

Bilg.

## INTERN TOKTRAPPORT

Fartøy: F/T "Anny Kræmer".  
Avgang: Tromsø 12.september 1988  
Ankomst: Tromsø 18.oktober 1988  
Formål: Kartlegge mengde og utbredelse av bunnfisk og reker i området Svalbard - Bjørnøya.  
Trålforsøk.  
Personell: M.Møgster og H.Senneset (12/9 - 18/10-88).  
A.Engås (10/10 - 18/10 - 88).

## GJENNOMFØRING

Bunntoktsurveyet ble gjennomført med totalt 176 trålstasjoner, hvorav 171 stasjoner ble benyttet ved beregningene av totalmengder etc.

Det ble foretatt trålhal i alle aktuelle strataområder, foruten i strata 46 og 47.

Den siste uken ble benyttet til trålforsøk nær Finnmarkskysten, tildels i samarbeid med "Michael Sars". 67 forsøkshal ble utført.

## RESULTAT

Resultatet fra bunntoktsurveyet er vist i følgende tabeller og figurer.

Harald Senneset

Table 1. Stratified indices on numbers (thousands) for different depths and areas in 1988.

Species	North of 76°N						South of 76°N						Total all areas
	0-100	100-200	200-300	300-400	>400	Total	0-100	100-200	200-300	300-400	>400	Total	
Cod	1210	1170	530	214	9	3130	47500	30600	5370	2770	1520	87800	90900
Haddock	187	111	22	0	0	321	276	206	72	27	32	612	933
<u>S. Marinus</u>	5	411	998	89	83	1590	0	1080	3320	326	130	4860	6450
<u>S. Mentella</u> *)	76	1644	26100	26400	97400	151354	0	163	2830	14274	59700	76982	228736
Greenland halibut	0	56	2630	3010	9480	15200	0	19	3510	9700	10900	24100	39300
Long rough dab	489	7420	9960	2760	55	20700	3240	56600	46800	32400	21400	161000	181000
Blue whiting	0	0	0	0	0	0	0	6	457	132	1580	2180	2180
Jelly cat	0	0	0	15	7	23	0	184	389	201	649	1420	1450
Catfish	105	1420	1440	84	14	3060	126	1380	146	9	0	1660	4720
Smaller catfish	21	321	169	177	129	817	80	1710	381	191	52	2410	3230

Table 2. Stratified indices on weight (thousands kg) for different depths and areas in 1988.

Species	North of 76°N						South of 76°N						Total all areas
	0-100	100-200	200-300	300-400	>400	Total	0-100	100-200	200-300	300-400	>400	Total	
Cod	247	1720	1150	755	40	3910	42900	46100	10700	6310	4180	110000	114000
Haddock	5	2	5	0	0	12	329	109	6	16	10	469	481
<u>S. Marinus</u>	1	16	153	51	50	271	0	107	529	134	101	871	1140
<u>S. Mentella</u> *)	6	27	468	3100	11200	14804	0	2	140	1360	7280	8780	23604
Greenland halibut	0	20	945	1140	6290	8390	0	4	1410	4610	9710	15700	24100
Long rough dab	33	714	766	299	0	1810	711	7340	6190	4050	2940	21200	23000
Blue whiting	0	0	0	0	0	0	0	1	144	31	392	567	567
Jelly cat	-	-	-	-	-	-	-	-	-	-	-	-	-
Catfish	75	267	239	100	12	691	45	602	86	3	0	735	1430
Smaller catfish	83	385	150	426	83	1130	228	9130	455	89	18	9920	11000
Shrimps	0	75	1350	1310	65	2790	0	0	826	2780	5280	8880	11700

\*) Include considerable quantities of Sebastes species.



Table 5. Stratified trawl indices on numbers (thousands) for different species in 1981 - 1988.

	Year	Number of hauls	Cod	Haddock	<u>S. marinus</u>	*) <u>S. mentella</u>	Greenland halibut	Long rough dab	Blue whiting	Jelly cat	Catfish	Smaller Catfish
North of 76°N	1981	66	1 467	327	3 415	45 680	13 600	48 720	1 821	35	621	1 209
	1982	70	4 140	56	204	59 190	12 940	34 190	537	30	1 527	279
	1983	70	3 251	362	36 330	58 360	14 360	32 560	128	56	690	975
	1984	72	20 700	38 490	373	278 600	12 680	73 410	422	34	2 167	1 518
	1985	77	82 810	30 090	695	198 430	13 970	85 100	322	116	3 376	2 481
	1986	69	83 600	2 370	2 140	57 200	6 970	26 700	86	40	1 970	1 070
	1987	59	66 400	80	9 300	46 070	5 520	30 700	126	25	2 430	1 040
	1988	60	3 130	321	1 590	151 354	15 200	20 700	0	23	3 060	817
South of 76°N	1981	119	48 310	481	58 250	133 800	6 492	287 500	26 650	1 235	790	1 242
	1982	121	41 460	928	11 790	218 500	13 070	336 100	27 230	1 360	1 082	1 452
	1983	117	42 670	3 358	6 070	248 100	12 330	339 800	30 480	1 456	960	2 155
	1984	122	90 810	30 160	33 100	273 500	23 960	592 400	67 110	2 083	1 358	4 190
	1985	125	197 700	25 760	7 711	338 400	25 520	403 500	25 950	2 323	1 561	6 686
	1986	122	201 000	22 200	7 570	296 000	12 500	152 000	4 910	1 950	2 340	2 640
	1987	74	149 000	269	7 370	161 670	13 000	118 000	9 280	1 560	1 390	2 390
	1988	111	87 800	612	4 860	76 982	24 100	161 000	2 180	1 420	1 660	2 410
Total	1981	185	49 770	808	61 670	179 500	20 100	336 300	28 470	1 270	1 411	2 450
	1982	192	45 600	984	11 990	277 600	26 000	370 300	27 760	1 391	2 609	1 730
	1983	187	45 920	3 720	42 400	306 500	26 690	372 400	30 610	1 511	1 650	3 130
	1984	194	111 500	68 640	33 470	552 100	36 630	665 800	67 530	2 117	3 525	5 709
	1985	202	280 600	55 850	8 405	536 820	39 450	488 600	26 270	2 439	4 936	9 167
	1986	191	284 600	24 570	9 710	353 000	19 470	178 700	4 996	1 990	4 310	3 710
	1987	133	215 000	349	16 700	208 100	18 500	149 000	9 410	1 580	3 830	3 430
	1988	171	90 900	933	6 450	228 736	39 300	181 000	2 180	1 450	4 720	3 230

\*) Include considerable quantities of *Sebastes* species.

Table 6. Stratified trawl indices on weight (thousands kg) for different species in 1981 - 1988.

Year		Cod	Haddock	<u>S. marinus</u>	<u>S. mentella</u>	Greenland halibut	Long rough dab	Blue whiting	Jelly cat	Catfish	Smaller Catfish	Shrimps
North of 76°N	1981	3 156	942	453	11 030	3 645	4 125	400	30	1 032	343	17 060
	1982	3 348	5	63	9 804	6 550	2 858	158	130	1 359	363	24 810
	1983	3 226	35	3 984	6 869	4 967	2 322	38	217	462	1 104	13 240
	1984	5 704	5 136	127	19 250	6 840	5 132	83	197	1 238	1 376	6 901
	1985	32 980	4 068	295	15 130	7 880	7 082	79	373	1 638	3 055	3 830
	1986	46 700	860	243	6 100	4 510	2 020	28	-	1 110	1 760	661
	1987	30 100	21	402	3 246	2 420	2 400	37	163	648	1 530	1 450
	1988	3 910	12	271	14 800	8 390	1 810	0	-	691	1 130	2 790
South of 76°N	1981	73 270	988	10 230	31 510	5 794	40 770	4 968	9 427	1 054	3 764	50 650
	1982	61 180	469	4 325	49 830	15 660	45 510	7 741	12 590	1 849	6 425	68 780
	1983	54 350	474	1 252	35 350	18 170	46 610	9 349	14 130	2 335	6 309	60 090
	1984	66 510	3 201	3 262	65 670	24 220	82 160	20 530	19 260	4 538	13 480	31 740
	1985	133 500	7 122	1 346	22 030	19 270	53 010	7 643	20 290	3 323	25 110	12 670
	1986	167 000	10 600	1 640	24 700	11 700	20 100	1 390	-	1 190	7 740	2 550
	1987	122 000	189	1 430	14 489	8 320	15 500	2 460	3 650	2 900	3 130	11 000
	1988	110 000	469	871	8 780	15 700	21 200	567	-	735	9 920	8 880
Total	1981	76 430	1 930	10 680	42 530	9 439	44 890	5 368	9 457	2 086	4 407	67 710
	1982	64 530	502	4 388	59 640	22 221	48 370	7 899	12 720	3 209	6 788	93 590
	1983	57 580	509	5 236	42 350	23 130	48 930	9 387	14 350	2 797	7 412	74 330
	1984	72 210	8 337	3 389	84 920	31 060	87 290	20 610	19 450	5 776	14 850	38 640
	1985	166 400	11 119	1 641	37 160	27 160	60 090	7 721	20 660	4 961	28 170	16 500
	1986	213 700	11 460	1 883	30 800	16 210	22 120	1 418	-	2 300	9 500	3 210
	1987	152 000	211	1 830	17 755	10 700	17 900	2 500	3 810	3 550	4 660	12 400
	1988	114 000	481	1 140	23 600	24 100	23 000	567	-	1 430	11 000	11 700





