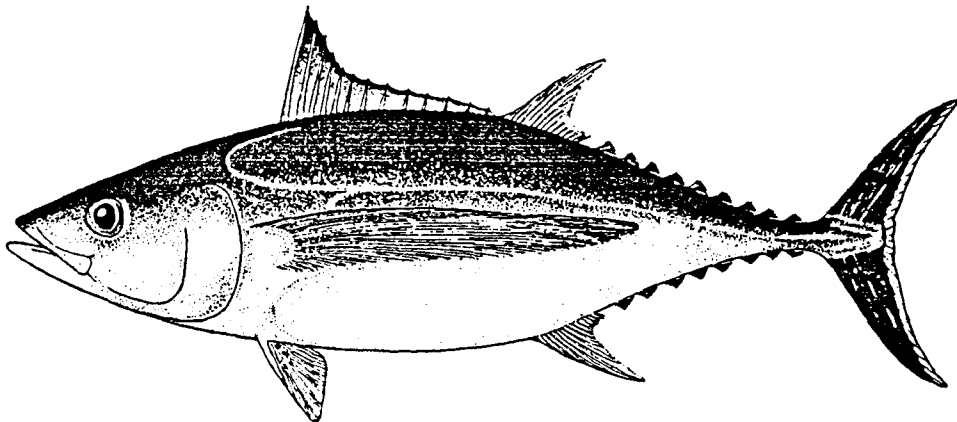




**Longline, Troll and Driftnet Catch Rates of
South Pacific Albacore**

**Tuna and Billfish Assessment Programme
South Pacific Commission**



**Fourth South Pacific Albacore Research Workshop
Working Paper No. 6**

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INTRODUCTION

Estimates of annual catches of South Pacific albacore by longline, troll and driftnet fleets are presented in Tables 1 and 2 and are illustrated in Figures 1 and 2. Estimates of annual catches for the most recent fishing period, the 1990 calendar year for longliners and the 1990/91 season for driftnet and troll vessels, are, in most cases, provisional.

The annual catch estimates in Tables 1 and 2 were determined for the effective fishing area for South Pacific albacore, as defined at the Third South Pacific Albacore Research Workshop (SPAR 3), Noumea, New Caledonia, 9—12 October 1991. The effective fishing area (the SPAR area) is bounded by 0°—50°S, 140°E—90°W.

Several estimates of longline catches reported at SPAR 3 have been revised downward. The reductions are due to new data available covering the Taiwanese fleet during 1986—1989, and to restricting the estimates for the Japanese and Korean fleets to cover only the SPAR area. Surface fishery catches remain largely unchanged.

Catch rates for South Pacific albacore are given in Tables 3 and 4, and are illustrated in Tables 3a, 3b and 4. Catch rates were determined from data held in the SPAR Database (see Working Paper 1).

The distribution of catches of South Pacific albacore by fishing fleet are illustrated in Figures 5—14. Catches for the most recent fishing period covered by data held in the SPAR Database are shown. Catches by calendar year for longliners and catches by season for driftnet and troll vessels, in numbers of fish (except for New Zealand trollers, which are in metric tonnes) are plotted by 5° square. A circle of 5° radius represents a catch of 400,000 fish or more for driftnet and troll vessels, and 20,000 fish or more for longliners. A circle of 5° radius for New Zealand trollers represents a catch of 1000 mt. The area of circles of less than 5° radius is proportional to the ratio of the catch in the 5° square to the catch represented by a circle of 5° radius.

