Northwest Atlantic Fisheries Organization

Serial No. N2480 NAFO SCR Doc. 94/93

SCIENTIFIC COUNCIL MEETING, NOVEMBER 1994

The Shrimp Fishery in NAFO Subarea 1 in 1993 and January-October 1994.

by

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INTRODUCTION

For 1994 STACFIS has advised a TAC for the offshore catch of shrimp in NAFO Subarea 0 and 1 (not including Subarea 1 north of 71°N) of 50,000 tons. Trawlers above 75 GRT in 1993 reported a total catch in Subarea 1 of 43,163 tons, including 641 tons taken north of 71°N and 1,770 tons taken in the inshore areas. Total catches of smaller vessels in 1993 are estimated to 25,899 tons, of which about 21,928 tons were taken in the offshore area. The reported catches in January to October 1994 totalled 36,529 tons, 848 tons taken north of 71°N and 927 tons taken in the inshore areas. Total catches of smaller vessels in January-September 1994 are estimated to 20,040 tons, hereby 16,679 tons taken offshore.

Since 1986 logbooks have been mandatory for all vessels above 50 GRT fishing in Greenland waters. Available logbooks from 1993 covers a total catch of 54,697 tons of shrimp and about 166,000 hours of trawling in Subarea 1. The logbooks from January-October 1994 cover a catch of 38,164 tons and 110,965 hours of trawling. The logbook data base has been used to calculate standardized catch rates.

The present paper updates information on the geographical distribution and catch rates in the offshore Subarea 1 shrimp fishery. Also, size composition data on shrimp from the commercial shrimp fishery is presented.

MATERIALS AND METHODS

Based on the compulsory weekly reportings to Greenland authorities by all vessels above 75 GRT, total catches and numbers of vessels in the shrimp fishery in NAFO Subarea 1 in 1993 and the first three quarters of 1994 were compiled by month.

Available logbook data from January 1993 to October 1994 were analyzed to show the yearly and monthly distribution of catches.

Logbook data from 33 Greenland trawlers were used in a multiplicative model (SAS multiple regression procedures) to calculate standardized annual catch rate indices for the years 1987-1994. Indices were calculated for total catch, and for catch of shrimp larger than 8.5 g to avoid the influence of unreported discard. The method is described in Carlsson and Lassen, 1991. Catch of large shrimp and total catch were aggregated by vessel, area, month and year (areas have been selected based on the distribution of the commercial fishery - see Fig. 7).

The analysis was carried out for Div. 1B and Div. 1CD separately due to differences in seasonality. All cells with less than 10 hours of effort or with 10% or more of the catch not being sorted by shrimp size were excluded to avoid the influence of cells with few hauls and of non-sorted catch. This reduced the number of cells in Div. 1B from the possible 10880 to 1606, of which further 27 were removed as marked outliers. In Div. 1CD filters reduced the number of cells from 8910 to 1877, and further 28 were removed as outliers. Although some improvement in r-square values could be obtained by including interactions in the model, the final runs were done with the simple model.

In 1994 shrimp samples were available from the commercial fishery from January-July, and in September. Shrimp were measured to nearest .1 mm carapace length and pooled in .5 mm length groups by division and month to show overall size distribution of commercial catches.

RESULTS AND DISCUSSION

Reported catches in 1993 and January-October 1994

Table 1a and 1b show catches by division and month in Subarea 1 in 1993 and January-October 1994 as reported by vessels above 75 GRT. Table 2a and 2b show the numbers of reporting vessels. The figures include catches in the offshore fishery north of 71°N (1AN), and inshore catches of 1,770 tons in 1993 and 927 tons in 1994. The total reported shrimp catch from January to October 1994 amounted to 36,529 tons, which is about 2,500 tons more than reported in the same period in 1993 (34.057 tons).

Summary table for nominal catch by Greenland in Subarea 1, with distribution between inshore and offshore. Inshore and offshore catches of vessels < 75 GRT is estimated (Andersen 1994). The figure is for 1993 and in January to September 1994.

1993	Vessel >75 GRT	Vessel <75 GRT	Total
Offshore, north of 71°N	641	0	641
Offshore, south of 71°N	40 752	21 928	62 680
Inshore	1 770	3 971	5 741
Total	43 163	25 899	69 062

1994 January-September	Vessel >75 GRT	Vessel <75 GRT	Total
Offshore, north of 71°N	378	0	378
Offshore, south of 71°N	31 826	16 679	48 505
Inshore	720	3 361	4 081
Total	32 924	20 040	52 964

The shrimp landings from Subarea 1 in 1993 by smaller Greenland vessels (below 75 GRT) are 25,899 tons, of which 3,971 tons are estimated to be inshore catches (Andersen, 1994). The landings in January to September 1994 by smaller vessels were 20,040 tons, of which 3,361 tons area estimated to the inshore catch.

In Subarea 1 the total nominal shrimp catch in 1993 was 69,062 tons, which is less than the nominal shrimp catch in 1992 on 79,260 tons. The nominal catch in January to September 1994 was 52,964, which is more than the same period in 1993 on 47,383 tons.

Geographical distribution of the offshore fishery

Table 3 and 4 and Figure 1 shows the catches and effort by Division and year from 1989 to October 1994. The monthly catches from 1990 to October 1994 is show in Table 5 and Figure 2. Data from 1994 is incomplete, and it is therefore difficult to compare this year with earlier year. The total catch in 1B increased in 1993, mainly due to an increase in catches in October and November (Table 5). The increase in both effort and catch in Division 1E and 1F is evident in 1993 and again in 1994. Catches in the first quarter of 1994 were higher than in previous years (Figure 2), but dropped below average in May.

Figure 3 and 4 shows the distribution of total catches in 1993 and 1994 as recorded in logbooks. The catches were widespread over the fishing grounds along the coast and similar to previous years - though the fishing ground north of 67°N were access earlier in 1994 than in 1993.

Standardized CPUE-Indices

Results of multiple regression analysis to standardize catch rates of large shrimp show that the model explains 46% of the total variation in both Div. 1B and 1CD (Table 6a and 6b). All four variables are highly significant in both runs. T-values suggest that in both areas catch rates were significantly higher in all years from 1987 to 1993 compared to 1994. Histogram, box- and probit plots of the residuals are shown in Fig. 8a and 8b.

Results of the same models run for the total catch showed that catch rates in 1987 and 1988 were significantly higher than and in all other years at the same level as in 1994. In Div. 1CD the catch rates in 1988, 1989 and 1990 were significantly higher than in 1994.

Calculated annual cpue-indices for large shrimp and total catch based on results from the regression analysis are shown in Fig. 9a (Div. 1B) and 9b (Div. 1CD). In Div. 1B the indices for large shrimp show a declining trend from 1987 to 1989, stability between 1990 and 1993, and a decline from 1993 to 1994. In Div. 1CD the indices for large shrimp show an increase from 1987 to 1988, followed by a decline from 1988 to 1991, a slight increase to 1993, and finally a decrease between 1993 and 1994.

Biological samples

Shrimp samples from the commercial fishery in 1994 are available from January to July and in August. The samples from January and February were sorted only in males and females. Samples from the rest of the year were sorted by sexual characteristics.

Figure 10 show the shrimp sampling sites in 1994. Data on numbers of shrimp by length in shrimp samples from the commercial fishery in Subarea 1 pooled by division and month are given in Table 7 and Figure 11.

Samples in Div. 1B in March, April, June and September all show dominant peaks around 18 mm, 21 mm and 25-26 mm, the first two peak representing males and the second females. There are indications of growth of females by the progression of the peak from 25 mm in March-June to 26 mm in September, and by the male group by the progression of the peak from 20 mm to 21 mm. A new year-class on 11 - 13 mm is indicated in all samples and a growth progression is also slightly indicated in the September peak on 13-14 mm.

Samples from Div. 1E in May and in Div. 1D in January, February, May, June and July show a peak of female shrimp around 26.5 mm carapace length and a distinct group of males around 13 mm and 21 mm. In July 1D is a peak around 17.5 is evident the abundance of the male component at 21 mm is most dominant in all month except in June.

The samples from 1C are from February, March, May, June, July and September.

CONCLUSIONS

The nominal offshore catch of shrimp in NAFO Subarea 1 was 69,062 tons in 1993, including about 641 tons from the area north of 71°N. The total reported catches

Standardized catch rate indices for large shrimp based on the fishery of 33 Greenland trawlers in Div. 1B show a declining trend from 1987 to 1989, stability between 1990 and 1993, and a decline from 1993 to 1994. In Div. 1CD the indices for large shrimp show an increase from 1987 to 1988, and fluctuations with a decreasing trend from 1988 to 1994. In both areas cpue-indices are significantly higher in all other years when compared to 1994.

Shrimp samples from the commercial fishery in Division 1A and 1B show one dominant male peak and one dominant female peak. Growth is indicated for the male group from second quarter throughout the year and for primiparous females between the second and the third quarter.

REFERENCES

ANDERSEN, M. 1994. Small vessel fishery in West Greenland. *NAFO SCR Doc.* 94/89, Serial No. N2476.

CARLSSON, D. M., and H. LASSEN. 1991. A catch-rate index for large shrimp in the Greenland shrimp fishery in NAFO Division 1B. *NAFO SCR Doc.*, No. 57, Serial No. N1941.

Table 1a. Catches of shrimp (t) by division and month in Subarea 1 in 1993, as reported to the Greenland authorities by vessels above 75 GRT (including 1.770 tons taken inshore). Only vessels from Greenland participated in the fishery.

YEAR 1993

AREA	MONTH												TOTAL
	JAN	FEB	MAR	APR	MAJ	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1AN	.	.	.	.	.	.	.	9	369	264	.	.	641
1AS	.	.	.	.	33	25	0	189	684	533	101	.	1565
1B	40	32	418	828	874	1099	1402	2656	1527	3933	3988	437	17234
1C	322	855	1238	1343	663	1086	1048	574	436	9	651	779	9003
1D	643	402	554	509	1042	1672	1093	1040	991	592	1005	1124	10665
1E	123	14	486	61	494	92	28	200	492	225	204	247	2665
1F	151	229	198	112	161	.	36	.	.	.	.	504	1390
TOTAL	1278	1532	2894	2852	3267	3973	3607	4667	4499	5555	5949	3090	43163

Table 1b. Catches of shrimp (t) by division and month in Subarea 1 in January-October 1994 (October incomplete), as reported to the Greenland authorities by vessels above 75 GRT (including 927 tons taken inshore). Only vessels from Greenland participated in the fishery.

YEAR 1994

AREA	MONTH										TOTAL
	JAN	FEB	MAR	APR	MAJ	JUN	JUL	AUG	SEP	OCT	
1AN	.	.	.	.	.	.	11	.	367	469	848
1AS	.	.	.	.	.	30	5	174	331	244	784
1B	510	107	529	707	828	1133	1403	1811	3260	2229	12518
1C	519	671	2005	1308	1067	1214	1089	430	69	3	8375
1D	799	599	975	1207	1498	898	1120	1071	371	275	8812
1E	86	322	497	387	568	53	451	704	231	325	3625
1F	120	107	156	312	173	32	237	89	280	59	1567
TOTAL	2034	1807	4162	3921	4135	3360	4317	4280	4908	3605	36529

Table 2a. No. of vessels in the shrimp fishery by division and month in Subarea 1 in 1993 as reported to the Greenland authorities. Only vessels from Greenland participated.

YEAR 1993

AREA	MONTH												TOTAL
	JAN	FEB	MAR	APR	MAJ	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1AN	.	.	.	.	.	.	.	1	7	5	.	.	9
1AS	.	.	.	.	1	1	1	8	15	10	3	.	18
1B	5	2	16	18	22	13	17	19	24	26	32	20	35
1C	12	15	22	25	26	16	21	16	14	2	24	24	35
1D	20	15	22	22	26	16	21	14	15	8	14	25	35
1E	8	4	15	5	11	2	3	4	7	4	4	9	24
1F	6	6	6	4	6	.	2	.	.	.	.	12	18
TOTAL	22	18	26	34	32	22	30	28	32	34	33	33	35

Table 2b. No. of vessels in the shrimp fishery by division and month in Subarea 1 in January-October 1994 (October incomplete) as reported to the Greenland authorities. Only vessels from Greenland participated.

YEAR 1994

AREA	MONTH										TOTAL
	JAN	FEB	MAR	APR	MAJ	JUN	JUL	AUG	SEP	OCT	
1AN	.	.	.	.	.	.	1	.	7	6	9
1AS	.	.	.	.	.	1	2	5	8	7	14
1B	9	9	18	16	20	18	18	24	24	22	31
1C	18	13	25	23	21	16	20	17	8	1	31
1D	17	14	23	21	23	15	21	15	6	4	30
1E	4	7	13	11	11	1	9	7	3	4	22
1F	4	3	4	7	6	1	3	6	4	3	14
TOTAL	26	19	30	31	30	24	30	29	30	30	32

Table 3. Distribution of catches by Division and year in logbooks from the Greenland fleet, January 1989 to October 1994. Numbers in tons and % of total catches per year.

Year(t)	1A		1B		1C		1D		1E		1F		TOTAL
1989	10 266	22.6%	21 009	46.3%	7 915	17.4%	5 880	13.0%	0	0.0%	297	0.7%	45 367
1990	7 810	15.7%	19 326	38.9%	14 495	29.2%	7 740	15.6%	0	0.0%	298	0.6%	49 669
1991	7 850	14.9%	20 417	38.9%	11 633	22.1%	12 102	23.0%	379	0.7%	150	0.3%	52 531
1992	9 451	16.7%	19 051	33.6%	11 561	20.4%	13 426	23.7%	2 853	5.0%	365	0.6%	56 707
1993	4 785	8.7%	23 182	42.4%	10 091	18.4%	11 681	21.4%	2 899	5.3%	2 059	3.8%	54 697
1994	2 060	5.4%	12 437	32.6%	9 012	23.6%	9 609	25.2%	3 228	8.5%	1 818	4.8%	38 164

Table 4. Distribution of effort by Division and year in logbooks from the Greenland fleet, January 1989 to October 1994. Numbers in hours and % of total hours per year.

Year(h)	1A		1B		1C		1D		1E		1F		TOTAL
1989	37 530	27.3%	60 502	44.0%	23 153	16.8%	12 928	9.4%	2	0.0%	3 363	2.4%	137 478
1990	33 472	20.6%	61 383	37.7%	42 939	26.4%	22 762	14.0%	0	0.0%	2 223	1.4%	162 779
1991	28 248	16.2%	68 514	39.4%	39 385	22.7%	36 170	20.8%	564	0.3%	962	0.6%	173 843
1992	35 410	21.2%	54 619	32.7%	34 391	20.6%	36 526	21.8%	5 344	3.2%	924	0.6%	167 214
1993	17 785	11.0%	64 029	39.8%	32 209	20.0%	34 782	21.6%	6 360	3.9%	5 904	3.7%	161 069
1994	7 733	7.0%	38 583	34.8%	27 743	25.0%	26 603	24.0%	5 686	5.1%	4 617	4.2%	110 965

Tabel 5. Catches (t) of shrimp by division and month in Subarea 1, in logbooks from the Greenland fleet, January 1991 to October 1993.

1991	1A	1B	1C	1D	1E	1F	Total	Kumule
January	0	323	1 280	853	1	20	2 477	2 477
February	0	172	886	1 100	0	61	2 219	4 696
March	0	229	1 259	976	0	45	2 509	7 205
April	0	875	1 003	480	0	14	2 372	9 577
May	259	1 484	642	1 577	1	6	3 969	13 546
June	380	2 035	1 762	1 820	5	0	6 002	19 548
July	562	2 833	2 069	969	1	0	6 434	25 982
August	849	2 647	911	622	0	0	5 029	31 011
September	1 295	1 733	261	1 245	139	0	4 673	35 684
October	2 254	1 898	99	927	179	0	5 357	41 041
November	2 067	2 631	961	618	50	4	6 331	47 372
December	182	3 556	501	916	4	0	5 159	52 531
Total	7 848	20 416	11 634	12 103	380	150	52 531	

1992	1A	1B	1C	1D	1E	1F	Total	Kumule
January	0	1 618	413	590	0	62	2 683	2 683
February	0	0	376	1 163	408	46	1 993	4 676
March	0	209	2 005	1 060	100	123	3 497	8 173
April	67	1 092	1 414	1 265	8	48	3 894	12 067
May	150	1 725	708	1 796	437	86	4 902	16 969
June	729	1 376	2 342	1 995	42	0	6 484	23 453
July	479	3 098	1 731	1 010	60	0	6 378	29 831
August	1 227	1 448	623	1 500	558	0	5 356	35 187
September	2 091	1 626	522	553	21	0	4 813	40 000
October	2 662	2 950	100	582	650	0	6 944	46 944
November	1 621	2 017	741	929	278	0	5 586	52 530
December	423	1 892	586	984	291	0	4 176	56 706
Total	9 449	19 051	11 561	13 427	2 853	365	56 706	

1993	1A	1B	1C	1D	1E	1F	Total	Kumule
January	0	134	396	765	109	260	1 664	1 664
February	0	171	923	555	25	313	1 987	3 651
March	0	410	752	761	545	324	2 792	6 443
April	0	1 065	1 951	570	33	200	3 819	10 262
May	228	1 566	895	1 428	515	297	4 929	15 191
June	495	1 788	1 175	1 573	92	0	5 123	20 314
July	94	2 568	1 353	1 344	24	37	5 420	25 734
August	319	3 136	673	1 014	143	30	5 315	31 049
September	1 468	2 080	470	893	627	20	5 558	36 607
October	1 701	4 490	29	659	279	15	7 173	43 780
November	464	4 618	447	774	197	13	6 513	50 293
December	17	1 157	1 027	1 345	308	550	4 404	54 697
Total	4 786	23 183	10 091	11 681	2 897	2 059	54 697	

1994	1A	1B	1C	1D	1E	1F	Total	Kumule
January	0	936	625	862	82	150	2 655	2 655
February	0	330	807	831	337	131	2 436	5 091
March	0	767	1 747	1 184	323	148	4 169	9 260
April	20	1 334	1 622	1 303	630	446	5 355	14 615
May	246	1 090	1 046	1 549	413	253	4 597	19 212
June	339	1 677	1 268	1 064	116	62	4 526	23 738
July	164	2 143	1 338	1 349	627	265	5 886	29 624
August	368	1 855	477	1 283	640	137	4 760	34 384
September	791	2 152	74	157	53	226	3 453	37 837
October	132	155	6	34	0	0	327	38 164
November								
December								
Total	2 060	12 439	9 010	9 616	3 221	1 818	38 164	

Table 6a. Standardization of CPUE for large shrimp (> 8.5 g) in Div. 1B: Anova table and parameter estimates.

DEPENDENT VARIABLE: LNCPUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE
MODEL	53	324.66329063	6.12572246	24.63
ERROR	1525	379.29182432	0.24871595	PR > F
CORRECTED TOTAL	1578	703.95511494		0.0

R-SQUARE	C.V.	ROOT MSE	LNCPUE MEAN
0.461199	9.6161	0.49871430	5.18625762

SOURCE	DF	TYPE I SS	F VALUE	PR > F
VESS	32	162.40477376	20.41	0.0
YR	7	95.69001440	54.96	0.0001
MO	11	53.34691124	19.50	0.0001
AREA	3	13.22159122	17.72	0.0001

SOURCE	DF	TYPE III SS	F VALUE	PR > F
VESS	32	155.93537919	19.59	0.0
YR	7	98.23747278	56.43	0.0001
MO	11	56.64784238	20.71	0.0001
AREA	3	13.22159122	17.72	0.0001

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT		4.55614272 B	37.62	0.0	0.12110879
VESS	OUIN	0.23643977 B	2.12	0.0344	0.11164425
	OUIQ	0.26745457 B	2.74	0.0062	0.09751280
	OUKV	0.97129386 B	6.77	0.0001	0.14340132
	OUOQ	0.10157721 B	1.03	0.3039	0.09876750
	OUPJ	0.53091028 B	4.87	0.0001	0.10911652
	OUTM	0.28437434 B	3.01	0.0026	0.09432413
	OUWH	0.24942176 B	2.43	0.0151	0.10257660
	OUYM	0.08563099 B	0.93	0.3539	0.09234567
	OVUG	-0.56771680 B	-4.36	0.0001	0.13012267
	OWDV	0.19963900 B	2.23	0.0258	0.08946854
	OWGG	0.72573170 B	5.43	0.0001	0.13355393
	OWLQ	0.18132607 B	1.64	0.1012	0.11054790
	OWPQ	-0.16095297 B	-1.64	0.1019	0.09835316
	OWQU	0.93817227 B	9.36	0.0001	0.10020912
	OWSH	0.25024680 B	1.90	0.0582	0.13201758
	OWUD	0.12816509 B	1.32	0.1860	0.09685835
	OWUJ	-0.14147266 B	-1.46	0.1458	0.09721252
	OWVM	0.13192343 B	1.20	0.2295	0.10974382
	OWWP	0.63081546 B	6.74	0.0001	0.09353628
	OXSY	-0.43268505 B	-4.15	0.0001	0.10433615
	OYAQ	-0.16185168 B	-1.68	0.0937	0.09650119
	OYBZ	0.42449130 B	3.61	0.0003	0.11759271
	OYCK	0.03858634 B	0.35	0.7230	0.10885557
	OYFF	0.57301595 B	5.42	0.0001	0.10571357
	OYKK	0.31783565 B	3.17	0.0015	0.10019845
	OYNR	0.21946263 B	2.42	0.0154	0.09051502
	OYNS	0.28326482 B	2.58	0.0099	0.10971512
	OYRK	0.33035649 B	3.91	0.0001	0.08446262
	OYRT	0.54467329 B	4.96	0.0001	0.10970962
	OYXT	0.57400000 B	5.28	0.0001	0.10879570
	OZKQ	0.74761339 B	7.39	0.0001	0.10112072
	OZSI	-0.51893716 B	-5.16	0.0001	0.10064970
	ZZZZ	0.00000000 B	.	.	.
YR	87	1.07961190 B	11.53	0.0001	0.09359915
	88	0.84656948 B	9.62	0.0001	0.08802140
	89	0.37723919 B	4.26	0.0001	0.08865398
	90	0.39108063 B	4.39	0.0001	0.08917383
	91	0.35850392 B	4.06	0.0001	0.08832688
	92	0.26651986 B	3.01	0.0026	0.08846986
	93	0.41021805 B	4.42	0.0001	0.09283677
	94	0.00000000 B	.	.	.
MO	1	0.22750843 B	2.10	0.0355	0.10809006
	2	0.08147353 B	0.56	0.5763	0.14577629
	3	0.19554775 B	2.28	0.0228	0.08582731
	4	0.26646488 B	3.94	0.0001	0.06756121
	5	-0.25861077 B	-4.26	0.0001	0.06065362
	6	-0.37849264 B	-6.24	0.0001	0.06070085
	7	-0.25316965 B	-4.11	0.0001	0.06159527
	8	-0.32556830 B	-5.18	0.0001	0.06283597
	9	-0.42354615 B	-6.37	0.0001	0.06653147
	10	-0.26815098 B	-3.87	0.0001	0.06930292
	11	-0.08562357 B	-1.34	0.1809	0.06396761
	12	0.00000000 B	.	.	.
AREA	3	0.15100978 B	2.02	0.0434	0.07470127
	4	0.04183831 B	1.20	0.2301	0.03484682
	5	0.23155511 B	6.61	0.0001	0.03505471
	6	0.00000000 B	.	.	.

