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Norwegian Investigations on Shrimp (Pandalus borealis)
in East Greenland Waters in 1988

by

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INTRODUCTION

The Norwegian quota of shrimp in East Greenland waters in 1988 was 2050 tonnes. 21 vessels participated in the fishery.

The results of field investigations in 1987 together with final commercial fishery data in 1987 were reported by Smedstad and Torheim (1987). The results of investigations together with commercial fishery data in 1988 are presented in this paper.

LOCATION OF THE FISHERY

From 1 March to 17 March one of the authors was an observer on board the sterntrawler "Lyshaug". In the period 5 March to 15 March the fishing area of "Lyshaug" was located south of 66°N and about 30°W (Fig.1). Fig. 6-16 shows the location of the Norwegian fishery from January to November 1988.

MATERIAL AND METHODS

The shrimp were sorted in "landing" and "discard" categories after they were separated from the fish species in the catch.

Details of the trawl hauls examined by the observer are given in Table 1. Random samples of shrimp were taken for length measurements (Carapace length to nearest mm below) (Table 2). In addition length compositions were obtained from by-catches of Greenland halibut (Fig.3) and redfish (Fig.4).

Monthly catch and effort data from 1982-1988 are compiled from logbooks of the vessels participating in the fishery. For 1988 the data cover 96% of the quota (Table 3).

SIZE COMPOSITION OF SHRIMP

Length compositions of shrimp in samples collected by the observer on board "Lyshaug" are given in Table 2. The weighted mean length compositions (with catch as the weighting factor) is shown in Fig.2. Shrimp with modal group (around) 30 mm carapace length were dominating.

DISCARD

The quantity of discarded shrimp varied from 1.0 to 2.8%. On an average 2.2% of the total catch was discarded.

CATCH AND CATCH PER UNIT EFFORT

Table 3 shows catch and catch per hour trawling (CPUE) by month for the Norwegian fishery off East Greenland (ICES Div. XIV B) from 1982 to 1988. The quarterly CPUE for the period 1980-1988 are shown in Fig.5. Only for the second quarter data exist for all years. In this quarter the CPUE has been relatively stable in the period 1984-1987, but a decline is observed in 1988.

No significant changes are evident in the size composition of shrimp sampled during the stay of the observer in 1988.

BY-CATCHES IN THE SHRIMP FISHERY

By-catches of fish in the trawl hauls of "Lyshaug" examined by the observer are listed in Table 1. The categories others consisted of small skates, plaice and catfish.

None of the fish were kept on board. The mean number of fish relative to the mean shrimp catch (retained) per tow for the years 1982-1988 are given in the table below.

Species	Mean number per tow						
	1982	1983	1984	1985	1986	1987	1988
Cod	23	3	3	3	1	9	0
Greenland halibut	7	9	120	7	1	2	3
Redfish	53	47	87	74	103	293	421
Others	13	5	3	17	3	12	9
Total	96	64	213	101	108	316	433
Nos of hauls observed	37	21	19	40	19	24	7
Mean shrimp catch (kg)	608	346	880	732	410	528	300
Nos of fish per kg shrimp	0.16	0.18	0.24	0.13	0.26	0.60	1.44

REFERENCES

Smedstad, O.M. and Torheim, S. 1988. Norwegian Investigations on shrimp (Pandalus borealis) in East Greenland waters in 1987. NAFO SCR Doc.88/47, 11 p.

Table 1. Catches of shrimp and by-catches of fish in some trawl hauls by M/V "Lyshaug" off East-Greenland in March 1988.

Nos	Date	Time (hr)	Position N W		Direction towed	Towing time (hr)	Shrimp catches				By-catches (Nos)				
							Landings		Discards		Total kg	Cod	Gre. hal	Red fish	Other
							kg	kg	%	kg					
1	11 March	0800	65°36'	30°20'	180°	2.66	206	5	2.4	211	-	2	600	7	
2	11 March	1430	65°35'	30°22'	175°	4.00	305	3	1.0	308	-	3	500	15	
3	12 March	0440	65°39'	30°23'	40°	4.00	240	4	1.6	244	-	3	600	15	
4	13 March	0345	65°40'	30°12'	145°	3.09	532	15	2.8	547	1	3	400	20	
5	13 March	0800	65°38'	30°15'	10°	2.00	267	7	2.6	274	-	4	200	-	
6	13 March	1645	65°34'	30°34'	160°	3.50	208	5	2.4	213	-	6	300	2	
7	14 March	0300	65°36'	30°26'	170°	4.00	343	9	2.6	352	-	1	350	4	

Table 2. Length composition of random samples from shrimp catches by M/V "Lyshaug" off East Greenland in March 1988. (Numbers in heading refer to tow numbers in the first column of Table 1).

Carapace-length (mm)				Total
	2	6	3	
19	-	2	-	2
20	1	1	-	2
21	1	-	1	2
22	1	-	1	2
23	3	-	2	5
24	1	-	5	6
25	3	2	5	10
26	7	6	6	19
27	11	11	8	30
28	25	11	24	60
29	50	20	29	99
30	54	30	33	117
31	26	13	24	63
32	14	17	20	51
33	2	3	2	7
34	1	1	-	2
35	-	-	1	1
Total	200	117	161	478

Table 3. Catch (tonnes) and catch-per hour trawling in division XIV B from 1982 to 1988.

Month	1982		1983 ¹⁾		1984		1985		1986		1987		1988 ²⁾	
	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE
Jan.	-	-	-	-	-	-	-	-	31	0.112	-	-	2	0.066
Feb.	-	-	-	-	79	0.232	-	-	208	0.141	150	0.187	273	0.112
Mar.	305	0.197	-	-	622	0.224	760	0.184	737	0.166	565	0.140	305	0.076
Apr.	761	0.171	350	0.128	732	0.183	995	0.166	548	0.133	601	0.123	343	0.074
May.	828	0.248	367	0.255	500	0.167	269	0.137	337	0.131	196	0.133	323	0.082
Jun.	-	-	257	0.143	-	-	-	-	-	-	-	-	28	0.108
Jul.	-	-	6	0.133	-	-	-	-	2	0.071	-	-	1	0.071
Aug.	-	-	61	0.098	-	-	-	-	116	0.131	32	0.124	218	0.096
Sep.	-	-	-	-	-	-	-	-	47	0.110	224	0.135	281	0.086
Oct.	-	-	-	-	-	-	-	-	-	-	187	0.091	176	0.071
Nov.	-	-	-	-	-	-	-	-	-	-	57	0.047	18	0.061
TOTAL	1896	0.203	1041	0.157	1933	0.191	2024	0.166	2026	0.143	2012	0.123	1968	0.083

