

INTERN TOKTRAPPORT

Fartøy: F/T "Anny Kræmer".
Avgang: Tromsø, 11. september 1989.
Ankomst: Tromsø, 14. oktober 1989.
Formål: Kartlegge mengde og utbredelse av bunnfisk og reker i området Svalbard - Bjørnøya. Trålforsøk.
Personell: Tor Ivar Halland og Harald Senneset, Per Ågotnes fra 22/9-89.

GJENNOMFØRING

Bunntoktsurveyet ble gjennomført med totalt 189 trålstasjoner, hvorav 181 stasjoner ble benyttet ved beregningene av totalmengder etc.

De siste dagene ble benyttet til trålforsøk nær Finnmarkskysten, i samarbeid med "Eldjarn". 25 forsøkshal ble utført.

Campelen 1800/96 standard prøvetakingstrål ble benyttet. I 1989 ble det brukt "rockhopper" gear, 40 m sveipelengde og tauetid på 30 minutter (1,5 n.mil). Dette skiller seg fra tidligere da en brukte bobbins, 80 m sveiper og en times hal. Årets resultat er altså ikke direkte sammenlignbart med tidligere beregninger. Derfor er det i tabellene vist en del omregnede indekser som er sammenlignbare med resten av tidsserien. Alle omregninger er basert på data fra trålforsøk. En rapport er under utarbeiding som vil presentere tidsserien med alle indekser omregnet til dagens standard trålutstyr.

Resultater fra trålforsøk blir presentert i egne rapporter.

RESULTAT

Resultatet fra bunntrålsurveyet er vist i følgende standard tabeller og figurer:

Table 1A. Stratified indices on numbers (thousands) for different depths and areas in 1989.

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	845	3940	1100	460	419	6770	39200	14800	3420	6920	3130	67400	74200
Haddock	478	1790	133	0	0	2400	1230	781	384	191	0	2590	5000
<u>S. Marinus</u>	2	1640	2090	442	137	4310	0	1340	3610	544	290	5780	10100
<u>S. Mentella</u> *)	0	87800	74600	18980	24700	206187	0	6170	116000	393000	199000	714451	920639
Greenland halibut	2	33	1590	2120	1820	5570	0	57	4690	12900	8680	26300	31900
Long rough dab	3070	024900	1480	5860	2440	51000	2070	161000	139000	68200	43800	414000	465000
Blue whiting	0	0	0	147	46	193	0	36	3120	4730	6280	14200	14400
Catfish	356	2870	1710	438	50	5420	897	1550	379	20	0	2850	8270
Smaller catfish	43	843	491	297	268	1940	182	1600	1150	436	153	3520	5460

*) Include unidentified *Sebastes* specimens.

Table 1B. Recalculated indices (numbers) to compare pre-1989 equipment standard (80-m sweeps and bobbins ground gear).

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	161	1290	890	586	534	3460	30300	13300	3130	6100	3800	56600	60100
Haddock	53	202	33	0	0	288	1560	369	203	86	0	2220	2510

Table 2A. Stratified indices on weight (thousands kg) for different depths and areas in 1989.

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	157	1680	2040	1540	1570	6990	38700	22900	7260	11100	8770	88800	95800
Haddock	7	104	21	0	0	132	1650	35	69	2	0	1750	1890
<u>S. Marinus</u>	+	180	263	252	100	795	0	125	1060	153	202	1540	2330
<u>S. Mentella</u> *)	0	837	1052	680	2570	5140	0	56	3504	64737	12100	22230	27400
Greenland halibut	5	20	580	542	771	1920	0	27	2210	5480	7400	15100	17000
Long rough dab	33	714	766	299	0	1810	711	7340	6190	4050	2940	21200	23000
Blue whiting	0	0	0	48	13	62	0	11	1040	1500	1630	4170	4240
Catfish	90	600	445	128	12	1270	328	654	205	25	0	1210	2490
Smaller catfish	64	1190	313	179	122	1870	870	6450	1210	281	689	9500	11400
Shrimps	0	11	444	1050	668	2170	0	0	2680	9630	9580	21900	24100

*) Include unidentified Sebastes specimens.

Table 2B. Recalculated indices (weight) to compare pre-1989 equipment standard (80m sweeps and bobbins ground gear)

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	135	1660	2440	1910	1950	8100	37700	25300	8830	13500	10700	96000	104000
Haddock	2	85	17	0	0	104	2120	37	82	1	0	2240	2340

Table 3. Stratified trawl indices on numbers (millions) for different ages of cod in 1989.

Depth	Age											
	0	1	2	3	4	5	6	7	8	9+	Total	
North of 76°N	0-100	0.4±0.5	0.2±0.1	0.1±0.0	0.1±0.0	+	+	+	+	0	0	0.8±0.6
	100-200	0.7±0.6	1.4±1.0	0.5±0.3	0.6±0.4	0.2±0.1	0.1±0.1	0.4±0.2	0.1±0.0	+	0	3.9±2.1
	200-300	+	0.2±0.2	0.1±0.1	0.1±0.1	+	+	0.4±0.2	0.1±0.1	+	+	1.1±0.4
	300-400	0	0	+	+	+	+	0.3±0.1	0.1±0.1	+	+	0.5±0.2
	>400	0	0	0	0	0	+	0.2±0.1	0.1±0.0	+	+	0.4±0.2
Total	1.1±0.8	1.9±1.0	0.7±0.3	0.9±0.5	0.2±0.1	0.2±0.1	1.3±0.3	0.4±0.1	0.1±0.0	+	+	6.8±2.2
South of 76°N	0-100	0.1±0.1	1.3±0.7	1.8±1.7	12.2±10.3	9.5±7.0	7.6±5.3	6.3±3.7	0.3±0.3	+	0	39.2±19.6
	100-200	0.8±1.0	0.3±0.2	0.2±0.1	2.3±1.3	2.7±1.3	2.9±1.5	4.9±3.8	0.5±0.3	0.1±0.0	+	14.8±6.8
	200-300	0.9±0.8	0.1±0.0	+	+	0.1±0.0	0.3±0.1	1.6±0.6	0.4±0.2	+	+	3.4±1.2
	300-400	1.9±1.9	0.1±0.1	+	0.1±0.0	0.2±0.1	0.5±0.2	3.1±1.6	1.0±0.6	0.1±0.0	+	6.9±4.0
	>400	0	0	0	+	0.1±0.0	0.4±0.2	2.0±0.7	0.5±0.2	0.1±0.1	+	3.1±1.0
Total	3.7±2.3	1.8±0.7	2.0±1.6	14.6±10.4	12.6±7.1	11.7±5.4	17.9±5.5	2.8±0.7	0.3±0.1	0.1±0.0	0.1±0.0	67.4±21.1
Total all areas	4.8±2.5	3.6±1.4	2.7±1.7	15.4±10.4	12.8±7.2	11.9±5.5	19.2±5.5	3.2±0.8	0.4±0.1	0.2±0.0	0.2±0.0	74.2±21.4

Table 4. Stratified trawl indices on numbers (millions) for different year-classes of cod in 1981 - 1989.

