	378	748	2.0
87/88	43	2,185	3,527	1.6
1988/89	46	2,464	3,810	1.6
1989/90[2]	49	2,998	5,102	1.7

Units: CPUE, metric tonnes per day

SOURCES

1. All statistics were provided by the National Marine Fisheries Service (NMFS) (Sakagawa, PRO 93/3/30, June 1991). In 1987, 1988, 1989 and 1990, a few vessels from New Zealand, French Polynesia and Canada participated in the albacore troll fishery and were monitored by NMFS. Statistics for these vessels are included with those from American vessels.

2. Statistics for 1990 cover January through April only; these estimates should be considered preliminary.

3. Estimates of the number of days fished during the 1985/86-1989/90 seasons were determined from the total catch and CPUE.

Table 40. Catches (mt) from domestic fisheries in Indonesia

YEAR	LL	BB	PS	GILL	UNCL	TOTAL
SKIPJACK						
1979	–	–	–	–	42,834	42,834
1980	–	–	–	–	51,818	51,818
1981	–	–	–	–	53,498	53,498
1982	43	22,121	6,483	–	32,930	61,577
1983	–	–	–	–	76,790	79,790
1984	–	42,910	9,508	–	28,240	80,658
1985	–	43,999	10,575	–	27,346	81,920
1986	–	48,305	8,946	287	22,259	79,797
1987	–	49,271	9,117	293	22,650	81,331
1988	–	51,735	9,572	308	23,783	85,398
1989	–	64,763	9,294	917	26,141	101,115
990[1]	–	64,763	9,294	917	26,141	101,115
YELLOWFIN						
1979	–	–	–	–	17,899	17,899
1980	–	–	–	–	20,898	20,898
1981	–	–	–	–	25,239	25,239
1982	4,120	963	1,445	–	21,552	28,080
1983	–	–	–	–	26,088	26,088
1984	2,255	2,282	2,135	–	24,025	30,697
1985	2,907	2,344	2,136	–	26,743	34,130
1986	2,557	2,278	1,794	21	30,858	37,508
1987	–	2,323	1,832	21	31,530	35,706
1988	–	2,439	1,923	22	33,107	37,491
1989	13,147	4,707	2,547	122	37,472	57,995
1990[1]	13,147	4,707	2,547	122	37,472	57,995

KEY: LL LONGLINE
BB POLE-AND-LINE
PS PURSE SEINE
GILL GILLNETS
UNCL UNCLASSIFIED

OURCE

All statistics were taken from IPTP (1991), except where noted.

1. Catch estimates for 1989 were used as preliminary estimates for 1990.

Table 41. Catches (mt) from domestic fisheries in the Philippines

YEAR	LL	PS	GILL	UNCL	TOTAL
SKIPJACK					
1979	–	27,050	4,435	13,599	45,084
1980	–	15,004	4,908	11,266	31,178
1981	440	18,731	2,995	16,273	38,439
1982	530	30,688	2,437	17,140	50,795
1983	–	39,971	1,980	15,200	57,151
1984	652	29,976	1,221	12,822	44,671
1985	735	42,780	2,183	14,838	60,536
1986	590	57,325	2,851	16,202	76,968
1987	2,019	50,998	2,656	18,076	73,749
1988	–	–	–	55,940	55,940
1989	–	–	–	64,654	64,654
1990[1]	–	–	–	64,654	64,654
YELLOWFIN					
1979	–	12,301	2,027	34,896	49,224
1980	–	12,463	2,301	33,259	48,023
1981	1,073	18,182	2,655	34,266	56,176
1982	1,897	17,676	1,386	30,963	51,922
1983	–	20,779	1,260	39,997	62,036
1984	1,284	22,989	2,161	32,490	58,924
1985	1,819	21,591	2,040	38,843	64,293
1986	2,411	17,591	2,137	37,371	59,510
1987	3,774	18,087	2,161	27,788	51,810
1988	–	–	–	57,060	57,060
1989	–	–	–	62,146	62,146
1990[1]	–	–	–	62,146	62,146

KEY: LL LONGLINE
PS PURSE SEINE
GILL GILLNETS
UNCL UNCLASSIFIED

SOURCE

All statistics were taken from IPTP (1991), except where noted.

