WP8

CATCH TRENDS AND LENGTH FREQUENCY OF SOUTHERN ALBACORE CAUGHT BY JAPANESE DRIFTNET FISHERY

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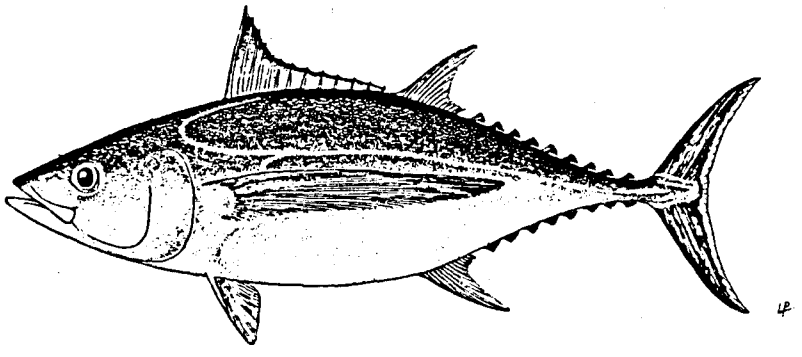

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Catch trends and length frequency of southern albacore caught by Japanese driftnet fishery

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1. Introduction

Activity of Japanese large-mesh driftnet fishery in the South Pacific Ocean was started by several driftnetters in December 1983 and suspended in 1990 by policy of the Japanese Government.

This report describes a summary of catch trends in seven fishing seasons from January 1984 to March 1990 and of length frequency in the last two fishing seasons. Annual number of boats operated, sampled number of boats and estimated catches were shown in Table 1. As the fishery was no licenced one, driftnetters had no duty to submit their catch report to the Government. The data used in this report were obtained from the logbooks provided by some of fishermen volanteered to submit them to National Research Institute of Far Seas Fisheries (NRIFSF). In the last two fishing seasons, all of driftnetters operated (excludes fired boat) in the South Pacific Ocean submitted their catch reports following the Government request. Thus, catch and effort statistics for all boats operated its in last two fishing seasons were compiled, but in other five seasons a part of total catch reports was collected by the NRIFSF. In addition to the catch data, length measurement of albacore were also volantearly provided by some of the driftnetters in the last two fishing seasons.

2. Fishing grounds

Fishing grounds for the Japanese driftnet fishery were formed in two areas during five fishing seasons from 1983/84 to 1987/88. One was established in the Tasman Sea and the other was in the east of New Zealand. In 1988/1989 fishing season, following to the new fishing grounds survey made by the Japan Marine Fishery Resource Research Center, areas east of 150W was formed with a fairly good catch (Figure 1). In this report three fishing grounds were designated, i.e., the Tasman Sea, off New Zealand area and the East area(Figure 2).

3. Catch trends

As above mentioned, catch and effort statistics of all season are not avilable. Especially, even seasonal number of boats operated in the South Pacific are unknown except the last two seasons. Therefore, instead of catch trends for southern albacore by this fishery were calculated CPUE (number of albacore per operation) trends by fishing ground. Overall average CPUE for the Tasman Sea, off New Zealand areas and East areas, during seven seasons were 609.6, 329.6 and 953.5, respectively (Table 1). The East areas was the best fishing ground among them. Characteristics of each fishing grounds are described as follows :

1) the Tasman Sea

Annual trends of CPUE in this ground was shown in Figure 3. The CPUE was on gradual increase with annual fluctuation between256 and 906. But it was judged that this ground was formed very stable for driftnet fishing, because 1983/84 fishing season was like trial and catch data of 1987/88 season collected were very poor. Fishing season was from November to April and December in peak (Table 3).

2) Off New Zealand area

Compared with the Tasman Sea, the CPUE trends of this ground was unstable with a low level of catch (Table 2). Fishing season was from December to April (Table 3).

3) the East area

CPUE of 1988/89 and 1989/90 seasons were 895 and 1128, respectively (Table 1). Fishing season was probably from January to March with a peak in February.