Tabel 11. Length distribution (percent) of Greenland halibut.  
 A:0-100m, B:100-200m, C:200-300m, D:300-400m,  
 E:Deeper than 400m, F:Northern area, G:Southern  
 area, H:Total area.

LENGTH	A	B	C	D	E	F	G	H
5- 9	0	0	0.2	0	0	0.1	0	0
10-14	0	22.1	5.0	3.1	0.4	0.7	2.9	2.1
15-19	0	0	11.0	6.5	0.7	1.8	5.7	4.2
20-24	0	0	11.7	17.3	2.5	4.6	11.2	8.7
25-29	0	29.1	11.3	8.5	3.1	8.0	5.0	6.2
30-34	0	10.9	15.9	14.4	10.2	18.9	8.3	12.4
35-39	0	27.3	24.0	19.8	20.2	27.5	16.4	20.7
40-44	0	0	13.0	16.5	24.3	19.3	20.3	19.9
45-49	0	10.6	6.0	10.2	19.7	10.9	16.7	14.5
50-54	0	0	1.4	2.0	11.5	5.8	7.5	6.8
55-59	0	0	0.4	1.3	4.9	1.2	4.1	3.0
60-64	0	0	0	0.3	1.3	0.7	0.8	0.8
65-69	0	0	0.2	0	0.7	0.2	0.6	0.4
70-74	0	0	0	0.2	0.3	0	0.3	0.2
75-79	0	0	0	0	0.2	0.1	0.1	0.1
80-84	0	0	0	0	0.1	0	0.1	0
85-89	0	0	0	0	0.1	0	0.1	0

Tabel 12. Length distribution (percent) of Long rough dab.  
 A:0-100m, B:100-200m, C:200-300m, D:300-400m,  
 E:Deeper than 400m, F:Northern area, G:Southern  
 area, H:Total area.

LENGTH	A	B	C	D	E	F	G	H
5- 9	1.1	1.6	2.9	1.1	0	8.8	0.8	1.7
10-14	13.1	16.6	13.5	8.4	0.6	14.2	11.8	12.1
15-19	17.6	25.3	23.5	19.8	6.4	28.7	20.3	21.3
20-24	18.8	22.4	26.1	33.4	34.4	29.1	26.8	27.1
25-29	15.8	18.1	20.5	24.6	44.7	13.1	24.5	23.2
30-34	16.0	10.3	9.6	10.4	11.8	5.3	11.1	10.4
35-39	16.0	4.9	3.7	2.0	1.9	0.8	4.2	3.8
40-44	1.6	0.7	0.2	0.3	0.1	0	0.5	0.4
45-49	0	0.1	0.1	0	0	0	0.1	0.1

Tabel 13. Length distribution (percent) of Blue whiting.  
 A:0-100m, B:100-200m, C:200-300m, D:300-400m,  
 E:Deeper than 400m, F:Northern area, G:Southern  
 area, H:Total area.

LENGTH	A	B	C	D	E	F	G	H
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	4.8	1.0	0	1.0	1.0
30-34	0	100.0	23.4	14.3	62.7	0	51.9	51.9
35-39	0	0	76.4	80.9	34.9	0	46.1	46.1
40-44	0	0	0	0	1.3	0	1.0	1.0



Tabel 14. Length distribution (percent) of Smaller catfish.  
 A:0-100m, B:100-200m, C:200-300m, D:300-400m,  
 E:Deeper than 400m, F:Northern area, G:Southern  
 area, H:Total area.

LENGTH	A	B	C	D	E	F	G	H
5- 9	0	0	0	0	0	0	0	0
10-14	0	9.0	12.3	11.0	0	15.8	6.8	9.1
15-19	0	2.2	13.9	2.0	0	7.5	2.8	4.0
20-24	0	1.4	6.8	1.0	0	6.3	0.8	2.2
25-29	0	0	6.2	6.7	0	1.9	1.8	1.8
30-34	0	0.2	8.2	9.3	25.7	9.4	2.0	3.8
35-39	0	2.1	6.2	26.5	30.0	13.0	4.8	6.9
40-44	0	3.1	5.6	21.8	30.5	15.5	4.0	6.9
45-49	5.2	3.4	5.3	19.1	13.7	7.7	5.5	6.1
50-54	0	5.5	5.8	2.0	0	7.8	3.7	4.7
55-59	20.5	3.2	8.3	0	0	1.8	4.9	4.1
60-64	25.7	6.8	9.3	0	0	3.0	8.0	6.7
65-69	3.7	9.7	4.4	0	0	3.6	8.1	7.0
70-74	23.3	8.4	3.2	0	0	1.7	8.3	6.6
75-79	8.9	4.9	4.1	0	0	1.7	4.9	4.1
80-84	6.4	10.9	0.4	0	0	1.0	9.2	7.2
85-89	0	7.2	0	0	0	0.5	5.9	4.6
90-94	5.1	4.5	0	0.5	0	1.5	3.6	3.1
95-99	1.2	4.9	0	0	0	0.1	4.2	3.1
100-104	0	5.9	0	0	0	0	5.0	3.7
105-109	0	2.4	0	0	0	0	2.1	1.5
110-114	0	3.6	0	0	0	0	3.1	2.3
115-119	0	0.6	0	0	0	0	0.5	0.4

Tabel 15. Length distribution (percent) of Catfish.  
 A:0-100m, B:100-200m, C:200-300m, D:300-400m,  
 E:Deeper than 400m, F:Northern area, G:Southern  
 area, H:Total area.

LENGTH	A	B	C	D	E	F	G	H
5- 9	0	0	0	0	0	0	0	0
10-14	0	7.6	0	0	0	13.1	0	6.7
15-19	11.1	27.3	6.5	0	0	40.9	8.5	25.0
20-24	4.0	9.8	19.5	0	0	15.1	4.9	10.1
25-29	16.4	9.4	13.0	0	0	8.3	11.7	10.0
30-34	15.9	8.1	20.8	0	0	5.4	13.3	9.3
35-39	10.2	2.8	0	54.0	0	4.2	2.4	3.3
40-44	0	3.8	0	0	0	1.0	5.9	3.4
45-49	0	2.9	0	0	0	3.6	1.5	2.6
50-54	31.3	6.2	6.5	0	0	0.7	14.5	7.5
55-59	0	9.3	6.5	0	0	2.5	14.9	8.6
60-64	2.6	6.9	27.3	46.0	0	3.6	12.8	8.1
65-69	7.1	5.1	0	0	0	0.7	9.1	4.8
70-74	1.3	0.2	0	0	0	0.5	0	0.3
75-79	0	0.6	0	0	0	0.4	0.6	0.5