Table 1. Longline catches (mt) of South Pacific albacore

YEAR	AUSTRALIA	FRENCH POLYNESIA	JAPAN	KOREA	NEW CALEDONIA	TAIWAN	TONGA	TOTAL
1952			210					210
1953			1,091					1,091
1954			10,200					10,200
1955			8,420					8,420
1956			6,220					6,220
1957			9,764					9,764
1958			21,558					21,558
1959			19,344					19,344
1960			23,756					23,756
1961			25,628					25,628
1962			35,165					35,165
1963			24,655					24,655
1964			17,294					17,294
1965			15,646	2,974				18,620
1966			19,853	9,941				29,794
1967			13,617	12,660		11,751		38,028
1968			6,860	9,261		12,424		28,545
1969			4,656	9,346		9,595		23,597
1970		+	5,871	10,196		14,689		30,756
1971		+	4,386	10,960		15,887		31,233
1972		+	2,806	13,254		16,814		32,874
1973		+	2,636	13,594		17,742		33,972
1974		+	2,084	8,183		17,283		27,550
1975		+	1,117	7,473		17,071		25,661
1976		+	1,824	6,907		13,700		22,431
1977		+	1,824	10,980		19,746		32,550
1978		+	1,898	11,144		16,723		29,765
1979		+	2,145	11,424		12,122		25,691
1980		+	2,284	8,505		25,844		36,633
1981		+	4,491	15,243		12,311		32,045
1982		+	4,710	12,427		10,292	106	27,535
1983		+	4,923	6,710	12	7,852	143	19,640
1984		+	3,277	5,383	112	6,888	135	15,795
1985		+	3,526	13,510	131	6,093	174	23,434
1986	40	+	4,218	16,267	179	10,052	206	30,962
1987	200	+	3,896	6,822	563	11,507	252	23,240
1988	200	+	6,272	5,978	584	14,055	242	27,331
1989	(590)	(<100)	4,795	6,196	566	8,563	195	21,005
1990	(590)	(<100)	(4,795)	(6,196)	(566)	9,680	191	(22,118)

Provisional estimates are given in parentheses; "+" denotes small catches of unknown size

SOURCES

Australia

Bureau of Rural Resources (Caton). Catches for 1986—1988 were derived by raising logbook data to take account of limited coverage prior to 1989. The 1989 Australian catch includes 530 mt taken by Australia/Japan joint-venture vessels, and, provisionally, 60 mt from the domestic longline fishery.

French Polynesia

EVAAM (Yen).

Japan

Fisheries Agency of Japan (Watanabe). Estimates for 1962—1988 were determined by multiplying the catch in numbers of fish in the SPAR area by an average weight of 13.07 kg. Estimates of the Japanese catch in 1989 and 1990 are the average of 1986—1988 catches.

Table 1 sources continued

Korea	National Fisheries Research and Development Agency (Gong). Catch estimates for 1965—1989 were determined by adjusting Food and Agriculture Organization statistics for the Pacific Ocean (FAO areas 61, 67, 71, 77 and 81) by the proportion of the Pacific Ocean catch taken in the SPAR area. The proportion caught in the SPAR area was calculated from logsheet data published by NFRDA for 1975—1980 and 1983—1987; for other years, the average value over 1975—1980 and 1983—1987 was applied.
New Caledonia	Marine marchande (Etaix-Bonnin). Estimates for 1983—1986 were determined from daily logsheet data held in the SPC Regional Tuna Fisheries Database; these estimates are unraised. Estimates for 1987—1989 are raised estimates provided by the Marine marchande.
Taiwan	Estimates for 1967—1976 represent landings in South Pacific ports reported by the Taiwan Deepsea Tuna Boatowners and Exporters Association; these estimates may include catches outside the SPAR area. Estimates for 1977—1989 represent catches in the SPAR area determined from logsheet data published by National Taiwan University (Hsu). The estimate for 1990 represents landings by longliners in American Samoa and Fiji during 1990.
Tonga	Ministry of Fisheries (Latu). Albacore catch estimates were derived by applying the species composition determined from daily logsheet data held in the SPC Regional Tuna Fisheries Database to estimates of the total annual catch for all species combined provided by the Ministry of Fisheries.

Table 2. Surface fishery catches (mt) of South Pacific albacore

YEAR	AUSTRALIA	JAPAN P/L	JAPAN DRIFTNET	KOREA DRIFTNET	TAIWAN DRIFTNET	NZ TROLL	USA TROLL	TOTAL
1960		45						45
1961								0
1962								0
1963		16						16
1964								0
1965								0
1966								0
1967								0
1968								0
1969								0
1970	200							200
1971	200							200
1972	200							200
1973	200							200
1974	200					898		1,098
1975	200					646		846
1976	200					25		225
1977	200					621		821
1978	200					1,686		1,886
1979	200					814		1,014
1980	200	19				1,468		1,687
1981	200	8				2,085		2,293
1982	200	1				2,434		2,635
1983	200	2	32			744		978
1984	100		1,581			2,773		4,454
1985	100		1,928			3,253		5,281
1986	100		1,936			1,911	89	4,036
1987	100		919			1,227	748	2,994
1988	100		4,271		1,000	330	3,527	9,228
1989	100		13,263	172	8,520	5,202	3,810	31,067
1990	100		5,667	0	2,710	3,341	5,102	16,920
1991	(100)		0	0	(2,710)	(3,341)	6,400	(12,551)