1. Catch estimates for 1989 were used as preliminary estimates for 1990.

Table 42. Quality of estimates of annual catches presented in Tables 1-41

FLEET		QUALITY OF ESTIMATES OF ANNUAL CATCHES
DRIFTNET		
1	JAPAN	GOOD
2	KOREA	GOOD
3	TAIWAN	GOOD
LONGLINE		
4	AUSTRALIA - DOMESTIC	COVERAGE UNKNOWN
5	AUSTRALIA - EX-JAPANESE	POOR
6	FIJI	POOR
7	JAPAN - DISTANT-WATER	POOR 1952-1961, GOOD 1962-1980, POOR 1981-1990
8	JAPAN - GUAM-BASED VESSELS	POOR 1987-1989, GOOD 1990
	KOREA	GOOD 1975-1980, POOR 1981-1982, GOOD 1983-1986, POOR 1987-1990
10	NEW CALEDONIA	GOOD
11	SOLOMON ISLANDS	GOOD
12	TAIWAN - LESS THAN 100 GRT	POOR
13	TAIWAN - GREATER THAN 100 GRT	POOR 1964-1966, GOOD 1967-1990
14	TONGA	GOOD
POLE-AND-LINE		
15	AUSTRALIA	COVERAGE UNKNOWN
16	FIJI	GOOD
17	JAPAN	GOOD 1972-1979, POOR 1980-1990
18	KIRIBATI	POOR 1979-1982, GOOD 1983-1990
19	NEW CALEDONIA	GOOD
20	PAPUA NEW GUINEA	GOOD
21	PALAU	GOOD
22	SOLOMON ISLANDS	GOOD
23	TUVALU	GOOD
PURSE SEINE		
24	AUSTRALIA - AFZ	COVERAGE UNKNOWN
25	AUSTRALIA - FOREIGN	POOR
26	INDONESIA	POOR
27	JAPAN - SINGLE SEINERS	GOOD 1973-1988, POOR 1989-1990
28	JAPAN - GROUP SEINERS	GOOD 1980-1986, POOR 1987-1990
29	KOREA	POOR
	MEXICO	COVERAGE UNKNOWN
31	NEW ZEALAND	GOOD
32	PHILIPPINES	POOR
33	SOLOMON ISLANDS - GROUP SEINERS	GOOD
34	SOLOMON ISLANDS - SINGLE SEINERS	GOOD
35	SOVIET UNION	COVERAGE UNKNOWN 1985-1986, POOR 1987-1990
36	TAIWAN	POOR
37	UNITED STATES	POOR 1976-1980, GOOD 1981-1982, POOR 1983-1988, GOOD 1989-1990
TROLL		
38	NEW ZEALAND	GOOD
39	UNITED STATES	GOOD
SOUTHEAST ASIA		
40	INDONESIA	UNKNOWN
41	PHILIPPINES	UNKNOWN

Table 43. Seasonal catches (mt) by driftnet vessels in the SPC statistical area

SEASON	ALBACORE	BIGEYE	SKIPJACK	YELLOWFIN	TOTAL
1979/80	0	0	0	0	0
1980/81	0	0	0	0	0
1981/82	0	0	0	0	0
1982/83	32	0	0	0	32
1983/84	1,581	0	0	0	1,581
1984/85	1,928	0	0	0	1,928
1985/86	1,936	0	0	0	1,936
1986/87	919	0	0	0	919
1987/88	5,271	0	0	0	5,271
1988/89	24,946	0	0	0	24,946
1989/90	8,277	0	0	0	8,277

Table 44. Annual catches (mt) by longliners in the SPC statistical area

YEAR	ALBACORE	BIGEYE	SKIPJACK	YELLOWFIN	TOTAL
1952	210	0	0	0	210
1953	1,091	0	0	0	1,091
1954	10,200	0	0	0	10,200
1955	8,420	0	0	0	8,420
1956	6,220	0	0	0	6,220
1957	9,764	0	0	0	9,764
1958	21,558	0	0	0	21,558
1959	19,344	0	0	0	19,344
1960	23,756	0	0	0	23,756
1961	25,628	0	0	0	25,628
1962	34,526	29,818	0	53,327	117,671
1963	21,980	27,739	0	49,715	99,434
1964	15,276	20,276	0	41,270	76,822
	22,809	23,307	0	43,563	89,679
[illegible]	29,974	21,168	0	49,966	101,108
1967	42,558	20,076	0	28,168	90,802
1968	32,907	16,662	0	38,401	87,970
1969	25,235	21,076	0	37,598	83,909
1970	30,166	17,085	0	33,253	80,504
1971	39,042	23,018	0	40,677	102,737
1972	39,342	33,125	0	48,649	121,116
1973	47,452	28,079	0	49,494	125,025
1974	34,066	38,388	0	49,087	121,541
1975	15,162	22,470	0	28,937	66,569
1976	22,720	27,327	0	36,310	86,357
1977	23,171	33,676	0	52,657	109,504
1978	24,860	28,601	0	72,573	126,034
1979	15,755	32,720	0	57,673	106,148
1980	35,014	37,589	0	81,384	153,987
1981	15,450	20,089	0	50,735	86,274
1982	14,021	22,580	0	39,313	75,914
1983	17,133	24,079	0	46,162	87,374
1984	13,883	22,980	0	34,706	71,569
1985	14,566	30,147	0	38,761	83,474
1986	17,452	32,368	0	32,939	82,759
1987	14,562	32,467	0	40,414	87,443
1988	20,051	36,940	0	36,066	93,057
1989	13,351	28,833	0	36,480	78,664
1990	15,557	32,207	0	38,057	85,821