Year of inv.	Year-class																			
	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	Total
1981										0.1	22.2	9.0	5.5	1.3	6.1	3.8	0.7	0.4	0.4	49.8
1982									1.5	4.0	22.2	9.3	2.8	1.9	2.9	0.4	0.1	0.1		45.6
1983								14.6	5.1	6.2	9.5	3.0	2.5	1.3	1.6	0.4	0.2			44.4
1984						52.2	42.7	5.6	4.2	5.3	2.2	0.5	0.5	0.4	0.2					113.8
1985					27.0	133.1	74.3	27.9	6.5	7.7	1.4	1.4	0.1	0.3						279.7
1986				3.5	50.1	164.0	44.0	18.1	3.2	1.3	0.3	0.1								285.0
1987			3.3	26.2	67.0	94.7	18.1	6.5	0.6	0.1	0.1									215.0
1988			0.2	2.6	15.6	22.8	36.0	11.2	0.8	0.8	0.8	0.2								90.9
1989	4.7	3.6	2.7	15.4	12.8	11.9	19.2	3.2	0.4	0.2										74.2
*1989	0.3	0.5	0.9	8.6	10.6	12.3	23.1	4.0	0.4	0.2										60.1

*) Recalculated indices to compare old standard

Table 5. Stratified trawl indices on numbers (thousands) for different species in 1981 - 1989.

	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
	1989	68	6 770	2 400	4 370	206 187	5 570	51 000	193		5 420	1 940
	**)	1989	68	3 460	288							
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
	1989	113	67 400	2 590	5 780	714 451	26 300	414 000	14 200		2 850	3 520
	**)	1989	113	56 600	2 220							
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
	1989	181	74 200	5 000	10 100	920 639	31 900	465 000	14 400		8 270	5 460
	**)	1989	181	60 100	2 510							

*) Include unidentified *Sebastes* specimens.

***) Recalculated indices to compare old standard

Table 6. Stratified trawl indices on weight (thousands kg) for different species in 1981 - 1989.

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
	1989	6 990	132	795	5 140	1 920	4 140	62	-	1 270	1 870	2 170
**)	1989	8 100	104									
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
	1989	88 000	1 750	1 540	22 230	15 100	35 300	4 170	-	1 210	9 500	21 900
**)	1989	96 000	2 240									
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
	1989	95 800	1 890	2 330	27 400	17 000	39 400	4 240	-	2 490	11 400	24 100
**)	1989	104 000	2 340									

*) Include unidentified *Sebastes* specimens.

**) Recalculated indices to compare old standard

Tabel 7. Age distribution (percent) of cod.
 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.

AGE	A	B	C	D	E	F	G	H
0	1.3	7.8	19.4	25.7	0	16.4	5.4	6.4
1	3.7	9.4	6.3	1.2	0	27.6	2.6	4.9
2	4.7	3.6	3.1	+	0	10.0	3.0	3.7
3	30.7	15.8	3.6	0.8	0.1	12.9	21.7	20.8
4	23.9	15.4	1.9	2.3	2.0	2.8	18.7	17.3
5	19.0	16.2	7.7	7.5	11.0	2.6	17.4	16.0
6	15.8	28.3	42.7	46.1	64.4	19.7	26.5	25.9
7	0.9	3.1	12.8	14.7	17.7	6.5	4.1	4.3
8	+	0.3	1.5	1.3	3.3	1.1	0.4	0.5
9 +	0	0.1	1.0	0.4	1.5	0.4	0.2	0.2

Tabel 8. Age distribution (percent) of haddock.
 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.

AGE	A	B	C	D	E	F	G	H
0	22.9	70.6	45.7	80.7	0	67.7	37.5	52.1
1	2.1	14.0	10.9	19.3	0	10.8	8.9	9.8
2	4.3	12.6	33.1	0	0	19.0	4.4	11.4
3	1.4	0.4	0	0	0	0.4	0.9	0.6
4	1.1	0	0	0	0	0	0.8	0.4
5	19.4	0.6	2.6	0	0	0.5	13.5	7.2
6	44.2	1.7	7.1	0	0	1.5	30.9	16.8
7	4.6	0.1	0.6	0	0	0.1	3.1	1.7
8+	0	0	0	0	0	0	0	0

Tabel 9. Age 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.

AGE	A	B	C	D	E	F	G	H
1	0	0	5.5	4.4	0	8.4	2.1	3.2
2	0	33.5	16.1	15.0	2.1	18.5	9.4	11.0
3	0	5.4	20.7	28.5	15.4	32.9	20.4	22.6
4	0	14.9	29.8	25.3	26.8	24.8	27.1	26.7
5	0	23.8	18.9	17.0	27.1	10.2	22.9	20.7
6	0	10.5	6.0	6.3	12.7	2.3	9.6	8.3
7	0	11.9	2.1	2.9	10.4	1.1	6.1	5.2
8	50.0	0	0.7	0.5	3.6	1.4	1.6	1.6
9+	50.0	0	0.2	0.1	1.9	0.4	0.8	0.7

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	14.9	11.6	8.3	8.5	0.2	6.1	9.3	8.9
10-14	36.2	22.6	20.1	16.8	1.3	23.6	18.3	18.9
15-19	12.5	32.0	29.7	26.0	6.2	25.3	27.8	27.5
20-24	13.1	19.3	21.2	25.6	30.3	30.2	20.9	22.0
25-29	11.9	8.5	13.7	14.5	50.5	9.7	16.1	15.4
30-34	5.7	3.5	5.6	6.0	10.1	4.2	5.4	5.3
35-39	4.8	2.2	1.1	2.0	1.3	1.0	1.8	1.7
40-44	0.9	0.3	0.3	0.5	0.1	+	0.4	0.3
45-49	0	+	0	0	0	0	+	+

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	2.3	8.9	0	4.8	4.7
30-34	0	100.0	30.1	15.4	66.6	50.6	41.2	41.4
35-39	0	0	67.9	80.6	22.1	38.8	52.1	51.9
40-44	0	0	2.0	1.6	2.4	10.6	1.9	2.0