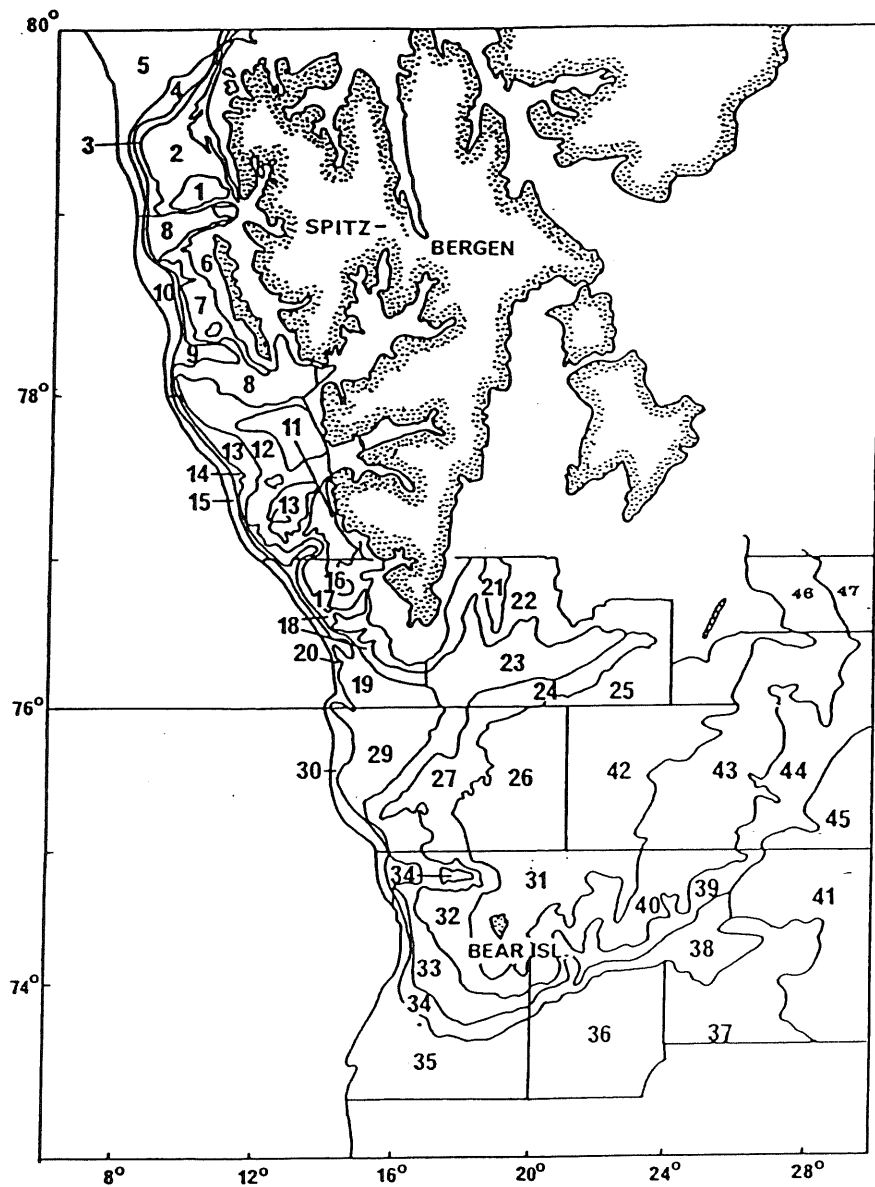


FIG: 1. THE AREA OF INVESTIGATION WITH THE DIFFERENT STRATA.

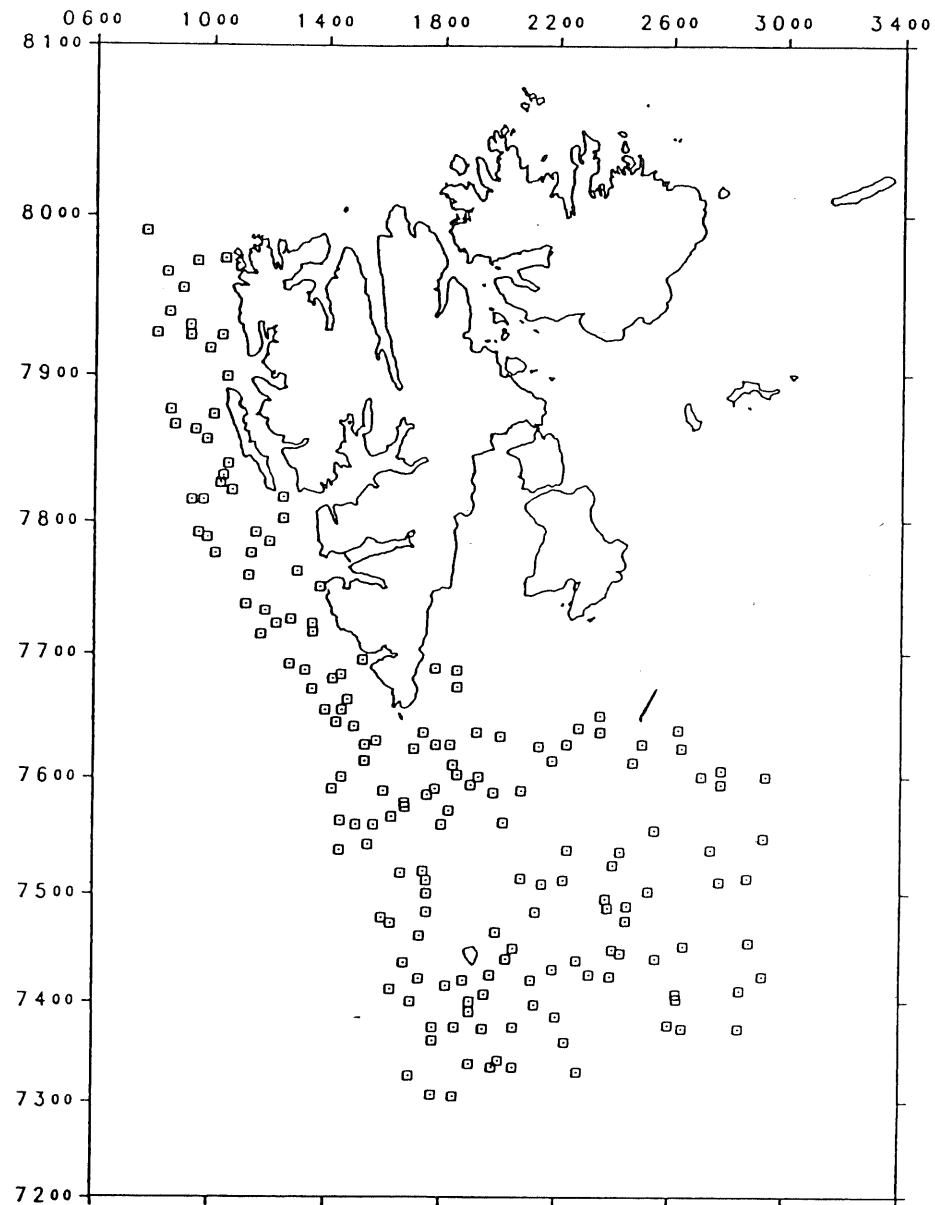


FIG: 2. BOTTOM TRAWL-STATIONS (171) TAKEN BY F/T "ANNY KREMER"  
13.09. - 07.10. 1988.

