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Japanese Research Report for 1990

by

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The total nominal catch by Japanese trawlers and squid jiggers from the NAFO waters increased (30%) from 9,260 tons in 1989 to 12,030 tons in 1990 (Tables 1 and 2). Most of the catches of main species more or less increased. Especially the catch of *Illex* in Divisions 4W and 4X increased from 0 ton in 1989 to 1,320 tons in 1990. This catch was obtained by both of trawlers (260 tons) and squid jiggers (1,070 tons)

The number of Japanese trawlers operated in the NAFO waters slightly increased from five in 1989 to six in 1990. They were two 3,000, one 2,000, one 500 and two 300 GRT class stern trawlers. Total fishing effort increased (47%) from 6,600 hours fished in 1989 to 9,700 hours in 1990. The increase occurred mainly in Divisions 2G and 3M.

In 1990, two Japanese squid jiggers, which belonged to the 300 GRT class, operated in Divisions 4Vs, 4W and 4X. The days fished attained to 118 days.

The fishing grounds of Japanese trawlers were located on the continental slopes off West Greenland (Divisions 1C and 1D), Labrador (2GHJ), Newfoundland (3K-3O), Flemish Cap (3M) and Nova Scotia (4VW). Tentative fishery was carried out in Division 0B. Japanese trawlers moved among these fishing grounds, as done in the previous years.

The fishing grounds of Japanese squid jiggers were located on the continental shelf off Nova Scotia (4VWX). They operated very seasonally in July-September.

I. Subarea 0.

A. Status of the Fisheries

The tentative directed fishery for Greenland halibut was carried out at depths of 900-1,200 m in Division 0B during November-December. The Greenland halibut catch was about 100 tons and fished hour attained to about 80 hours.

II. Subarea 1

A. Status of the Fisheries

Exploratory fishings were carried out by R/V *Shinkai Maru* mainly at depths around 1,000 m in Divisions 1C and 1D in October-November. Most of the catch were Greenland halibut. No other commercial vessel operated in this area. The mesh size of the cod-end used was 140 mm.

B. Special Research Studies

A Japan and Greenland Joint Research on Groundfish off Greenland

Under an agreement between the Japan Marine Fishery Resource Research Center (JAMARC) and the Greenland Trawling Company of the Greenland Home Rule (GTC), two types of trawl surveys, stratified bottom trawl survey and exploratory survey for the deepwater and pelagic resources, have been continued off Greenland since 1987 by using R/V *Shinkai Maru*. In 1990, the former survey was carried out off West Greenland in June and in August-September. The latter one was carried out in June and in September off west Greenland. There was no survey off east Greenland in this year.

III. Subarea 2

A. Status of the Fisheries

The directed fishery for Greenland halibut was carried out at depths of 800-1,200 m in Divisions 2GH during September-December. The Greenland halibut catch increased (about 3.5 times) from 460 tons in 1989 to 1,600 tons in 1990. The mesh sizes of the cod-ends used were 130-160 mm.

IV. Subarea 3

A. Status of the Fisheries

The redfish-directed fishery was carried out between 200-700 m in Divisions 3K, 3L, 3M and 3O all the year round. The total redfish catch increased (22%) from 3,200 tons in 1989 to 3,900 tons in 1990. Redfish were taken mainly in Divisions 3O and 3M as in the previous year. Redfish catch in 3M has rapidly increased in these two years and attained to 2,100 tons in 1990. Some fishing operations directed for cod in Division 3N and American plaice in 3M were made at depths around 200 m. Capelin were caught at bottom depths of 45-60 m in Division 3N with mid-water trawls. The mesh sizes of the cod-ends used were about 20 mm for capelin in Division 3N, 85-135 mm in other Divisions.

V. Subarea 4

A. Status of the Fisheries

The redfish-directed fishery was carried out in Division 4V in September-December at the depths of 300-400 m. The total redfish catch slightly increased (2%) from 490 tons in 1989 to 500 tons in 1990. In Division 4W, the silver hake-directed fishery was carried out in May and

the catch attained to about 320 tons. The mesh sizes of the cod-ends used were 60-150 mm for silver hake and squid in Divisions 4WX and 130-160 mm for red fish.

Tentative direct *Illex* trawl fishery was carried out and number of days fished attained to about 30 days. Catch of *Illex* was 260 tons. Almost all of the catch were obtained from Division 4W. Historical change of CPUE of *Illex* direct fishery by Japanese larger trawlers (over 2500 tons GRT) is shown in Table 2. The CPUE in Div. 4W in August 1990 was similar to those in 1980-81, though the amount of fishing effort in 1990 was insufficient for comparison.