1) 60% of total landings

2) 96% of the quota

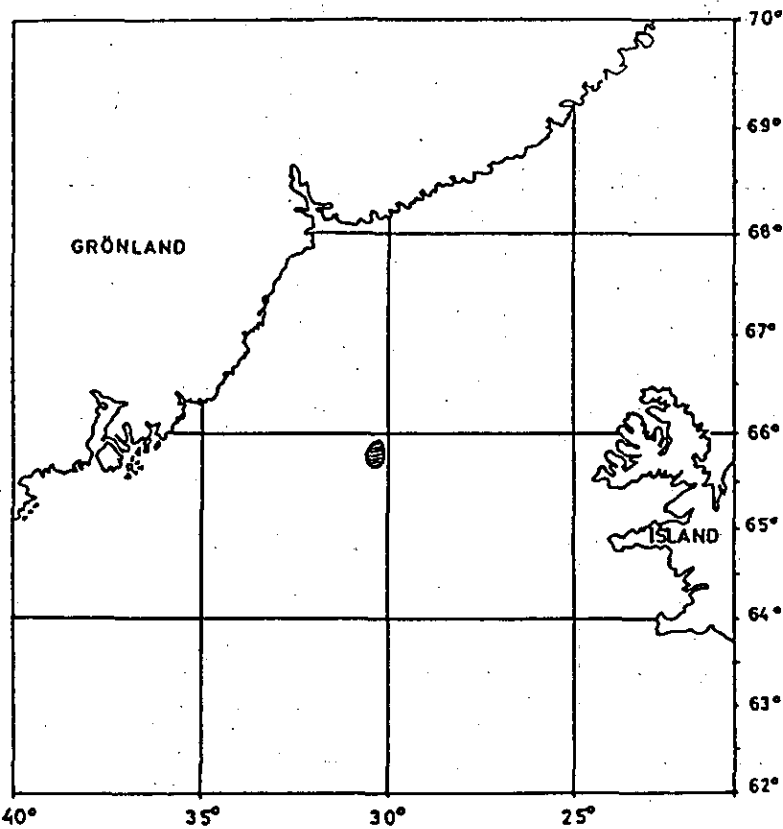


Fig. 1. Hatched area: Area fished by M/V "Lyshaug" during the stay of the observer in March 1988.

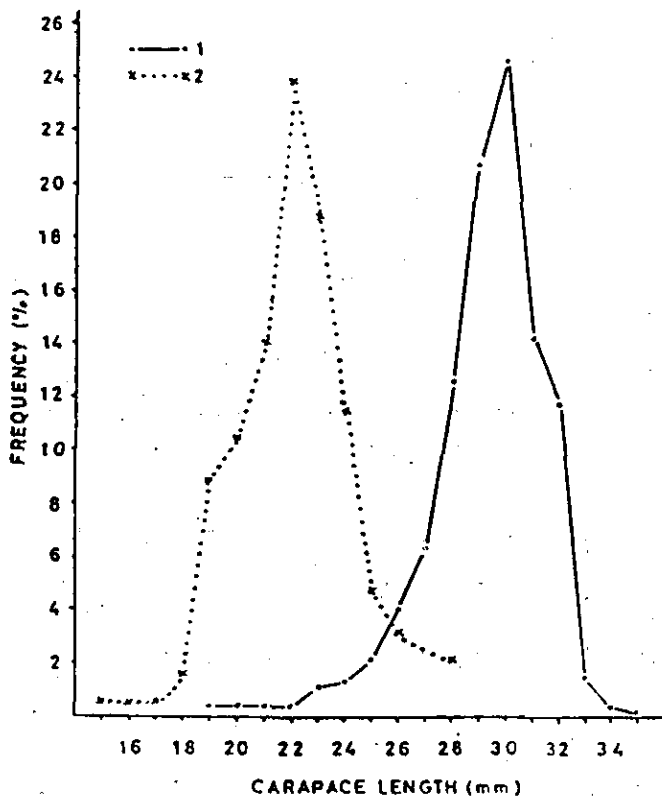


Fig. 2. Weighted mean length composition of shrimp from samples off East Greenland in March 1988. 1) Landed shrimp 2) Discarded shrimp

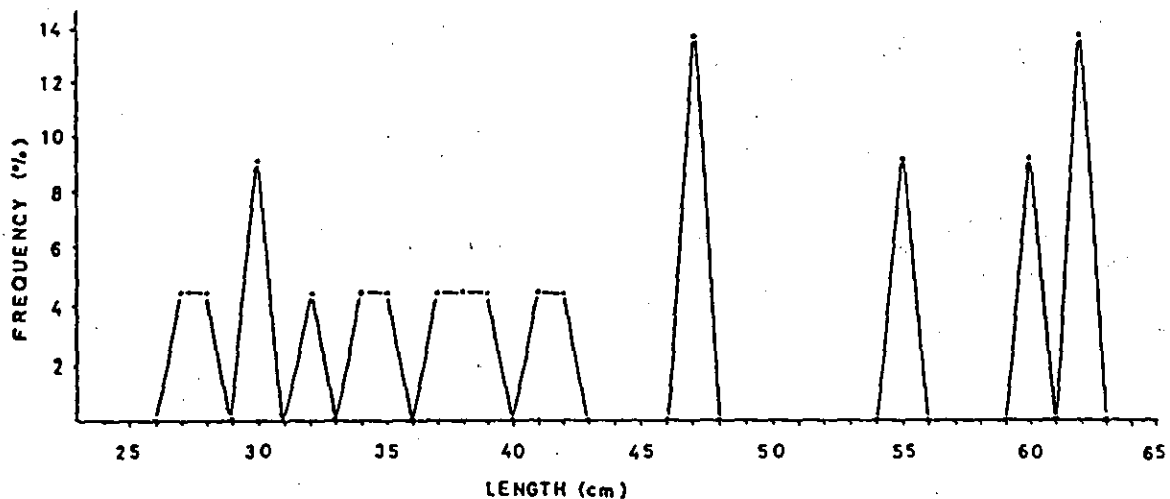


Fig. 3. Length composition of Greenland halibut taken as by-catch with shrimp off East Greenland in March 1988.

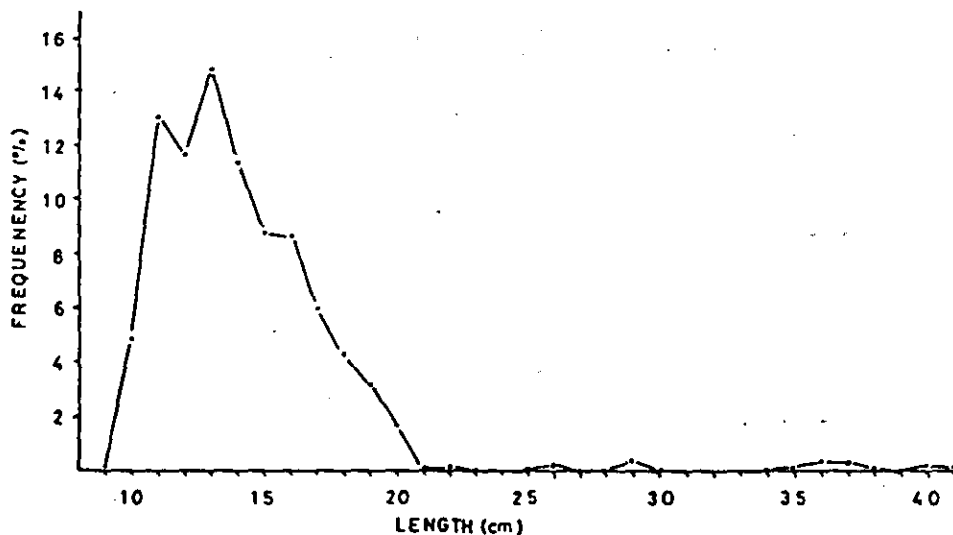


Fig. 4. Length composition of redfish taken as by-catch with shrimp off East Greenland in March 1988.