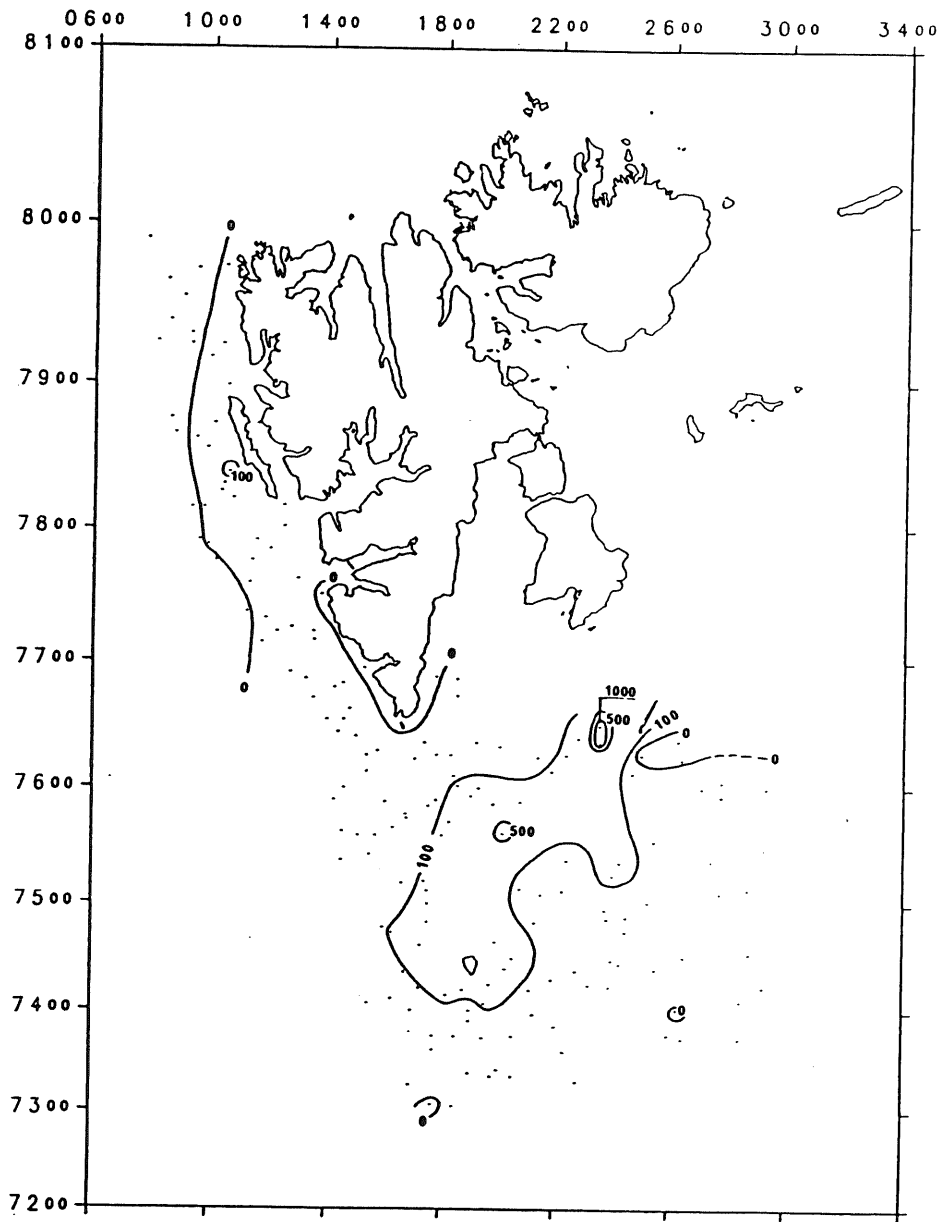


FIG. 3. DISTRIBUTION OF COD IN THE TRAWL CATCHES (NUMBER PER HOUR TRAWLING).

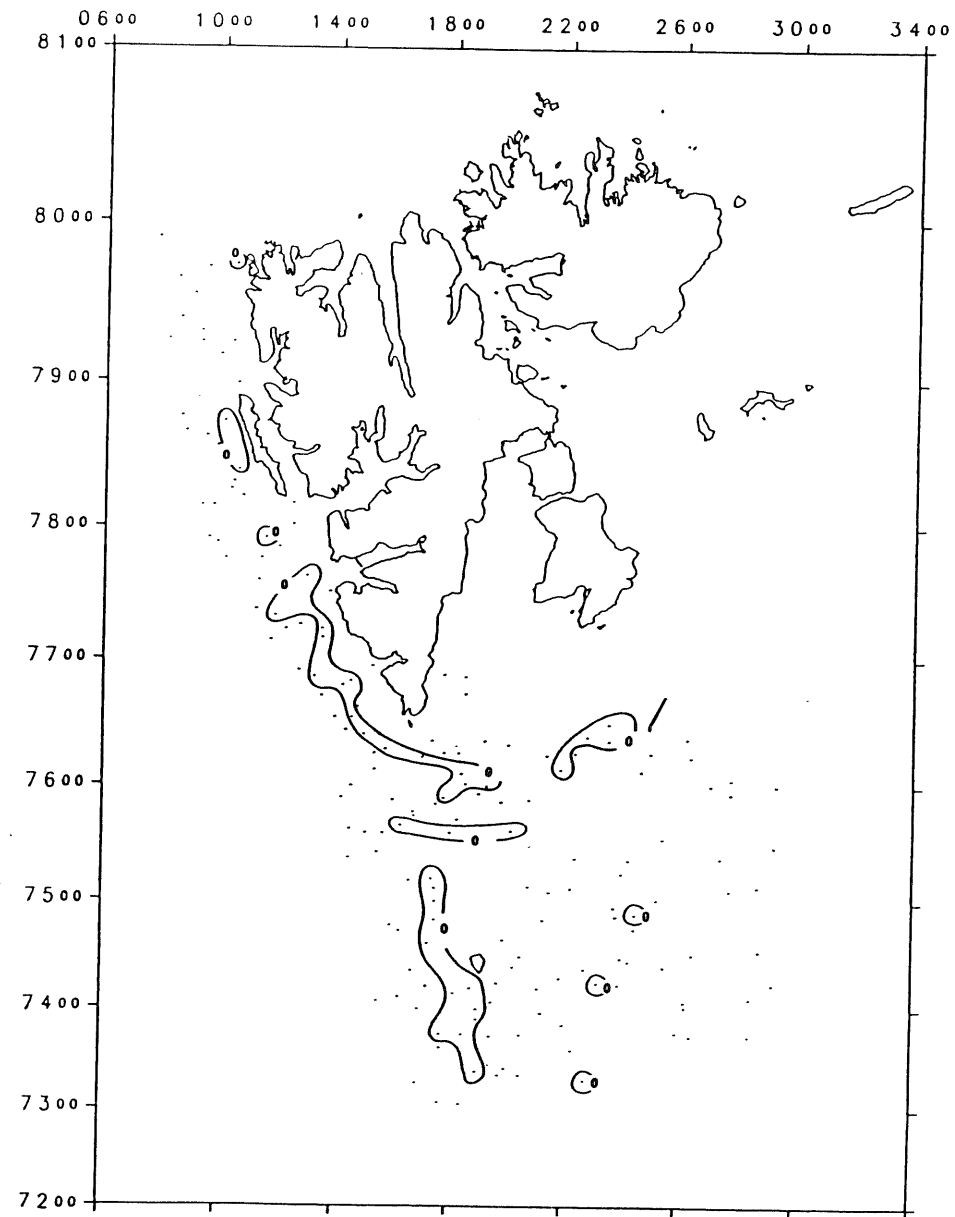


FIG. 4. DISTRIBUTION OF HADDOCK IN THE TRAWL CATCHES (NUMBER PER HOUR TRAWLING).