4. Length frequency

1) the Tasman Sea

Age 2 (55-63 cm) to age 4 (75-86 cm) fishes are dominant, but occurrences of those fish in relative value considerably. There were very little amount caught of large sized fish for over age 5 (87-94 cm) and for age 1 (44-54 cm) groups. According to the last two seasons data, age 3 (64-74 cm) fish was dominant in the first half of the season. In the latter half, age 2 fish was domnant and age 3 fish appears to decrease. While small amount of age 4 fish occured in 1988/89 season, this age fish was dominant in December

in 1989/90 season (Figures 4 and 5).

2) Off New Zealand area

Data was limited only obtained from January and February in 1988/89 season. In January, age 3 fish was dominant and age 2 and age 4 fishes occured around the same magnitude. Large sized fish estimated to be age 5 or 6 (95-100 cm) were captured. In February, there were age 2 to age 5 fishes and dominant age was 2 years old (Figure 4).

3) the East area

Age 3 fish was dominant for January and February. In March, there were no dominant age among 2 to 4 years old. And large sized fish over age 5 in this ground were more dominant than other areas. Age 1 fish was littl in the sample. Therefore, it is inferred that this large sized fishes came from the west, Off New Zealand area (Figures 4 and 5).

5. Reference

Nakano, H., Y. Watanabe and Y. Nishikawa (1989) Preliminary report of albacore catch by Japanese large¥mesh driftnet fishery in the South Pacific, 1983/84-1987/88. Working paper for Second South Pacific Albacore Research Workshop. 5pp.

Suda, A. (1966) Catch variations in the North Pacific albacore VI the speculations about the influences of fisheries on the catch and abundance of the albacore in the North-west Pacific by use of some simplified mathematical models (Continued paper-1). Rep. Nankai Reg. Fish. Res. Lab., (24) : 1-14.

Table 1. Seasonal albacore catch, number of vessel of Japanese driftnet fishery in the South Pacific Ocean, 1983/84-1989/90

Fishing Season	No. of fishing vessels	No. of sampling vessels	Total catch amounts (tons)
1983/84	17*	7	1562.9
1984/85	15*	6	1905.2
1985/86	12*	9	1919.3
1986/87	9*	4	895.1
1987/88	20*	8	4233.8
1988/89	64	63	13,161.0
1989/90	19	19	5,436.7**

* estimated ** preliminary

Table 2. Annual CPUE (number of albacore per operation) by Japanese driftnet fishery in the South Pacific Ocean, 1983/84-1989/90.

Fishing season	Fishing grounds		
	Tasman Sea	Off New Zealand	East area
1983/84	255.9	277.2	136.0
1984/85	585.2	350.8	
1985/86	460.9	436.8	
1986/87	517.3	167.8	
1987/88	905.6		
1988/89	602.1	373.3	895.0
1989/90	645.7	87.4	1128.0
Average	609.6	329.6	953.5

Table 3. Monthly CPUE by fishing season

Fishing grounds	Fishing season	Month						
		Nov	Dec	Jan	Feb	Mar	Apr	May
	1983/84	-	-	20.0	305.1	169.3	222.8	463.8
T	1984/85	-	563.2	724.2	455.1	256.7	-	-
A	1985/86	-	721.4	419.1	330.4	442.7	-	-
S	1986/87	-	-	512.9	563.8	162.3	-	-
M	1987/88	40.0	895.5	979.2	721.0	528.6	-	-
A	1988/89	643.9	951.4	421.3	360.8	244.1	-	-
N	1989/90	334.8	722.5	645.6	516.2	-	-	-
	Average	518.4	870.5	530.4	435.6	278.5	222.8	463.8
	1983/84	-	-	237.2	268.6	271.4	13.0	-
O	1984/85	-	56.5	396.2	467.1	299.5	264.8	-
F	1985/86	-	-	-	-	431.8	498.8	-
F	1986/87	-	167.8	-	-	-	-	-
	1987/88	-	-	-	-	-	-	-
N	1988/89	-	-	-	386.3	127.1	-	-
Z	1989/90	-	-	-	87.4	-	-	-
	Average	-	155.4	250.7	364.8	304.3	279.8	-
	1983/84	-	-	-	-	136.0	-	-
	1984/85	-	-	-	-	-	-	-
E	1985/86	-	-	-	-	-	-	-
A	1986/87	-	-	-	-	-	-	-
S	1987/88	-	-	-	-	-	-	-
T	1988/89	-	-	-	1,785.0	435.9	-	-
	1989/90	-	-	-	1,127.5	1,128.9	-	-
	Average	-	-	-	1,576.7	591.0	-	-