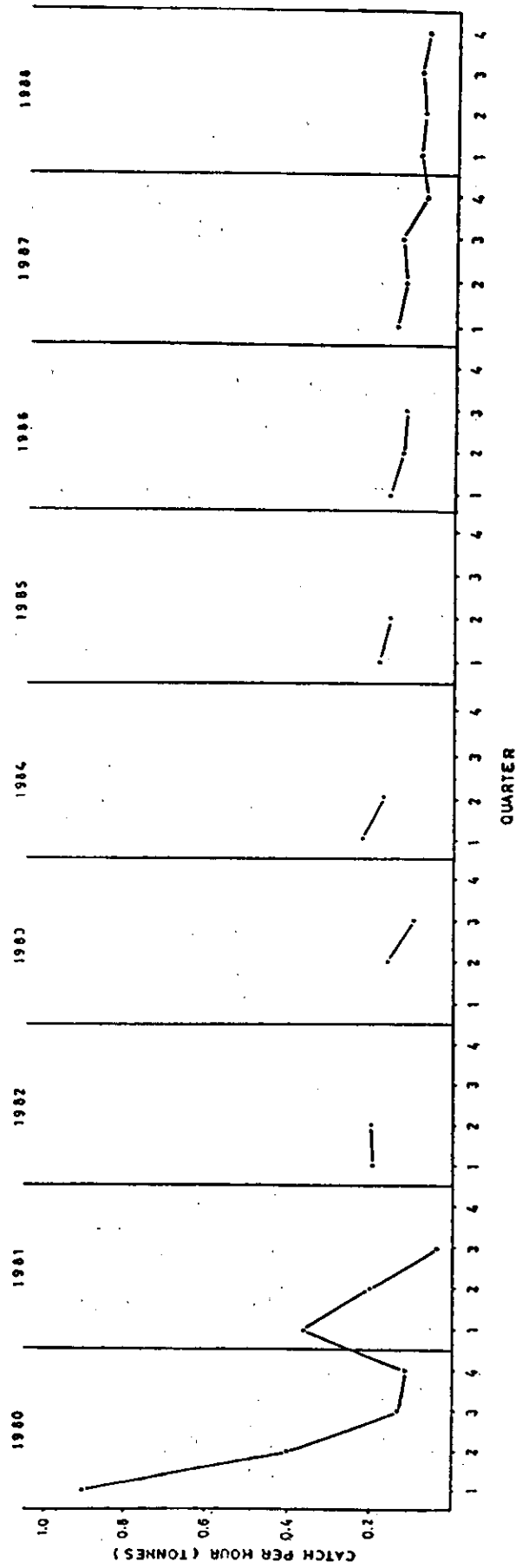


Fig. 5. Quarterly mean shrimp catch per hours trawling by Norwegian vessels in Div. XIV B, 1980-1988.

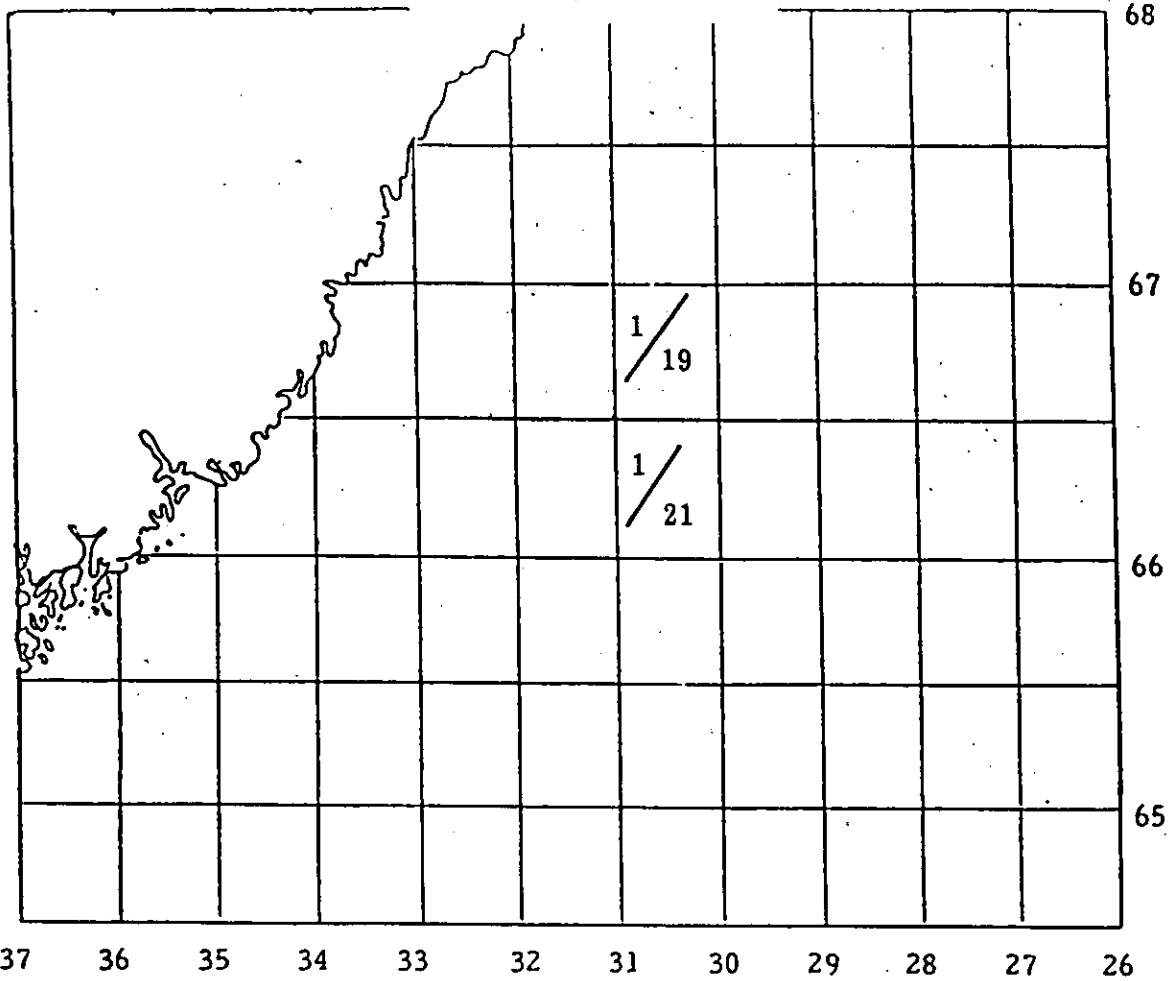


Fig.6. January (Catch in tonnes/hours fished).