Provisional estimates are given in parentheses

SOURCES

- Australia Bureau of Rural Resources (Caton). Uncertainty in these figures suggests annual sport catches may be in the range of 75 to 150 mt for 1984—1990.
- Japan National Research Institute of Far Seas Fisheries (Watanabe).
- Korea National Fisheries Administration (Kim). The estimate presented for the 1989 calendar year represents the catch during the 1988/89 season, during which one vessel was active.
- Taiwan Catch estimates are for the fishing season, e.g., the estimate presented for the 1988 calendar year represents the catch during the 1987/88 season. The catch estimate for the 1987/88 season was estimated by the TBAP and reported to SPAR 3. The estimate for 1988/89 was determined from catch and effort data processed by the National Taiwan University (Hsu). The estimate for 1990 represents landings by driftnet vessels during 1990.
- New Zealand Ministry of Agriculture and Fisheries (Murray). Catch estimates are for the fishing season, e.g., the estimate presented for the 1974 calendar year represents the catch during the 1973/74 season.

Table 2 sources continued

United States

National Marine Fisheries Service (Sakagawa). Catch estimates are for the fishing season, e.g., the estimate presented for the 1991 calendar year represents the catch during the 1990/91 season. The estimates of American troll catches include catches by a small number of Canadian and French Polynesian vessels.

Table 3. Longline catch rates for South Pacific albacore

YEAR	AUSTRALIA	JAPAN	KOREA	NEW CALEDONIA	TAIWAN	TONGA
1962	-	2.267	-	-	-	-
1963	-	1.654	-	-	-	-
1964	-	1.408	-	-	-	-
1965	-	1.418	-	-	-	-
1966	-	1.441	-	-	-	-
1967	-	1.482	-	-	-	-
1968	-	0.796	-	-	-	-
1969	-	0.485	-	-	-	-
1970	-	0.593	-	-	-	-
1971	-	0.394	-	-	-	-
1972	-	0.268	-	-	-	-
1973	-	0.244	-	-	-	-
1974	-	0.211	-	-	-	-
1975	-	0.132	0.232	-	-	-
1976	-	0.132	0.832	-	0.468	-
1977	-	0.129	0.904	-	3.327	-
1978	-	0.131	1.764	-	3.783	-
1979	-	0.127	1.047	-	2.760	-
1980	-	0.099	0.753	-	2.903	-
1981	-	-	-	-	2.345	-
1982	-	-	-	-	2.650	0.879
1983	-	-	1.173	0.720	3.202	1.438
1984	-	-	0.838	1.639	2.315	1.488
1985	-	-	0.891	1.060	2.918	1.882
1986	-	-	0.979	1.348	4.051	3.757
1987	0.843	-	0.439	1.602	3.051	3.558
1988	0.664	-	-	3.748	2.852	3.064
1989	1.088	-	-	2.166	1.752	2.100
1990	0.719	-	-	1.969	-	2.063

Units: number of fish per 100 hooks

Table 4. Surface fishery catch rates for South Pacific albacore

SEASON	JAPAN DRIFTNET	TAIWAN DRIFTNET	NZ TROLL	USA TROLL
1982/83	-	-	280	-
1983/84	-	-	149	-
1984/85	-	-	238	-
1985/86	-	-	248	-
1986/87	-	-	374	339
1987/88	-	-	349	238
1988/89	621	99	520	236
1989/90	697	-	267	262
1990/91	-	-	174	195