Table 45. Annual catches (mt) by pole-and-line vessels in the SPC statistical area

YEAR	ALBACORE	BIGEYE	SKIPJACK	YELLOWFIN	TOTAL
1960	0	0	0	0	0
1961	0	0	0	0	0
1962	0	0	0	0	0
1963	0	0	0	0	0
1964	0	0	1,025	141	1,166
1965	0	0	2,497	173	2,670
1966	0	0	2,615	71	2,686
1967	0	0	3,354	52	3,406
1968	0	0	5,039	17	5,056
1969	0	0	4,629	133	4,762
1970	0	0	10,435	75	10,510
1971	0	0	23,565	263	23,828
1972	0	0	84,083	2,796	86,879
1973	0	0	152,997	2,688	155,685
1974	0	0	198,519	3,180	201,699
1975	0	0	132,257	4,177	136,434
1976	0	0	156,993	11,944	168,937
1977	0	0	190,621	9,759	200,380
1978	0	0	205,665	5,885	211,550
1979	0	0	155,121	5,440	160,561
1980	0	0	200,981	11,048	212,029
1981	0	0	198,303	10,204	208,507
1982	0	0	122,803	3,286	126,089
1983	0	0	115,843	2,499	118,342
1984	0	0	146,376	3,074	149,450
1985	0	0	134,211	5,808	140,019
1986	0	0	175,230	3,428	178,658
1987	0	0	146,915	3,531	150,446
1988	0	0	163,415	4,662	168,077
1989	0	0	148,385	4,050	152,435
1990	0	0	99,287	3,967	103,254

Table 46. Annual catches (mt) by purse seiners in the SPC statistical area

YEAR	ALBACORE	BIGEYE	SKIPJACK	YELLOWFIN[1]	TOTAL
1970	0	0	0	0	0
1971	0	0	0	0	0
1972	0	0	0	0	0
1973	0	0	1,245	412	1,657
1974	0	0	4,337	728	5,065
1975	0	0	4,566	1,664	6,230
1976	0	0	10,853	3,504	14,357
1977	0	0	14,266	5,189	19,455
1978	0	0	24,049	7,854	31,903
1979	0	0	32,875	11,271	44,146
1980	0	0	45,875	12,015	57,890
1981	0	0	64,506	45,320	109,826
1982	0	0	141,719	66,840	208,559
1983	0	0	259,980	86,990	346,970
1984	0	0	292,569	87,920	380,489
1985	0	0	250,132	80,625	330,757
1986	0	0	299,232	99,752	398,984
1987	0	0	295,085	148,101	443,186
1988	0	0	424,543	93,968	518,511
1989	0	0	427,803	156,494	584,297
1990	0	0	519,761	176,703	696,464

[1] Catches of yellowfin may include as much as 10 per cent bigeye.

Table 47. Seasonal catches (mt) by troll vessels in the SPC statistical area

SEASON	ALBACORE	BIGEYE	SKIPJACK	YELLOWFIN	TOTAL
1969/70	0	0	0	0	0
1970/71	0	0	0	0	0
1971/72	0	0	0	0	0
1972/73	0	0	0	0	0
1973/74	898	0	0	0	898
1974/75	646	0	0	0	646
1975/76	25	0	0	0	25
1976/77	621	0	0	0	621
1977/78	1,686	0	0	0	1,686
1978/79	814	0	0	0	814
1979/80	1,468	0	0	0	1,468
1980/81	2,085	0	0	0	2,085
1981/82	2,434	0	0	0	2,434
1982/83	744	0	0	0	744
1983/84	2,773	0	0	0	2,773
1984/85	3,253	0	0	0	3,253
1985/86	2,000	0	0	0	2,000
1986/87	1,975	0	0	0	1,975
1987/88	3,857	0	0	0	3,857
1988/89	9,012	0	0	0	9,012
1989/90	8,443	0	0	0	8,443