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	2.9	2.3	0	7.9	3.8	1.9	2.6
15-19	1.1	9.6	17.8	4.8	2.2	7.4	12.2	10.5
20-24	0	11.2	16.4	14.7	8.6	20.7	8.1	12.6
25-29	0	3.7	11.8	10.6	24.8	17.9	3.6	8.5
30-34	0	3.1	5.5	10.2	6.7	9.9	2.1	4.9
35-39	0	2.0	11.0	20.2	12.1	7.9	7.8	7.8
40-44	6.8	1.6	5.9	11.3	6.3	3.8	5.3	4.8
45-49	5.8	1.9	3.9	16.2	5.7	4.9	4.8	4.9
50-54	2.3	6.4	8.3	6.2	4.3	2.8	8.7	6.6
55-59	0	4.8	3.3	3.8	11.0	3.8	4.9	4.5
60-64	9.2	9.1	7.3	1.4	0	5.3	7.7	6.8
65-69	23.2	15.3	1.0	0.7	1.5	7.4	8.8	8.3
70-74	29.6	7.0	1.4	0	0	1.3	6.7	4.8
75-79	1.1	4.8	0	0	0	0.6	3.1	2.2
80-84	10.5	3.2	0.5	0	0	1.8	2.1	2.0
85-89	0	2.7	3.6	0	0	0.8	3.1	2.3
90-94	10.5	3.3	0	0	0	0.3	2.8	1.9
95-99	0	0.6	0	0	0	0	0.4	0.3
100-104	0	1.0	0	0	0	0	0.7	0.5
105-109	0	0.6	0	0	0	0	0.4	0.3
110-114	0	3.7	0	0	9.1	0	3.7	2.4
115-119	0	1.1	0	0	0	0	0.8	0.5

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	0.1	0	0	0	0.1	0	0.1
10-14	1.1	15.2	7.6	1.1	0	13.7	3.8	10.3
15-19	16.1	18.3	10.9	11.2	0	16.2	14.5	15.6
20-24	26.4	23.8	30.5	37.0	19.9	27.8	24.4	26.6
25-29	20.5	15.3	19.2	19.6	19.9	16.8	18.5	17.4
30-34	18.1	10.4	12.7	7.3	41.8	10.8	14.7	12.2
35-39	6.8	7.0	9.1	8.9	18.3	6.7	9.5	7.7
40-44	2.1	3.5	3.0	3.4	0	3.7	2.0	3.1
45-49	1.5	1.7	2.6	1.1	0	1.8	1.9	1.9
50-54	3.6	1.2	2.0	4.4	0	1.1	3.4	1.9
55-59	1.9	0.9	0.7	3.6	0	0.6	2.0	1.1
60-64	1.9	1.3	0.6	2.5	0	0.2	3.2	1.2
65-69	0	1.0	0.7	0	0	0.4	1.2	0.7
70-74	0	0.2	0	0	0	0.1	0.4	0.1
75-79	0	0	0.6	0	0	0.1	0.4	0.1

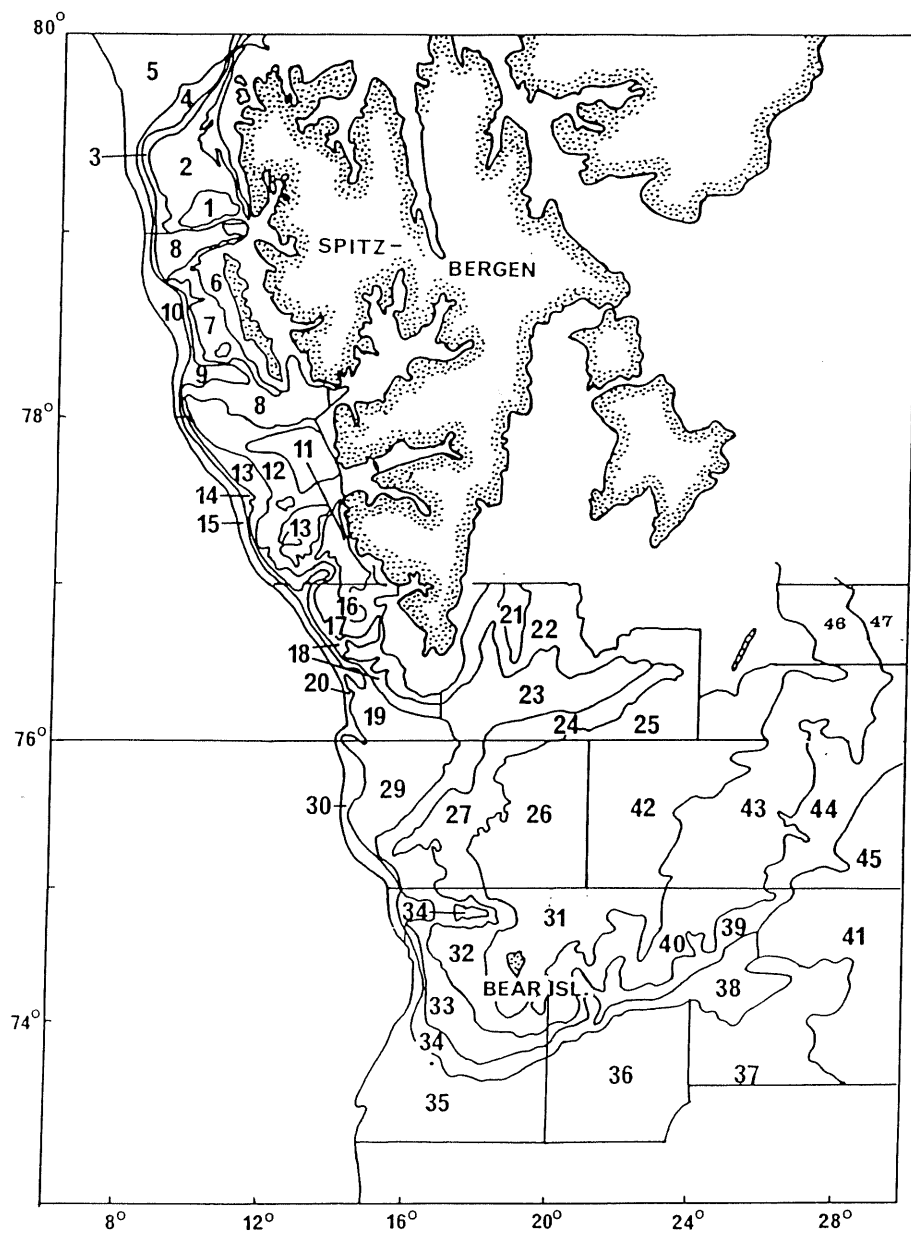


FIG. 1. THE AREA OF INVESTIGATION WITH THE DIFFERENT STRATA.