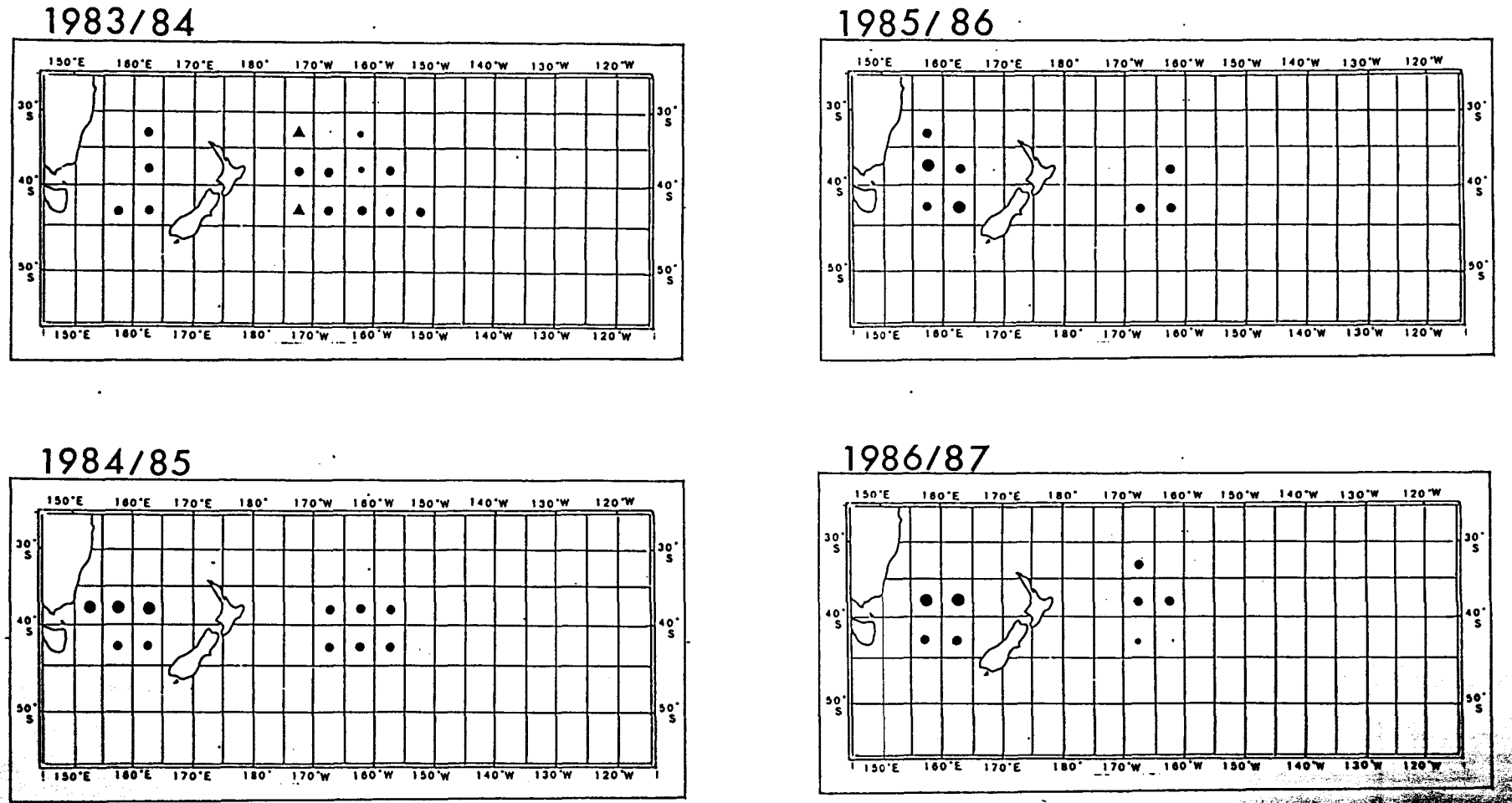

Figure 1. CPUE (number of albacore per operation) distribution by 5 degree square during seven fishing seasons for Japanese driftnet fishery in the South Pacific Ocean.