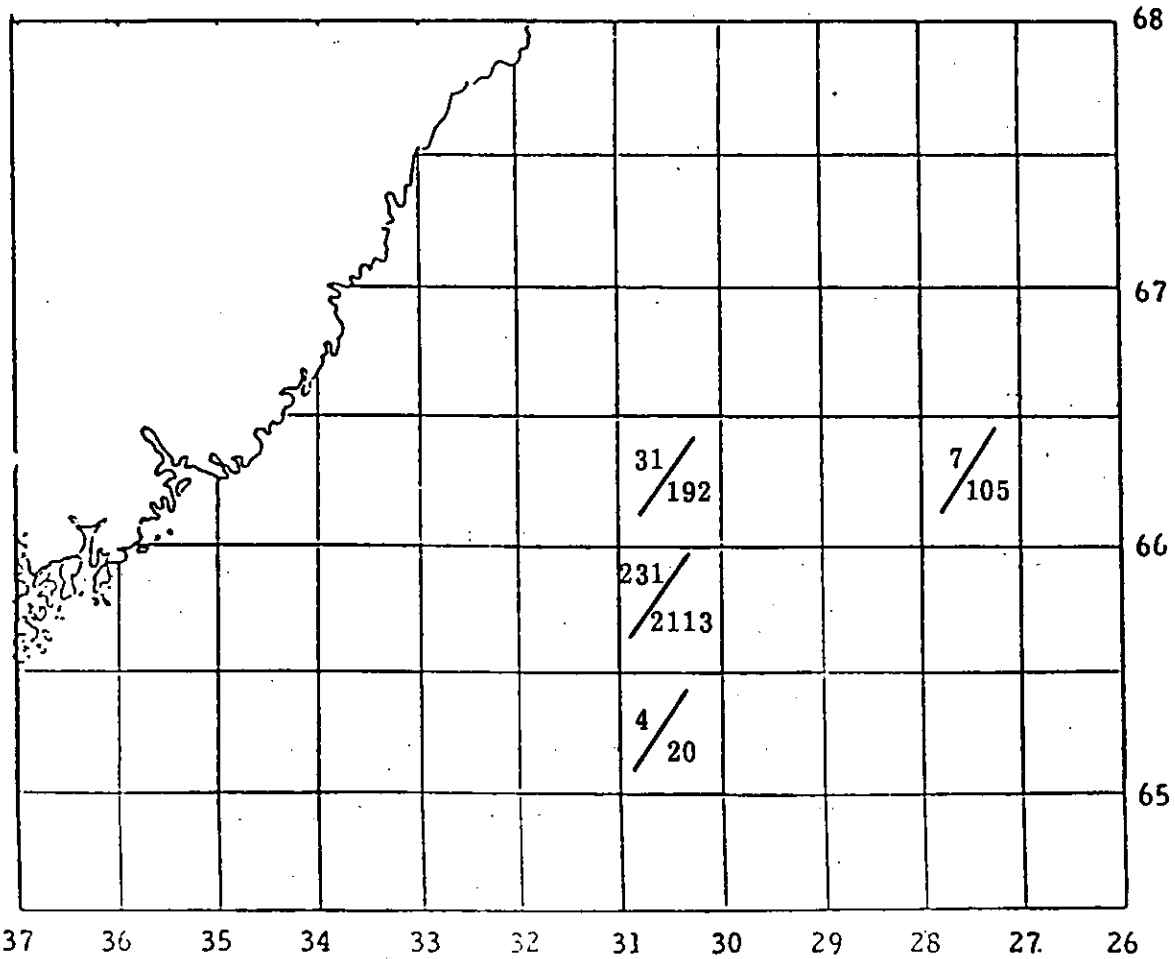


Fig.7. February (Catch in tonnes/hours fished)