Units: Japan, Taiwan, USA - fish per day
New Zealand - kg per day

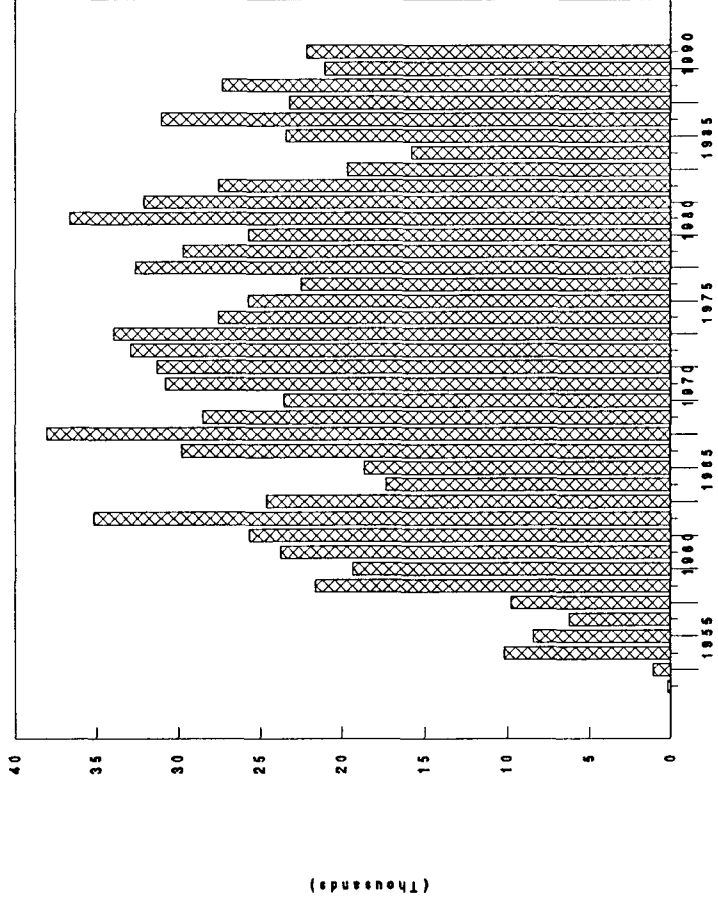


Figure 1. Longline catches (mt) of South Pacific albacore

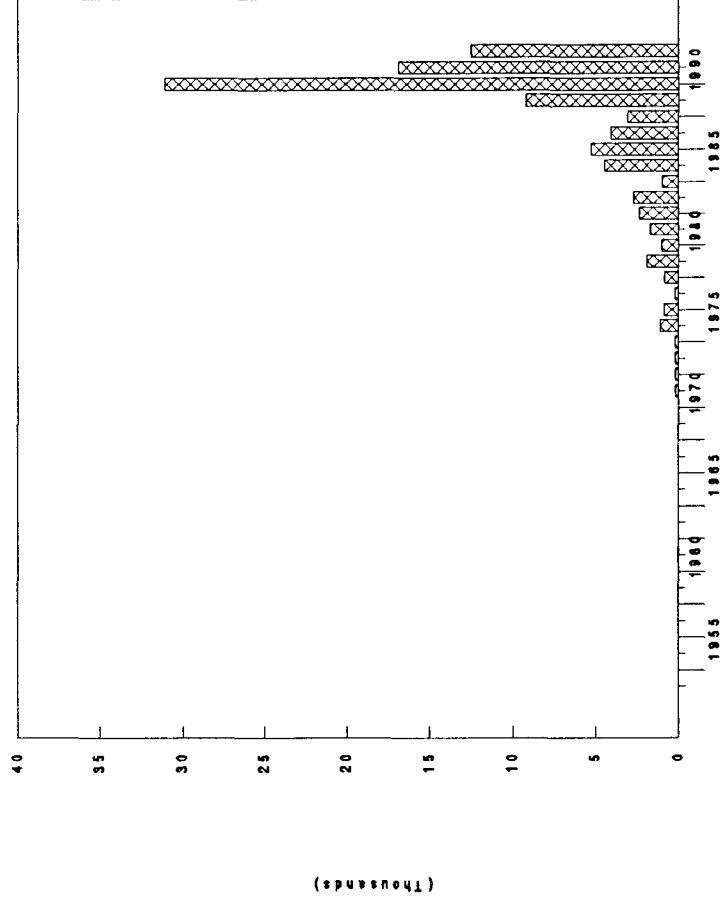


Figure 2. Surface fishery catches (mt) of South Pacific albacore

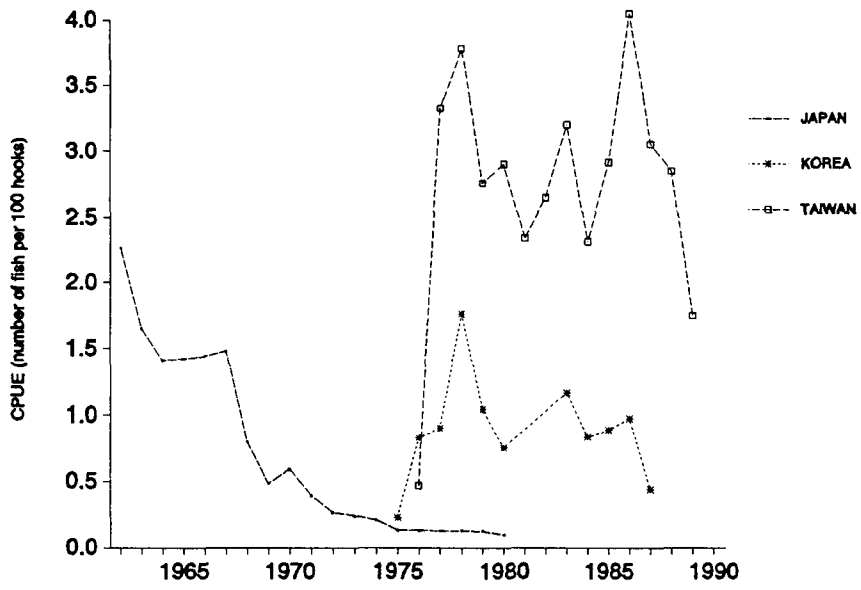