Table 6b. Standardization of CPUE for large shrimp (> 8.5 g) in Div. 1CD: Anova table and parameter estimates.

DEPENDENT VARIABLE: LNCPUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE
MODEL	52	269.64696290	5.18551852	29.20
ERROR	1796	318.91542064	0.17756983	PR > F
CORRECTED TOTAL	1848	588.56238354		0.0

R-SQUARE	C.V.	ROOT MSE	LNCPUE MEAN
0.458145	8.0305	0.42139036	5.24740523

SOURCE	DF	TYPE I SS	F VALUE	PR > F
VESS	32	169.75590946	29.87	0.0
YR	7	20.75782291	16.70	0.0001
MO	11	70.92584304	36.31	0.0001
AREA	2	8.20738749	23.11	0.0001

SOURCE	DF	TYPE III SS	F VALUE	PR > F
VESS	32	187.69609015	33.03	0.0
YR	7	24.23414284	19.50	0.0001
MO	11	71.21555486	36.46	0.0001
AREA	2	8.20738749	23.11	0.0001

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT		4.66104111 B	51.99	0.0	0.08965556
VESS	OUIN	0.22282141 B	2.63	0.0087	0.08481633
	OUIQ	0.12553296 B	1.37	0.1711	0.09168273
	OUKV	0.80194527 B	8.02	0.0001	0.10004972
	OUOQ	0.02737036 B	0.30	0.7619	0.09032624
	OUPJ	0.15572583 B	1.72	0.0865	0.09079977
	OUTM	0.29609598 B	3.58	0.0003	0.08262342
	OUWH	0.16552217 B	1.96	0.0505	0.08456413
	OUYM	-0.07778001 B	-0.92	0.3602	0.08497856
	OVUG	-0.56571644 B	-3.72	0.0002	0.15187355
	OWDV	0.01419340 B	0.17	0.8621	0.08171935
	OWGG	0.63241455 B	6.93	0.0001	0.09126848
	OWLQ	-0.01527942 B	-0.16	0.8761	0.09799812
	OWPQ	-0.22726446 B	-2.54	0.0111	0.08938006
	OWQU	0.76691777 B	9.12	0.0001	0.08405164
	OWSH	0.27510330 B	2.80	0.0052	0.09832637
	OWUD	-0.01932243 B	-0.22	0.8222	0.08599593
	OWUJ	-0.36195130 B	-4.02	0.0001	0.09013685
	OWVM	-0.13448144 B	-1.34	0.1796	0.10016233
	OWWP	0.42703766 B	5.20	0.0001	0.08209415
	OXSY	-0.48110121 B	-5.24	0.0001	0.09181314
	OYAQ	-0.29088827 B	-3.25	0.0012	0.08953849
	OYBZ	0.70678718 B	7.99	0.0001	0.08842619
	OYCK	0.05899324 B	0.66	0.5090	0.08932052
	OYFF	0.46004467 B	3.48	0.0005	0.13223480
	OYKK	0.06710092 B	0.74	0.4582	0.09043518
	OYNR	0.06528912 B	0.77	0.4425	0.08499923
	OYNS	0.24244789 B	2.87	0.0042	0.08458226
	OYRK	0.25581850 B	3.19	0.0015	0.08029957
	OYRT	0.34112229 B	3.92	0.0001	0.08707564
	OYXT	0.58970032 B	6.43	0.0001	0.09169733
	OZKQ	0.62140751 B	7.27	0.0001	0.08543021
	OZSI	-0.91163579 B	-9.34	0.0001	0.09764210
	ZZZZ	0.00000000 B	.	.	.
YR	87	0.26725291 B	2.90	0.0038	0.09214226
	88	0.54838976 B	8.06	0.0001	0.06803281
	89	0.41038072 B	8.29	0.0001	0.04948136
	90	0.42420416 B	9.44	0.0001	0.04495430
	91	0.22424408 B	5.23	0.0001	0.04285350
	92	0.29636013 B	7.08	0.0001	0.04188175
	93	0.34022702 B	7.67	0.0001	0.04438684
	94	0.00000000 B	.	.	.
MO	1	0.18202709 B	3.22	0.0013	0.05660829
	2	0.26934218 B	4.57	0.0001	0.05892779
	3	0.44321852 B	8.54	0.0001	0.05188516
	4	0.34489498 B	7.10	0.0001	0.04855052
	5	-0.12399604 B	-2.54	0.0111	0.04878181
	6	-0.02839762 B	-0.55	0.5843	0.05189506
	7	0.12594376 B	2.44	0.0147	0.05155321
	8	-0.06592411 B	-1.19	0.2336	0.05532517
	9	-0.28373382 B	-4.69	0.0001	0.06045555
	10	0.05703290 B	0.82	0.4128	0.06961845
	11	0.14982906 B	2.55	0.0109	0.05880209
	12	0.00000000 B	.	.	.
AREA	7	0.09564188 B	3.54	0.0004	0.02700577
	8	-0.06169456 B	-2.41	0.0160	0.02557892
	9	0.00000000 B	.	.	.

Table 7a. No. of shrimp per length group in commercial samples from 1994, pooled by month and Division (see figur 10). The entry 'catch' is the total catch from which samples were taken.

Westgreenland	month
	1
	area
	1D
	sample w
	87.35
	catch
	17928
	No. of samples
	19

MM	male	primi	femal	all
5	0	0	0	0
5.5	0	0	0	0
6	0	0	0	0
6.5	0	0	0	0
7	0	0	0	0
7.5	0	0	0	0
8	1	0	0	1
8.5	1	0	0	1
9	0	0	0	0
9.5	1	0	0	1
10	3	0	0	3
10.5	17	0	0	17
11	23	0	0	23
11.5	51	0	0	51
12	50	0	0	50
12.5	74	0	0	74
13	77	0	0	77
13.5	68	0	0	69
14	59	0	0	59
14.5	50	0	0	50
15	52	0	0	52
15.5	77	0	0	77
16	131	0	0	131
16.5	174	0	0	174
17	229	0	0	230
17.5	272	0	0	272
18	362	0	0	363
18.5	492	0	0	493
19	649	0	2	651
19.5	721	0	1	724
20	816	0	5	823
20.5	845	0	11	860
21	857	0	31	891
21.5	748	0	53	803
22	595	0	82	679
22.5	430	0	144	578
23	324	0	213	540
23.5	181	0	295	478
24	101	0	346	449
24.5	37	0	393	430
25	20	0	361	384
25.5	4	0	400	405
26	1	0	378	379
26.5	0	0	397	398
27	0	0	287	287
27.5	0	0	218	218
28	0	0	120	120
28.5	0	0	66	66
29	0	0	22	22
29.5	0	0	10	10
30	0	0	5	5
30.5	0	0	1	1
31	0	0	3	3
31.5	0	0	1	1
32	0	0	0	0
32.5	0	0	0	0
33	0	0	0	0
33.5	0	0	0	0
34	0	0	0	0
34.5	0	0	0	0
35	0	0	0	0
35.5	0	0	0	0
36	0	0	0	0
36.5	0	0	0	0
37	0	0	0	0
TOTAL	8593	0	3845	12473

Westgreenland	month	
	2	
	area	
	1C	1D
	sample w	sample w
	53.14	20.26
	catch	catch
	11834	5834
	No. of samples	No. of samples
	12	5

MM	male	primi	femal	all	male	primi	femal	all
5	0	0	0	0	0	0	0	0
5.5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
6.5	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0
7.5	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0
8.5	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
9.5	3	0	0	3	0	0	0	0
10	5	0	0	5	0	0	0	0
10.5	4	0	0	4	1	0	0	1
11	13	0	0	13	1	0	0	1
11.5	17	0	0	17	0	0	0	0
12	31	0	0	31	2	0	0	2
12.5	41	0	0	41	2	0	0	2
13	47	0	0	47	2	0	0	2
13.5	53	0	0	53	4	0	0	4
14	50	0	0	50	6	0	0	7
14.5	46	0	0	47	2	0	0	2
15	39	0	0	39	5	0	0	5
15.5	44	0	0	44	4	0	0	4
16	63	0	0	64	10	0	0	10
16.5	84	0	0	84	28	0	0	28
17	117	0	1	119	27	0	0	27
17.5	166	0	0	167	30	0	1	31
18	180	0	0	181	37	0	0	37
18.5	294	0	0	294	72	0	0	72
19	345	0	0	345	90	0	0	90
19.5	392	0	0	392	126	0	0	126
20	409	0	1	410	154	0	1	155
20.5	399	0	3	402	173	0	2	175
21	491	0	6	499	202	0	7	209
21.5	415	0	17	432	216	0	14	230
22	358	0	33	391	158	0	34	194
22.5	309	0	77	386	117	0	45	162
23	224	0	138	363	82	0	66	148
23.5	162	0	172	334	54	0	89	143
24	136	0	286	422	27	0	97	124
24.5	60	0	292	352	12	0	94	106
25	29	0	305	334	4	0	118	122
25.5	5	0	237	242	1	0	109	111
26	4	0	215	220	0	0	109	109
26.5	0	0	202	202	1	0	97	98
27	0	0	145	145	2	0	56	58
27.5	0	0	97	97	0	0	47	47
28	0	0	58	58	0	0	14	14
28.5	0	0	40	40	0	0	6	6
29	0	0	19	19	0	0	2	2
29.5	0	0	12	12	0	0	1	1
30	0	0	2	2	0	0	3	3
30.5	0	0	4	4	0	0	1	1
31	0	0	0	0	0	0	0	0
31.5	0	0	2	2	0	0	0	0
32	0	0	1	1	0	0	0	0
32.5	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0
33.5	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0
34.5	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0
35.5	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0
36.5	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0
TOTAL	5035	0	2365	7409	1652	0	1013	2669

Table 7b. No. of shrimp per length group in commercial samples from 1994, pooled by month and Division (see figur 10). The entry 'catch' is the total catch from which samples were taken.

West-greenland	month							
	3							
	area							
	1B				1C			
	sample w				sample w			
	11				47.99			
	catch				catch			
	4384				17975			
	No. of samples				No. of samples			
	2				10			
	male	primi	femal	all	male	primi	femal	all
MM								
5	0	0	0	0	0	0	0	0
5.5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
6.5	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0
7.5	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0
8.5	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
9.5	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
10.5	0	0	0	0	0	0	0	0
11	1	0	0	1	0	0	0	0
11.5	4	0	0	4	0	0	0	0
12	4	0	0	4	0	0	0	0
12.5	2	0	0	2	2	0	0	2
13	1	0	0	1	6	0	0	6
13.5	1	0	0	1	2	0	0	2
14	3	0	0	3	7	0	0	7
14.5	1	0	0	1	7	0	0	7
15	10	0	0	10	6	0	0	6
15.5	10	0	0	10	10	0	0	10
16	27	0	0	27	5	0	0	5
16.5	45	0	0	45	17	0	0	17
17	53	0	0	53	16	0	0	16
17.5	65	0	0	65	37	0	0	37
18	55	0	0	55	45	0	0	45
18.5	87	0	0	87	72	0	0	72
19	75	0	0	75	81	0	0	81
19.5	115	0	0	115	122	0	1	123
20	108	1	0	110	126	0	0	126
20.5	117	3	0	120	154	1	0	155
21	89	2	0	92	164	9	0	173
21.5	86	11	0	97	173	28	0	201
22	73	23	2	99	146	56	2	205
22.5	31	44	1	76	114	99	6	219
23	25	95	4	124	51	105	19	175
23.5	3	55	14	72	21	113	58	192
24	0	57	33	91	4	136	121	261
24.5	0	38	38	76	1	126	205	332
25	0	14	45	59	1	92	302	395
25.5	0	8	35	43	0	47	361	409
26	0	2	28	30	0	29	387	417
26.5	0	1	10	11	0	17	318	336
27	0	0	10	10	0	11	259	270
27.5	0	0	2	2	1	1	179	181
28	0	0	1	1	0	0	113	114
28.5	0	0	0	0	0	0	51	51
29	0	0	0	0	0	0	38	38
29.5	0	0	0	0	0	0	11	11
30	0	0	0	0	0	0	13	13
30.5	0	0	0	0	0	0	1	1
31	0	0	0	0	0	0	2	2
31.5	0	0	0	0	0	0	1	1
32	0	0	0	0	0	0	0	0
32.5	0	0	0	0	0	0	1	1
33	0	0	0	0	0	0	0	0
33.5	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0
34.5	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0
35.5	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0
36.5	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0
TOTAL	1091	354	223	1672	1391	870	2449	4715

West-greenland	month							
	4							
	area							
	1B				1C			
	sample w				sample w			
	32.14				90.04			
	catch				catch			
	7505				41482			
	No. of samples				No. of samples			
	7				22			
	male	primi	femal	all	male	primi	femal	all
MM								
5	0	0	0	0	0	0	0	0
5.5	0	0	0	0	0	0	1	1
6	0	0	0	0	0	0	0	0
6.5	0	0	0	0	0	0	0	0
7	1	0	0	1	0	0	0	0
7.5	0	0	0	0	1	0	0	1
8	1	0	0	1	0	0	0	0
8.5	0	0	0	0	0	0	0	0
9	1	0	0	1	0	0	0	0
9.5	2	0	0	2	0	0	0	0
10	1	0	0	1	0	0	0	0
10.5	4	0	0	4	2	0	0	2
11	15	0	0	15	2	0	0	2
11.5	26	0	0	26	4	0	0	4
12	16	0	0	16	3	0	0	3
12.5	35	0	0	35	14	0	0	14
13	19	0	0	19	8	0	0	8
13.5	9	0	0	9	9	0	0	9
14	10	0	0	10	15	0	0	15
14.5	17	0	0	17	15	0	0	15
15	31	0	0	31	18	0	0	18
15.5	51	0	0	51	13	0	0	13
16	88	0	0	88	13	0	0	13
16.5	148	0	0	149	25	0	0	25
17	206	0	0	206	31	0	0	31
17.5	226	0	0	226	33	0	0	33
18	212	0	0	212	32	0	0	32
18.5	208	0	0	209	56	0	0	56
19	176	0	0	176	73	0	0	73
19.5	187	0	0	187	96	1	0	97
20	206	0	0	207	99	1	1	101
20.5	205	0	1	206	135	0	2	137
21	209	2	1	213	118	0	2	120
21.5	173	4	2	180	140	2	8	150
22	159	17	2	178	140	4	5	149
22.5	125	34	7	166	126	10	8	144
23	78	49	35	162	87	17	26	130
23.5	41	79	52	172	69	33	96	199
24	40	92	99	231	43	33	201	278
24.5	21	150	139	310	21	55	382	458
25	8	117	188	313	9	48	608	665
25.5	3	67	172	242	3	42	870	915
26	3	42	140	186	0	46	979	1027
26.5	1	14	73	88	0	27	1074	1101
27	0	8	51	59	0	12	799	811
27.5	0	5	25	30	0	7	608	615
28	0	0	12	12	0	3	309	312
28.5	0	0	12	12	0	2	174	176
29	0	0	2	2	0	1	100	101
29.5	0	0	0	0	0	1	41	42
30	0	0	3	3	0	0	26	26
30.5	0	0	0	0	0	0	16	16
31	0	0	0	0	0	0	5	5
31.5	0	0	0	0	0	0	1	1
32	0	0	0	0	0	0	0	0
32.5	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0
33.5	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0
34.5	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0
35.5	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0
36.5	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0
TOTAL	2962	680	1016	4664	1453	345	6342	8144

Table 7c. No. of shrimp per length group in commercial samples from 1994, pooled by month and Division (see figur 10). The entry 'catch' is the total catch from which samples were taken.

West-greenland	month											
	5											
	area											
	1C				1D				1E			
	sample w				sample w				sample w			
	3.8				38.73				46.11			
	catch				catch				catch			
	100				16997				15844			
	No. of samples				No. of samples				No. of samples			
	1				10				14			
	male	primi	femal	all	male	primi	femal	all	male	primi	femal	all
MM												
5	0	0	0	0	0	0	0	0	0	0	0	0
5.5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
6.5	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
7.5	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	1	0	0	1	1	0	0	1
8.5	0	0	0	0	1	0	0	1	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
9.5	0	0	0	0	1	0	0	1	0	0	0	0
10	0	0	0	0	2	0	0	2	1	0	0	1
10.5	0	0	0	0	10	0	0	10	0	0	0	0
11	0	0	0	0	23	0	0	23	0	0	0	0
11.5	1	0	0	1	41	0	0	41	0	0	0	0
12	0	0	0	0	72	0	0	72	0	0	0	0
12.5	0	0	0	0	132	0	0	132	3	0	0	3
13	0	0	0	0	139	0	0	139	1	0	0	1
13.5	0	0	0	0	109	0	0	109	4	0	0	4
14	1	0	0	1	113	0	0	113	10	0	0	10
14.5	1	0	0	1	114	0	0	114	10	0	0	10
15	0	0	0	0	76	0	0	76	10	0	0	10
15.5	2	0	0	2	65	0	0	65	16	0	0	16
16	5	0	0	5	68	0	0	68	19	0	0	19
16.5	3	0	0	3	102	0	0	102	25	0	0	25
17	0	0	0	0	119	0	0	119	37	0	0	37
17.5	5	0	0	5	174	0	0	174	50	0	0	50
18	7	0	0	7	203	0	0	203	85	0	0	85
18.5	3	0	0	3	225	0	0	225	122	0	0	122
19	3	0	0	3	219	0	0	219	118	0	0	118
19.5	7	0	0	7	252	0	0	252	146	0	0	146
20	10	0	0	10	326	0	0	326	197	0	0	197
20.5	9	0	0	9	316	0	1	317	228	0	0	228
21	8	0	0	8	333	1	1	335	227	3	1	231
21.5	2	1	1	4	313	4	2	319	220	4	1	225
22	3	0	0	3	239	13	5	257	191	3	1	195
22.5	4	1	1	6	173	31	4	209	183	13	3	199
23	2	1	2	5	86	82	12	180	121	23	5	149
23.5	0	0	3	3	49	112	13	174	72	59	7	138
24	2	2	6	10	9	116	43	168	31	85	32	148
24.5	0	0	7	7	2	126	40	168	10	89	49	148
25	0	1	24	25	0	116	74	190	2	85	73	160
25.5	0	2	28	30	0	84	105	189	2	92	158	252
26	0	2	60	62	0	62	132	194	0	60	255	315
26.5	0	1	44	45	0	36	154	190	0	50	362	412
27	0	2	35	37	0	14	118	132	0	17	405	422
27.5	0	1	18	19	0	9	95	104	0	7	364	371
28	0	0	13	13	0	4	55	59	0	6	219	225
28.5	0	1	10	11	0	3	40	43	0	3	115	118
29	0	0	2	2	0	1	15	16	0	0	49	49
29.5	0	0	0	0	0	0	8	8	0	0	17	17
30	0	0	1	1	0	0	4	4	0	1	12	13
30.5	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	1	1
31.5	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0
32.5	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0
33.5	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0
34.5	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0
35.5	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0
36.5	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	78	15	255	348	4107	814	921	5843	2142	600	2129	4871

Table 7d. No. of shrimp per length group in commercial samples from 1994, pooled by month and Division (see figur 10). The entry 'catch' is the total catch from which samples were taken.