Two Japanese squid jiggers operated in Divisions 4VWX mainly in August-September. Catch of *Illex* was 1,100 tons and number of days fished attained to 120 days. Most of catch (82%) were obtained in Division 4X, though the catch was mainly obtained from Divisions 4VW in 1979 (Table 3). The fishing activity began in July and ended in the beginning of October due to the fishing plan in the other waters. The distribution of catch and effort are shown in Fig. 1 and the distribution of CPUE (catch per day) is also shown in Fig. 2. The vessels searched the high density area on the Scotian Shelf in July-August and found the good fishing ground in the westernmost area of 4X. In September the fishing activities were concentrated in that area. The CPUE in 1990 was about 9 tons per day which was 25% lower than that in 1979 (12 tons per day).

Table 1. Fishing efforts and catches (tons) by species of Japanese trawl fishery in each NAFO Division in 1989 and 1990.

Year		1989																1990							
Division		0B	1A	1B	1C	1D	1E	1F	2G	2H	2J	3K	3L	3M	3N	3O	4Vn	4Vs	4W	4X	5Ze	5Zw	6A	6B	Total
Hours fished		-	-	-	487	600	-	-	133	245	252	307	184	2,235	880	689	75	437	82	-	-	-	-	-	6,607
Days fished		-	-	-	45	54	-	-	10	22	17	24	22	184	87	58	7	31	6	-	-	-	-	-	567
Total catch		-	-	-	671	758	-	-	127	180	225	527	142	1,408	2,703	1,769	83	432	237	-	-	-	-	-	9,260
Cod		-	-	-	0	0	-	-	-	-	-	8	2	37	392	-	-	6	0	-	-	-	-	-	444
Redfish		-	-	-	0	0	-	-	1	2	0	485	115	885	39	1,723	81	400	4	-	-	-	-	-	3,736
Silver hake		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	193	-	-	-	-	-	194
Greenland halibut		-	-	-	623	677	-	-	101	160	195	18	3	44	3	4	0	1	-	-	-	-	-	-	1,830
Argentine		-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	6
Capelin		-	-	-	-	-	-	-	-	-	-	-	-	-	2,222	-	-	-	-	-	-	-	-	-	2,222
Squid-//er		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others		-	-	-	48	80	-	-	25	19	30	16	22	442	47	38	1	22	40	-	-	-	-	-	827
Year		1990																		1990					
Division		0B	1A	1B	1C	1D	1E	1F	2G	2H	2J	3K	3L	3M	3N	3O	4Vn	4Vs	4W	4X	5Ze	5Zw	6A	6B	Total
Hours fished		83	4	9	586	411	-	-	1,555	333	8	211	255	3,555	1,053	766	19	291	464	71	-	-	-	-	9,702
Days fished		7	2	4	57	45	-	-	104	26	1	26	21	282	91	61	2	24	38	8	-	-	-	-	799
Total catch		124	1	2	705	481	-	-	1,455	287	2	262	175	2,490	2,433	1,436	18	498	565	34	-	-	-	-	10,966
Cod		-	-	-	0	0	-	-	-	0	0	9	1	24	350	1	-	3	0	0	-	-	-	-	389
Redfish		-	0	0	1	0	-	-	0	0	1	238	151	2,081	4	1,404	18	475	9	-	-	-	-	-	4,382
Silver hake		-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	1	313	1	-	-	-	-	315
Greenland halibut		114	1	2	619	367	-	-	1,346	244	0	9	8	55	-	1	-	0	-	-	-	-	-	-	2,765
Argentine		-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	11	0	1	-	-	-	-	15
Capelin		-	-	-	-	-	-	-	-	-	-	-	-	-	2,054	-	-	-	-	-	-	-	-	-	2,054
Squid-//er		-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	0	226	26	-	-	-	-	255
Others		10	0	0	85	114	-	-	109	43	0	6	15	330	25	24	0	8	17	6	-	-	-	-	791

Table 2. Historical trend of CPUE (tons/hour) of *Illex* by squid directed fishery of Japanese larger trawlers (over 2,000 tons GRT) in Sub-area 4. Underline means that the CPUE was obtained on the basis of effort less than 50 hours.

	Jul.			Aug.			Sep.			Oct.			Nov.		
	4Vs	4W	4X	4Vs	4W	4X	4Vs	4W	4X	4Vs	4W	4X	4Vs	4W	4X
1977	<u>1.5</u>	1.2	<u>2.0</u>	<u>2.8</u>	1.5	<u>0.7</u>	<u>4.3</u>	1.0	<u>1.8</u>	-	0.8	0.7	-	-	-
1978	<u>0.3</u>	0.8	<u>0.2</u>	<u>2.3</u>	<u>1.2</u>	<u>1.7</u>	1.6	2.2	-	<u>0.5</u>	1.7	<u>0.5</u>	<u>0.5</u>	1.3	-
1979	<u>0.5</u>	2.8	<u>1.0</u>	<u>6.3</u>	2.7	-	5.6	3.7	<u>0.9</u>	2.3	2.4	1.1	<u>0.8</u>	2.3	-
1980	-	0.8	<u>1.3</u>	-	1.0	2.8	<u>0.0</u>	0.9	1.5	-	<u>0.3</u>	1.6	-	1.1	1.4
1981	-	-	-	-	1.2	1.3	-	<u>0.8</u>	1.0	-	<u>0.3</u>	0.5	-	-	-
There was no direct fishery in 1982-1989															
1990	-	-	-	-	1.1	<u>0.8</u>	-	<u>0.1</u>	<u>0.1</u>	-	-	-	-	-	-