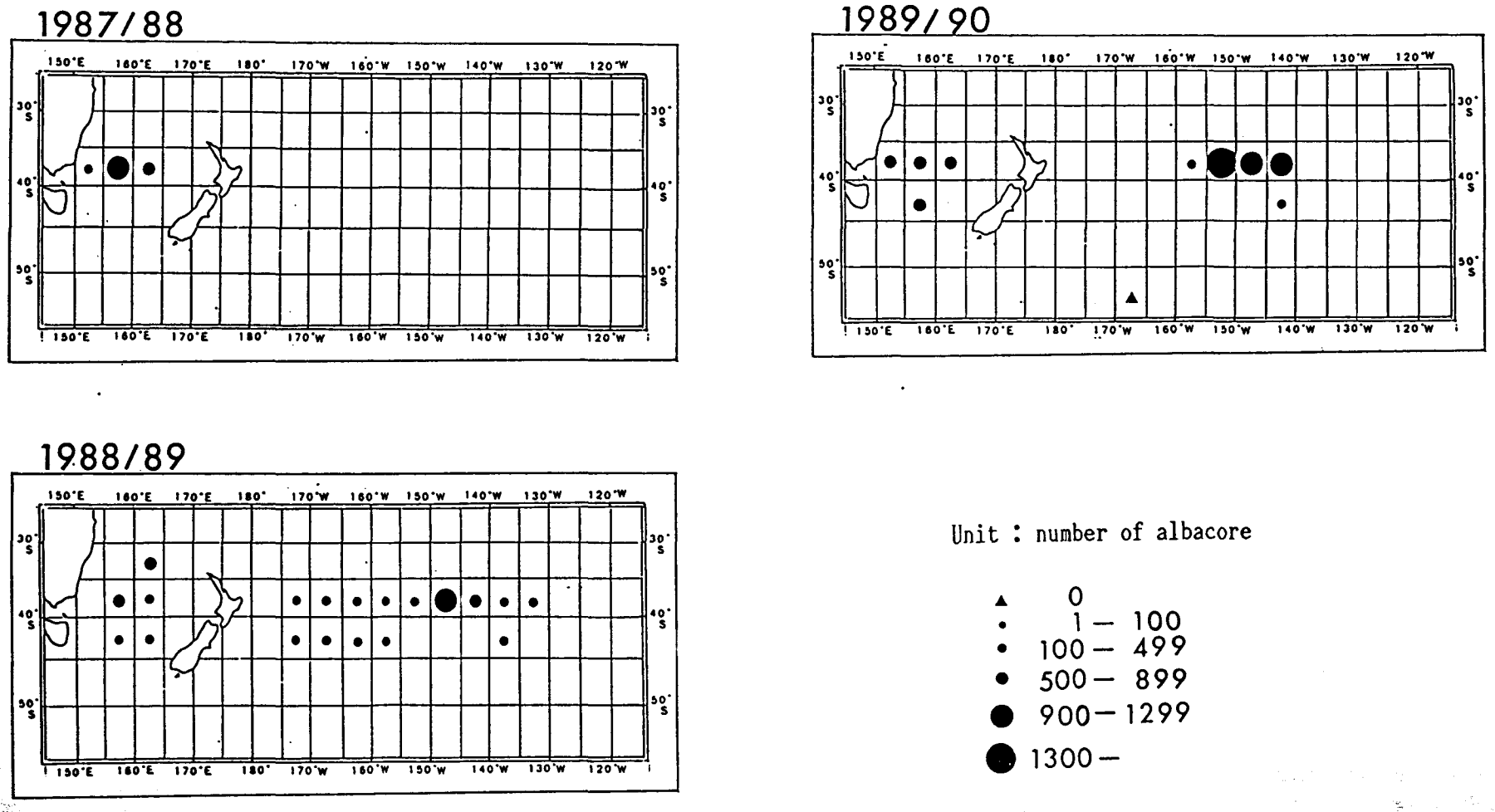

Figure 1. continued.