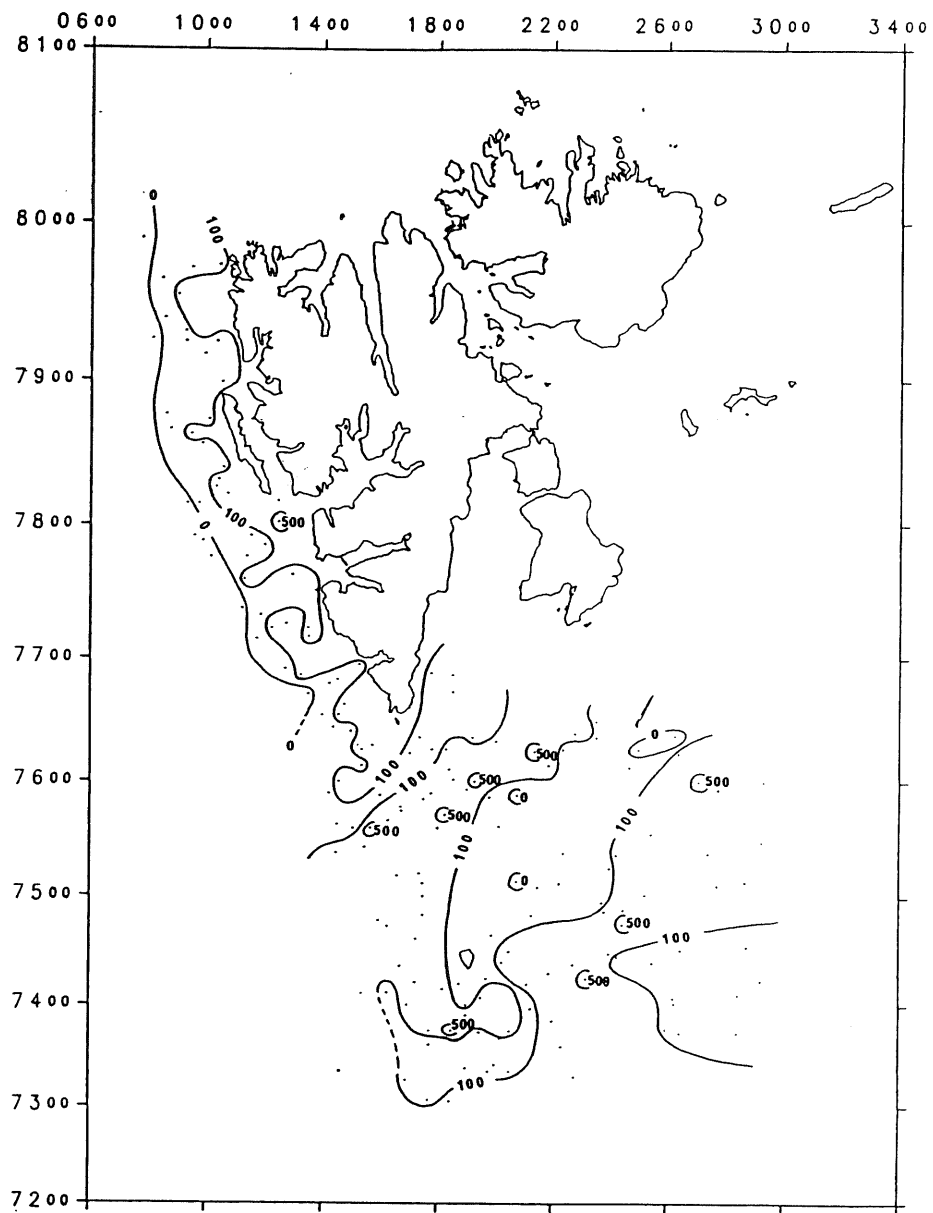


FIG: 5. DISTRIBUTION OF LONG ROUGH DAB IN THE TRAWL CATCHES (NUMBER PER HOUR TRAWLING).

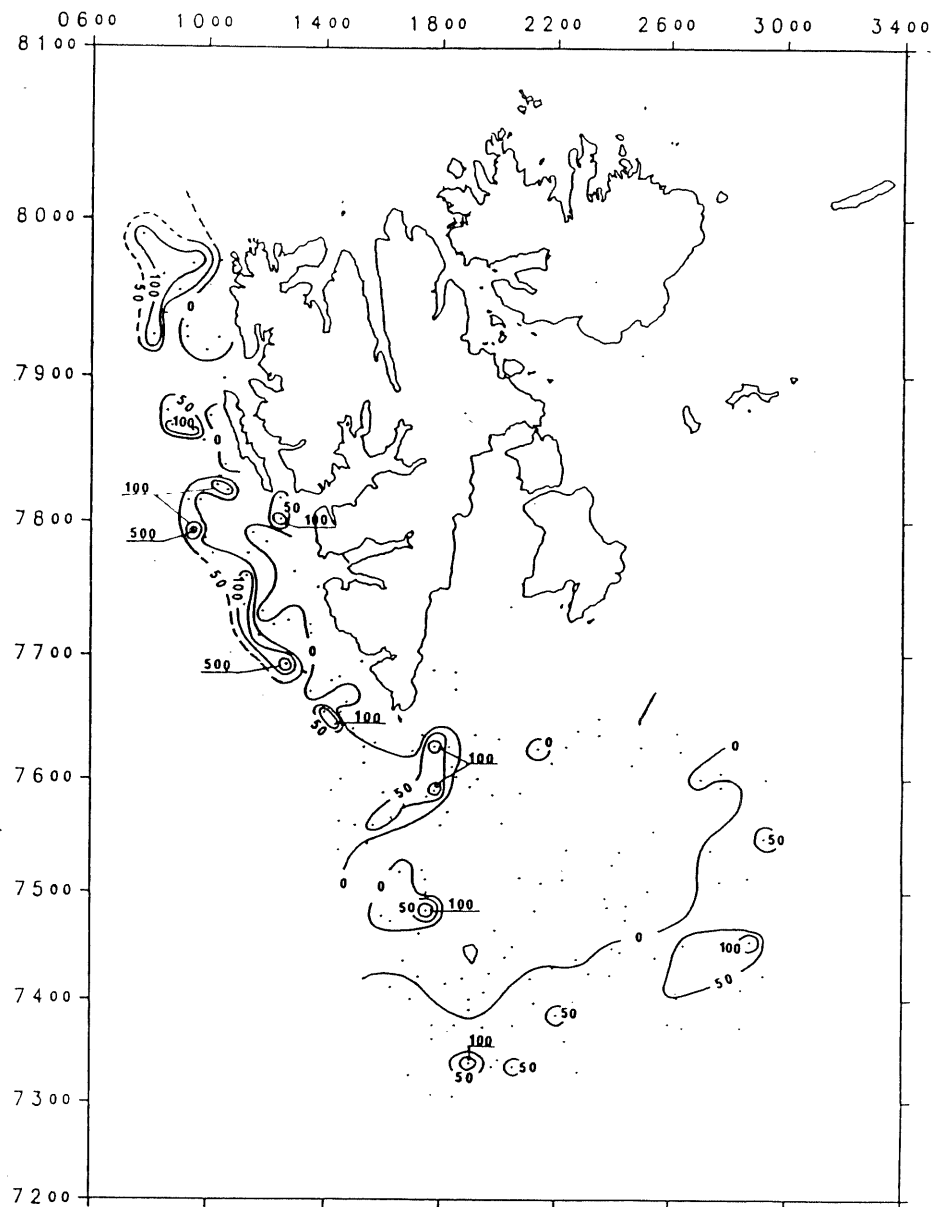


FIG: 6. DISTRIBUTION OF GREENLAND HALIBUT IN THE TRAWL CATCHES (NUMBER PER HOUR TRAWLING).