Table 3. *Illex* catch and effort by Japanese squid-jigging fishery in each NAFO division in 1979 and 1990.

Year	1979						
Month	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days fished	51	105	167	151	105	4	583
3L	-	-	-	73	-	-	73
3O	-	-	217	280	15	-	512
4Vn	105	238	722	357	530	-	1,952
4Vs	29	388	522	350	592	35	1,916
4W	193	418	282	455	271	-	1,619
4X	136	239	161	376	-	-	912
Total	463	1,283	1,904	1,891	1,408	35	6,984
Year	1990						
Month	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days fished	11	47	58	2	-	-	118
4Vs	-	30	-	-	-	-	30
4W	95	71	0	-	-	-	165
4X	0	241	627	5	-	-	873
Total	95	342	627	5	-	-	1,068

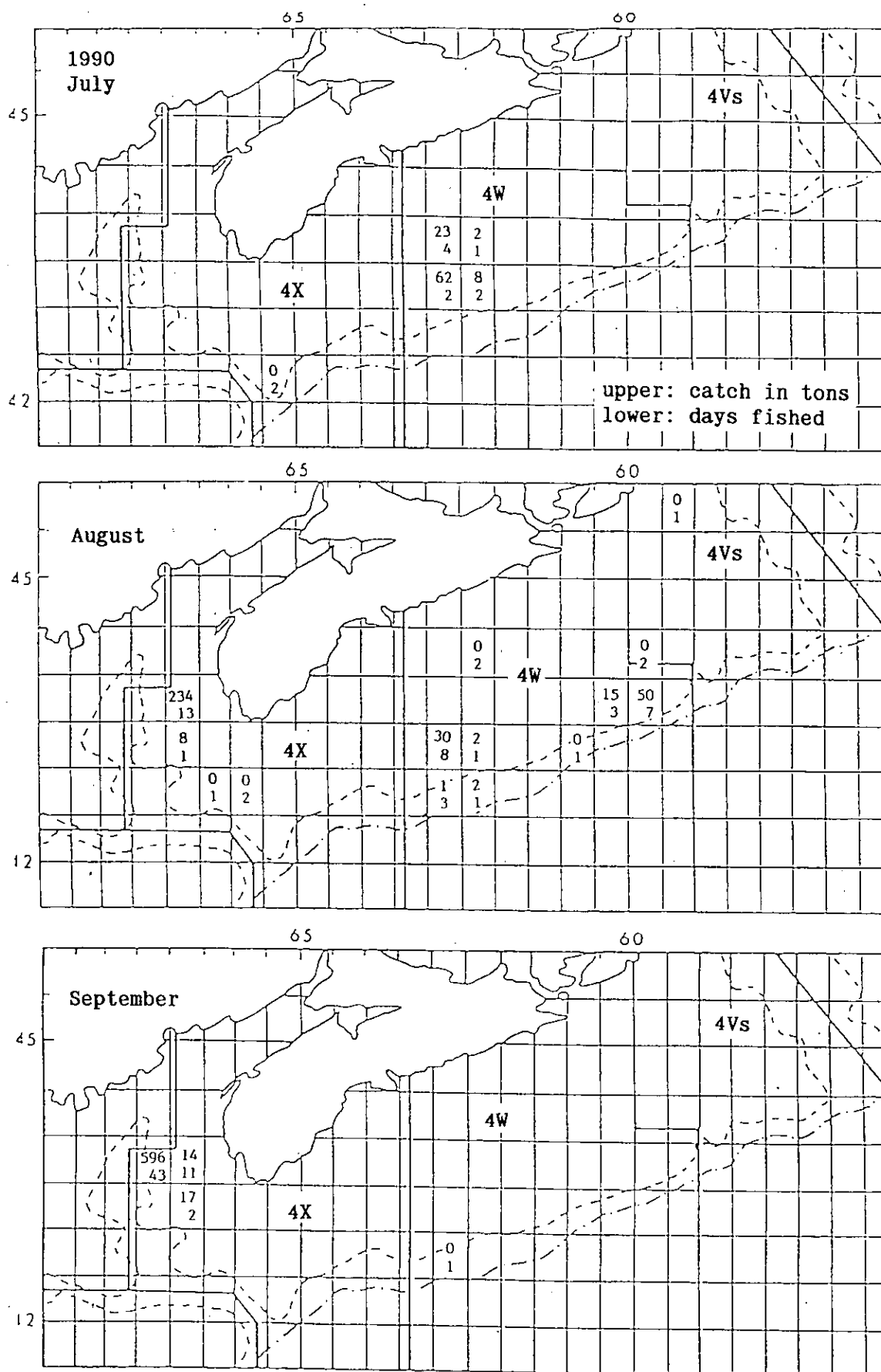


Fig. 1. Monthly distribution of *Illex* catch and effort by Japanese squid jiggers in 1990.

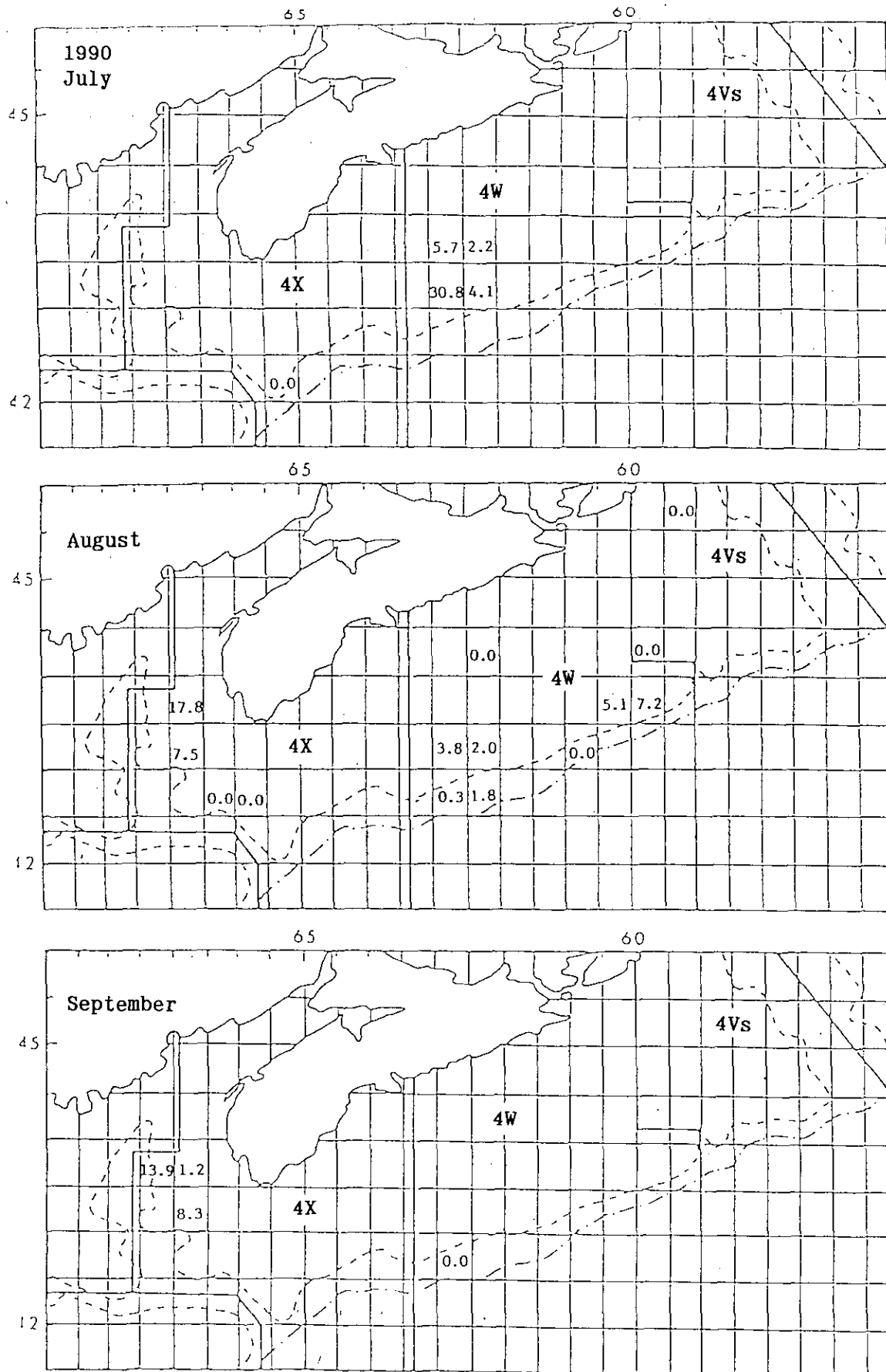


Fig.2. Monthly distribution of *Illex* CPUE (ton/day) of Japanese squid jiggers in 1990.