Figure 3a. Longline catch rates for South Pacific albacore

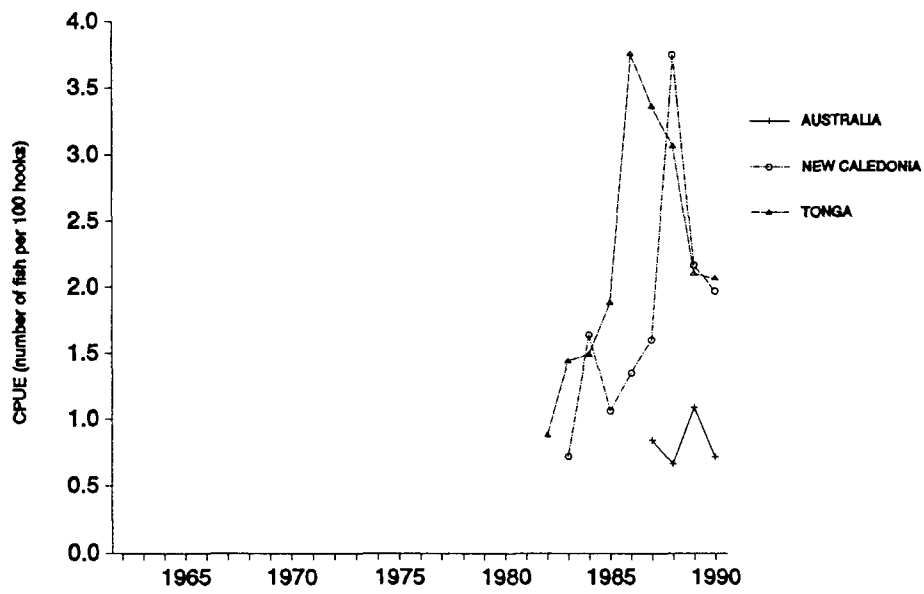


Figure 3b. Longline catch rates for South Pacific albacore

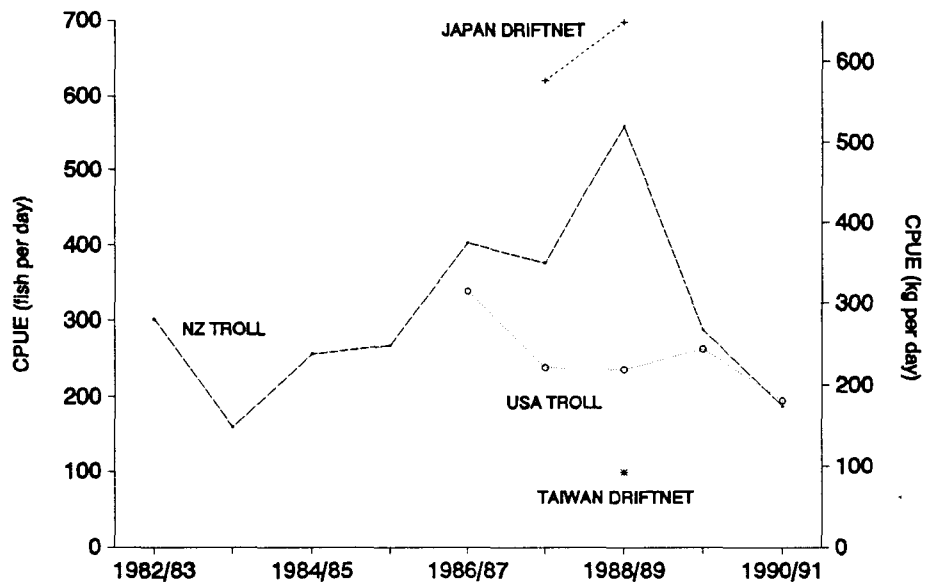


Figure 4. Surface fishery catch rates for South Pacific albacore

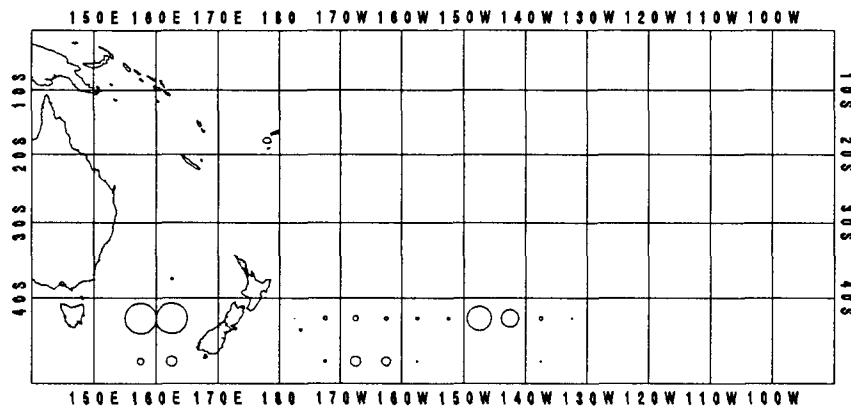


Figure 5. Albacore catch by Japanese driftnet vessels during the 1988/89 season