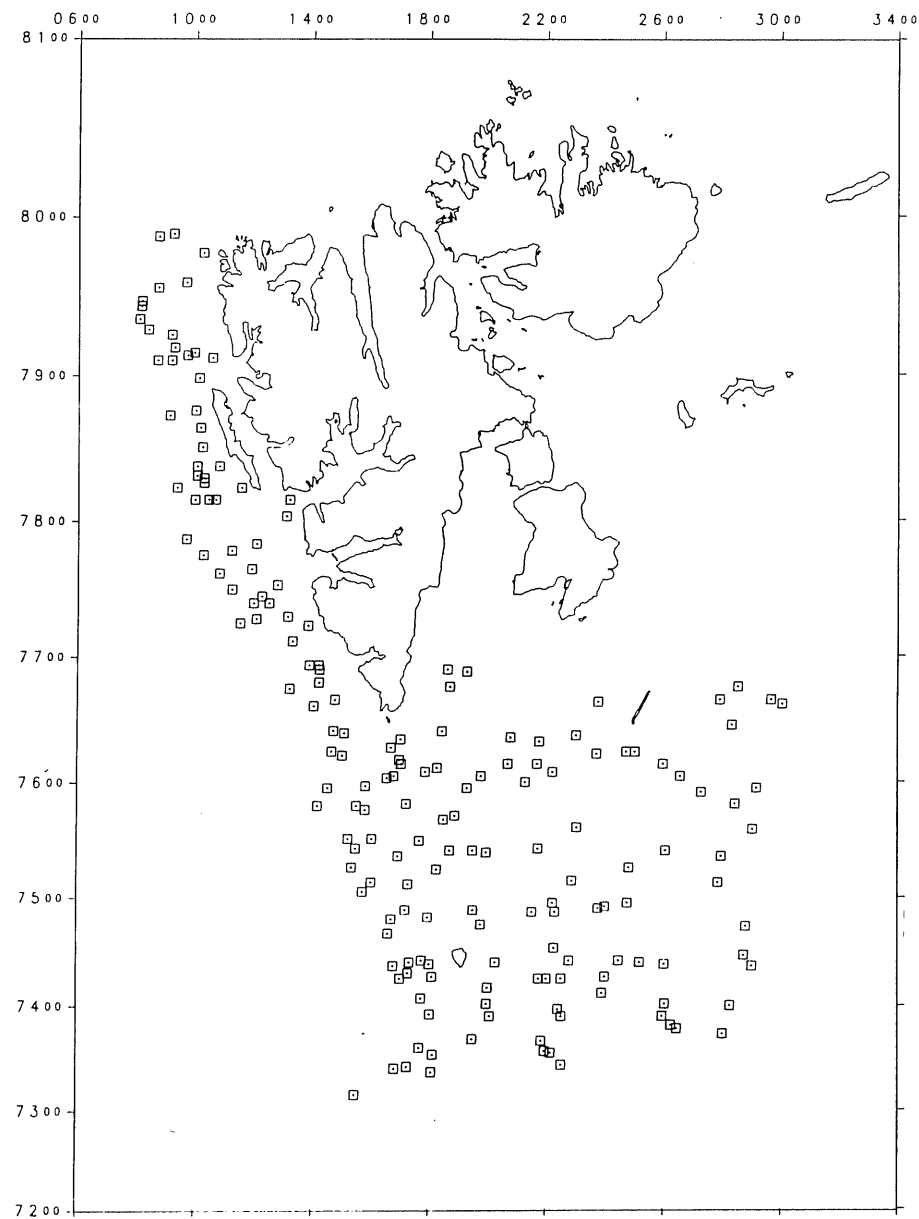


Fig. 2. Bottom trawl-stations (181) taken by F/T "ANNY KREMER" 13.09. - 05.10. 1989.

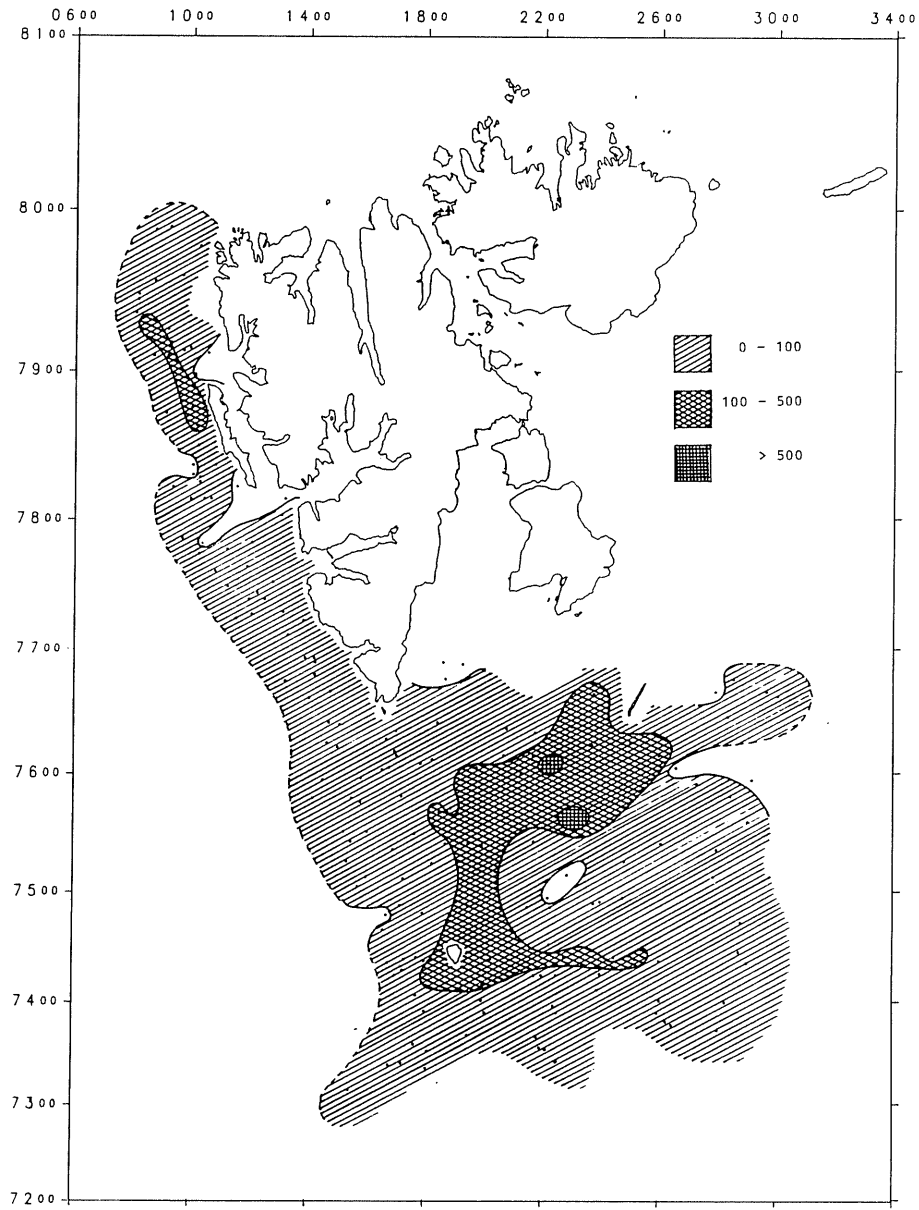


Fig: 3. Distribution of COD in the trawl catches (number per hour trawling).