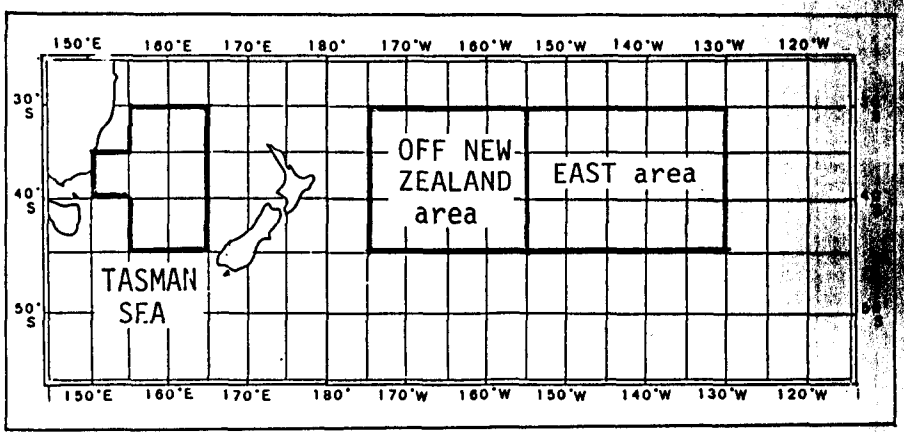

Figure 2. Fishing grounds for Japanese driftnet fishery in the South Pacific Ocean

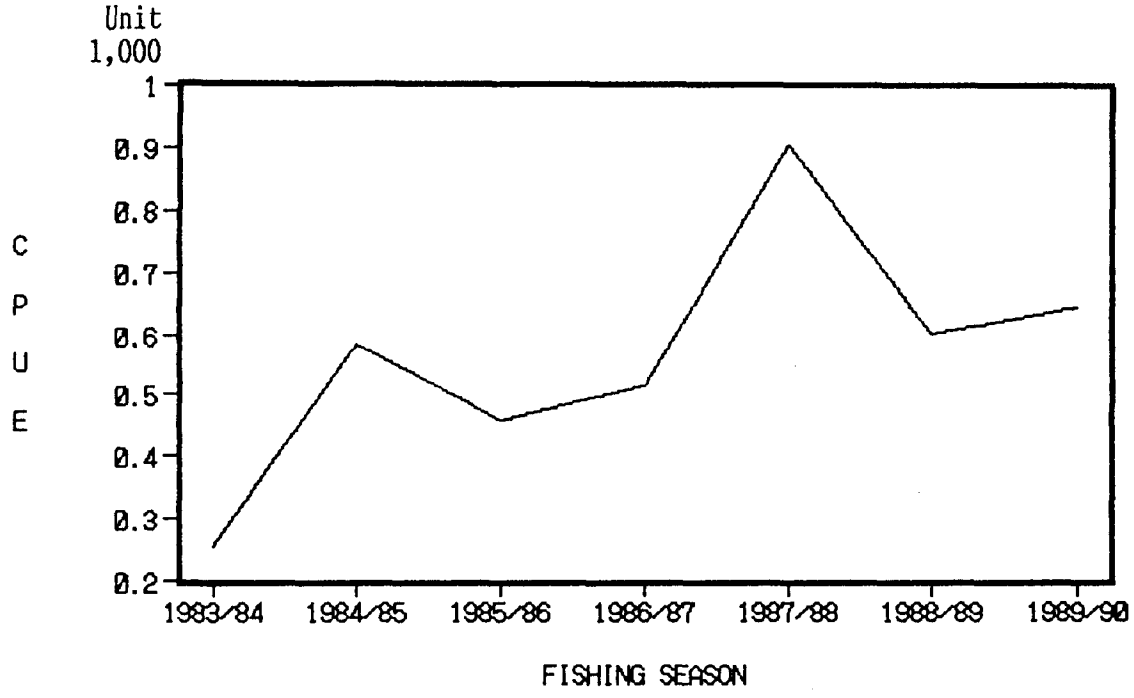

Figure 3. CPUE (number of albacore per operation) trends of seven fishing seasons in the Tasman Sea