West-greenland	month											
	6											
	area											
	1B				1C				1D			
	sample w				sample w				sample w			
	61.51				46.42				54.46			
	catch				catch				catch			
	18417				22561				20964			
	No. of samples				No. of samples				No. of samples			
	17				15				17			
	male	primi	femal	all	male	primi	femal	all	male	primi	femal	all
MM												
5	0	0	0	0	0	0	0	0	0	0	0	0
5.5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
6.5	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
7.5	0	0	0	0	0	0	0	0	1	0	0	1
8	0	0	0	0	0	0	0	0	0	0	0	0
8.5	0	0	0	0	5	0	0	5	1	0	0	1
9	0	0	0	0	1	0	0	1	2	0	0	2
9.5	0	0	0	0	6	0	0	6	1	0	0	1
10	1	0	0	1	1	0	0	1	2	0	0	2
10.5	0	0	0	0	2	0	0	2	1	0	0	1
11	0	0	0	0	0	0	0	0	2	0	0	2
11.5	1	0	0	1	0	0	0	0	0	0	0	0
12	0	0	0	0	1	0	0	1	4	0	0	4
12.5	0	0	0	0	3	0	0	3	7	0	0	7
13	1	0	0	1	2	0	0	2	17	0	0	17
13.5	2	0	0	2	6	0	0	6	25	0	0	25
14	1	0	0	1	5	0	0	5	26	0	0	26
14.5	4	0	0	4	12	0	0	12	39	0	0	39
15	2	0	0	2	12	0	0	12	44	0	0	44
15.5	7	0	0	7	26	0	0	26	72	0	0	72
16	33	0	0	33	33	0	0	33	71	0	0	71
16.5	101	0	0	101	26	0	0	26	71	0	0	71
17	186	0	0	186	44	0	0	44	115	0	0	115
17.5	301	0	0	301	34	0	0	35	141	0	0	141
18	345	0	0	345	42	0	0	42	200	0	0	200
18.5	391	0	0	391	64	0	0	64	230	0	0	230
19	373	0	0	373	121	0	0	121	218	0	0	218
19.5	375	0	0	375	140	0	0	140	273	0	0	273
20	392	0	0	392	204	0	0	204	338	0	0	338
20.5	466	3	0	469	273	3	0	276	356	0	0	356
21	467	8	1	476	247	8	0	255	376	1	0	377
21.5	405	24	2	431	291	17	0	308	375	3	0	378
22	349	50	3	402	270	35	0	305	316	18	1	335
22.5	266	101	8	375	199	69	1	269	274	23	0	297
23	159	131	25	315	145	107	7	259	132	63	2	197
23.5	89	132	42	265	76	120	8	204	57	143	1	201
24	45	155	117	317	37	135	18	190	35	164	2	201
24.5	18	178	169	365	8	164	24	198	6	271	6	283
25	7	168	272	447	8	243	56	307	2	284	9	295
25.5	3	147	308	458	1	245	85	331	0	337	27	365
26	2	124	279	405	0	261	122	383	0	347	50	397
26.5	0	102	249	351	1	216	149	366	1	298	92	391
27	0	60	178	238	0	145	162	308	0	200	111	311
27.5	0	27	115	142	0	74	190	264	0	118	144	262
28	0	11	60	71	0	36	131	167	0	54	147	201
28.5	0	7	30	37	0	15	74	89	0	28	95	123
29	0	0	23	23	0	4	44	48	0	10	53	63
29.5	0	0	18	18	0	0	17	17	0	0	26	26
30	0	0	1	1	0	0	6	6	0	1	14	15
30.5	0	0	2	2	0	0	1	1	0	1	4	5
31	0	0	2	2	0	0	3	3	0	0	2	2
31.5	0	0	1	1	0	0	0	0	0	0	2	2
32	0	0	0	0	0	0	0	0	0	0	0	0
32.5	0	0	1	1	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0
33.5	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0
34.5	0	0	0	0	0	0	0	0	0	1	0	1
35	0	0	0	0	0	0	0	0	0	0	0	0
35.5	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0
36.5	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4792	1428	1906	8128	2346	1897	1098	5345	3831	2365	788	6985

Table 7e. No. of shrimp per length group in commercial samples from 1994, pooled by month and Division (see figur 10). The entry 'catch' is the total catch from which samples were taken.

West-greenland	month											
	7											
	area											
	1C				1D				1E			
	sample w				sample w				sample w			
	64.49				39.9				4.2			
	catch				catch				catch			
	39231				12431				372			
	No. of samples				No. of samples				No. of samples			
	18				9				1			
	male	primi	femal	all	male	primi	femal	all	male	primi	femal	all
MM												
5	0	0	0	0	0	0	0	0	0	0	0	0
5.5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
6.5	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
7.5	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	3	0	0	3	0	0	0	0
8.5	0	0	0	0	1	0	0	1	0	0	0	0
9	0	0	0	0	4	0	0	4	0	0	0	0
9.5	0	0	0	0	5	0	0	5	0	0	0	0
10	0	0	0	0	2	0	0	2	0	0	0	0
10.5	0	0	0	0	1	0	0	1	0	0	0	0
11	0	0	0	0	13	0	0	13	0	0	0	0
11.5	0	0	0	0	20	0	0	20	0	0	0	0
12	0	0	0	0	78	0	0	78	0	0	0	0
12.5	0	0	0	0	114	0	0	114	0	0	0	0
13	1	0	0	1	216	0	0	216	0	0	0	0
13.5	0	0	0	0	236	0	0	236	0	0	0	0
14	0	0	0	0	235	0	0	235	2	0	0	2
14.5	2	0	0	2	201	0	0	201	2	0	0	2
15	9	0	0	9	132	0	0	132	1	0	0	1
15.5	7	0	0	7	88	0	0	88	0	0	0	0
16	4	0	0	4	86	0	0	86	0	0	0	0
16.5	4	0	0	4	80	0	0	80	4	0	0	4
17	12	0	0	12	140	0	0	140	1	0	0	1
17.5	25	0	0	25	211	0	0	211	4	0	0	4
18	40	0	0	40	261	0	0	261	10	0	0	10
18.5	73	0	0	73	305	0	0	305	6	0	0	6
19	91	0	0	91	242	1	0	243	11	0	0	11
19.5	144	0	0	144	187	0	0	187	9	0	0	9
20	201	0	0	201	228	2	0	230	16	0	0	16
20.5	275	1	0	276	218	0	0	218	20	0	0	20
21	367	0	0	367	260	1	2	263	12	0	0	12
21.5	399	0	0	399	268	4	2	274	12	0	0	12
22	502	2	1	505	177	9	0	186	21	0	0	21
22.5	567	10	0	577	176	12	3	191	18	1	0	19
23	588	9	3	600	100	16	7	123	17	3	0	20
23.5	498	23	6	527	57	65	8	130	4	7	0	11
24	387	66	16	469	44	98	17	159	4	10	1	15
24.5	222	111	31	364	11	139	23	173	1	9	0	10
25	107	156	75	338	3	163	45	211	0	22	3	25
25.5	47	200	130	377	1	165	56	222	0	20	6	26
26	17	191	185	393	0	153	86	239	0	11	9	20
26.5	2	203	251	456	0	104	111	215	0	8	17	25
27	0	168	258	426	0	75	155	230	0	7	19	26
27.5	0	109	225	334	0	43	118	161	0	1	13	14
28	0	55	143	198	0	18	103	121	0	3	20	23
28.5	0	24	80	104	0	5	60	65	0	1	24	25
29	0	9	41	50	0	0	33	33	0	0	12	12
29.5	0	0	17	17	0	2	14	16	0	0	8	8
30	0	0	7	7	0	0	6	6	0	0	3	3
30.5	0	0	0	0	0	0	6	6	0	0	0	0
31	0	0	3	3	0	0	2	2	0	0	1	1
31.5	0	0	1	1	0	0	0	0	0	0	0	0
32	0	0	0	0	0	1	3	4	0	0	0	0
32.5	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0
33.5	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0
34.5	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0
35.5	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0
36.5	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4591	1337	1473	7401	4404	1076	860	6340	175	103	136	414

Table 7f. No. of shrimp per length group in commercial samples from 1994, pooled by month and Division (see figur 10). The entry 'catch' is the total catch from which samples were taken.

West-greenland	month							
	9							
	area							
	1B				1C			
	sample w				sample w			
	86.16				24.22			
	catch				catch			
	43322				4697			
	No. of samples				No. of samples			
	18				5			
	male	primi	femal	all	male	primi	femal	all
MM								
5	0	0	0	0	0	0	0	0
5.5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
6.5	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0
7.5	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0
8.5	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
9.5	2	0	0	2	1	0	0	1
10	0	0	0	0	6	0	0	6
10.5	1	0	0	1	4	0	0	4
11	3	0	0	3	3	0	0	3
11.5	3	0	0	3	7	0	0	7
12	22	0	0	22	5	0	0	5
12.5	57	0	0	57	4	0	0	4
13	79	0	0	79	13	0	0	13
13.5	106	0	0	106	19	0	0	19
14	92	0	0	92	21	0	0	21
14.5	51	0	0	51	32	0	0	32
15	42	0	0	42	66	0	0	66
15.5	56	0	0	56	83	0	0	83
16	99	0	0	99	103	0	0	103
16.5	219	0	0	219	107	0	0	107
17	291	0	0	291	116	0	0	116
17.5	312	0	0	312	107	0	0	107
18	387	0	1	388	110	0	0	110
18.5	353	0	0	353	90	0	0	90
19	341	0	0	341	102	1	0	103
19.5	349	0	0	349	100	0	0	100
20	365	0	0	365	93	1	0	94
20.5	422	0	0	422	115	0	0	115
21	410	0	2	412	114	0	1	115
21.5	449	0	4	453	122	0	3	125
22	522	3	17	542	97	0	4	101
22.5	431	3	53	489	84	0	6	90
23	298	7	157	463	66	3	8	77
23.5	192	14	320	526	33	8	25	66
24	87	39	531	657	20	2	44	66
24.5	49	43	727	819	10	5	61	76
25	13	56	831	901	2	8	103	113
25.5	7	30	738	775	2	4	136	142
26	4	15	528	547	1	3	163	167
26.5	1	12	378	391	0	0	184	184
27	0	1	214	215	1	0	157	158
27.5	0	0	136	136	0	0	102	102
28	0	0	77	77	0	0	79	79
28.5	0	0	40	40	0	0	39	39
29	0	0	27	27	0	0	19	19
29.5	0	0	17	17	0	0	8	8
30	0	0	5	5	0	0	1	1
30.5	0	0	4	4	0	0	1	1
31	0	0	1	1	0	0	2	2
31.5	0	0	1	1	0	0	0	0
32	0	0	0	0	0	0	0	0
32.5	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0
33.5	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0
34.5	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0
35.5	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0
36.5	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0
TOTAL	6115	223	4809	11151	1859	35	1146	3040

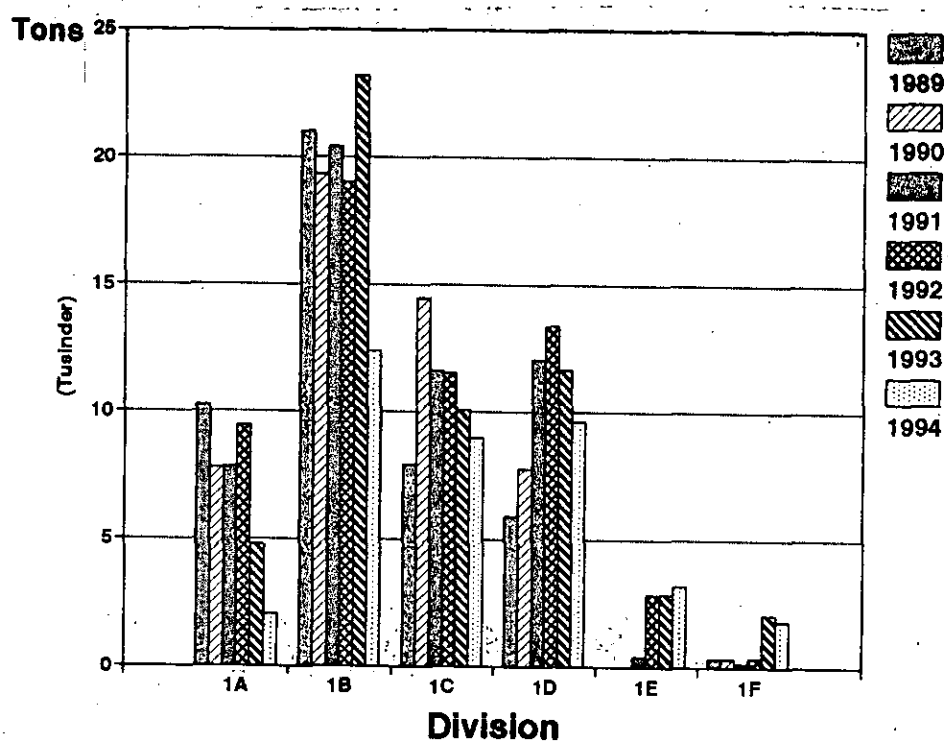

Fig. 1. Distribution of catches by Divisions and year in logbooks from the Greenland fleet - 1994 only January to October.

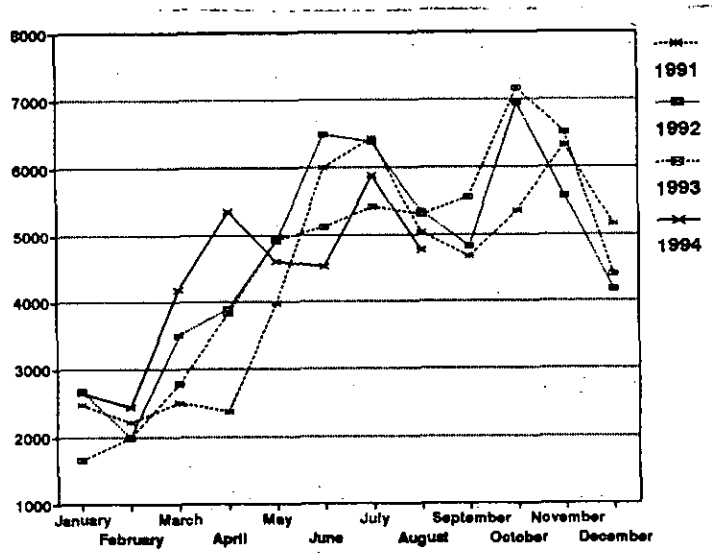

Fig. 2. Catches (t) of shrimp by Division and month in Subarea 1, in logbooks from the Greenland fleet, 1991-August 1994.

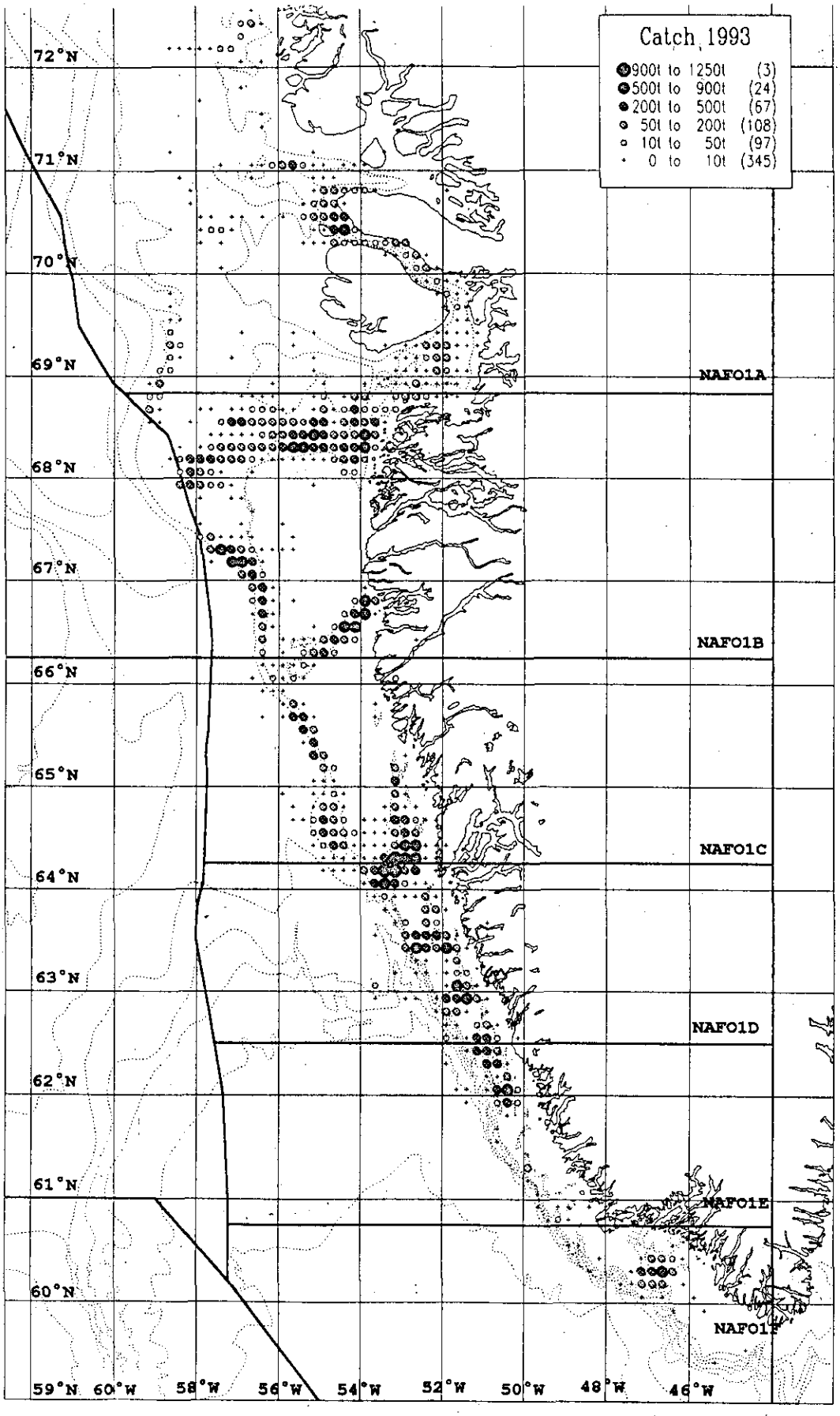

Fig. 3. Distribution of catches of shrimp (tons per statistical unit) in the fishery in 1993, based on logbooks from the Greenland fishery.

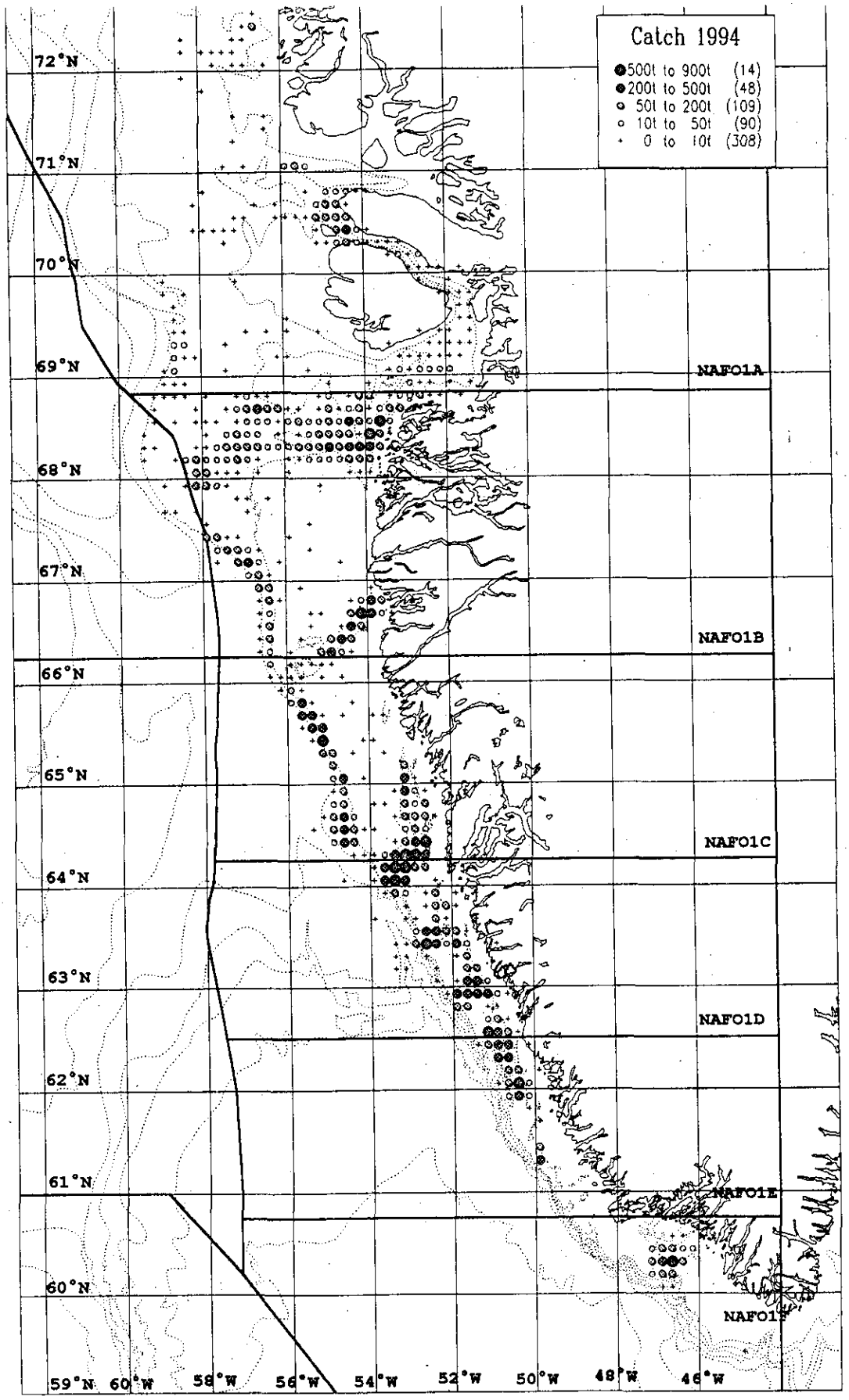

Fig. 4. Distribution of catches of shrimp (tons per statistical unit) in the fishery in 1994, based on logbooks from the Greenland fishery (research vessels included).