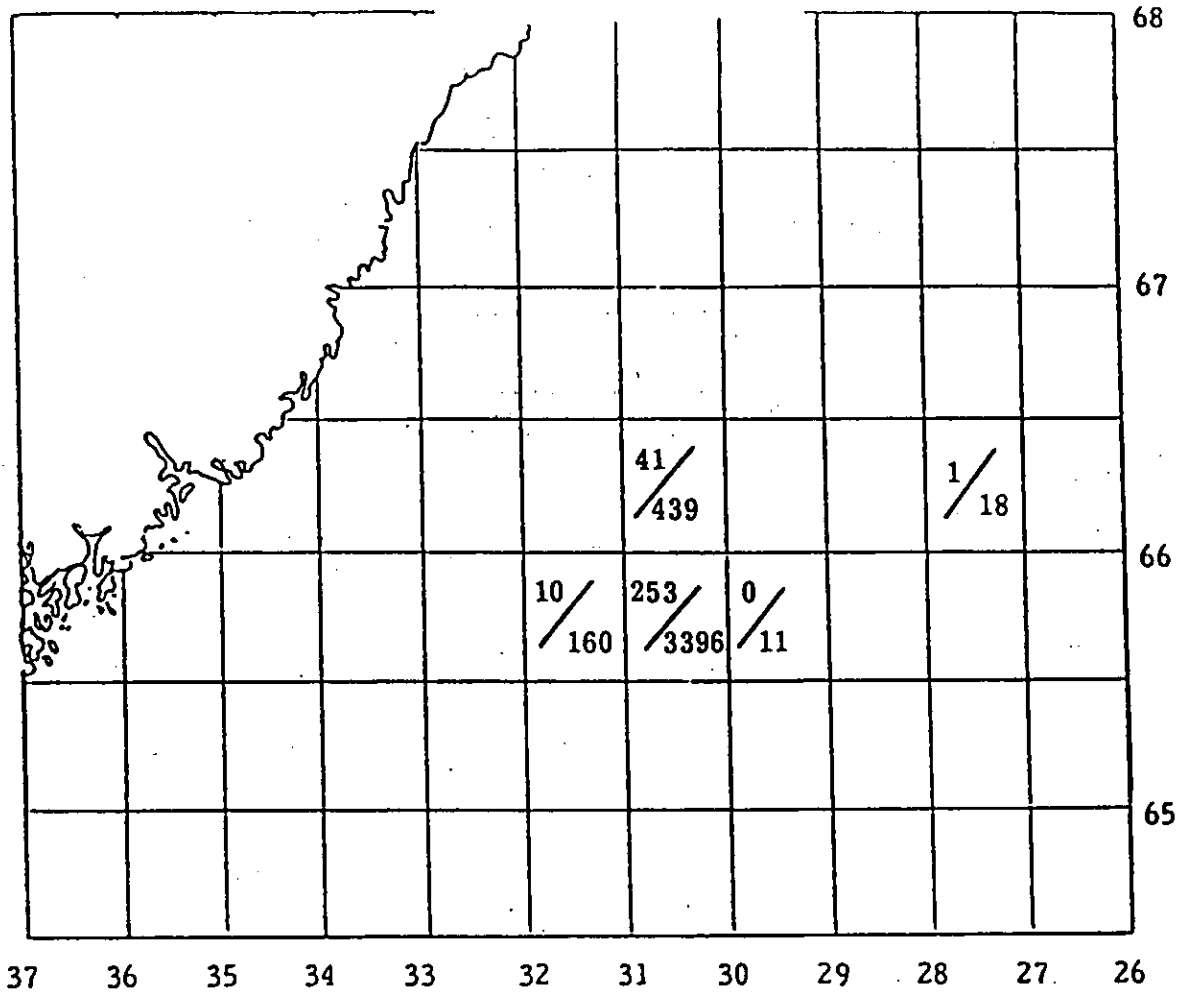
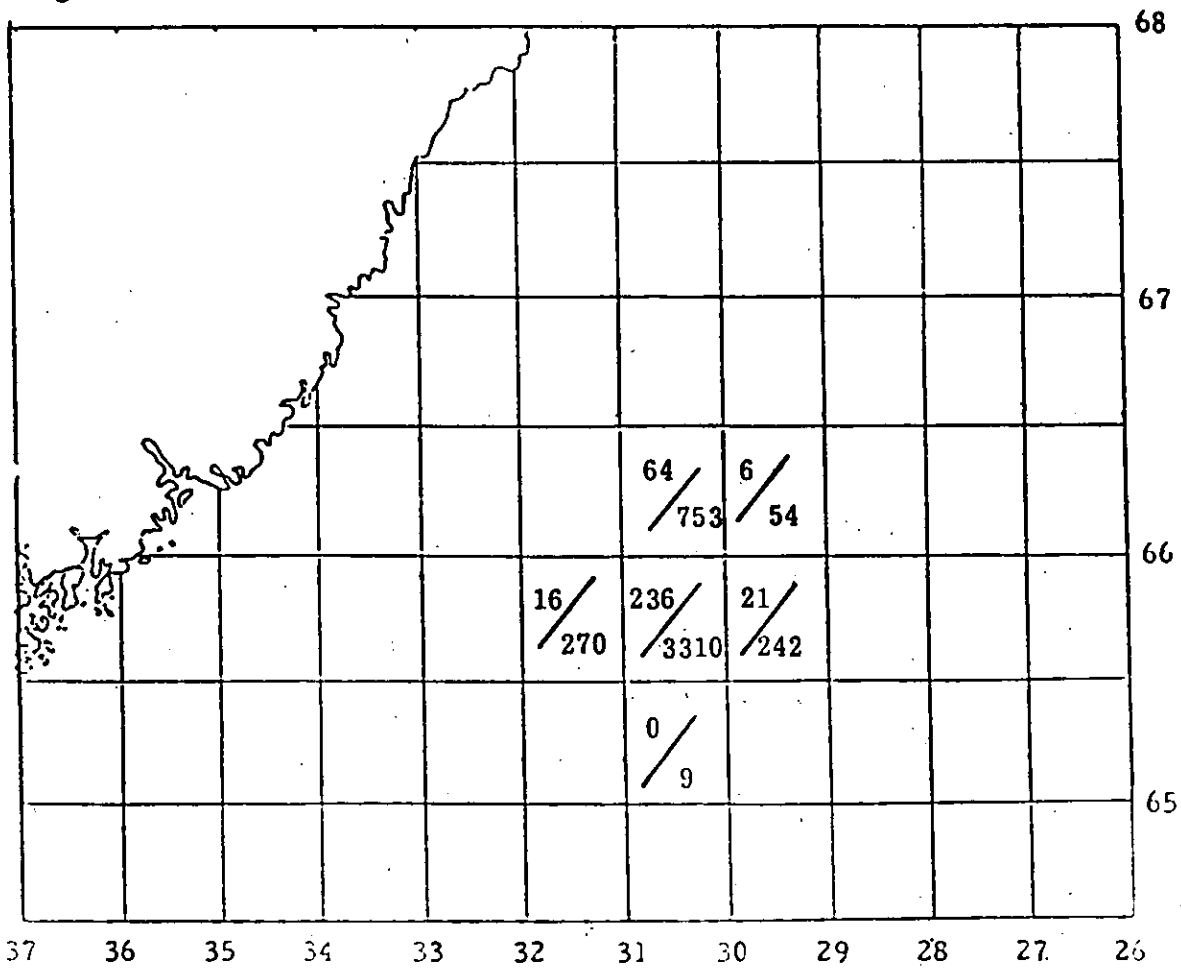


Fig.8. March (Catch in tonnes/hours fished).