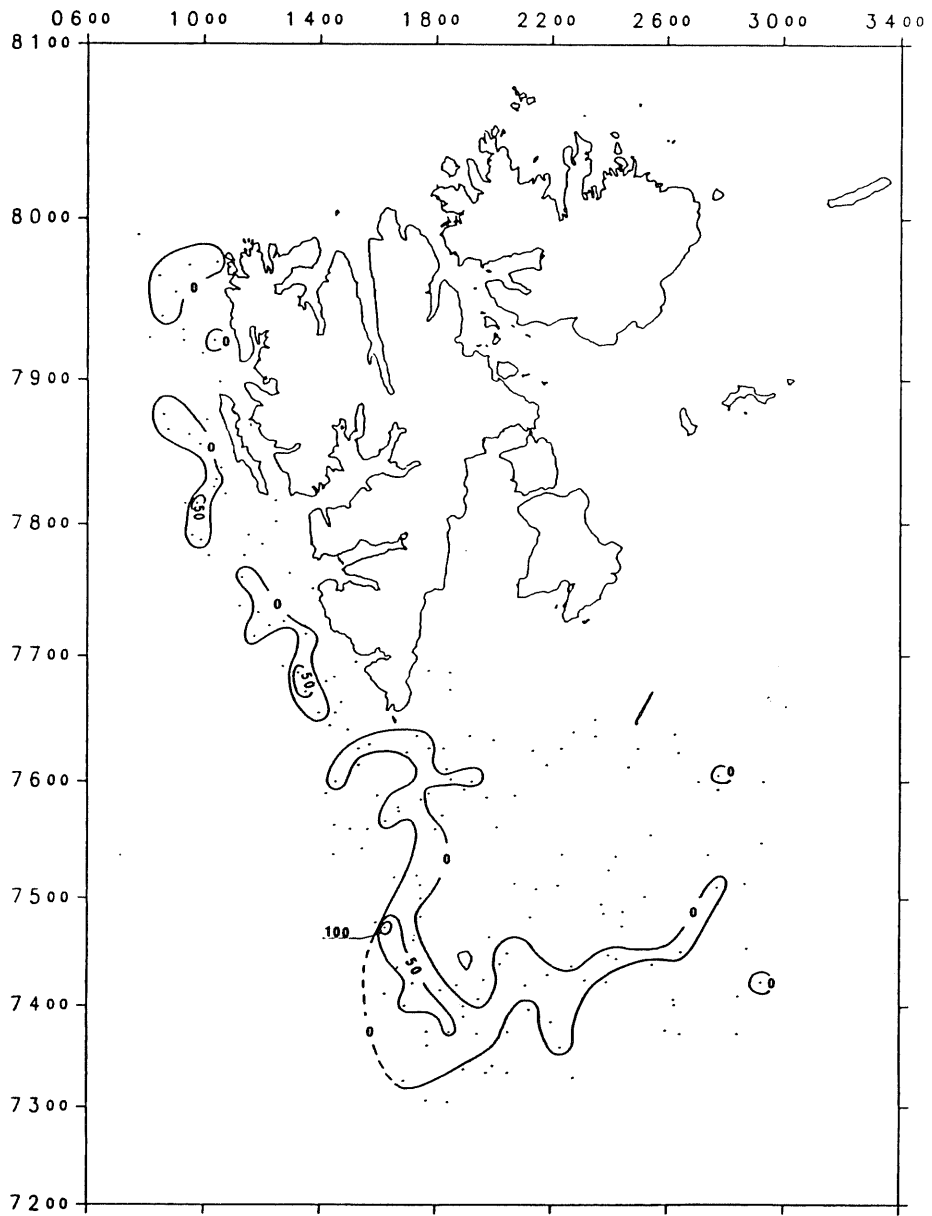


FIG: 7. DISTRIBUTION OF SEBASTES MARINUS IN THE TRAWL CATCHES (NUMBER PER HOUR TRAWLING).

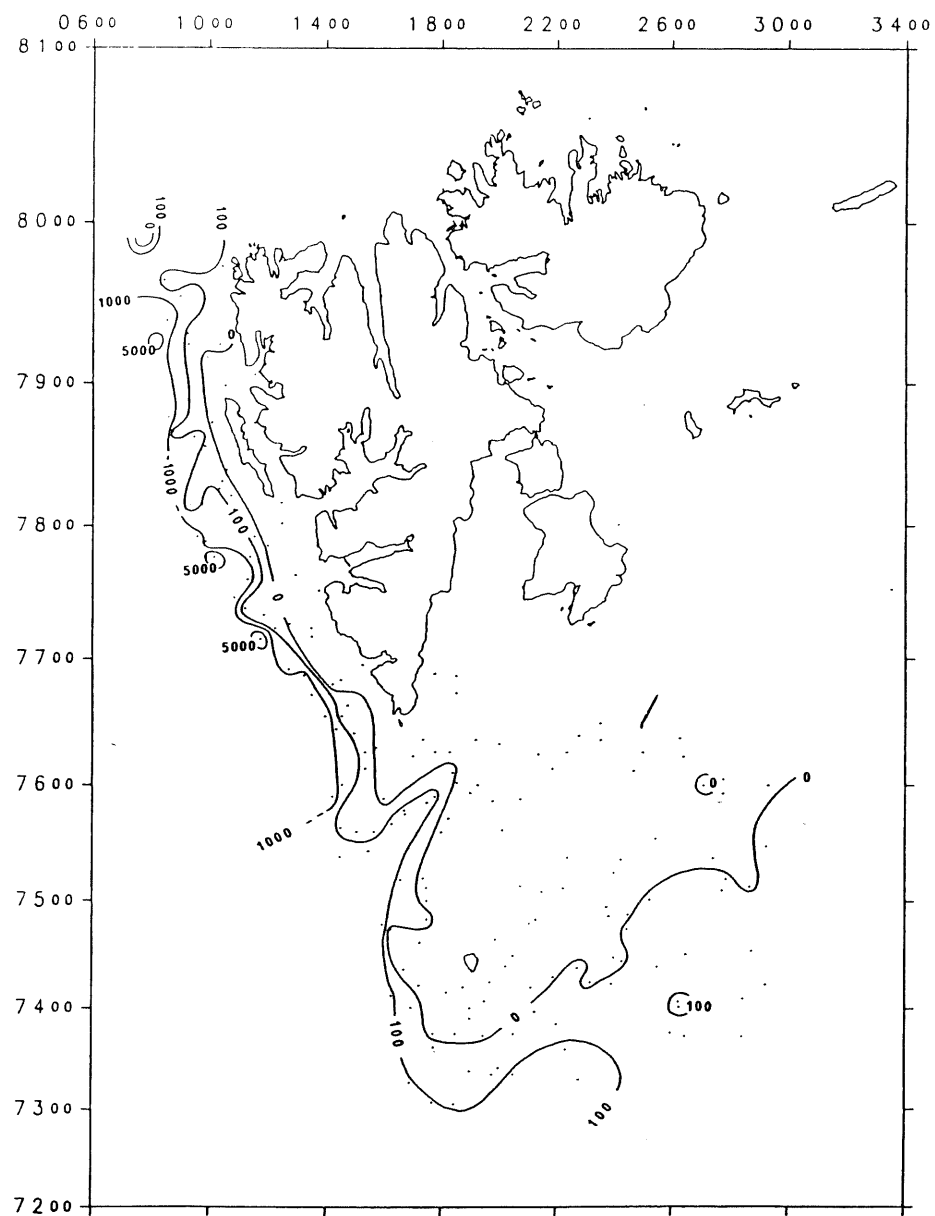


FIG: 8. DISTRIBUTION OF SEBASTES MENTELLA IN THE TRAWL CATCHES (NUMBER PER HOUR TRAWLING).

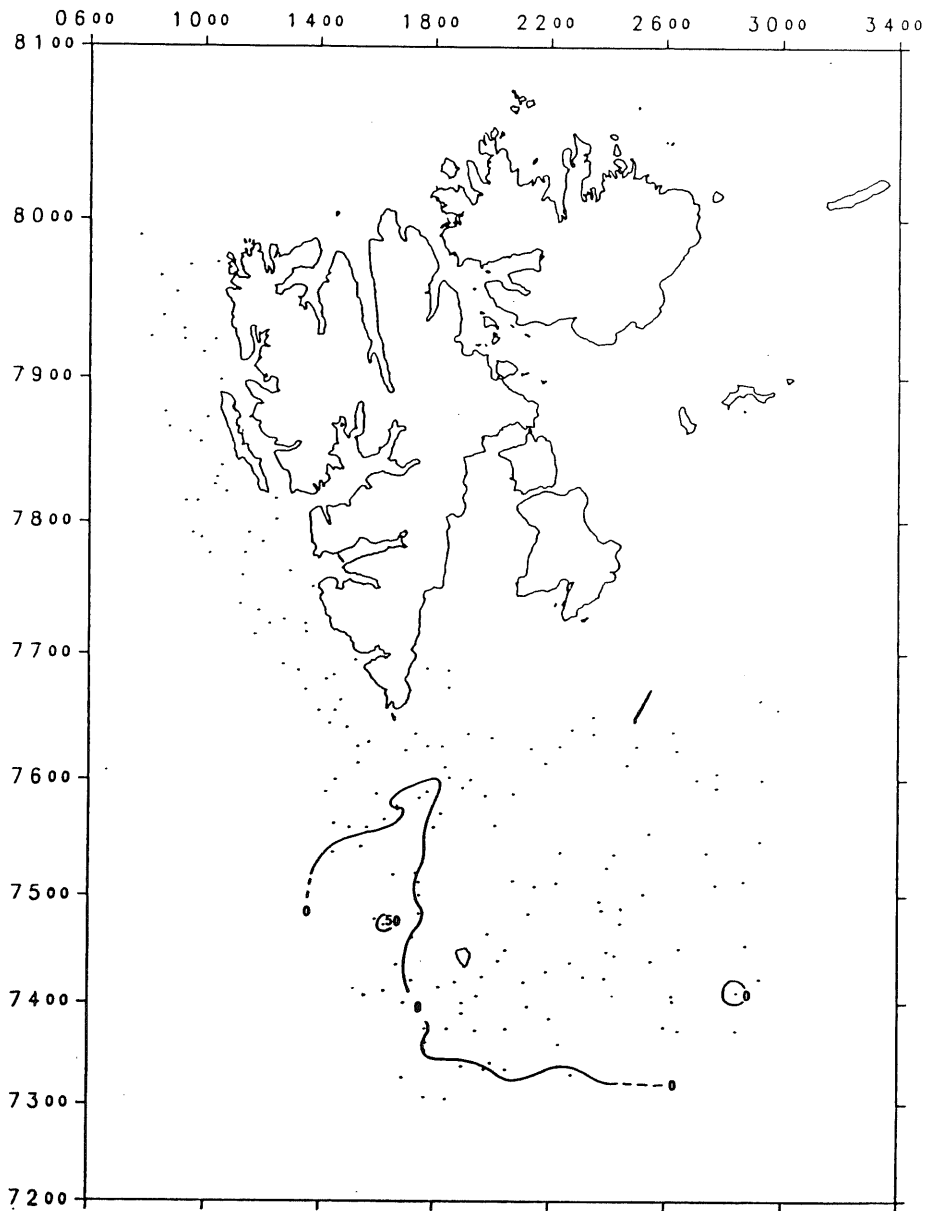


FIG: 9. DISTRIBUTION OF BLUE WHITING IN THE TRAWL CATCHES (NUMBER PER HOUR TRAWLING) .