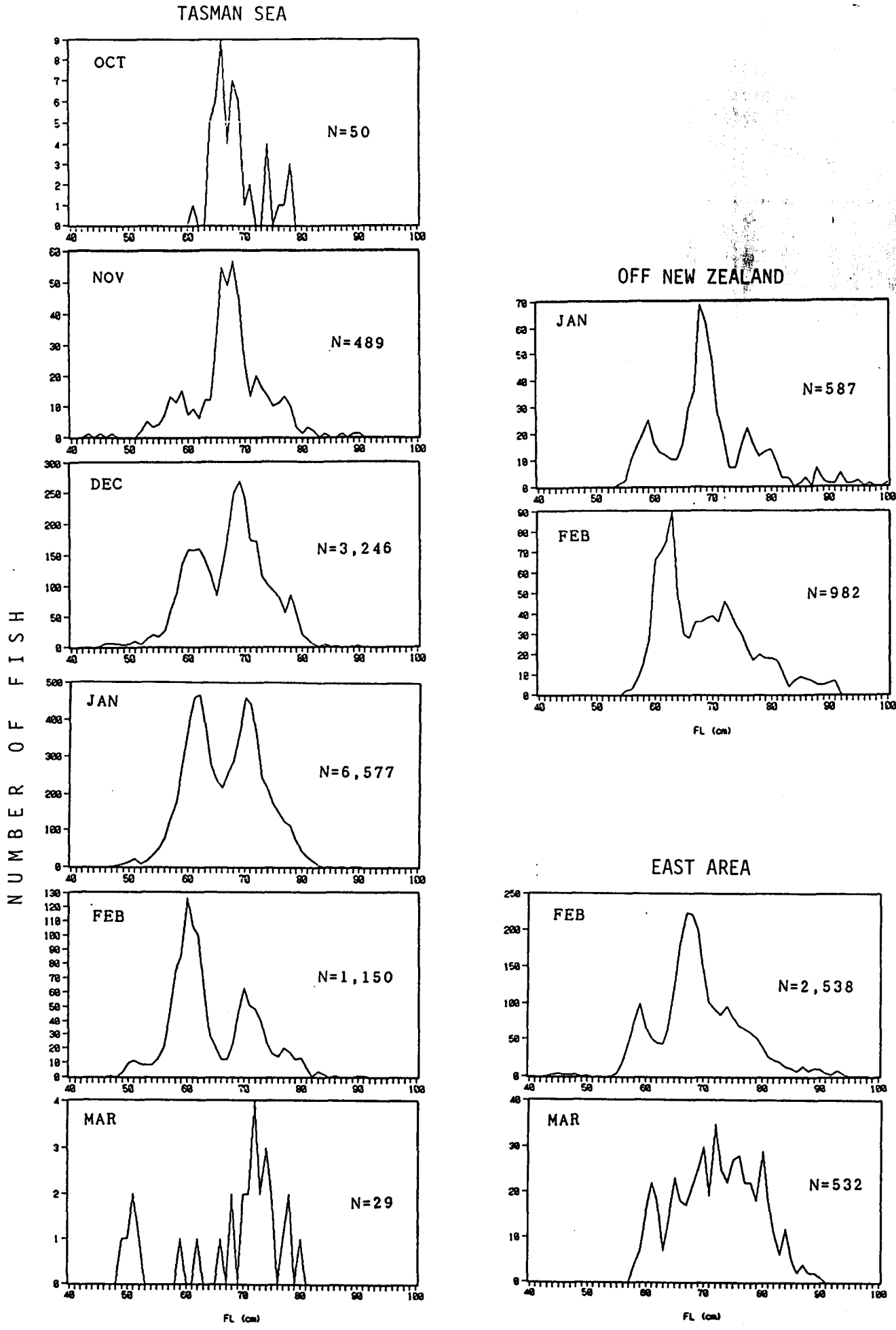

Figure 4. Length frequency distribution of albacore caught by Japanese driftnet fishing boats and research vessel during October 1988 to March 1989 in the South Pacific Ocean.