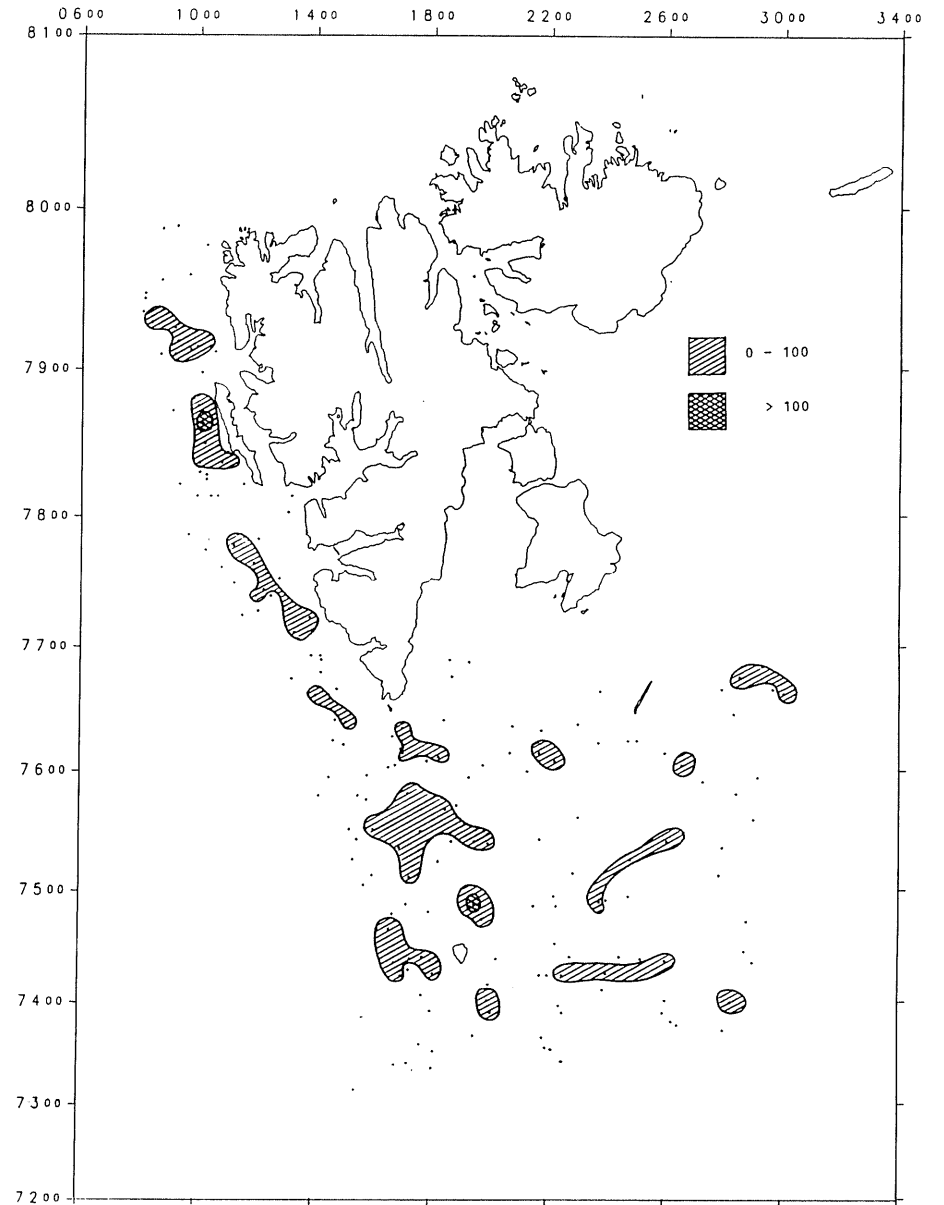


Fig: 4. Distribution of HADDOCK in the trawl catches (number per hour trawling).