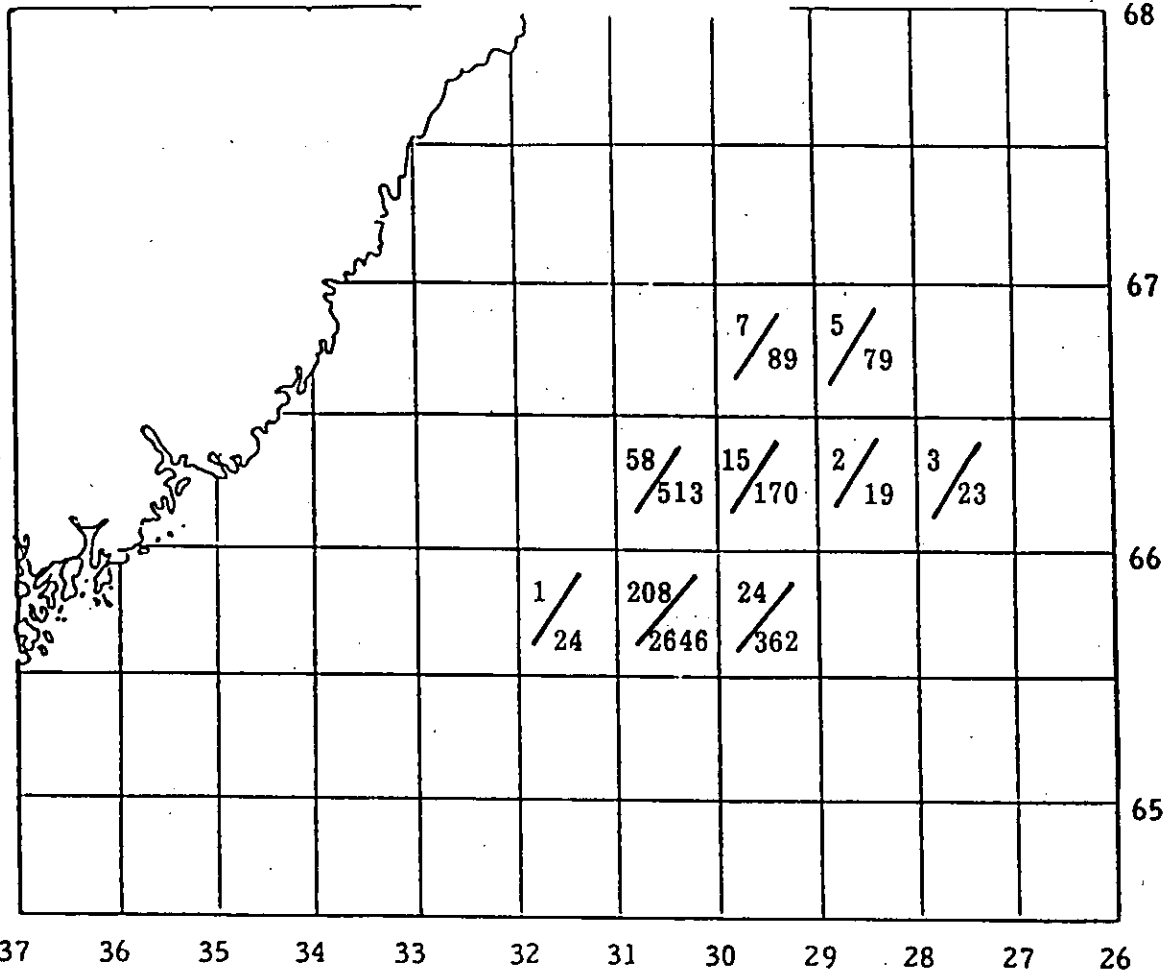


Fig.10. May (Catch in tonnes/hours fished).

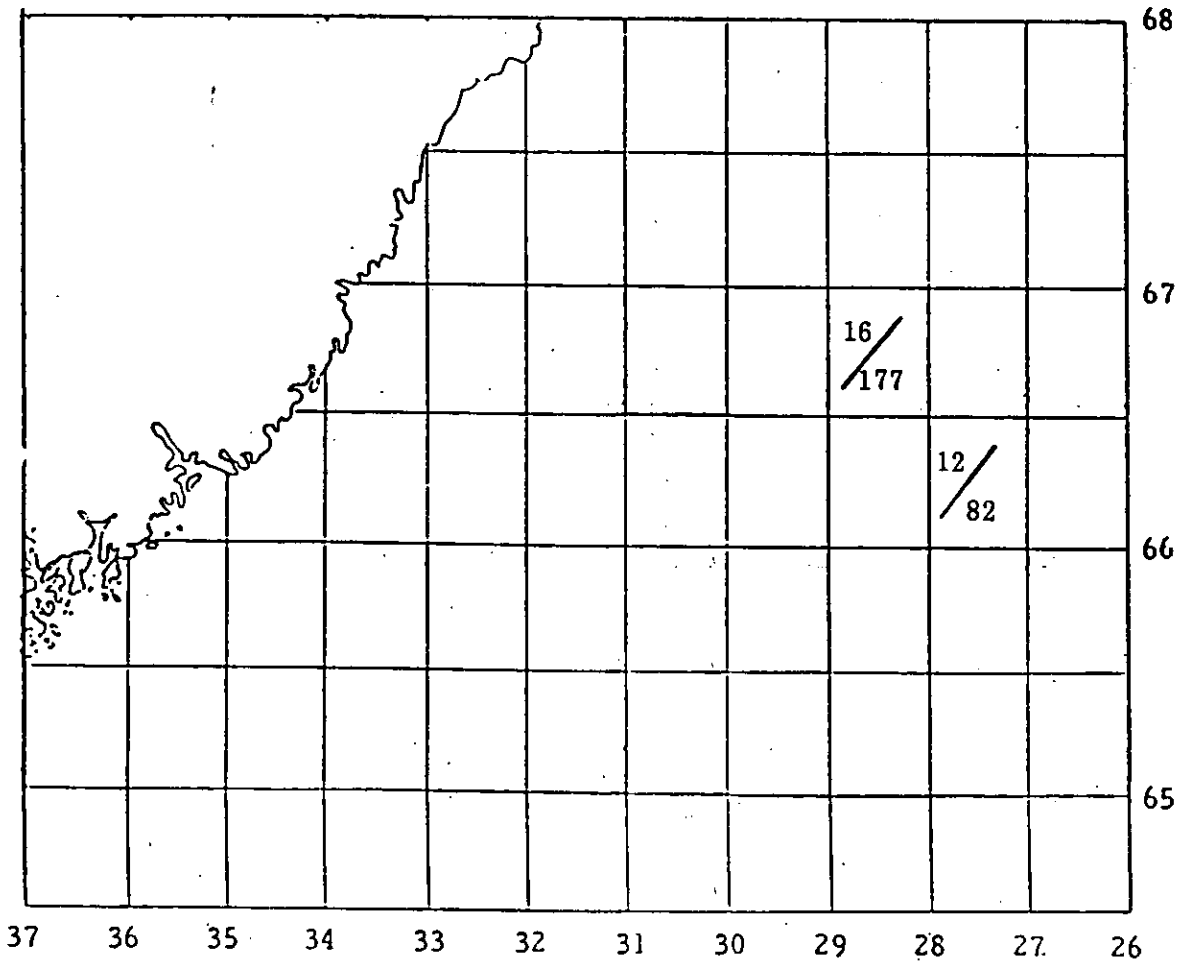


Fig.11. June (Catch in tonnes/hours fished).