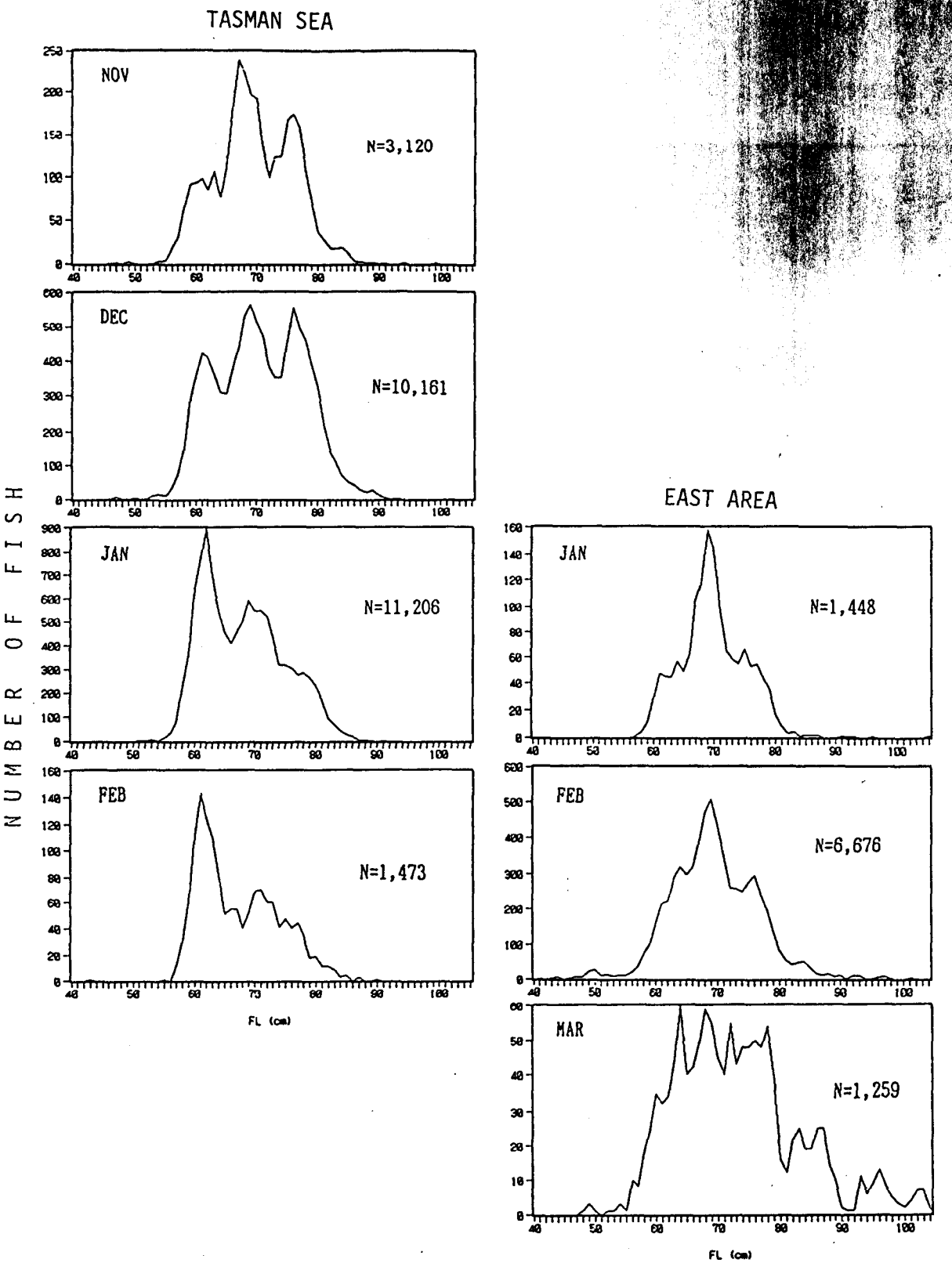

Figure 5. Length frequency distribution of albacore caught by Japanese driftnet fishing boats and research vessel during November 1989 to March 1990 in the South Pacific Ocean.