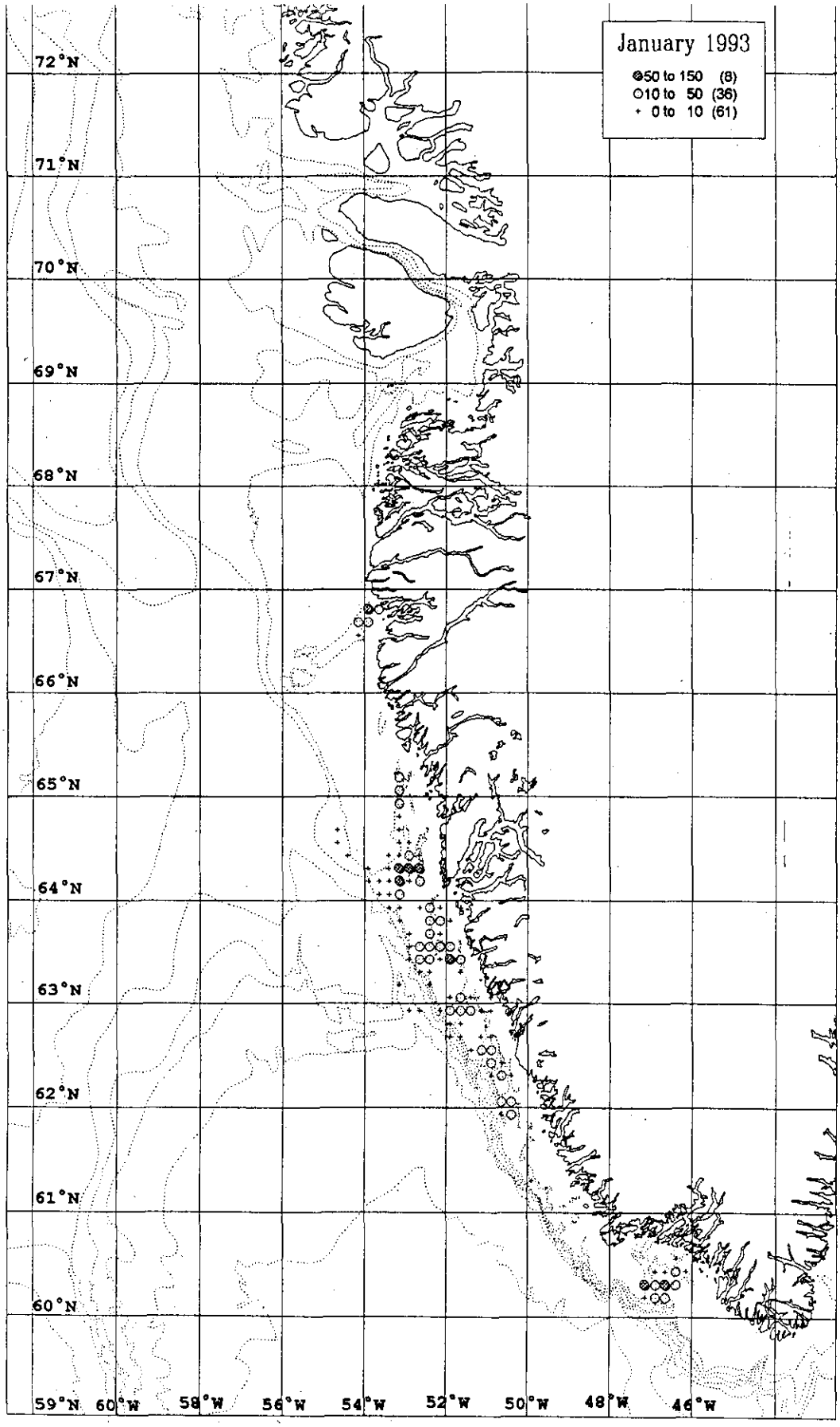

Fig. 5a. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in January 1993 based on logbooks from the Greenland fishery.

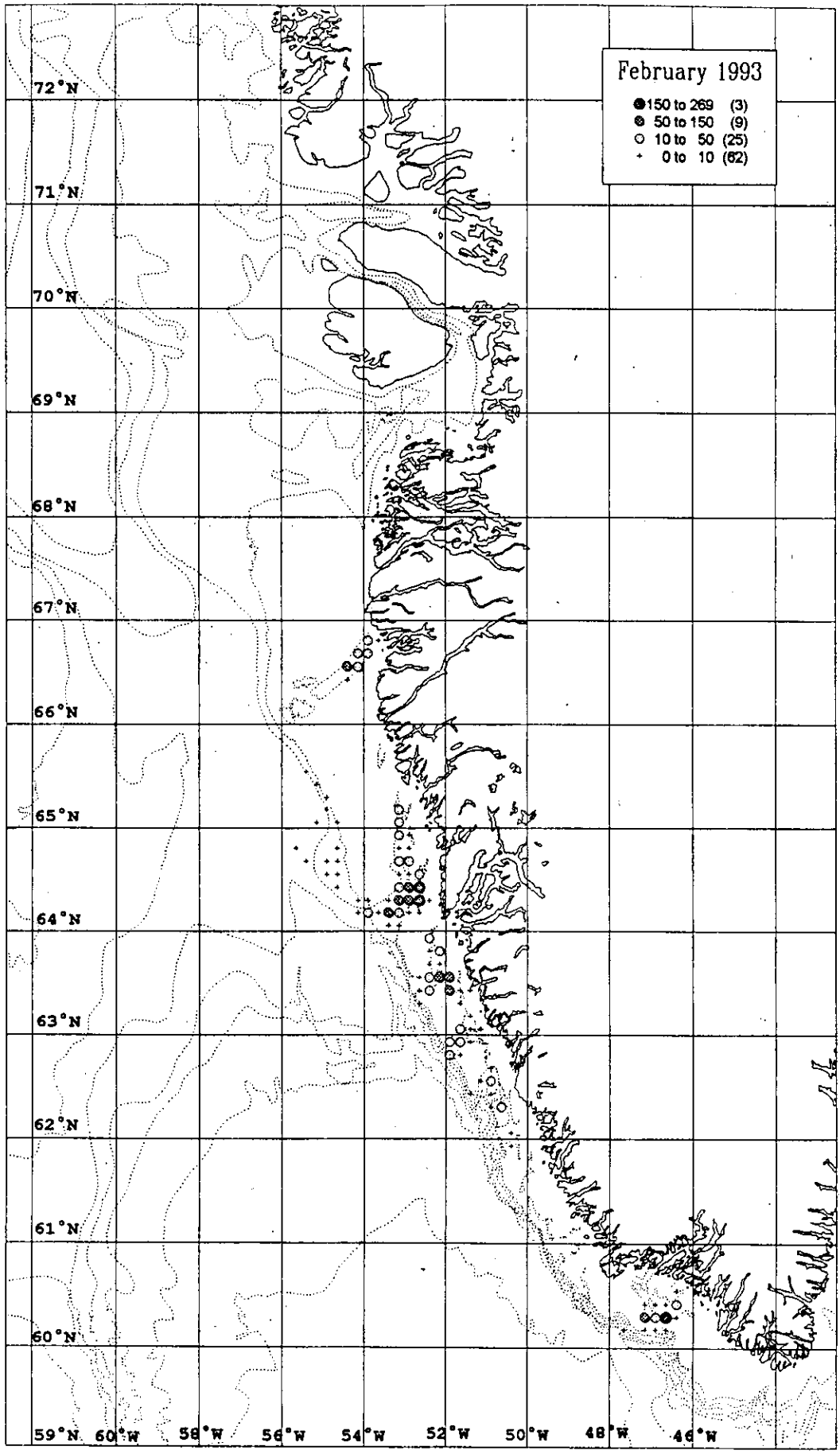

Fig. 5b. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in February 1993 based on logbooks from the Greenland fishery.

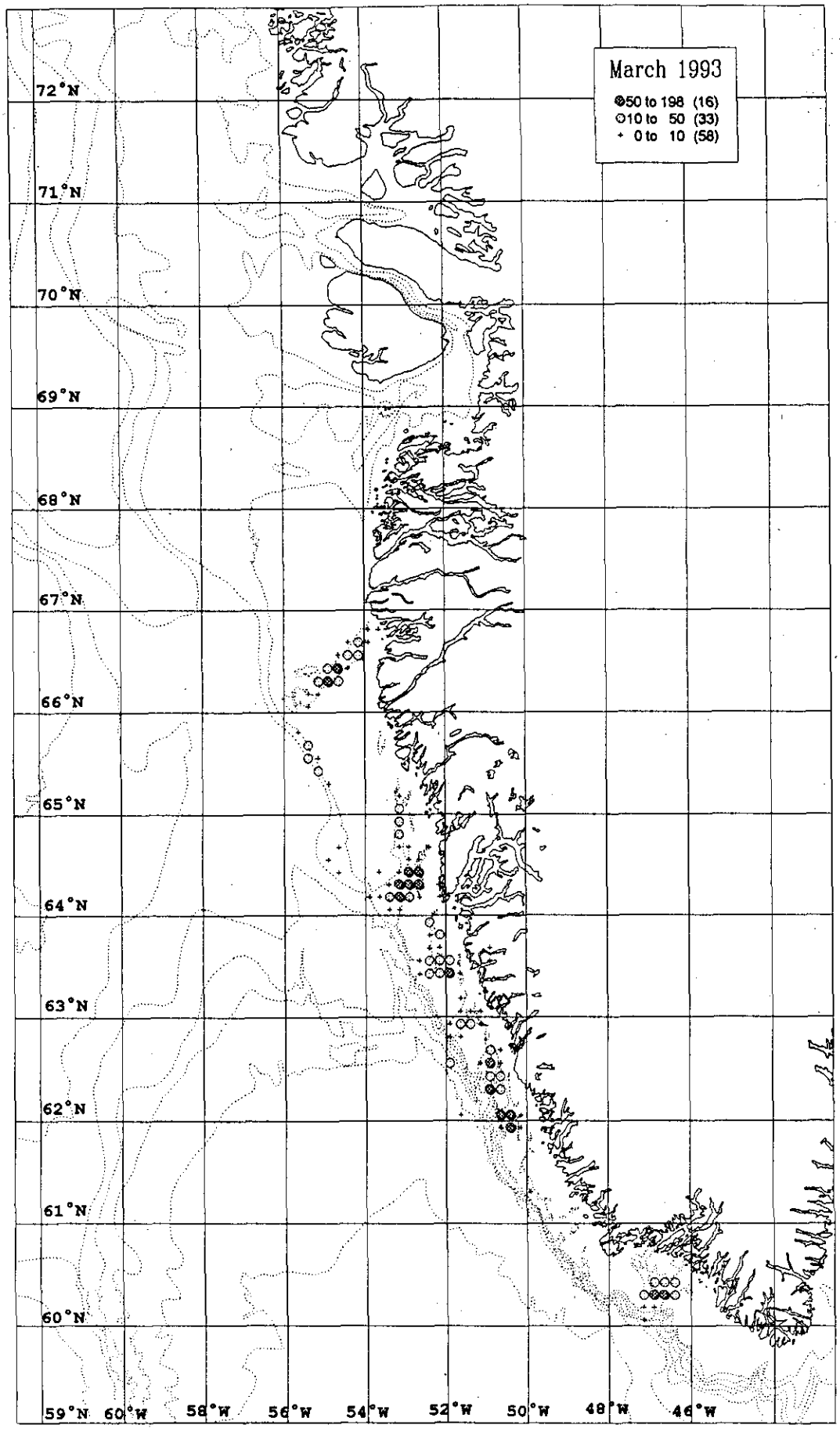

Fig. 5c. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in March 1993 based on logbooks from the Greenland fishery.

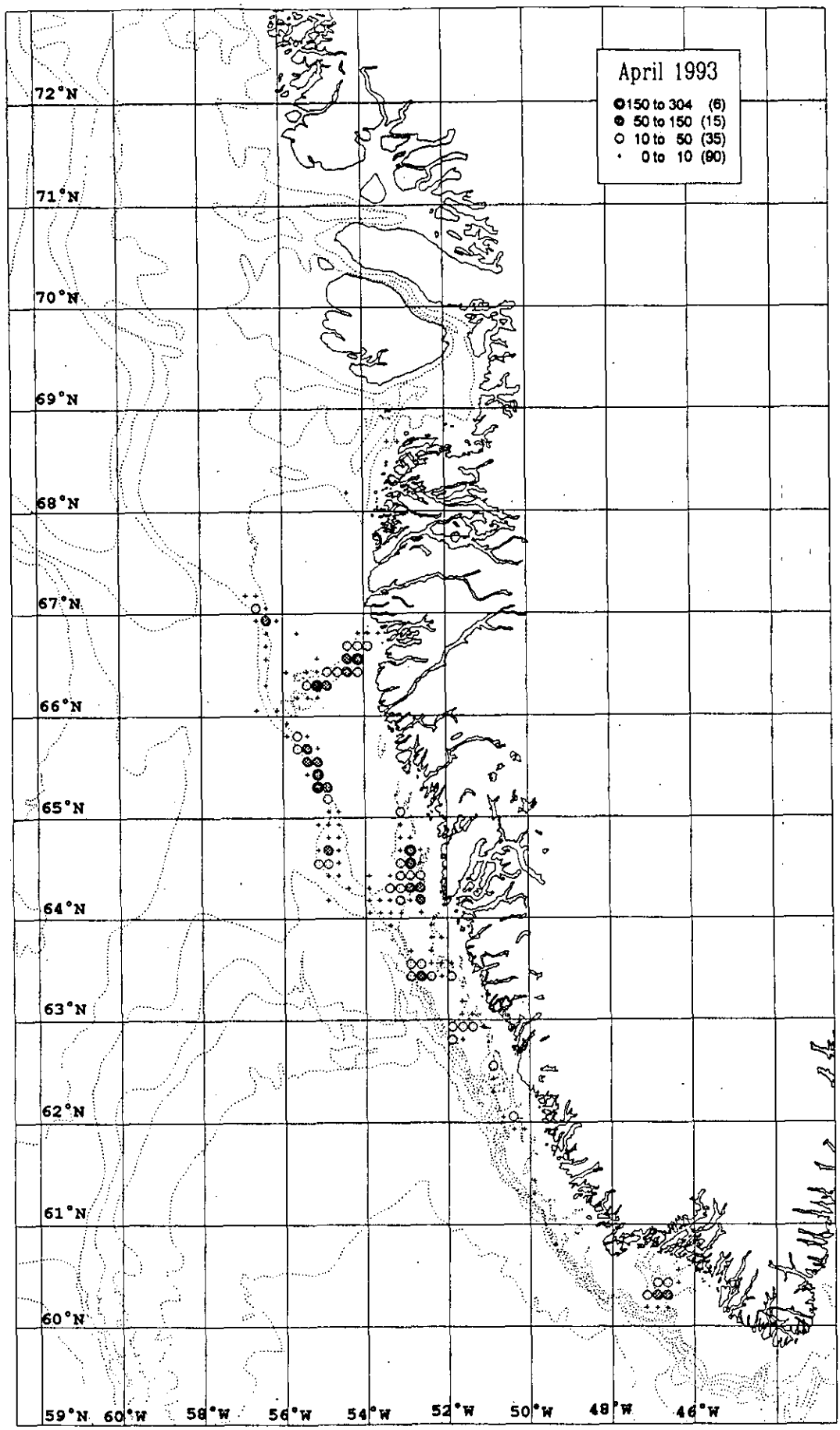

Fig. 5d. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in April 1993 based on logbooks from the Greenland fishery.

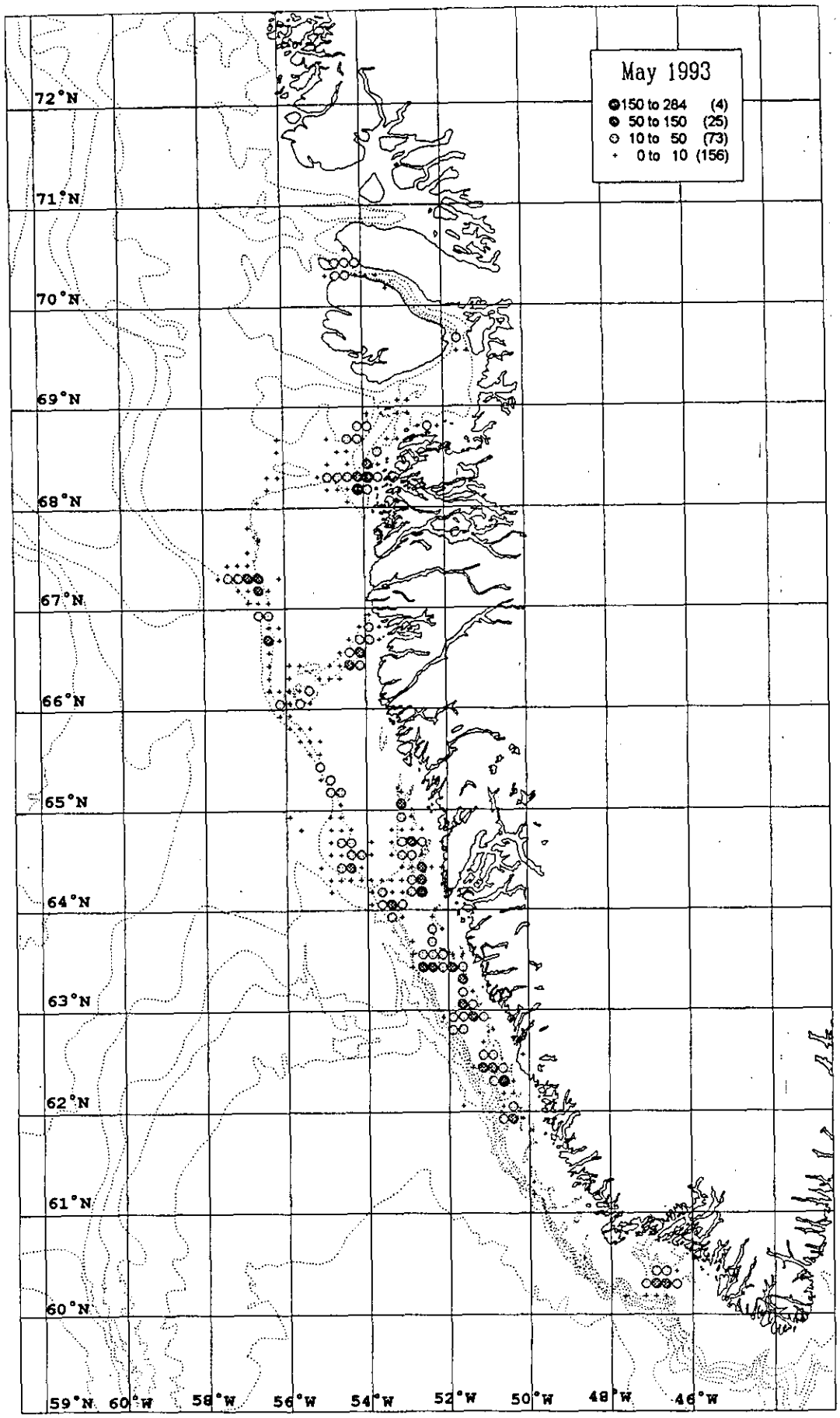

Fig. 5e. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in May 1993 based on logbooks from the Greenland fishery.

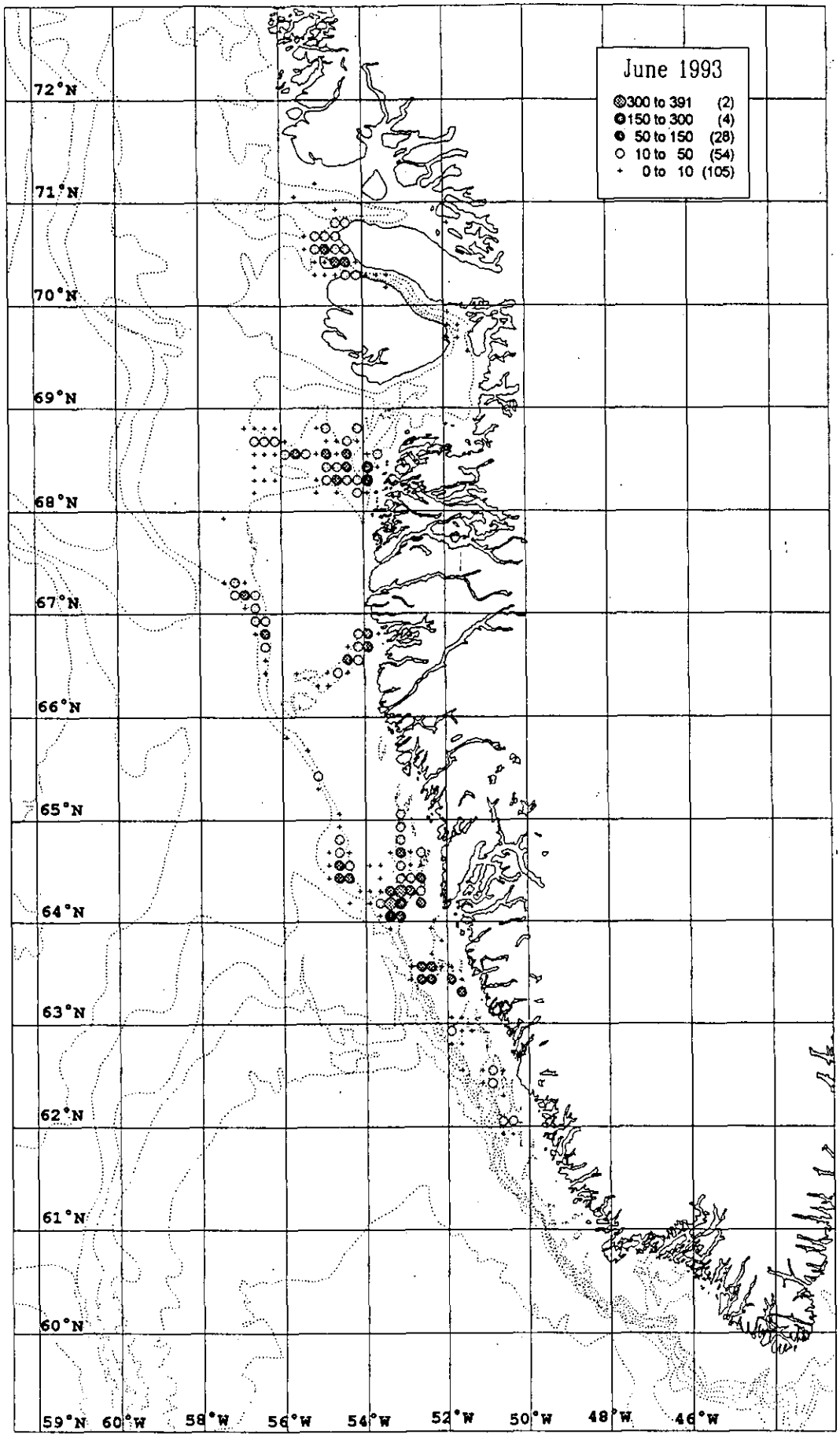

Fig. 5f. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in June 1993 based on logbooks from the Greenland fishery.