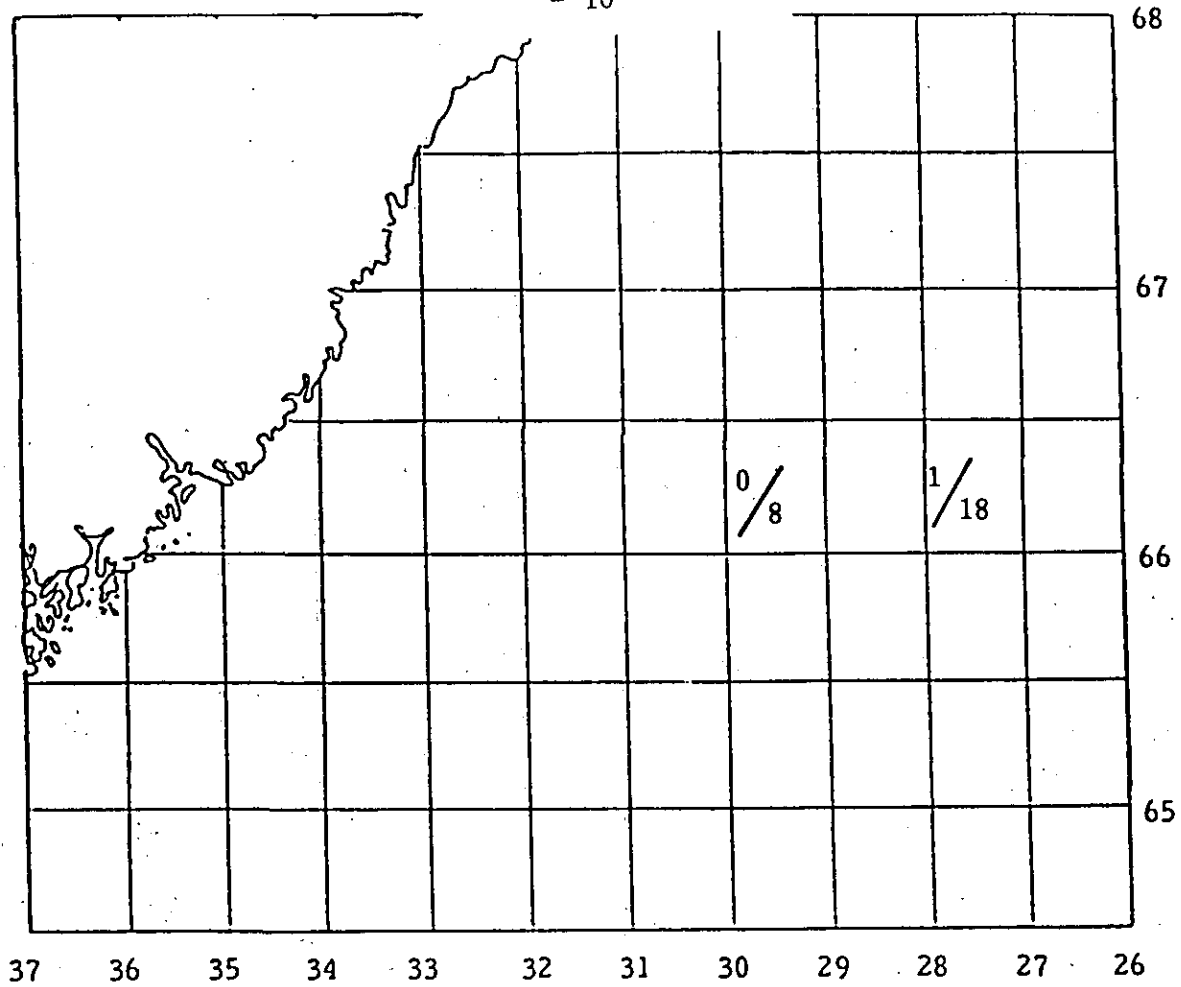
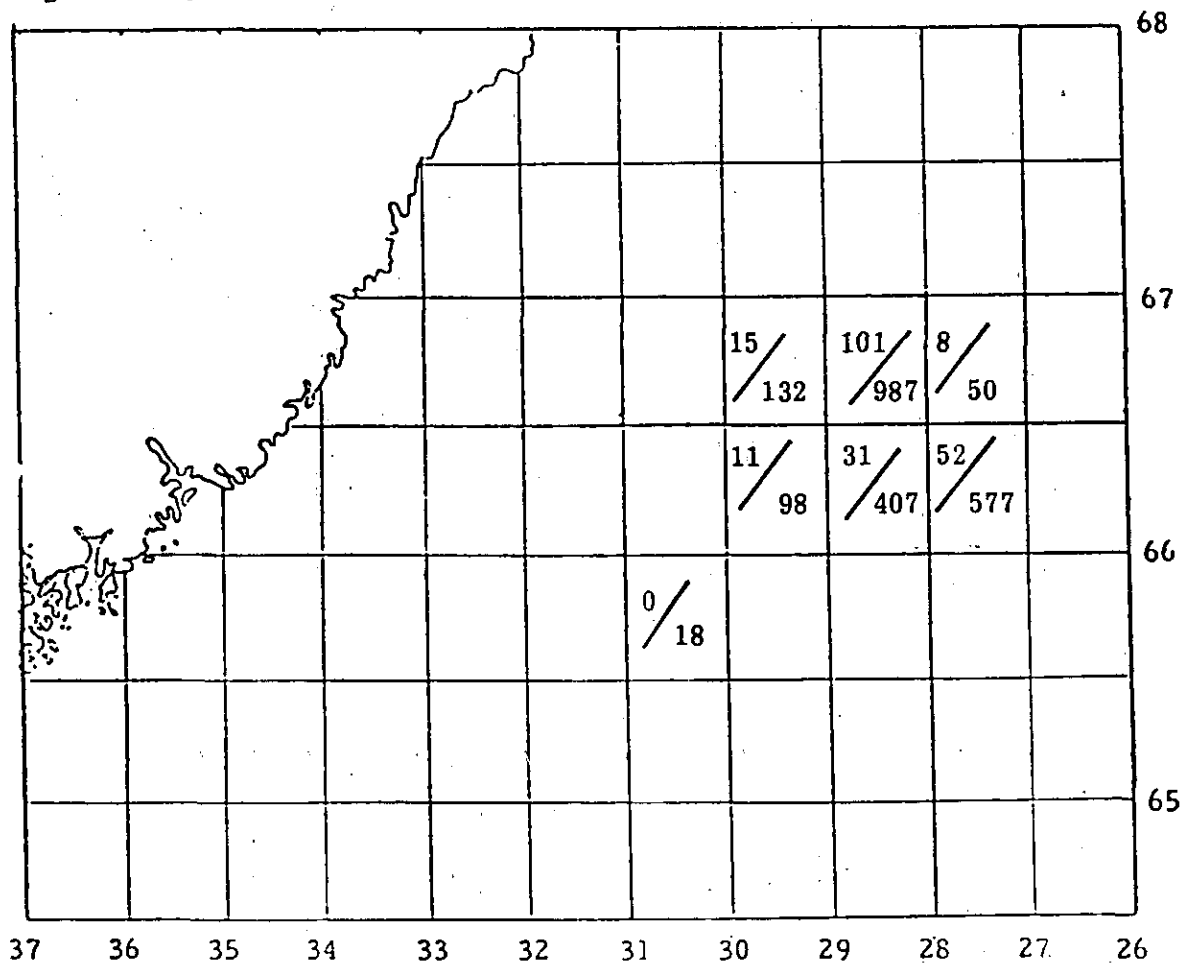


Fig.12. July (Catch in tonnes/hours fished).