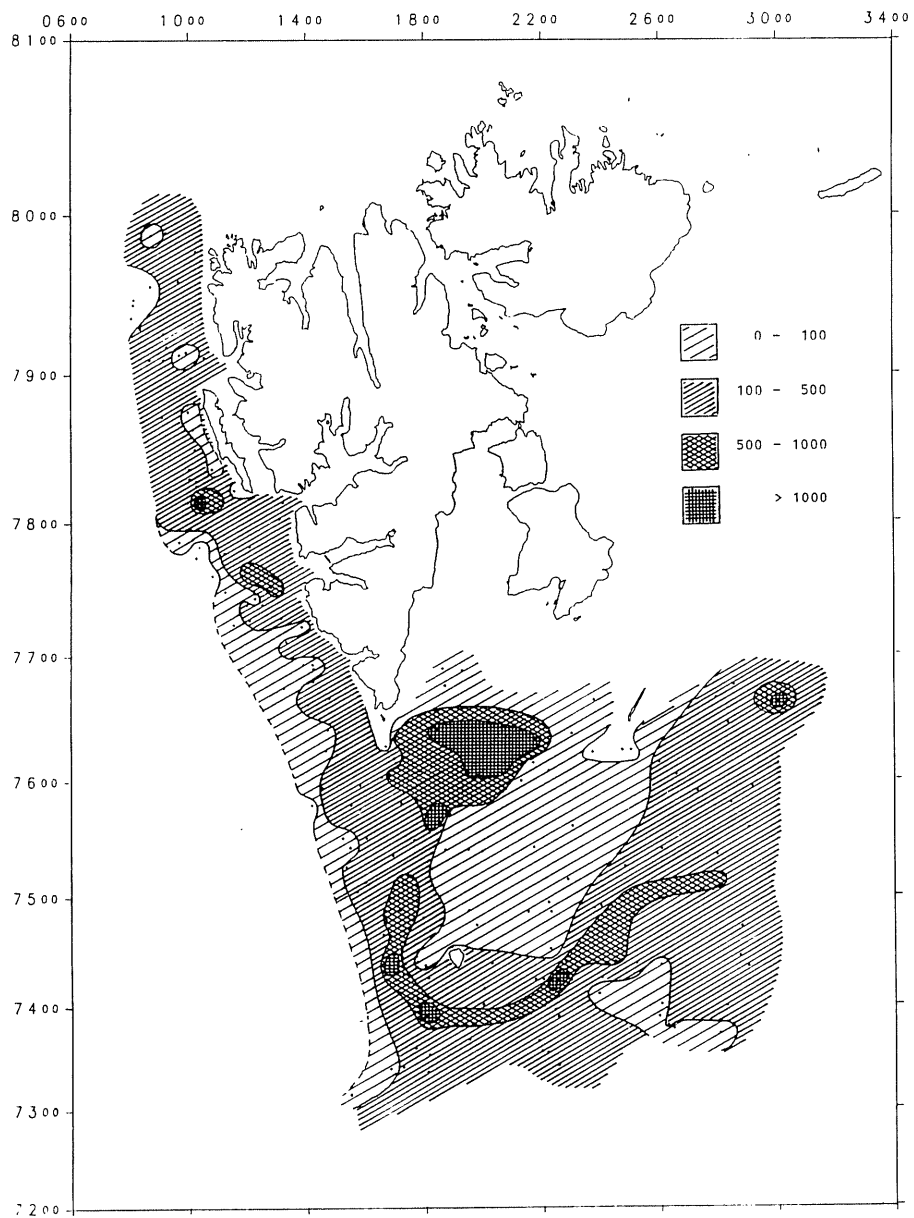


Fig: 5. Distribution of LONG ROUGH DAB in the trawl catches (number per hour trawling).

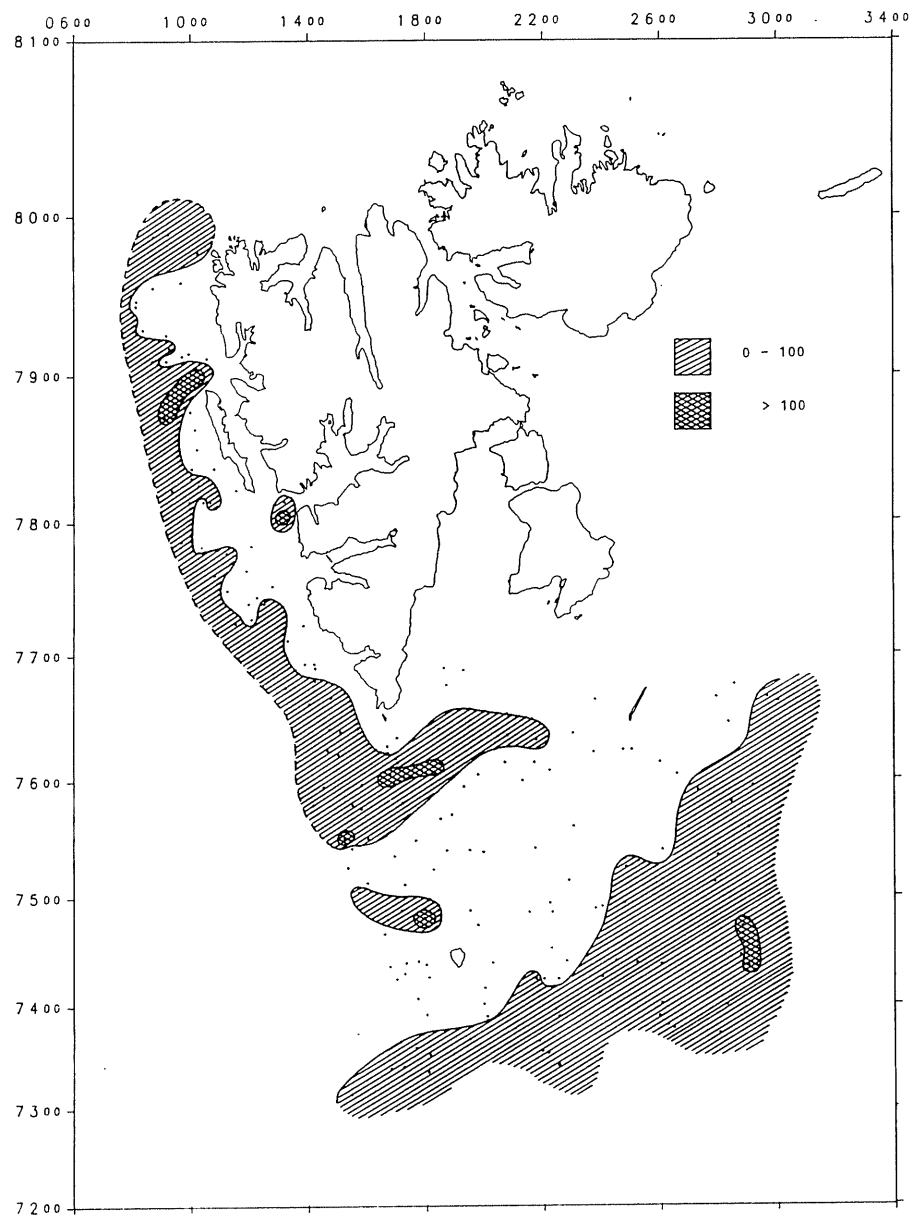


Fig: 6. Distribution of GREENLAND HALIBUT in the trawl catches (number per hour trawling).