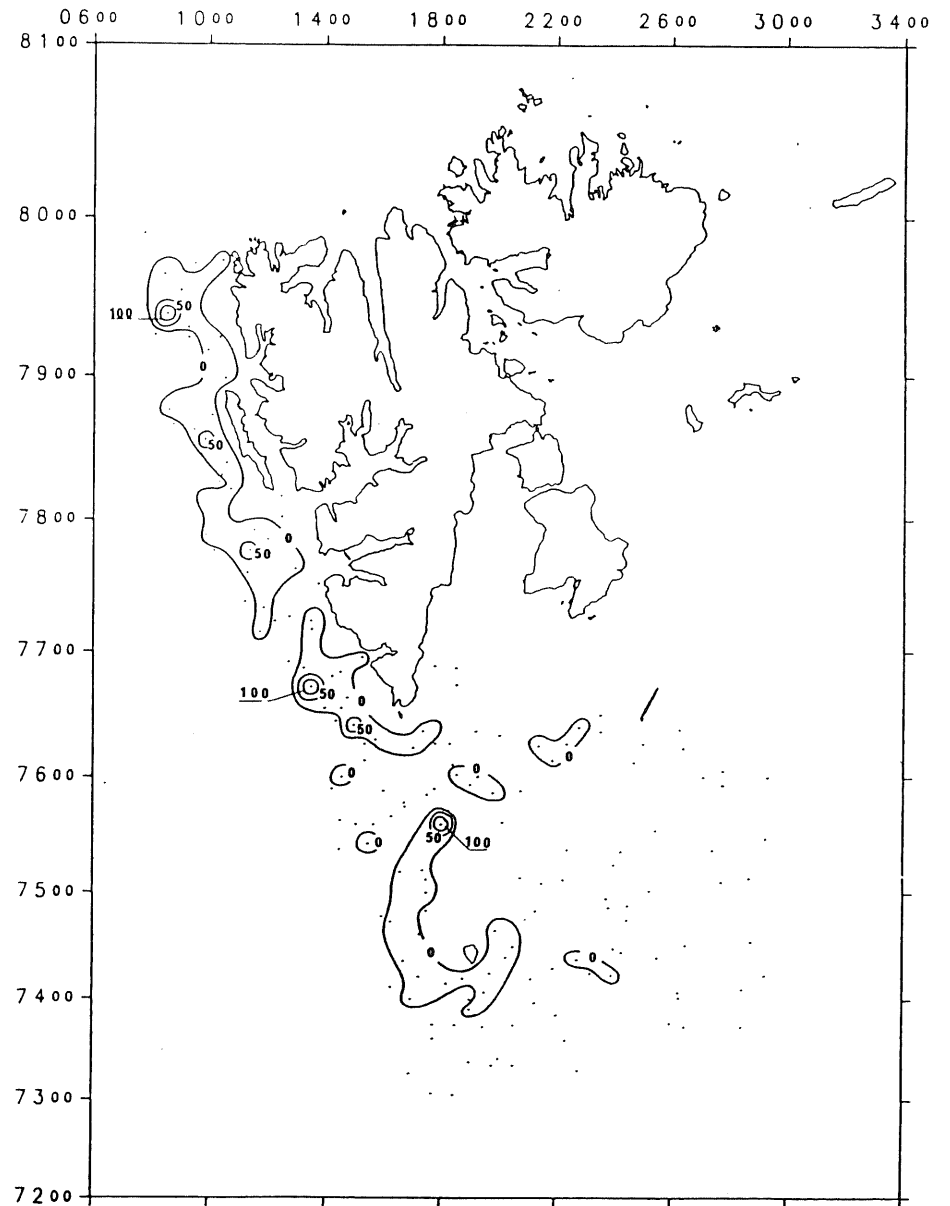


FIG: 10. DISTRIBUTION OF CATFISH IN THE TRAWL CATCHES (NUMBER PER HOUR TRAWLING) .

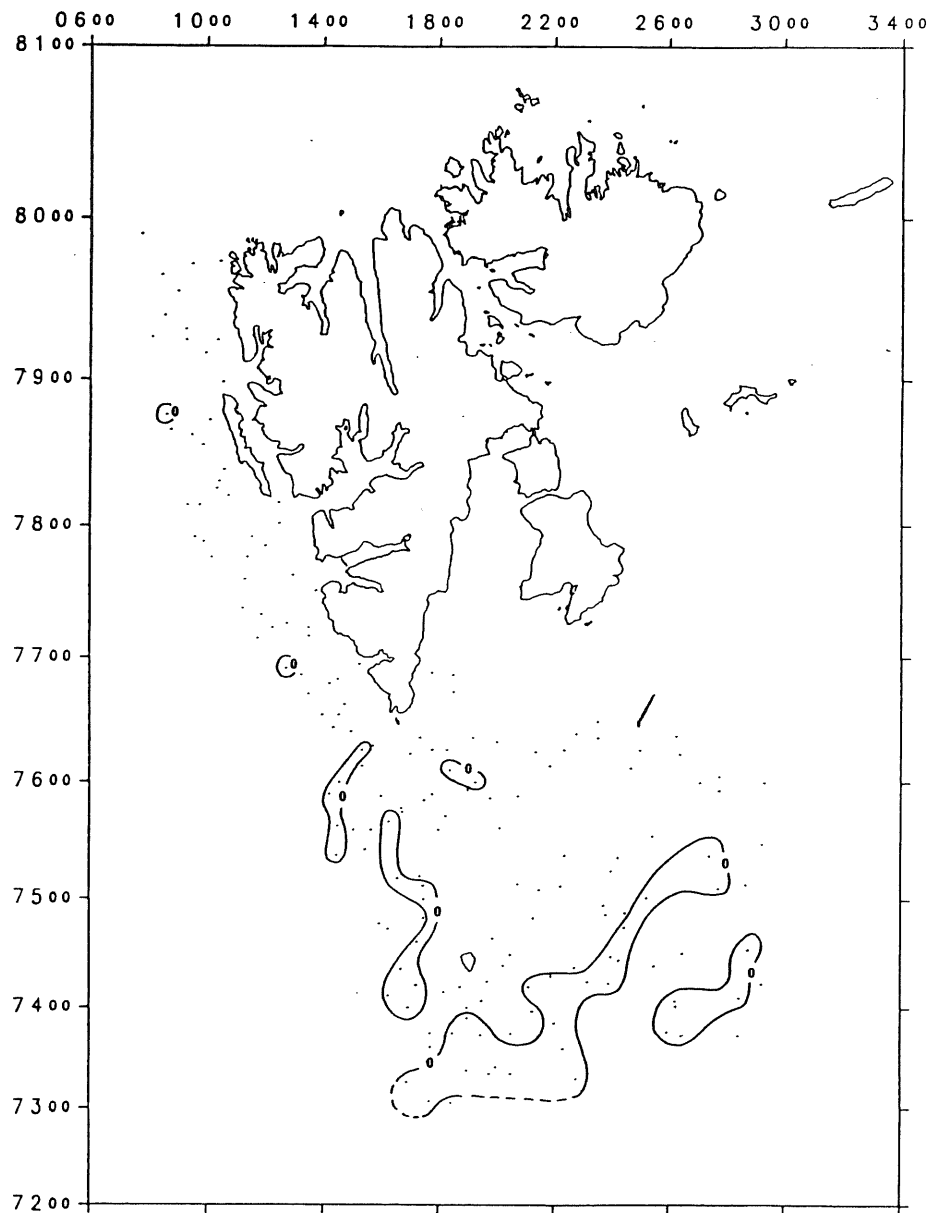


FIG: 11. DISTRIBUTION OF JELLY CAT IN THE TRAWL CATCHES (NUMBER PER HOUR TRAWLING).