Table 48. Annual catches (mt) in the SPC statistical area

YEAR	ALBACORE[1]	BIGEYE	SKIPJACK	YELLOWFIN	TOTAL
1952	210	0	0	0	210
1953	1,091	0	0	0	1,091
1954	10,200	0	0	0	10,200
1955	8,420	0	0	0	8,420
1956	6,220	0	0	0	6,220
1957	9,764	0	0	0	9,764
1958	21,558	0	0	0	21,558
1959	19,344	0	0	0	19,344
1960	23,756	0	0	0	23,756
1961	25,628	0	0	0	25,628
1962	34,526	29,818	0	53,327	117,671
1963	21,980	27,739	0	49,715	99,434
1964	15,276	20,276	1,025	41,411	77,988
1965	22,809	23,307	2,497	43,736	92,349
1966	29,974	21,168	2,615	50,037	103,794
1967	42,558	20,076	3,354	28,220	94,208
1968	32,907	16,662	5,039	38,418	93,026
1969	25,235	21,076	4,629	37,731	88,671
1970	30,166	17,085	10,435	33,328	91,014
1971	39,042	23,018	23,565	40,940	126,565
1972	39,342	33,125	84,083	51,445	207,995
1973	47,452	28,079	154,242	52,594	282,367
1974	34,964	38,388	202,856	52,995	329,203
1975	15,808	22,470	136,823	34,778	209,879
1976	22,745	27,327	167,846	51,758	269,676
1977	23,792	33,676	204,887	67,605	329,960
1978	26,546	28,601	229,714	86,312	371,173
1979	16,569	32,720	187,996	74,384	311,669
1980	36,482	37,589	246,856	104,447	425,374
1981	17,535	20,089	262,809	106,259	406,692
1982	16,455	22,580	264,522	109,439	412,996
1983	17,909	24,079	375,823	135,651	553,462
1984	18,237	22,980	438,945	125,700	605,862
1985	19,747	30,147	384,343	125,194	559,431
1986	21,388	32,368	474,462	136,119	664,337
1987	17,456	32,467	442,000	192,046	683,969
1988	29,179	36,940	587,958	134,696	788,773
1989	47,309	28,833	576,188	197,024	849,354
1990	32,277	32,207	619,048	218,727	902,259

[1] Catches of albacore include statistics by fishing season for driftnet vessels and trollers, rather than by calendar year; catches were allocated to the calendar year at the end of the season.

Table 49. Annual catches (mt) in the SPC statistical area and the waters of Indonesia and the Philippines

YEAR	ALBACORE[1]	BIGEYE	SKIPJACK	YELLOWFIN	TOTAL
1952	210	0	0	0	210
1953	1,091	0	0	0	1,091
1954	10,200	0	0	0	10,200
1955	8,420	0	0	0	8,420
1956	6,220	0	0	0	6,220
1957	9,764	0	0	0	9,764
1958	21,558	0	0	0	21,558
1959	19,344	0	0	0	19,344
1960	23,756	0	0	0	23,756
1961	25,628	0	0	0	25,628
1962	34,526	29,818	0	53,327	117,671
1963	21,980	27,739	0	49,715	99,434
1964	15,276	20,276	1,025	41,411	77,988
1965	22,809	23,307	2,497	43,736	92,349
1966	29,974	21,168	2,615	50,037	103,794
1967	42,558	20,076	3,354	28,220	94,208
1968	32,907	16,662	5,039	38,418	93,026
1969	25,235	21,076	4,629	37,731	88,671
1970	30,166	17,085	10,435	33,328	91,014
1971	39,042	23,018	23,565	40,940	126,565
1972	39,342	33,125	84,083	51,445	207,995
1973	47,452	28,079	154,242	52,594	282,367
1974	34,964	38,388	202,856	52,995	329,203
1975	15,808	22,470	136,823	34,778	209,879
1976	22,745	27,327	167,846	51,758	269,676
1977	23,792	33,676	204,887	67,605	329,960
1978	26,546	28,601	229,714	86,312	371,173
1979	16,569	32,720	275,914	141,507	466,710
1980	36,482	37,589	329,852	173,368	577,291
1981	17,535	20,089	354,746	187,674	580,044
1982	16,455	22,580	376,894	189,441	605,370
1983	17,909	24,079	512,764	223,775	778,527
1984	18,237	22,980	564,274	215,321	820,812
1985	19,747	30,147	526,799	223,617	800,310
1986	21,388	32,368	631,227	233,137	918,120
1987	17,456	32,467	597,080	279,562	926,565
1988	29,179	36,940	729,296	229,247	1,024,662
1989	47,309	28,833	741,957	317,165	1,135,264
1990	32,277	32,207	784,817	338,868	1,188,169

[1] Catches of albacore include statistics by fishing season for driftnet vessels and trollers, rather than by calendar year; catches were allocated to the calendar year at the end of the season.