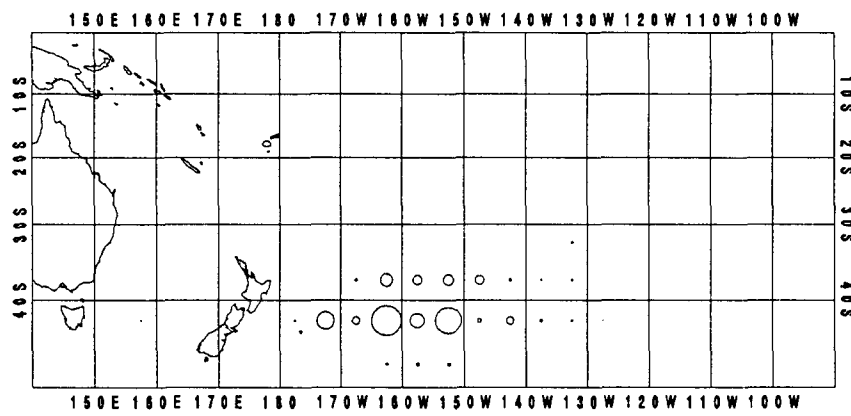


Figure 6. Albacore catch by Taiwanese driftnet vessels during the 1988/89 season

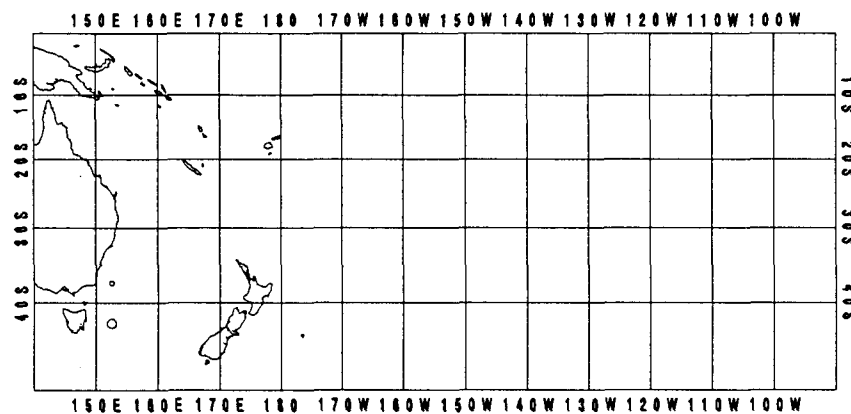


Figure 7. Albacore catch by Australian longliners during 1990

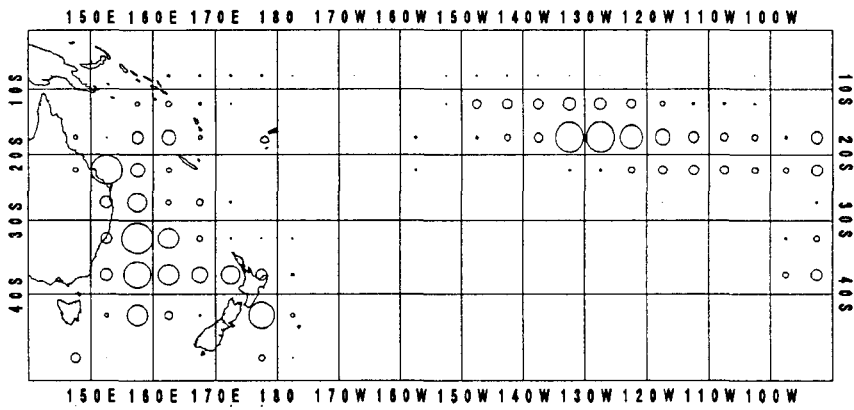


Figure 8. Albacore catch by Japanese longliners during 1988