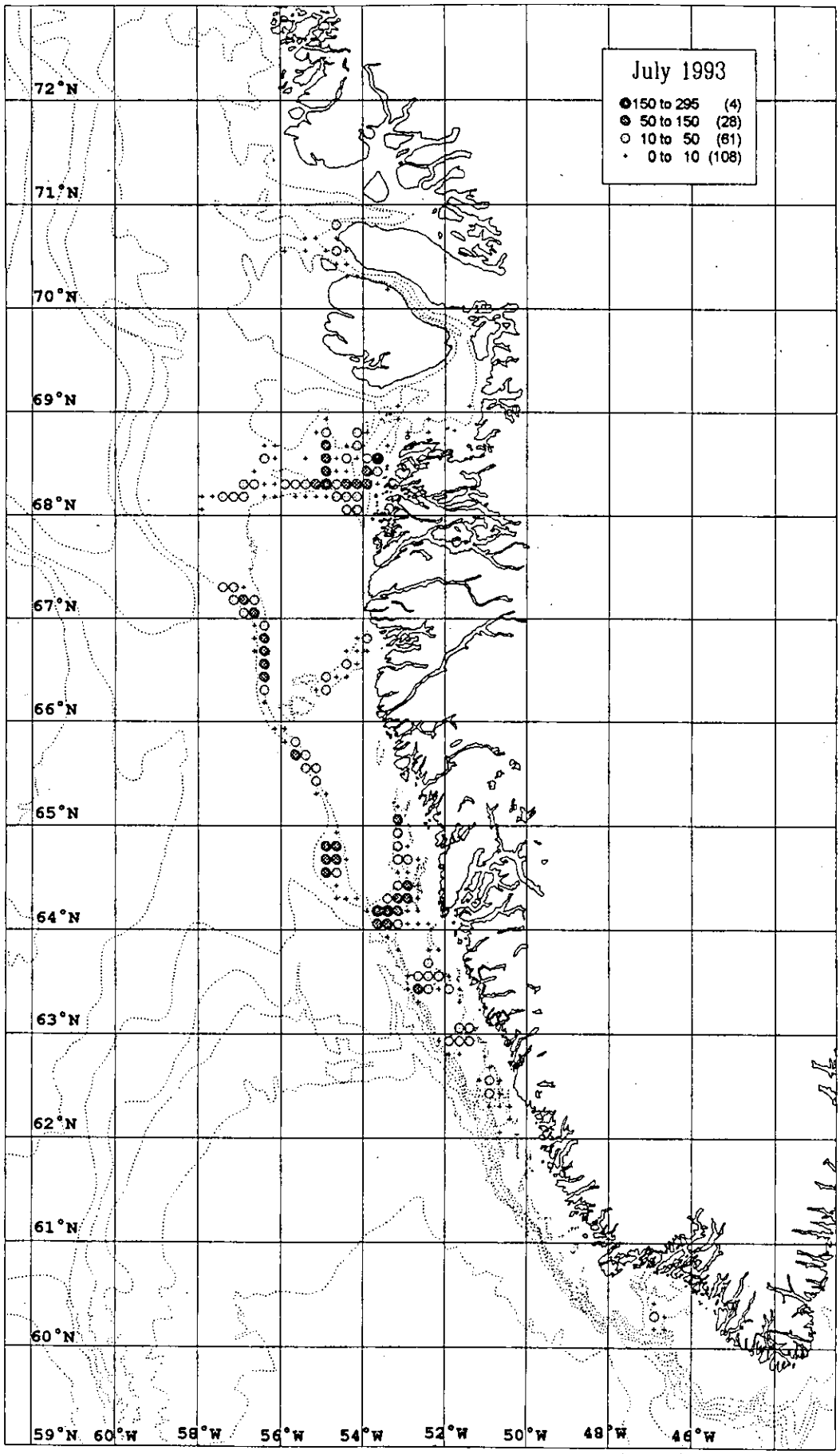

Fig. 5g. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in July 1993 based on logbooks from the Greenland fishery.

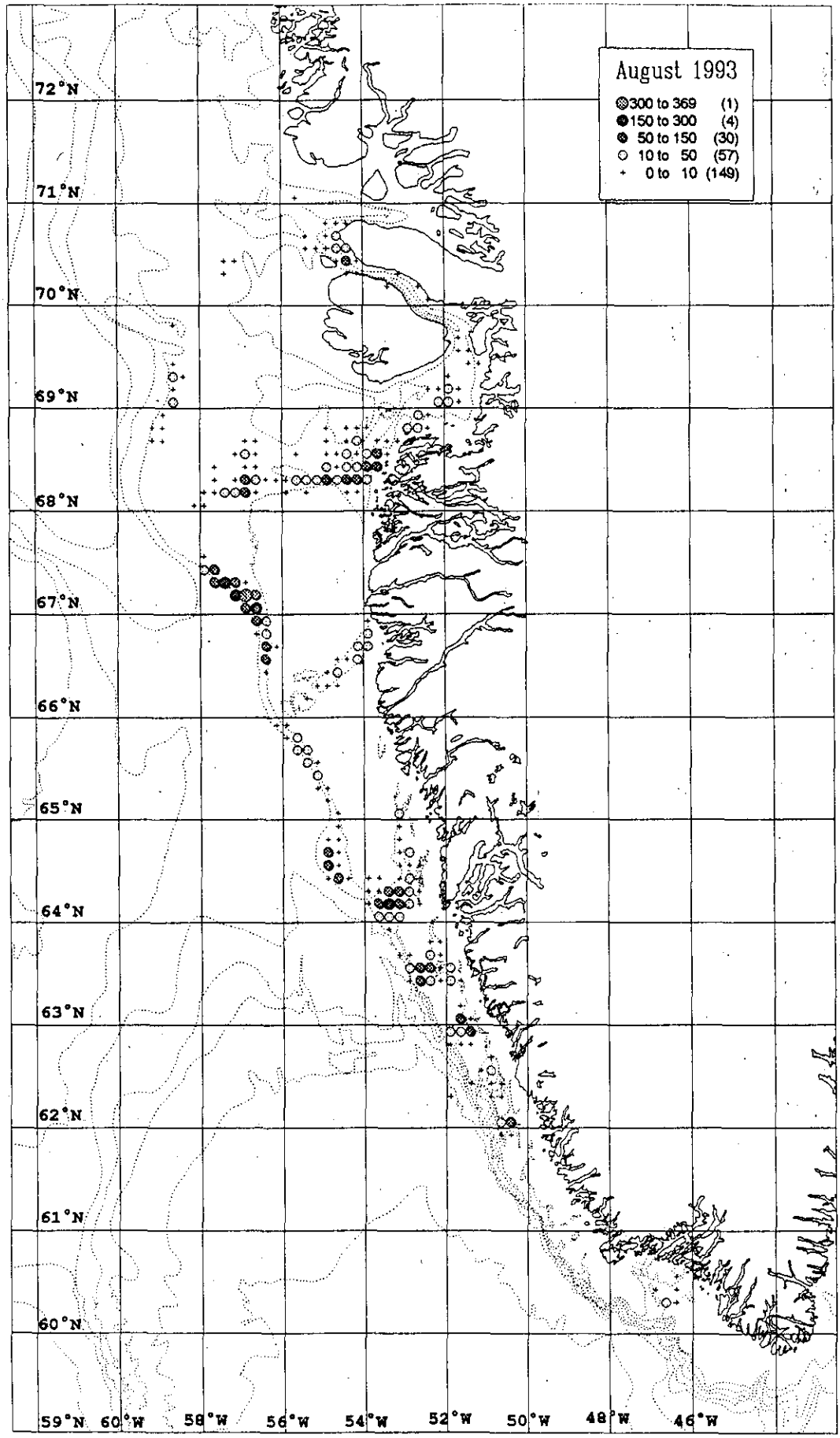

Fig. 5h. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in August 1993 based on logbooks from the Greenland fishery.

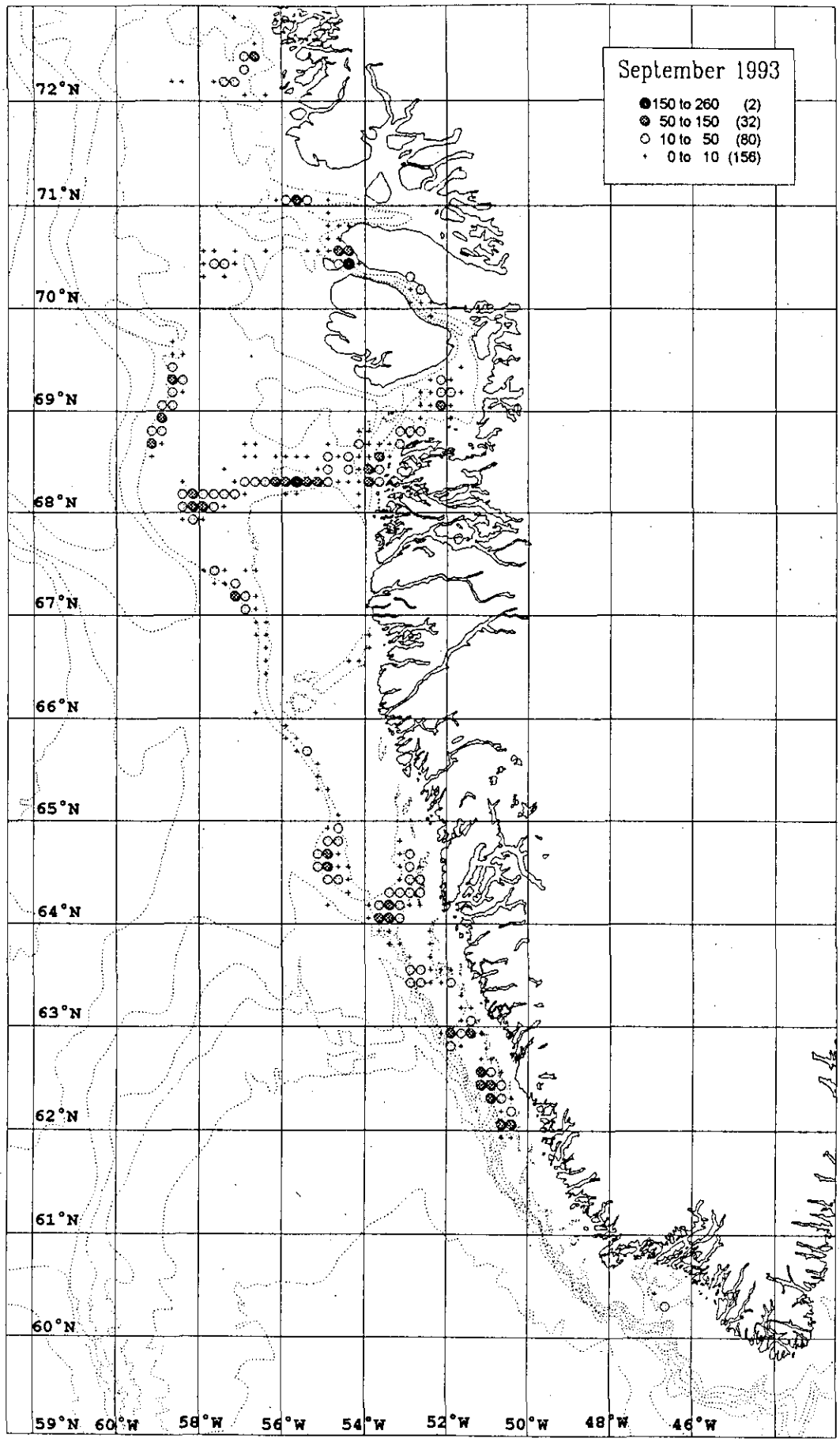

Fig. 5i. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in September 1993 based on logbooks from the Greenland fishery.

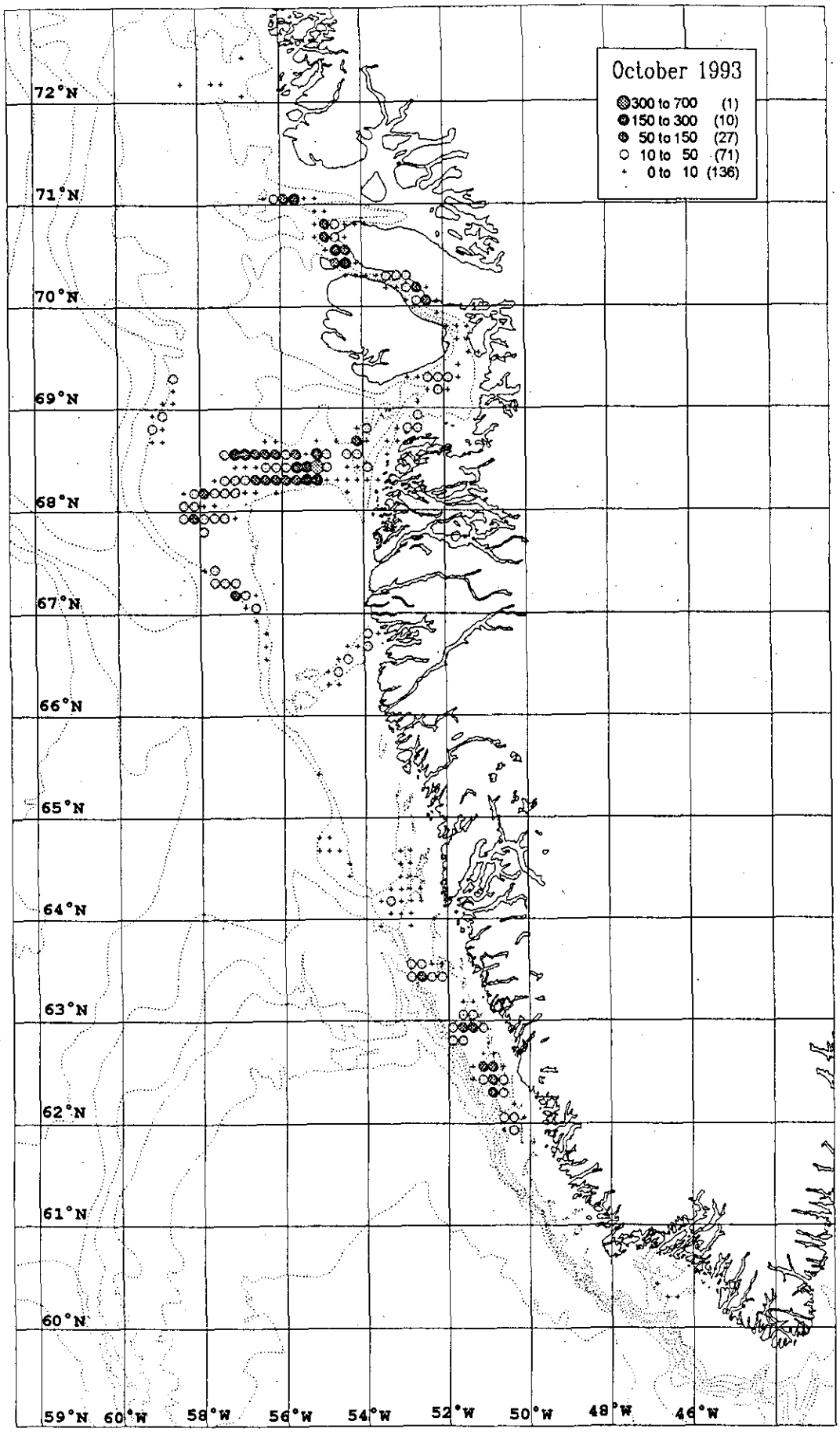

Fig. 5j. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in October 1993 based on logbooks from the Greenland fishery.

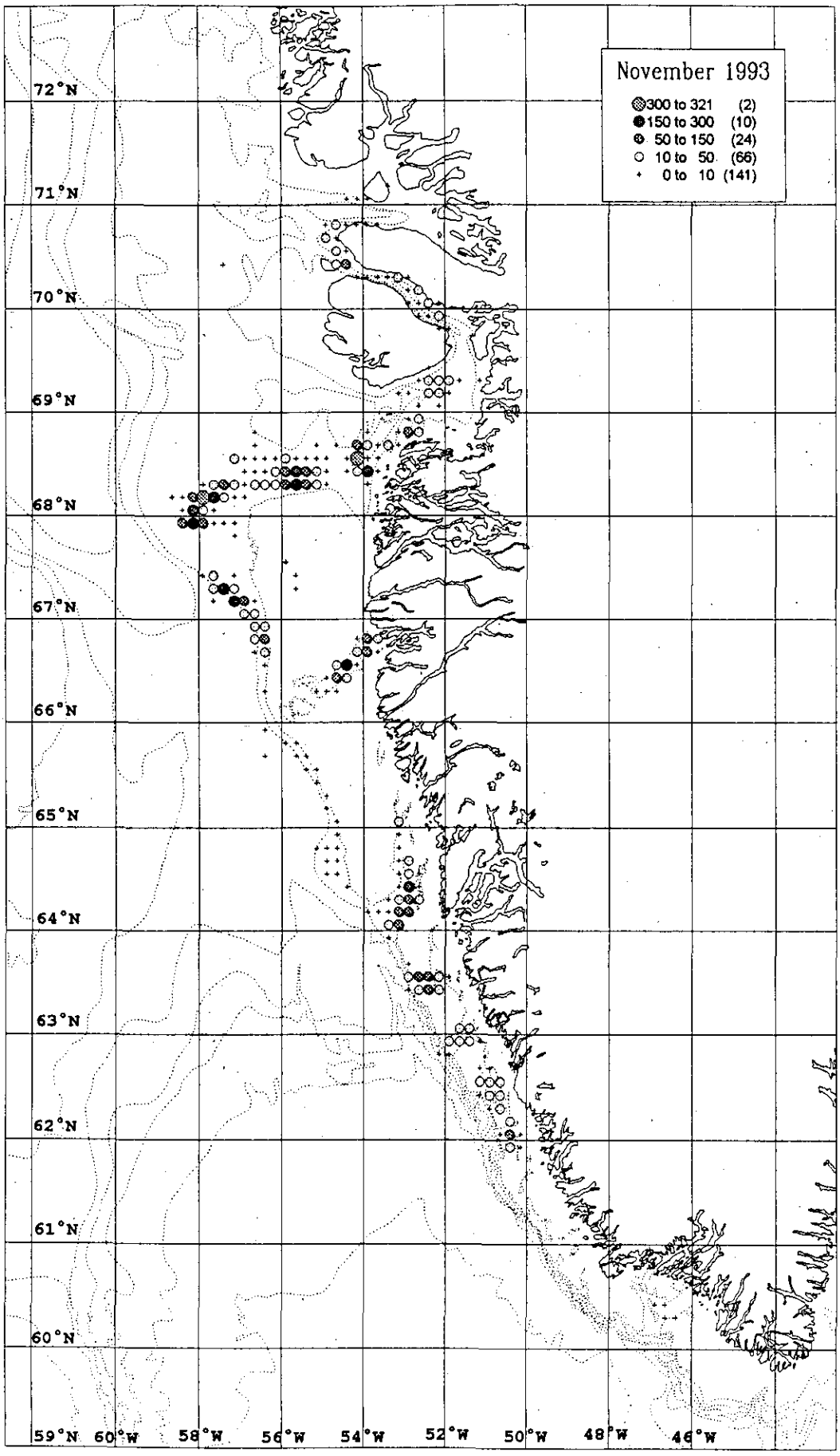

Fig. 5k. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in November 1993 based on logbooks from the Greenland fishery.

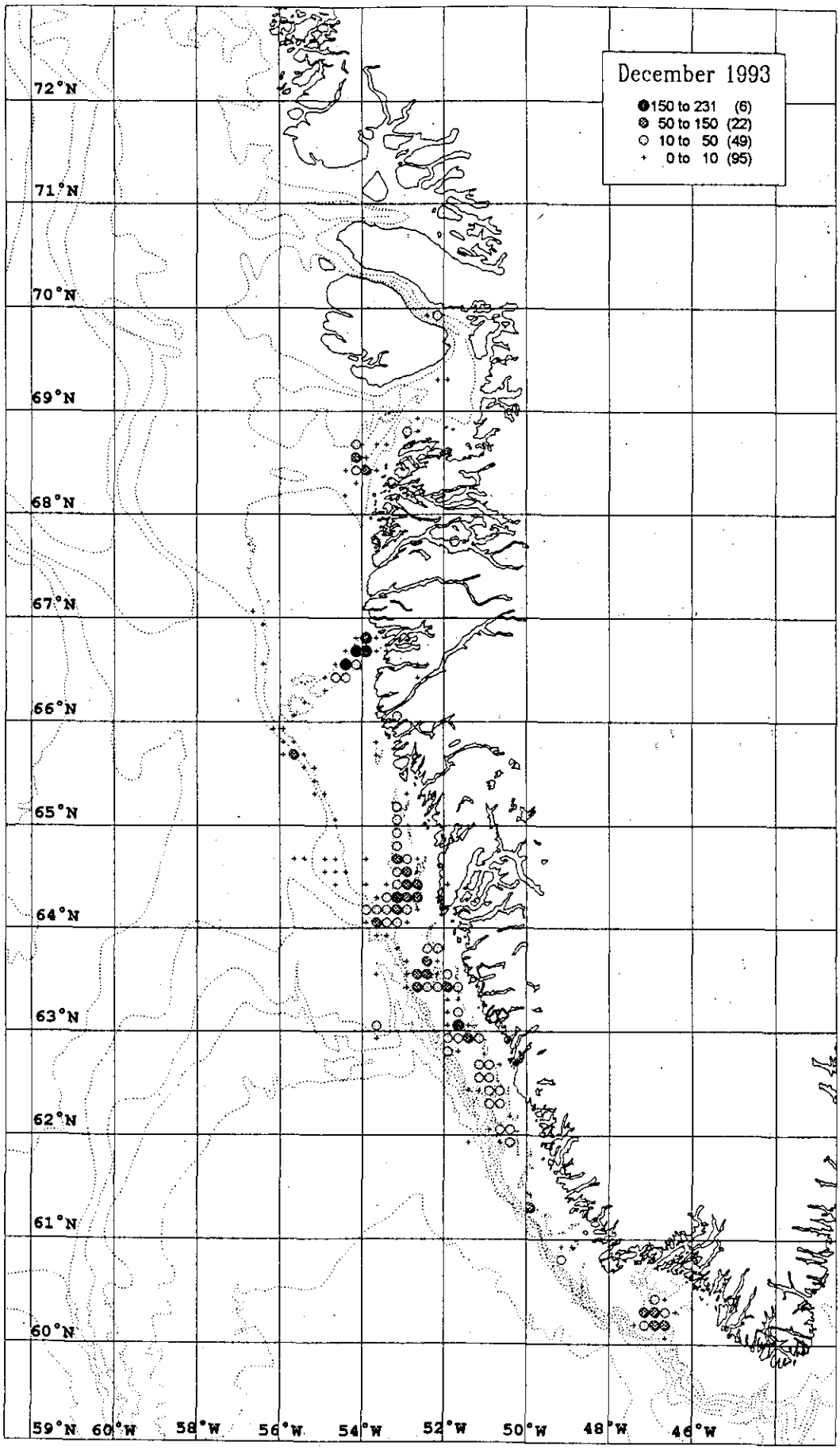

Fig. 5l. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in December 1993 based on logbooks from the Greenland fishery.