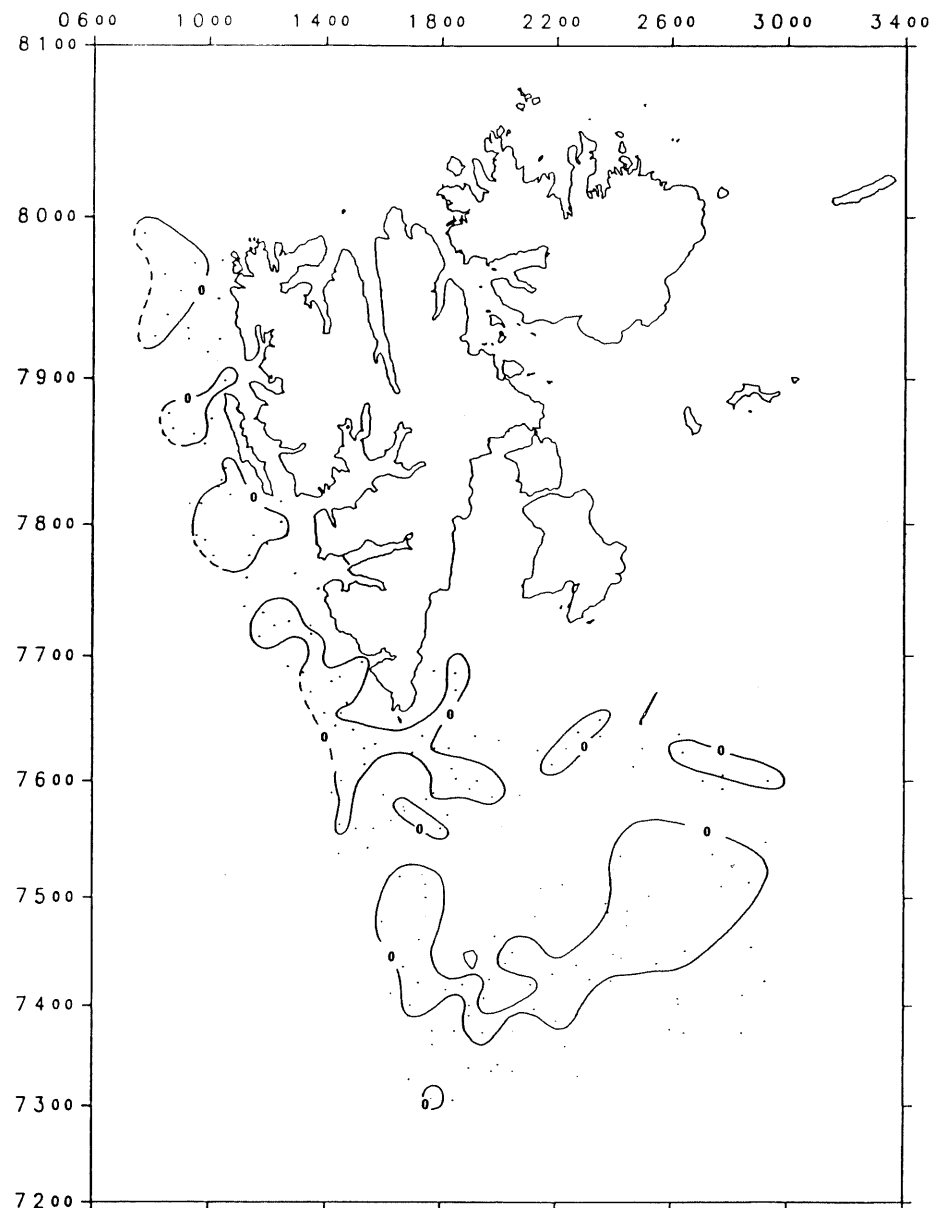


FIG: 12. DISTRIBUTION OF SMALLER CATFISH IN THE TRAWL CATCHES (NUMBER PER HOUR TRAWLING).

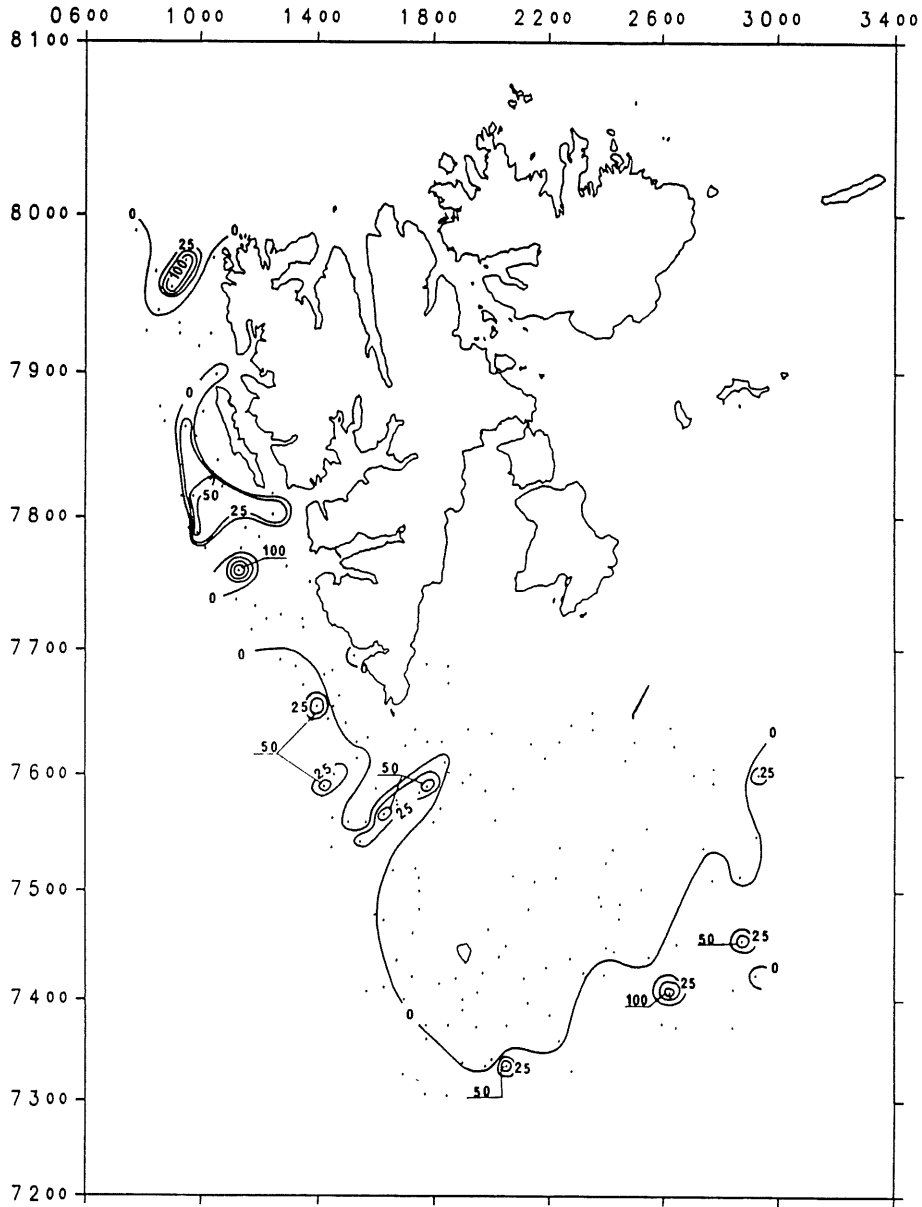


FIG: 13. DISTRIBUTION OF SHRIMPS IN THE TRAWL CATCHES  
(KILOS PER HOUR TRAWLING).