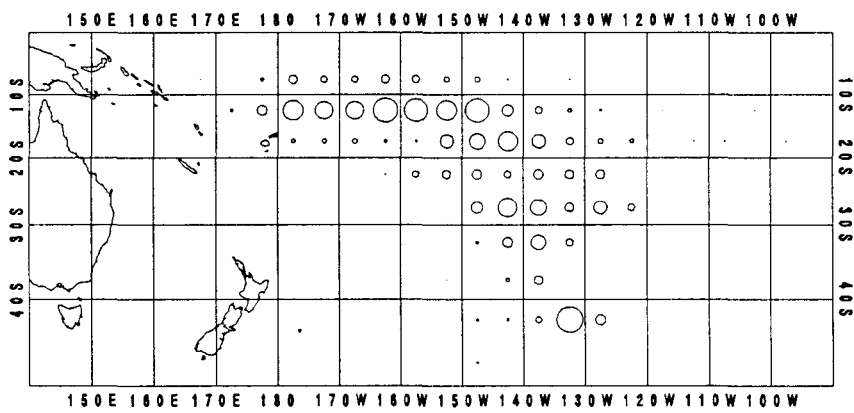


Figure 9. Albacore catch by Korean longliners during 1987

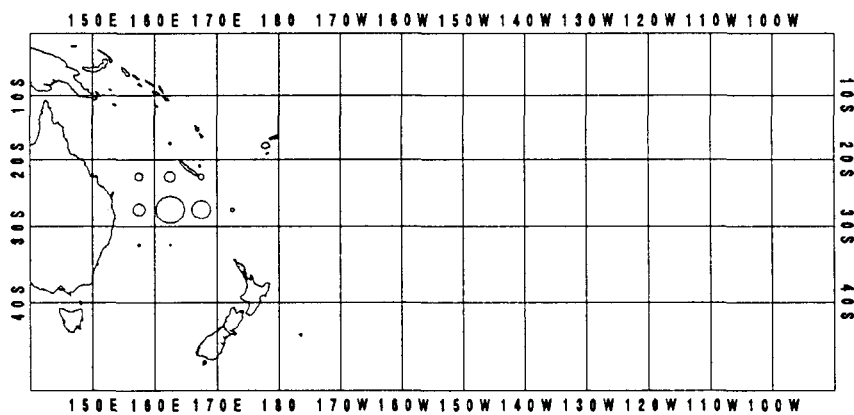


Figure 10. Albacore catch by New Caledonian longliners during 1990

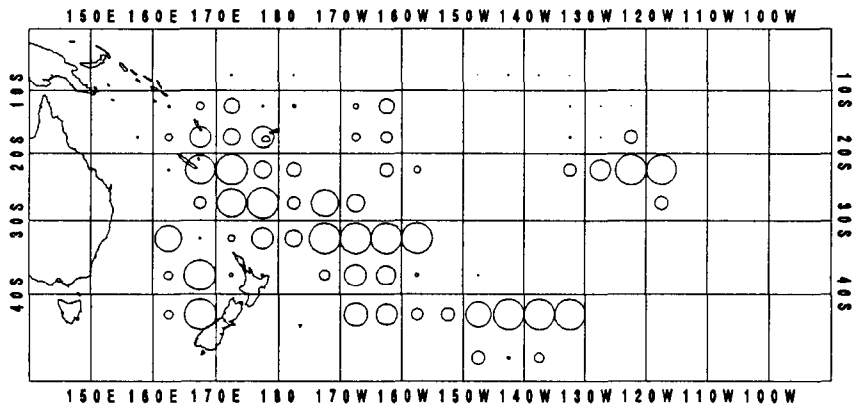


Figure 11. Albacore catch by Taiwanese longliners during 1989