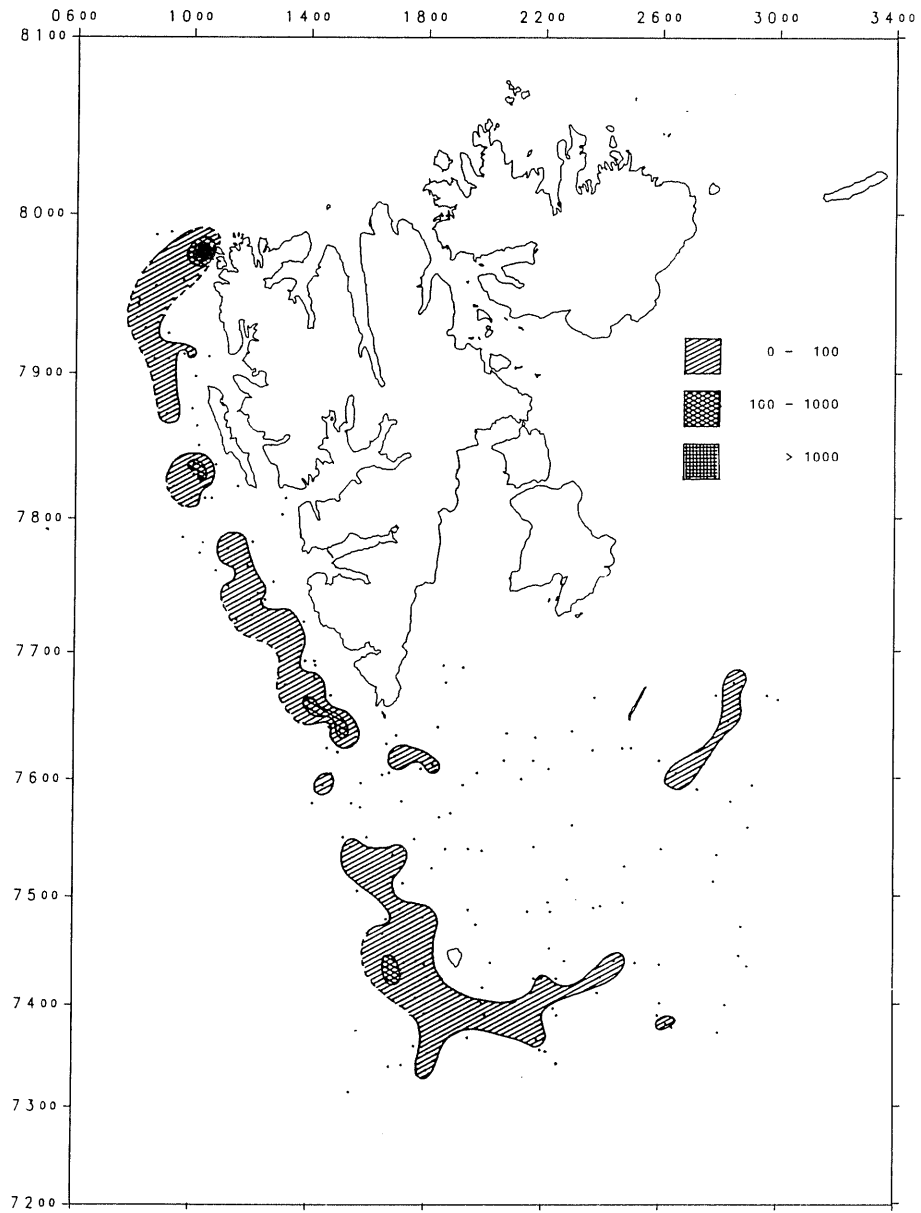


Fig: 7. Distribution of SEBASTES MARINUS in the trawl catches (number per hour trawling).

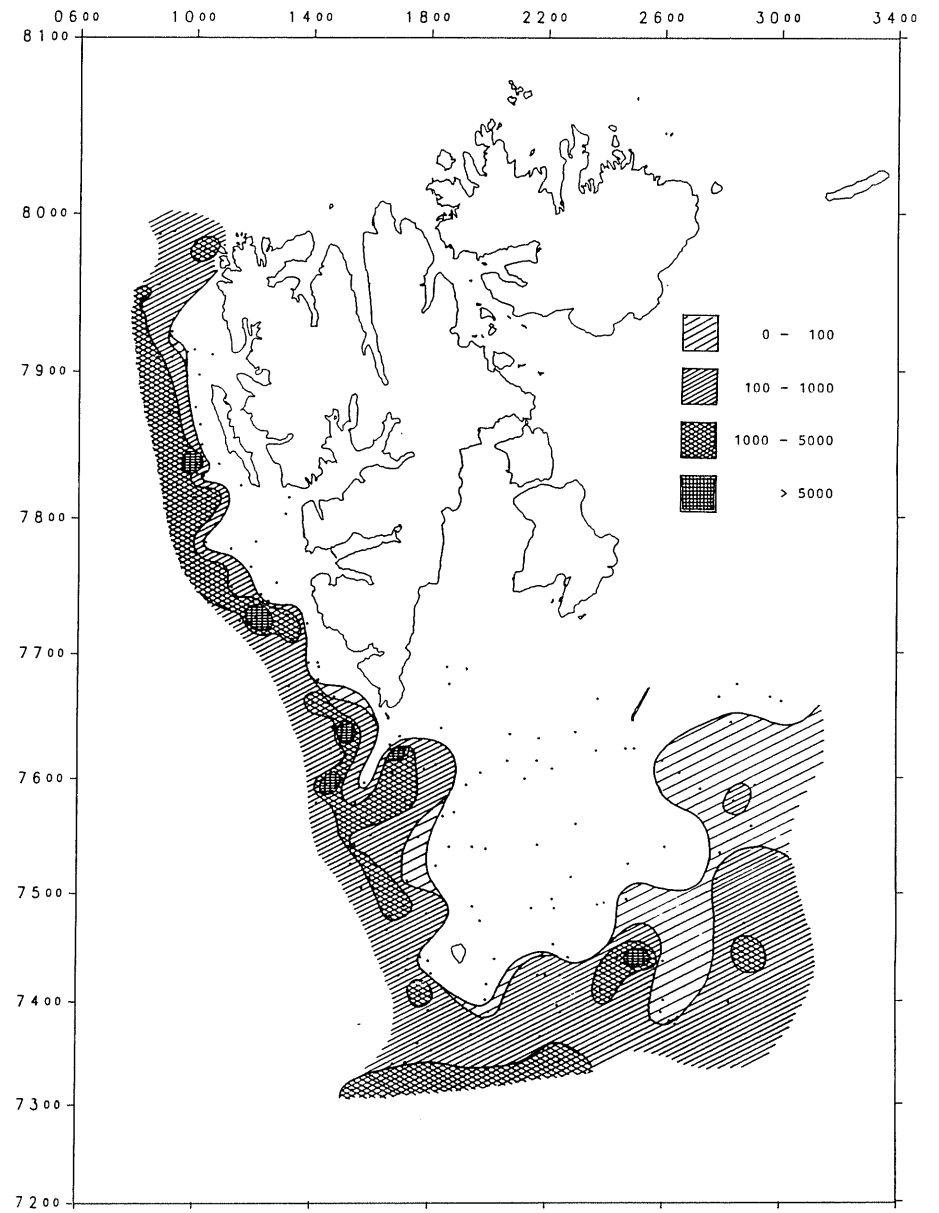


Fig: 8. Distribution of SEBASTES MENTECLA (include considerable quantities of Sebastes species) in the trawl catches (number per hour trawling).