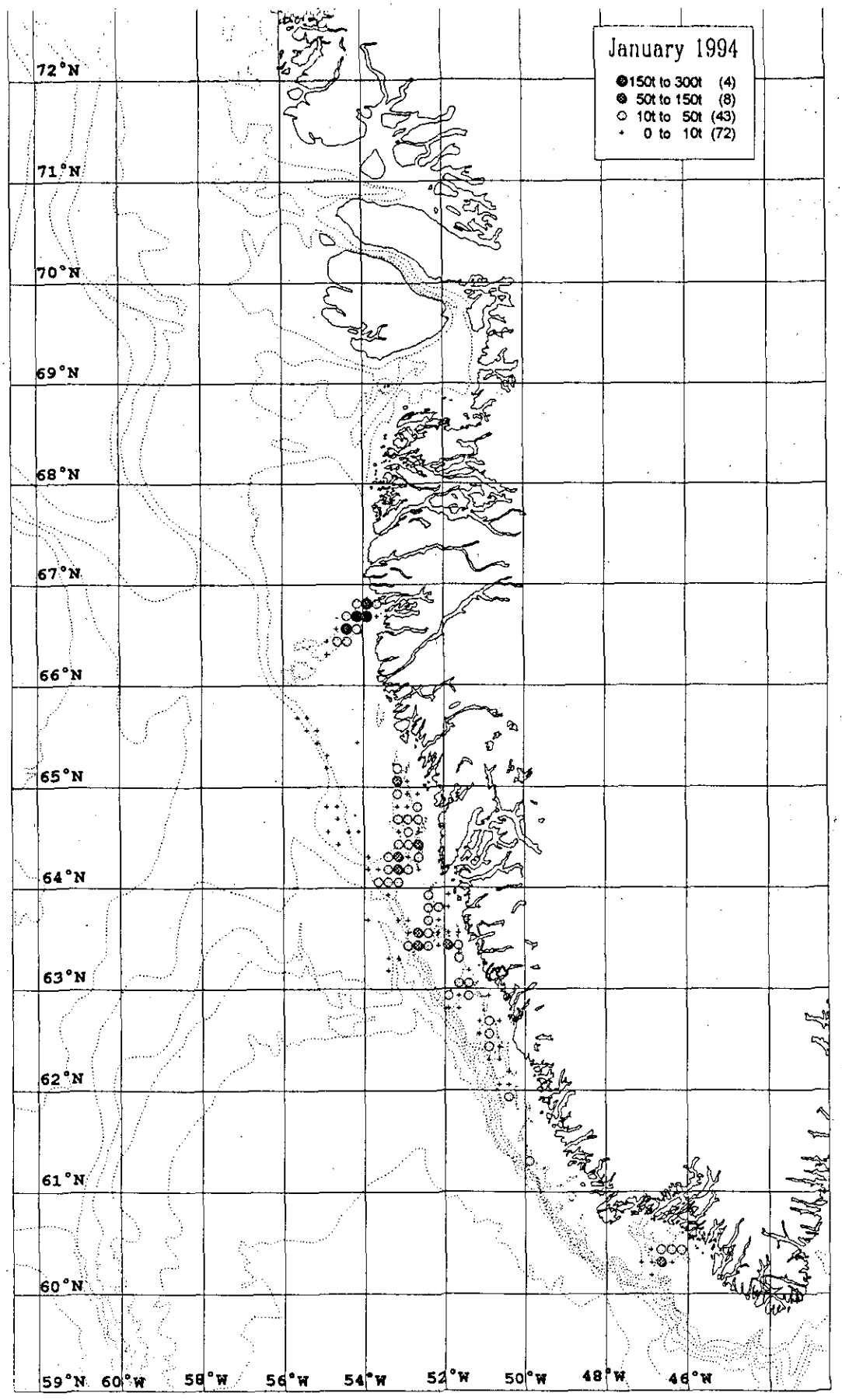

Fig. 6a. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in January 1994 based on logbooks from the Greenland fishery.

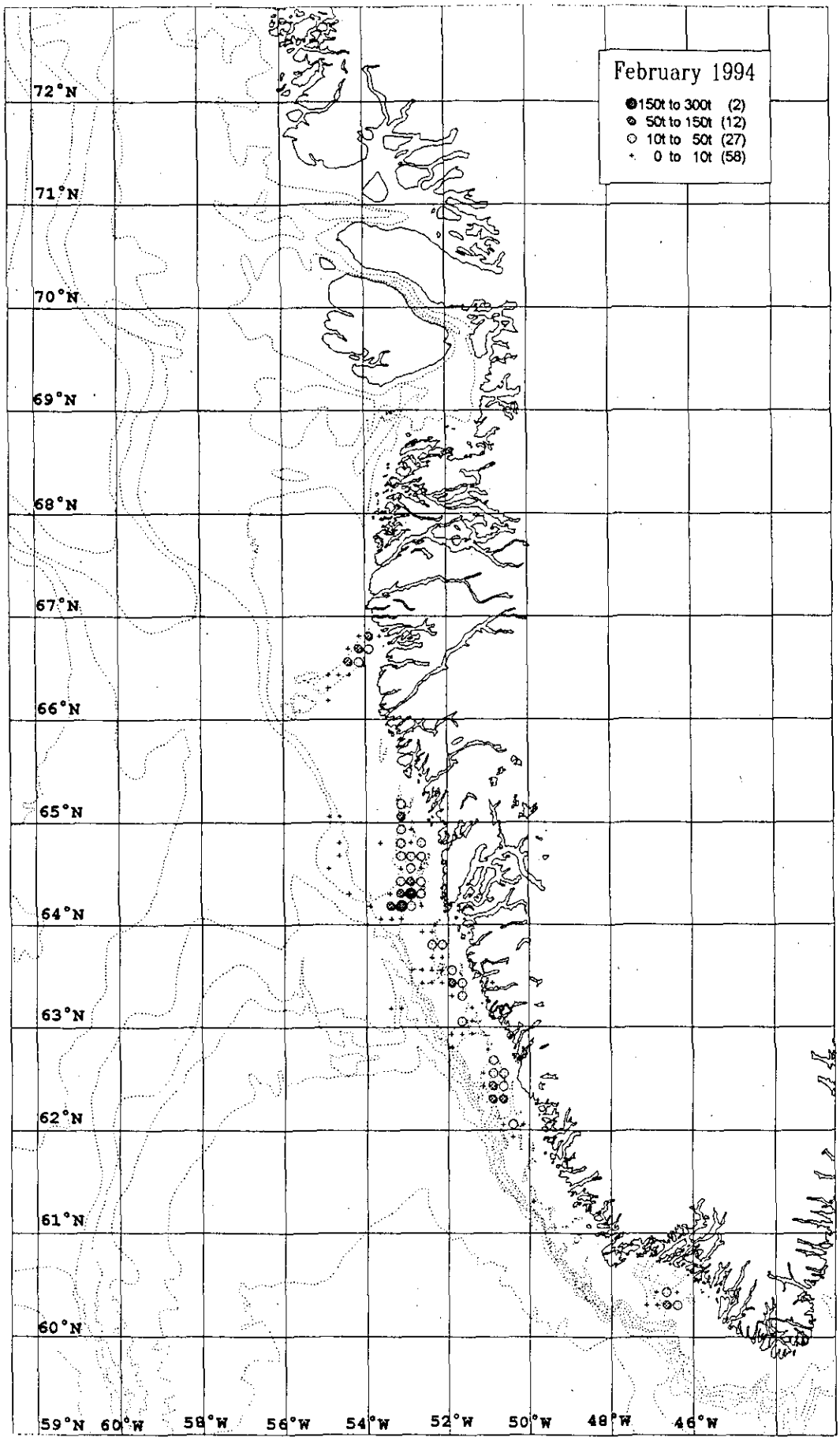

Fig. 6b Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in February 1994 based on logbooks from the Greenland fishery.

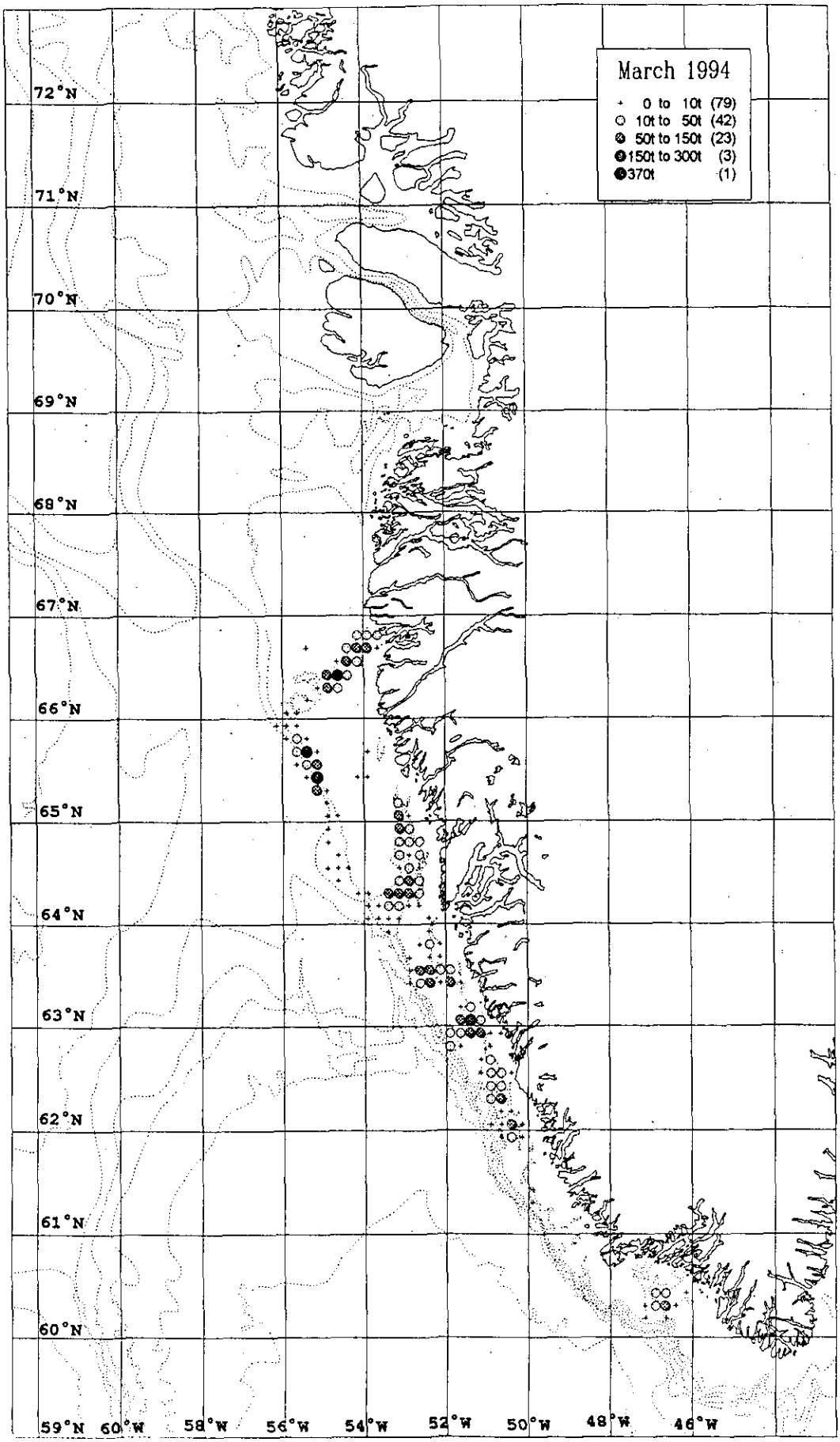

Fig. 6c. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in March 1994 based on logbooks from the Greenland fishery.

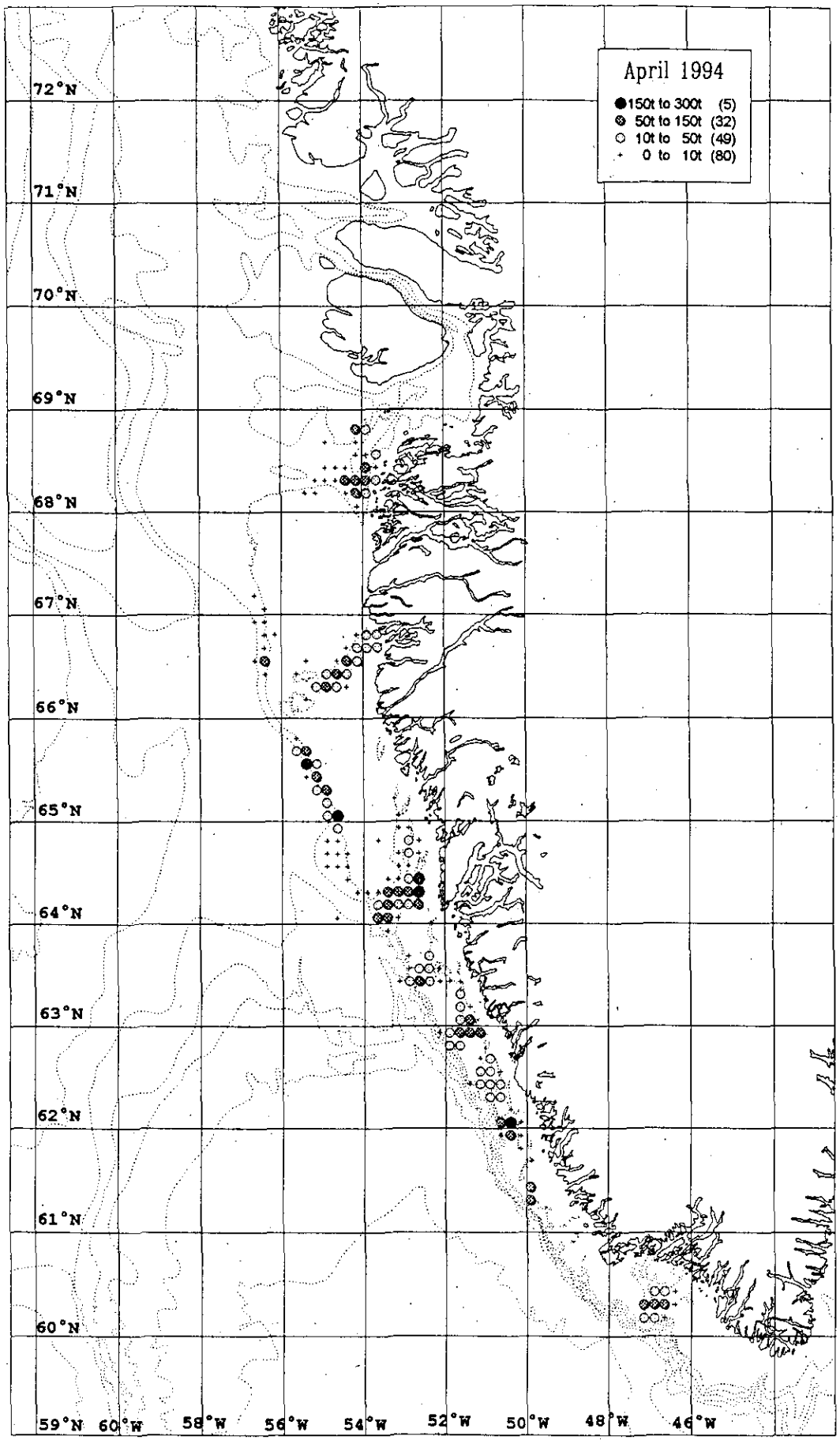

Fig. 6d. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in April 1994 based on logbooks from the Greenland fishery.

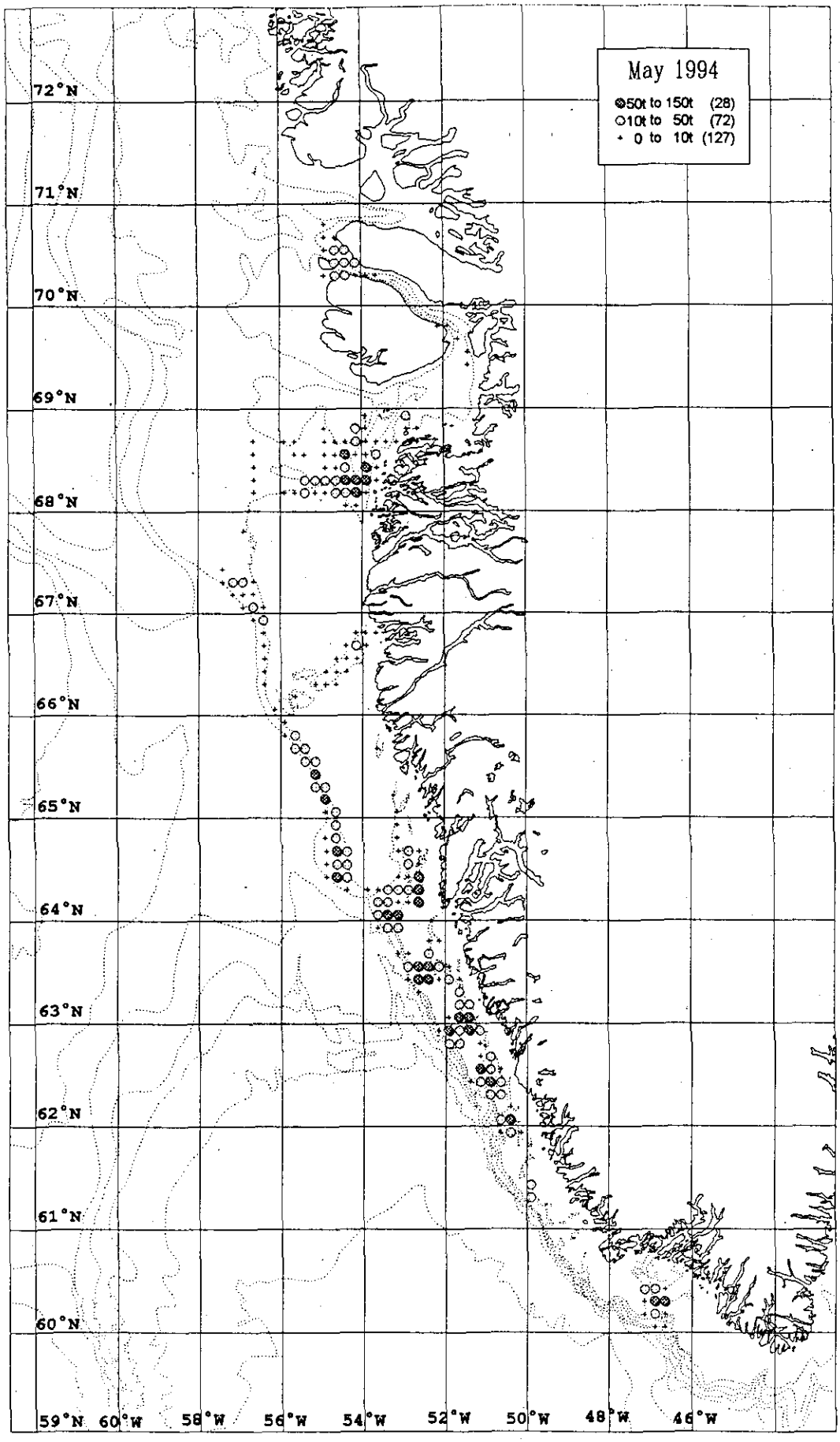

Fig. 6e. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in May 1994 based on logbooks from the Greenland fishery.

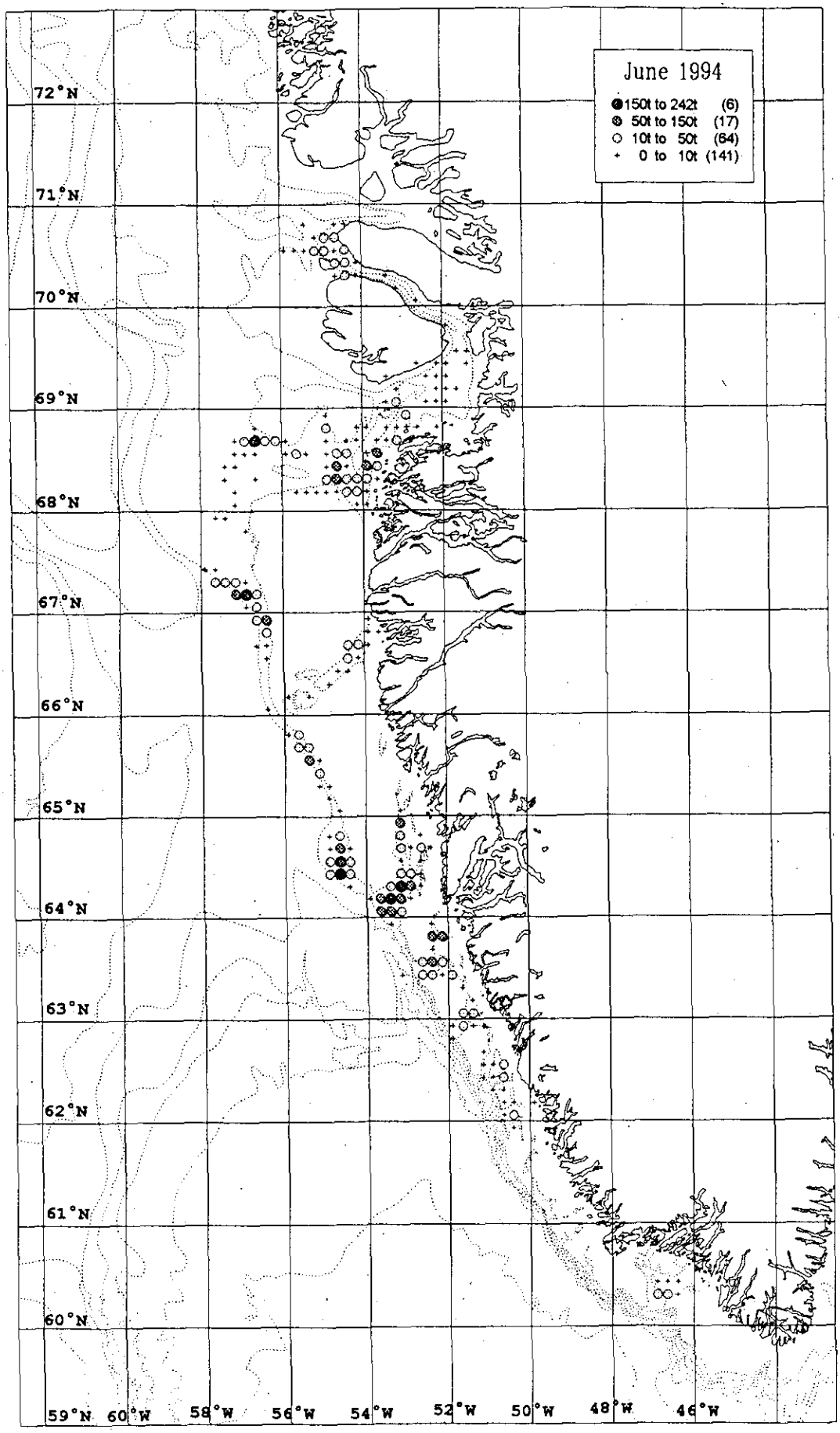

Fig. 6f. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in June 1994 based on logbooks from the Greenland fishery.