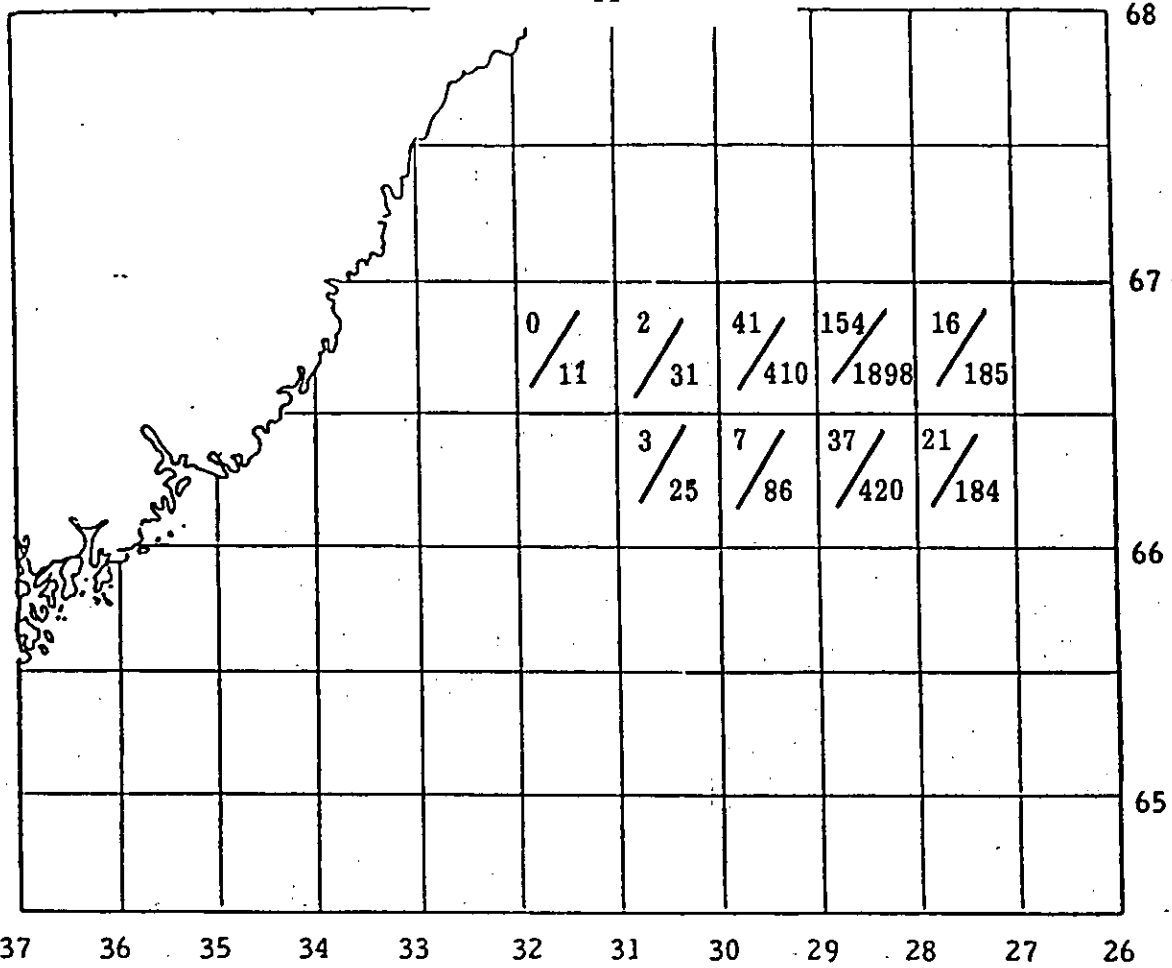


Fig. 14. September (Catch in tonnes/hours fished).

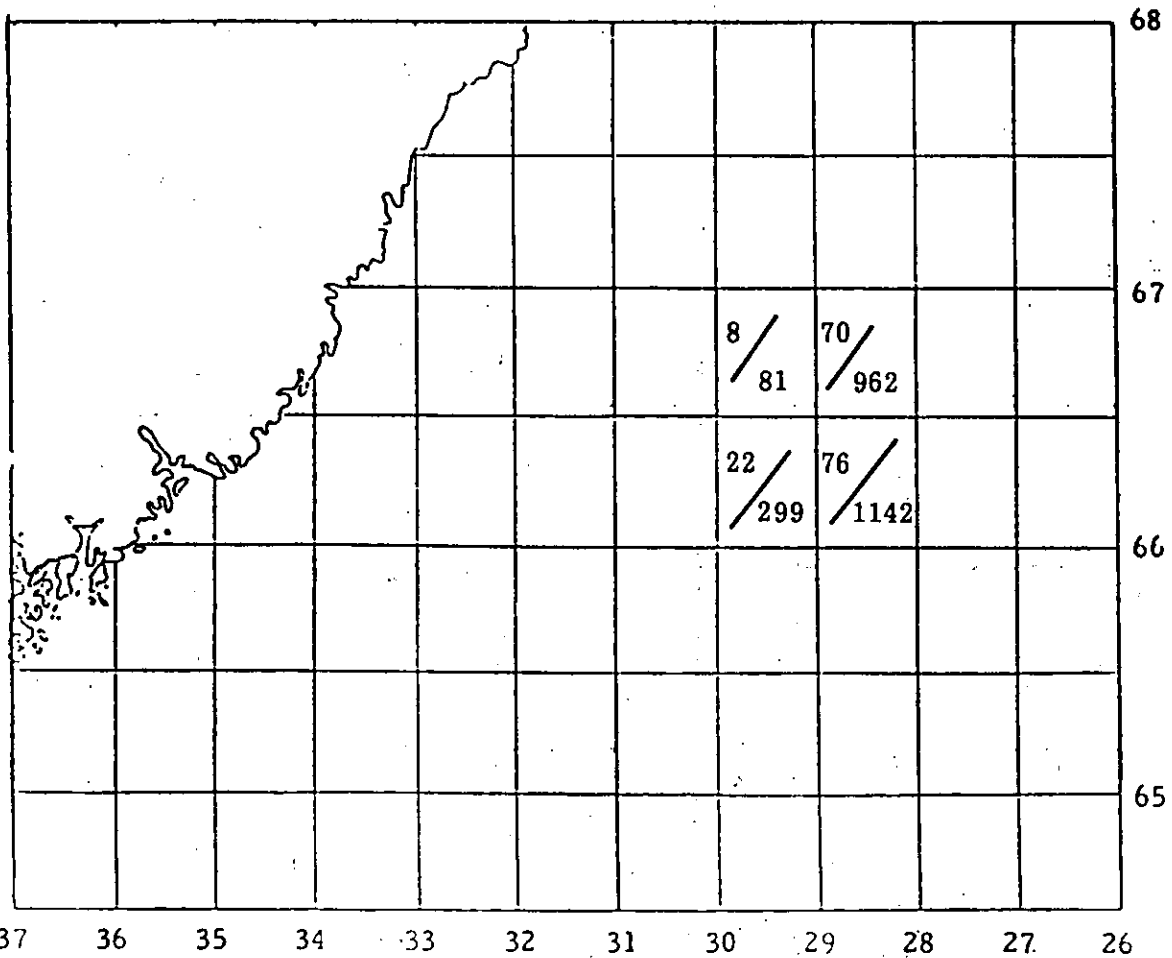


Fig. 15. October (Catch in tonnes/hours fished).