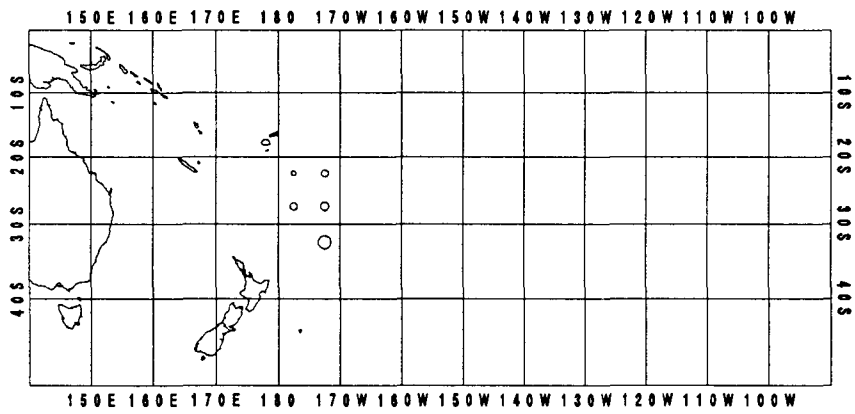


Figure 12. Albacore catch by the Tongan longliner during 1990

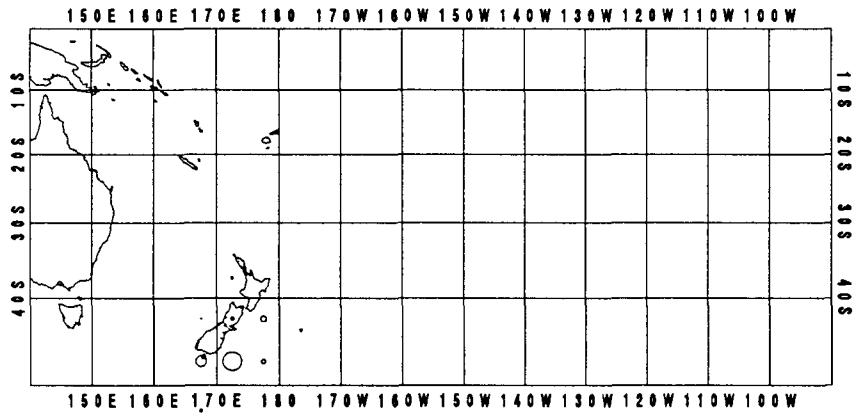


Figure 13. Albacore catch by New Zealand trawlers during the 1990/91 season

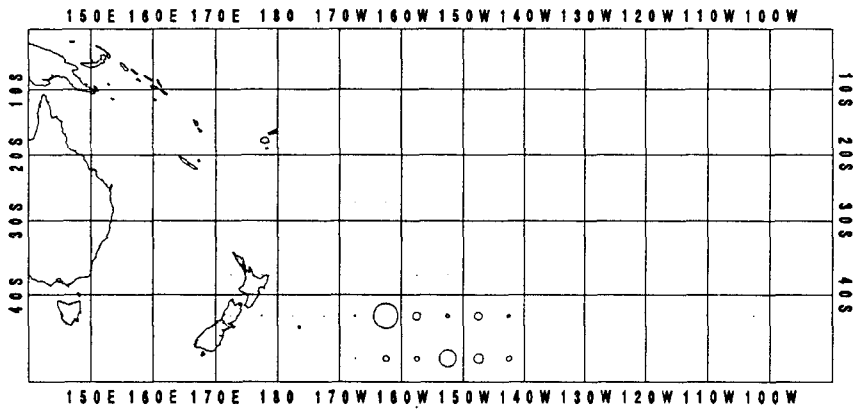


Figure 14. Albacore catch by American trollers during the 1990/91 season