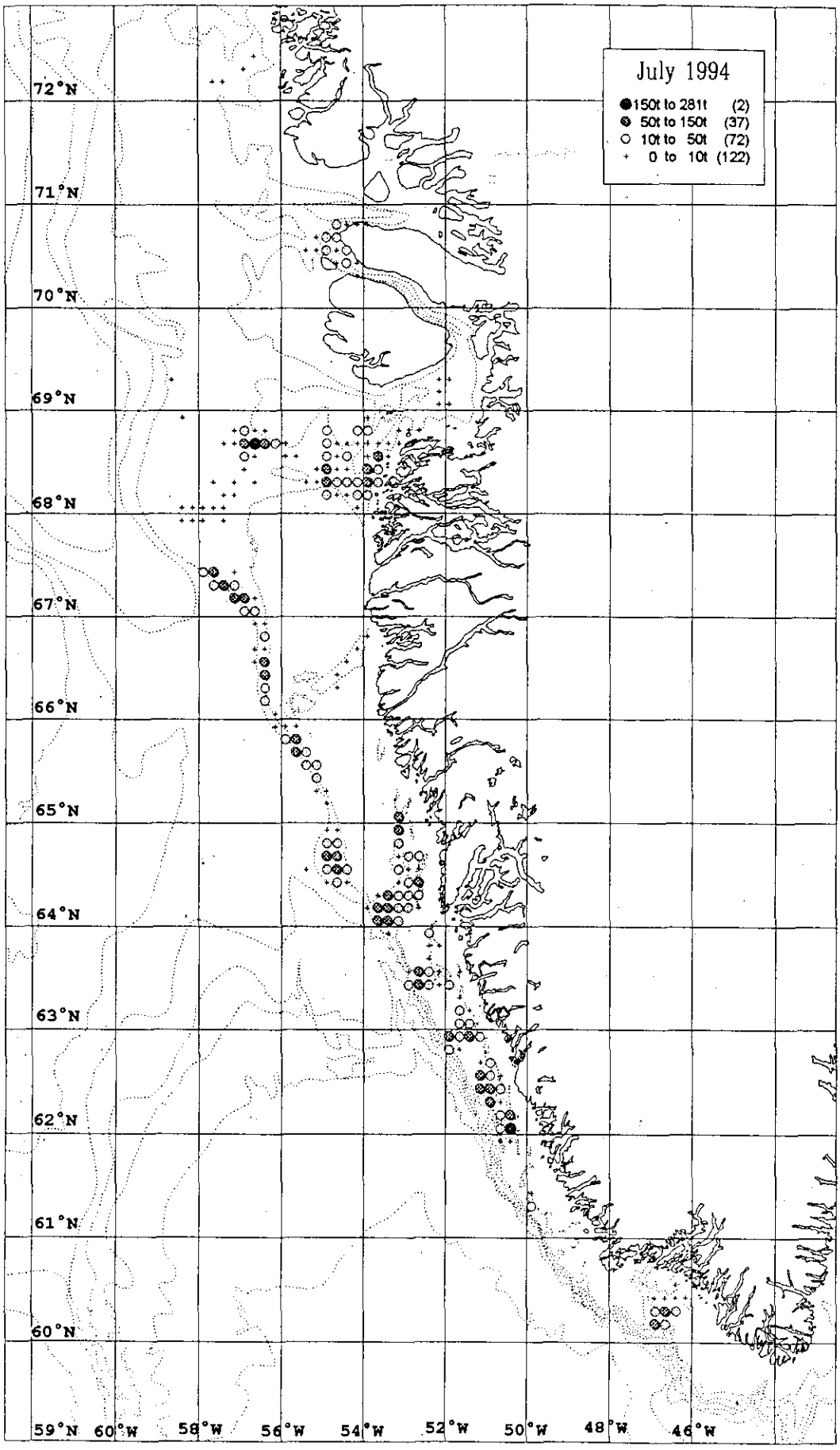

Fig. 6g. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in July 1994 based on logbooks from the Greenland fishery.

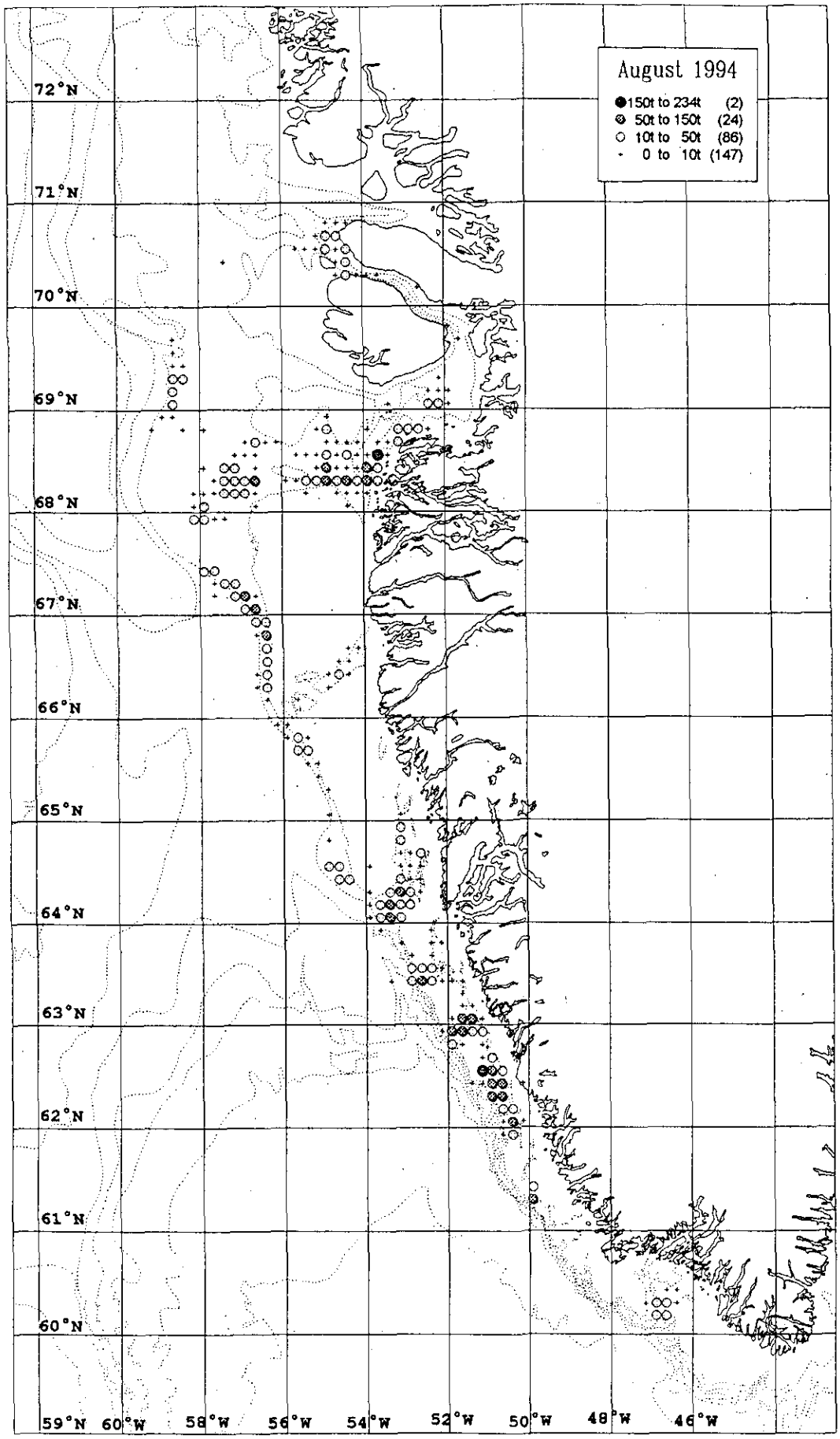

Fig. 6h. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in August 1994 based on logbooks from the Greenland fishery.

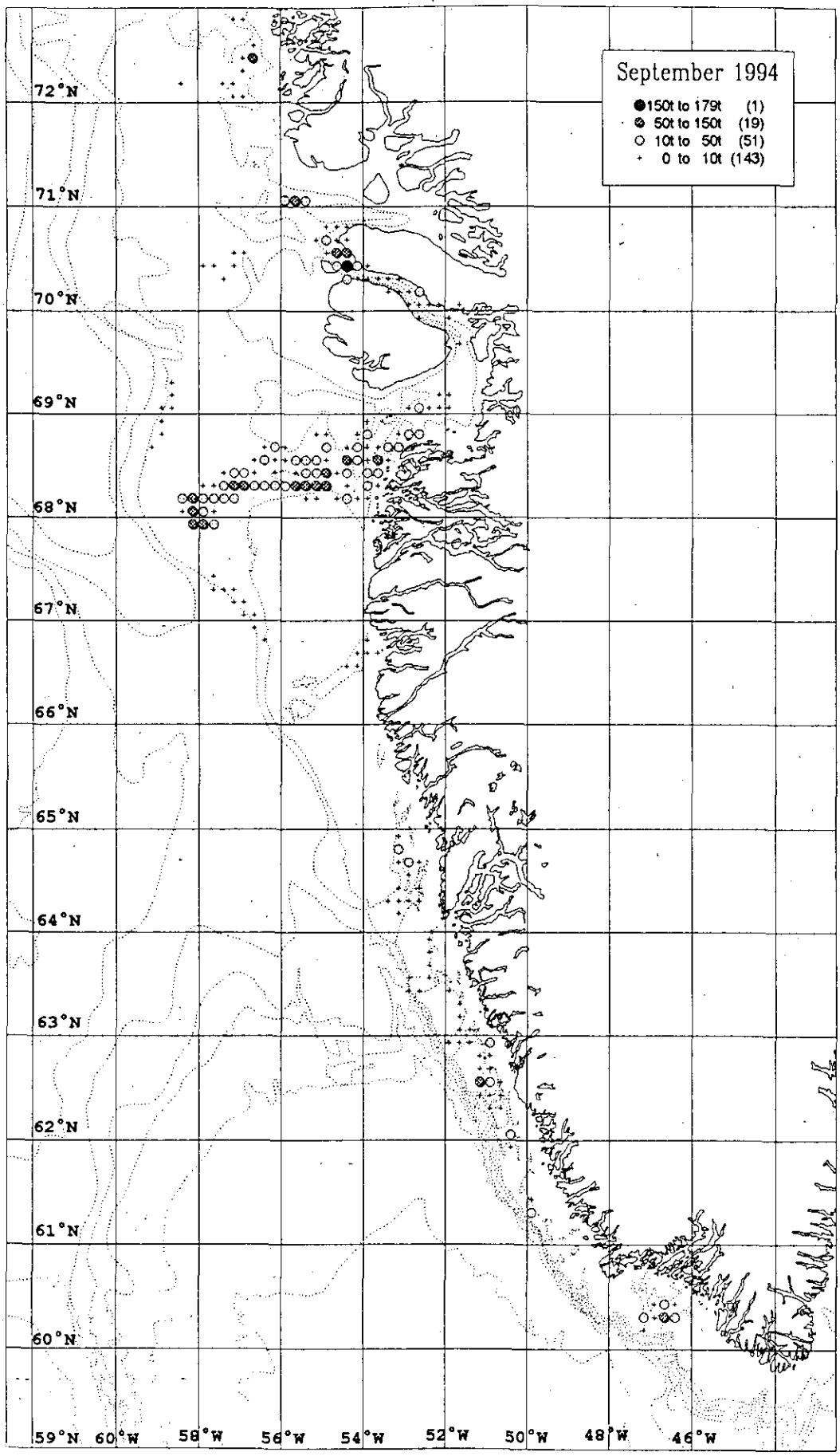

Fig. 6i. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 *in September* 1994 based on logbooks from the Greenland fishery.

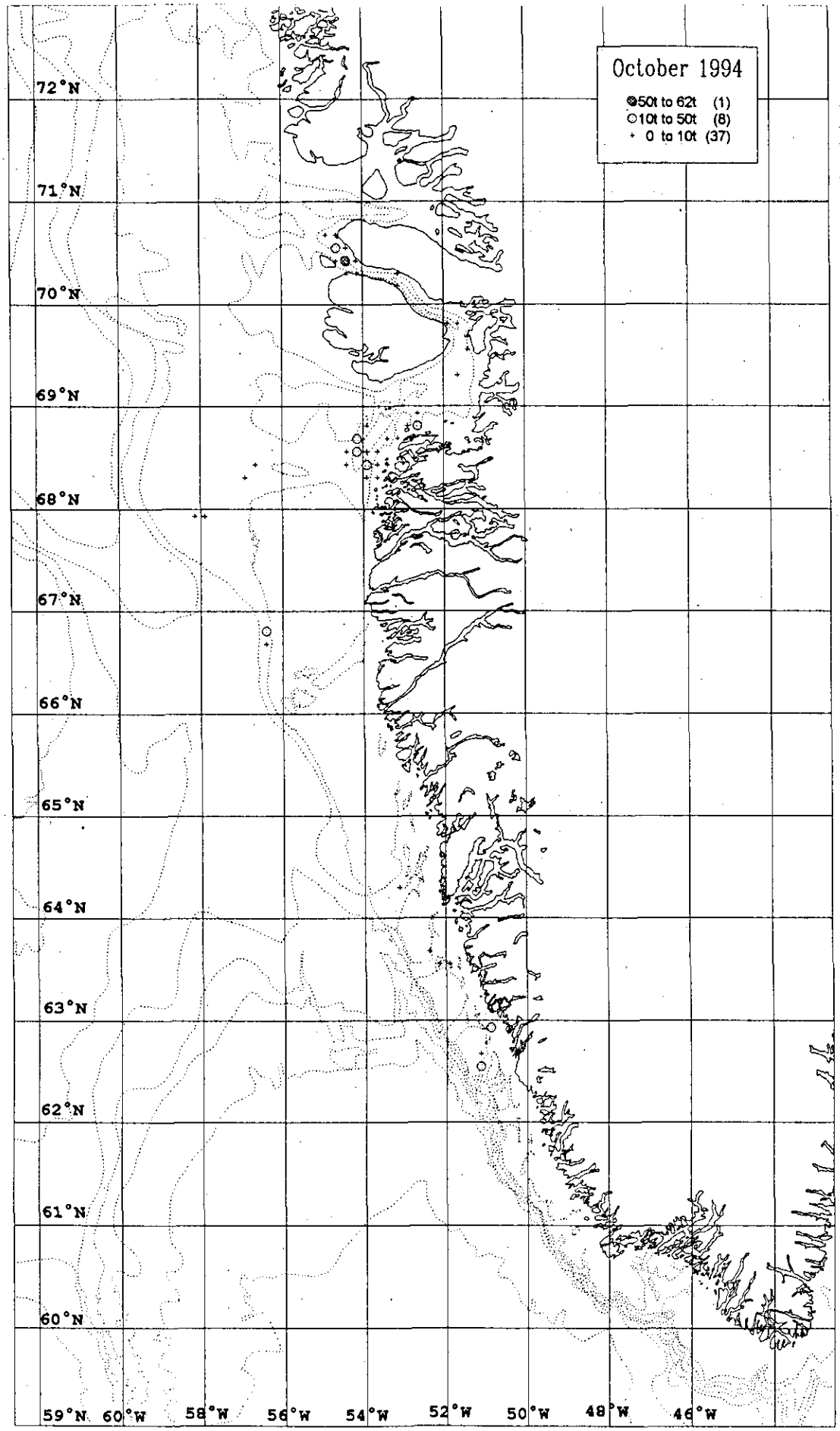

Fig. 6j. Distribution of catches of shrimp (tons per statistical unit) in the shrimp fishery in Subarea 1 in October 1994 based on logbooks from the Greenland fishery.

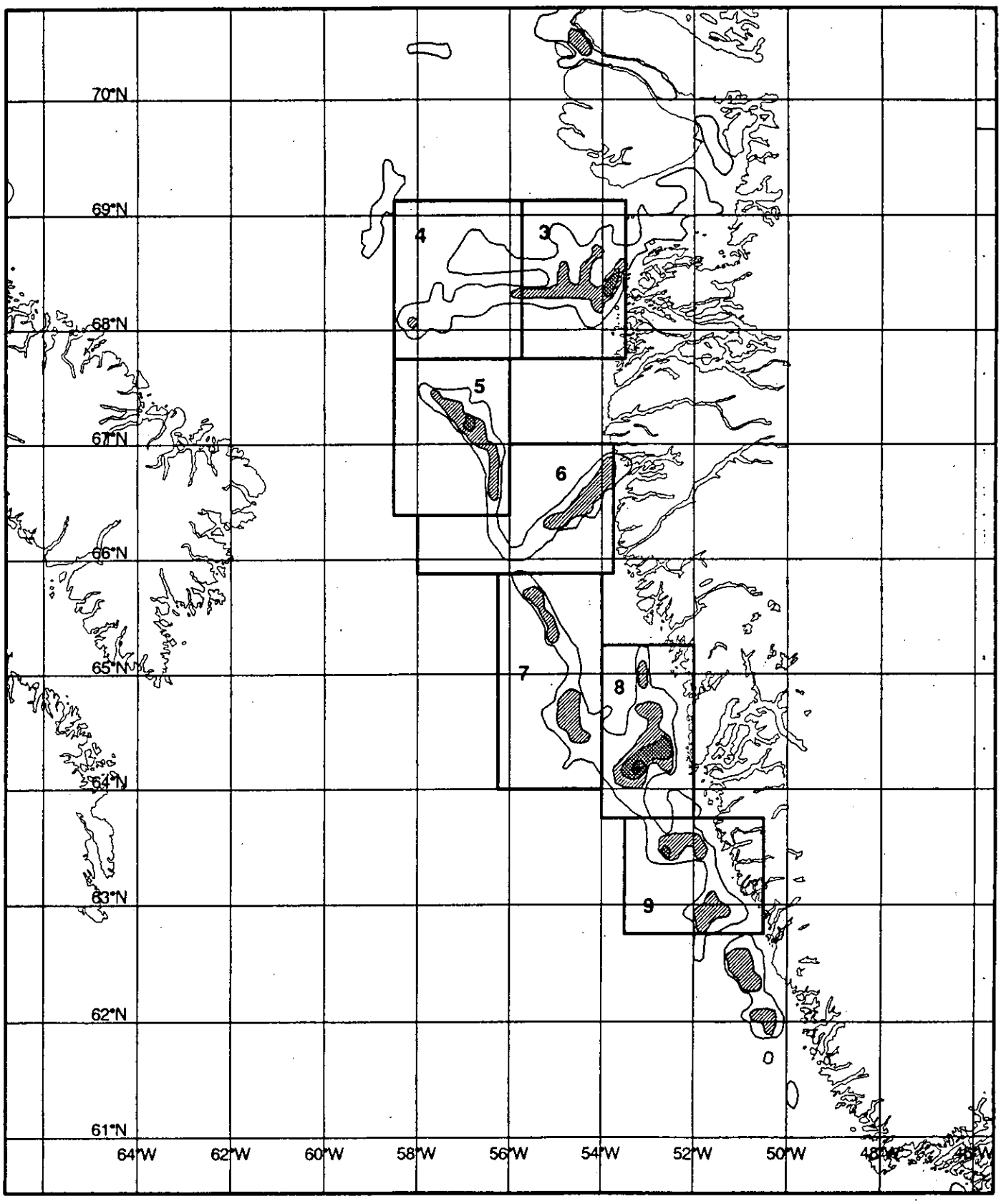

Fig. 7. Map showing areas used in the multiplicative model. Division 1B includes areas No. 3-6, and Div. 1CD includes areas 7-9.

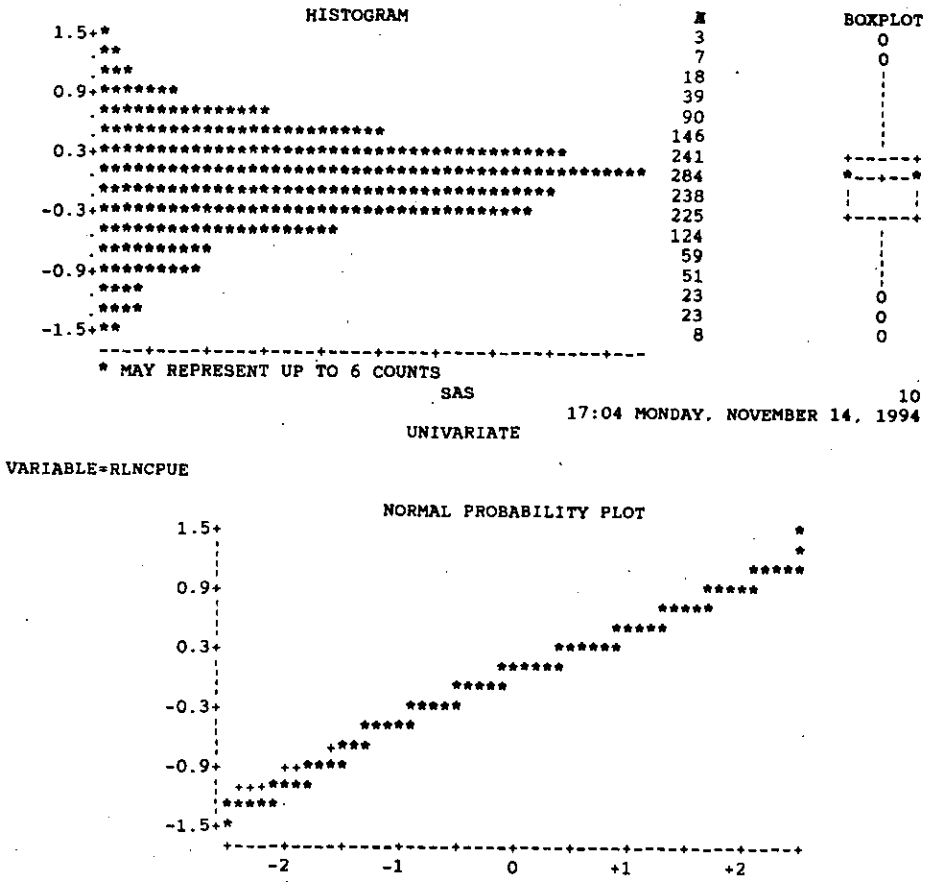

Fig. 8a. Histogram, box and probit plot of the residuals from the multiplicative analysis in Table 5a (shrimp >8.5 g, Div. 1AB).

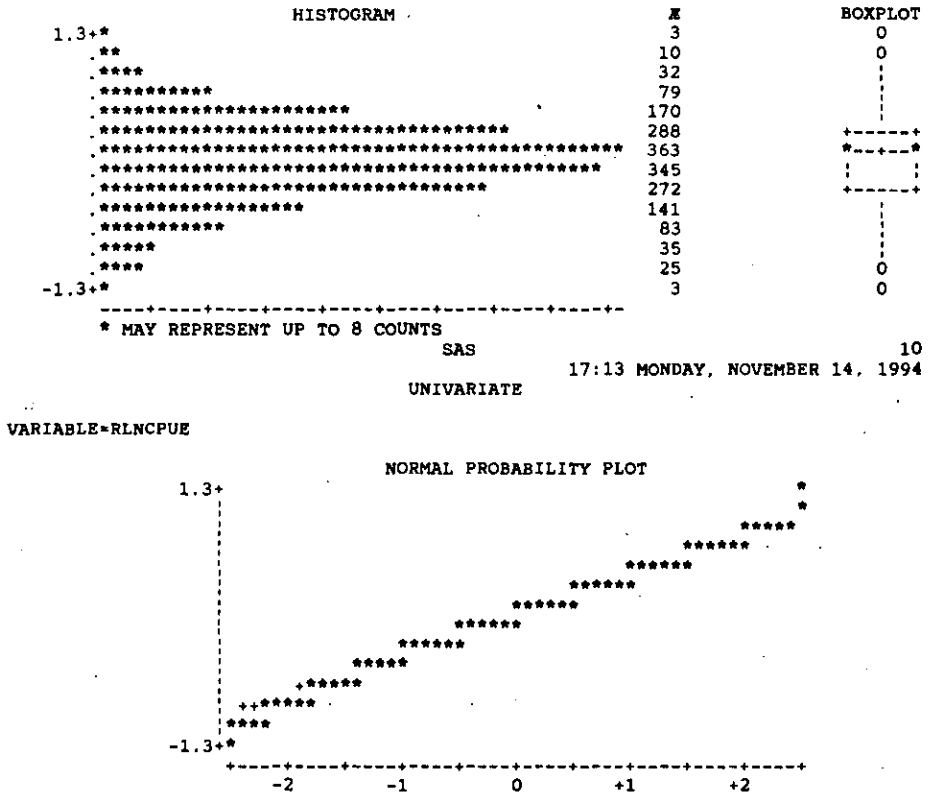

Fig. 8b. Histogram, box and probit plot of the residuals from the multiplicative analysis in Table 5b (shrimp >8.5 g, Div. 1CD).

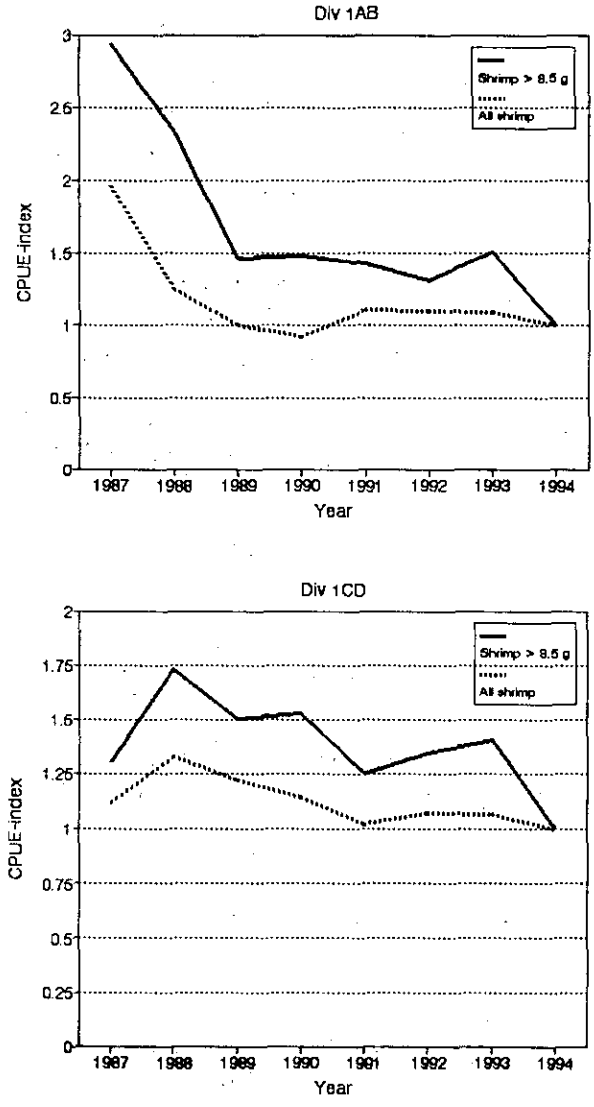

Fig. 9. Annual CPUE-indices calculated for catch of shrimp >8.5 g and for total catch by 33 Greenland trawlers in Div. 1B (upper diagram) and Div. 1CD (lower diagram) from 1987 to 1994.

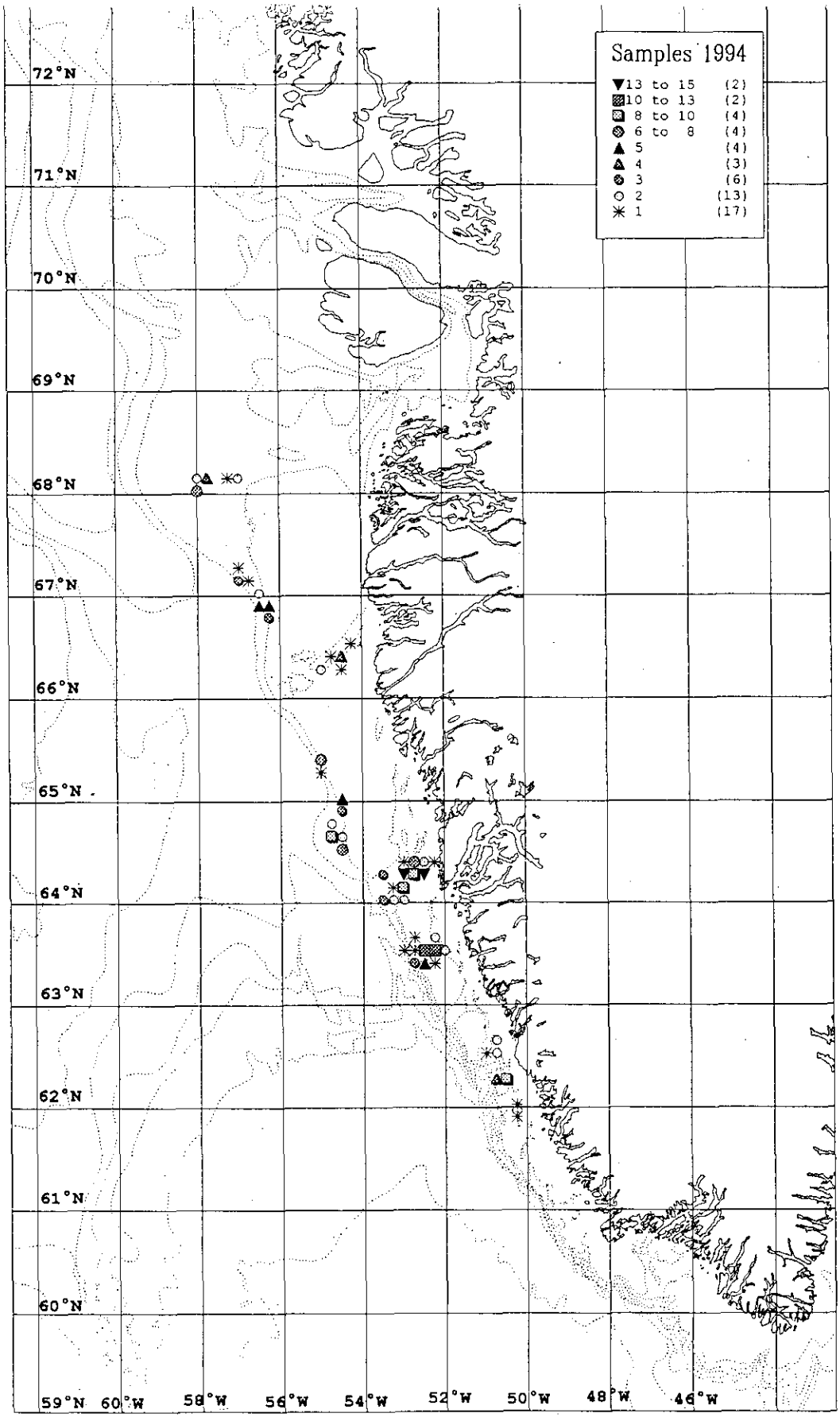

Fig. 10. Map showing the sites for shrimp samples in 1994.

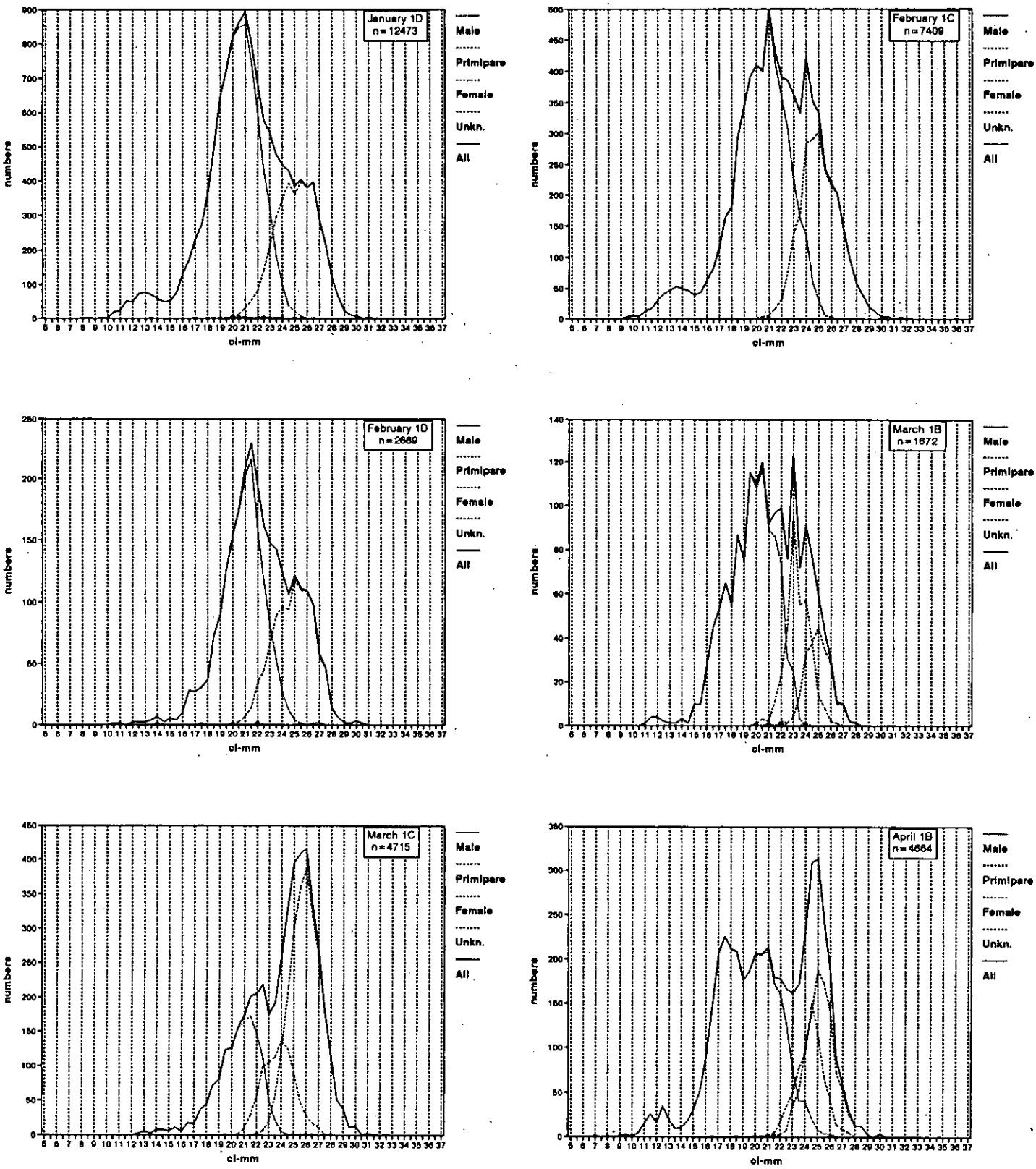

Fig. 11. Pooled shrimp samples from 1994 by Division and month.

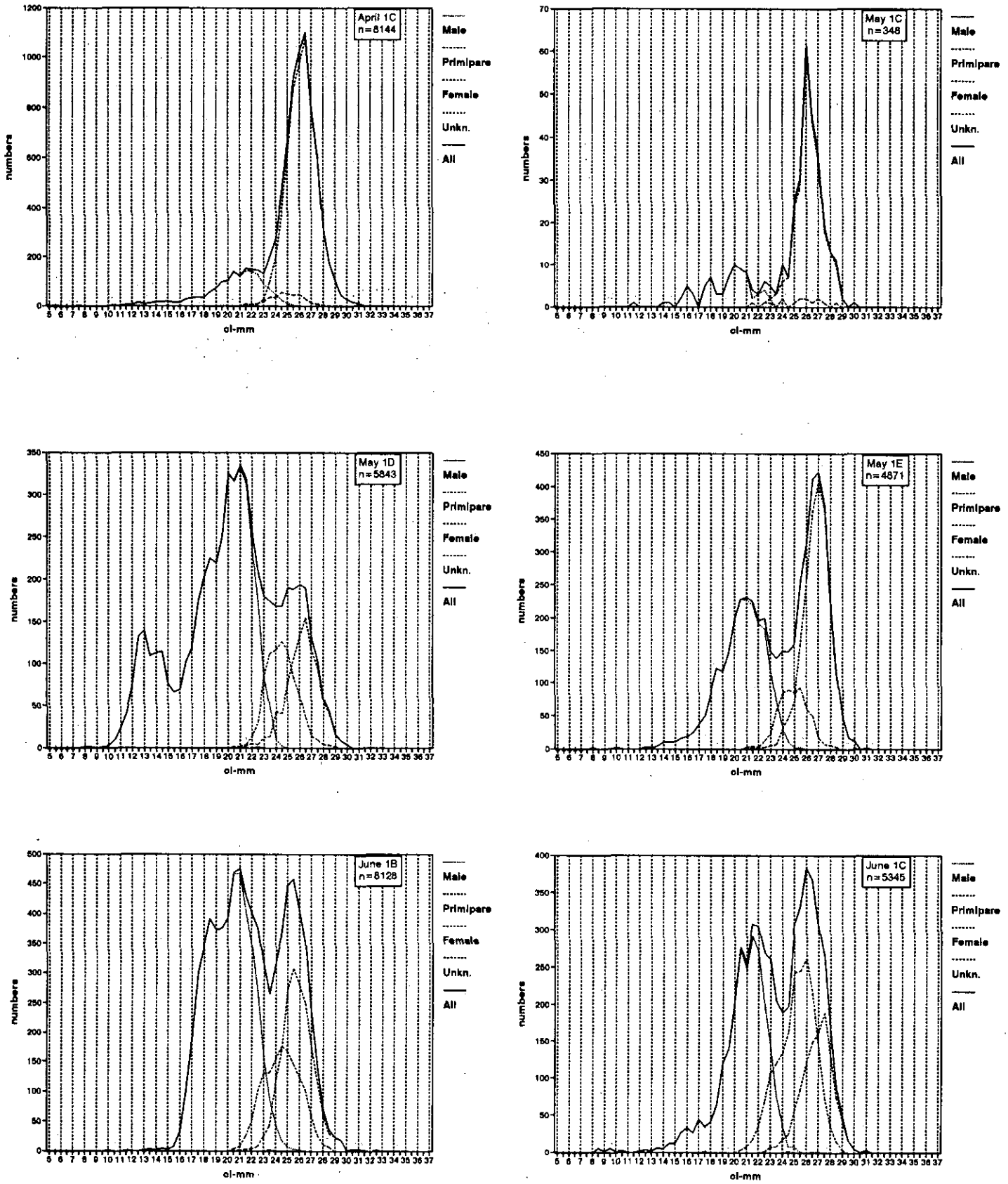

Fig. 11 (continued).

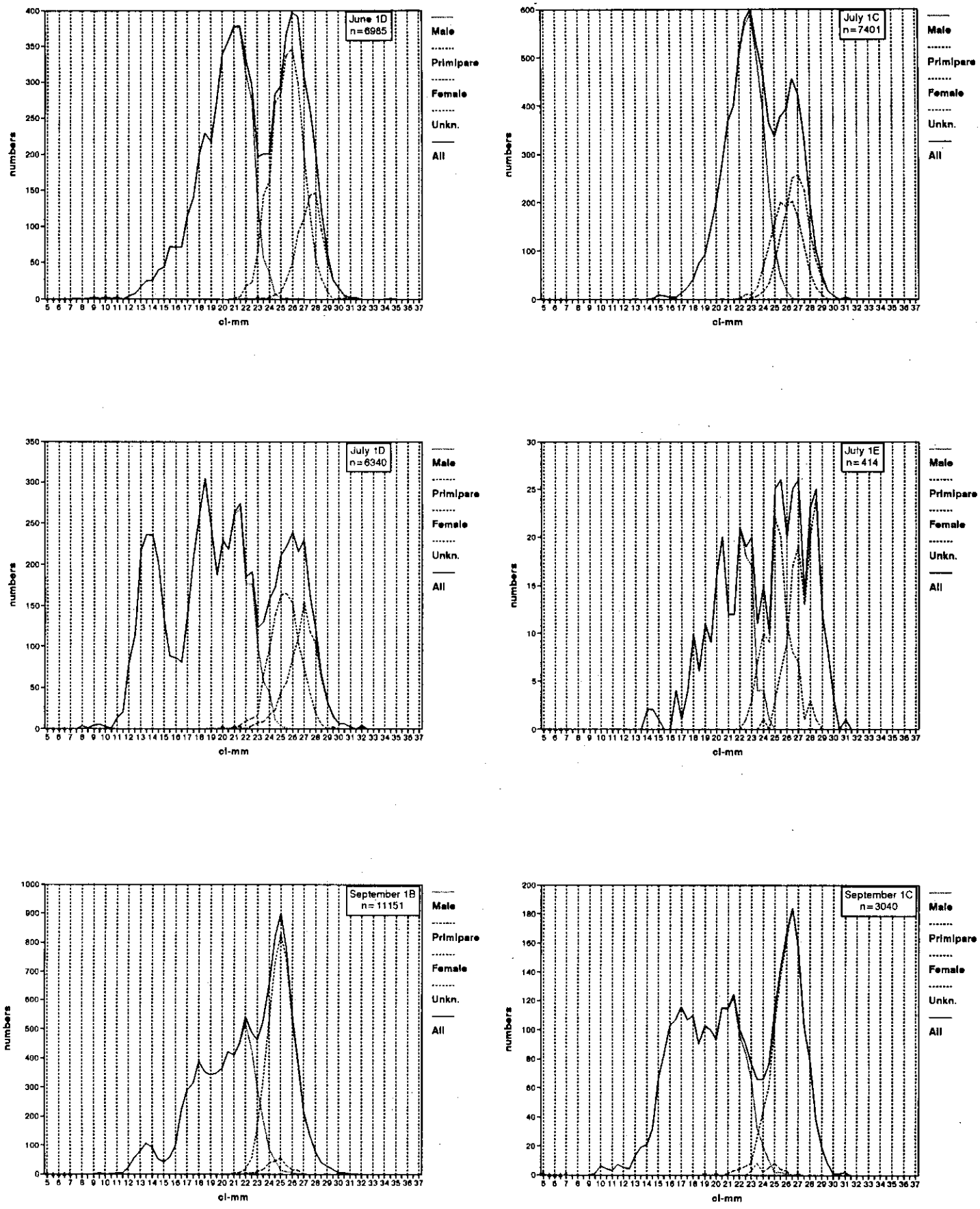

Fig. 11 (continued).