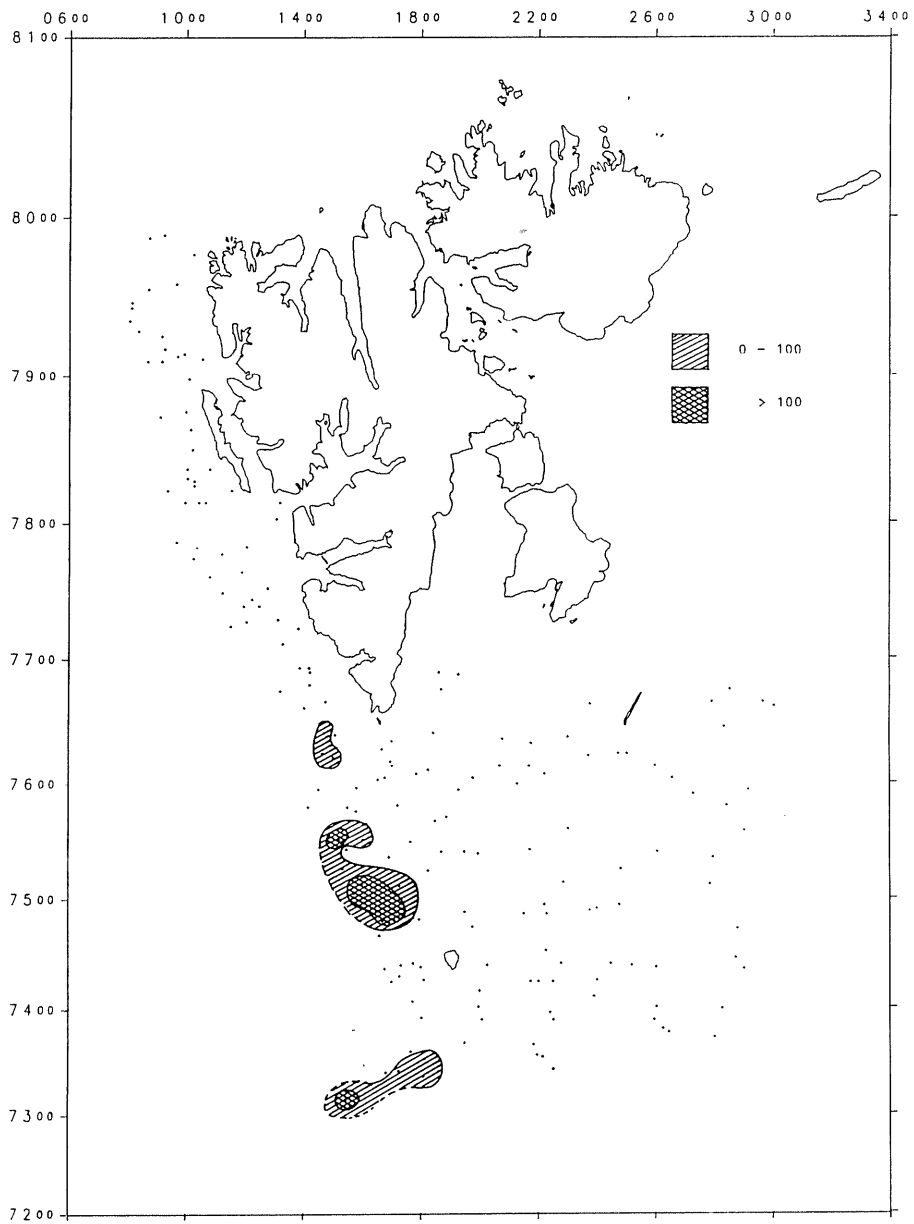


Fig: 9. Distribution of BLUE WHITING in the trawl catches (number per hour trawling).

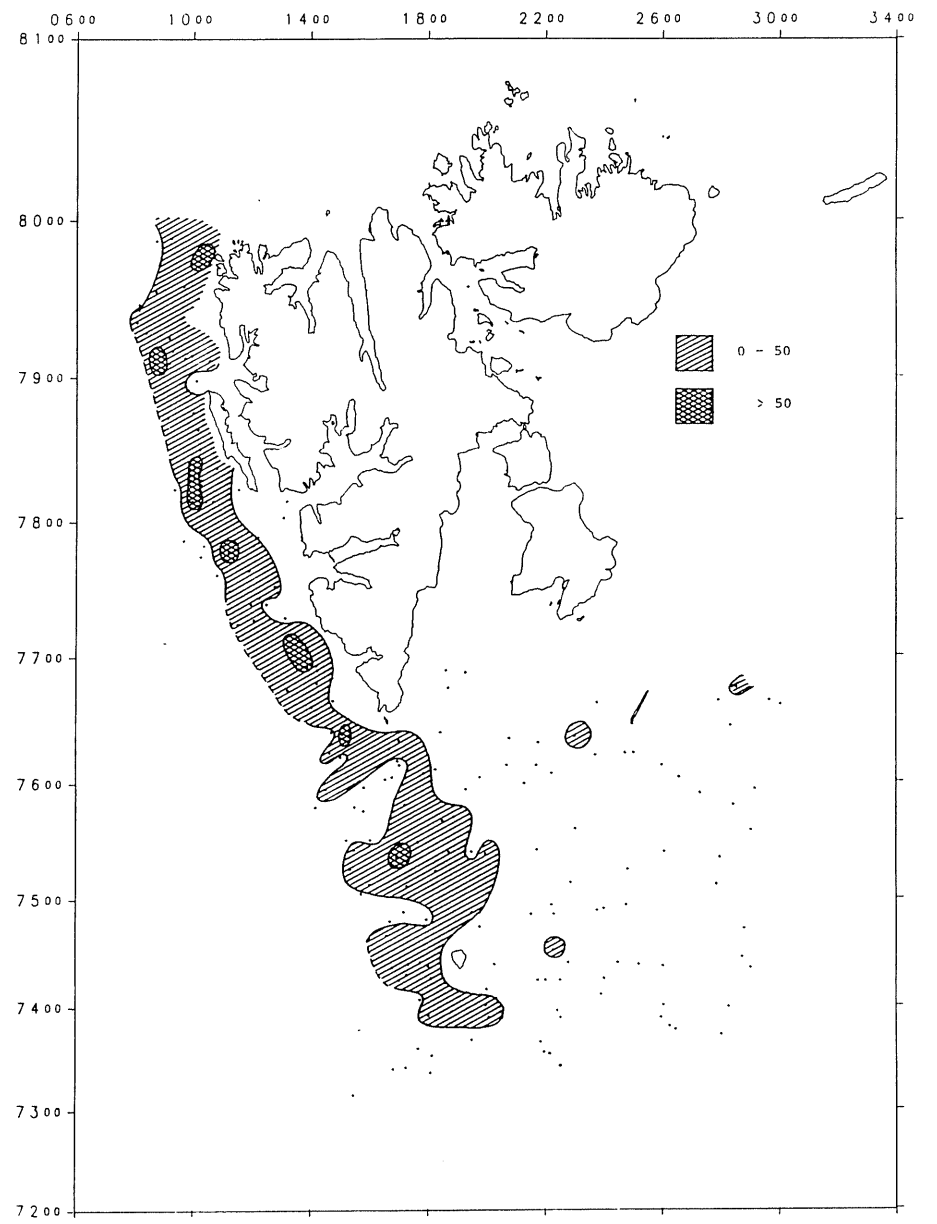


Fig.10. Distribution of CATFISH in the trawl catches (number per hour trawling).

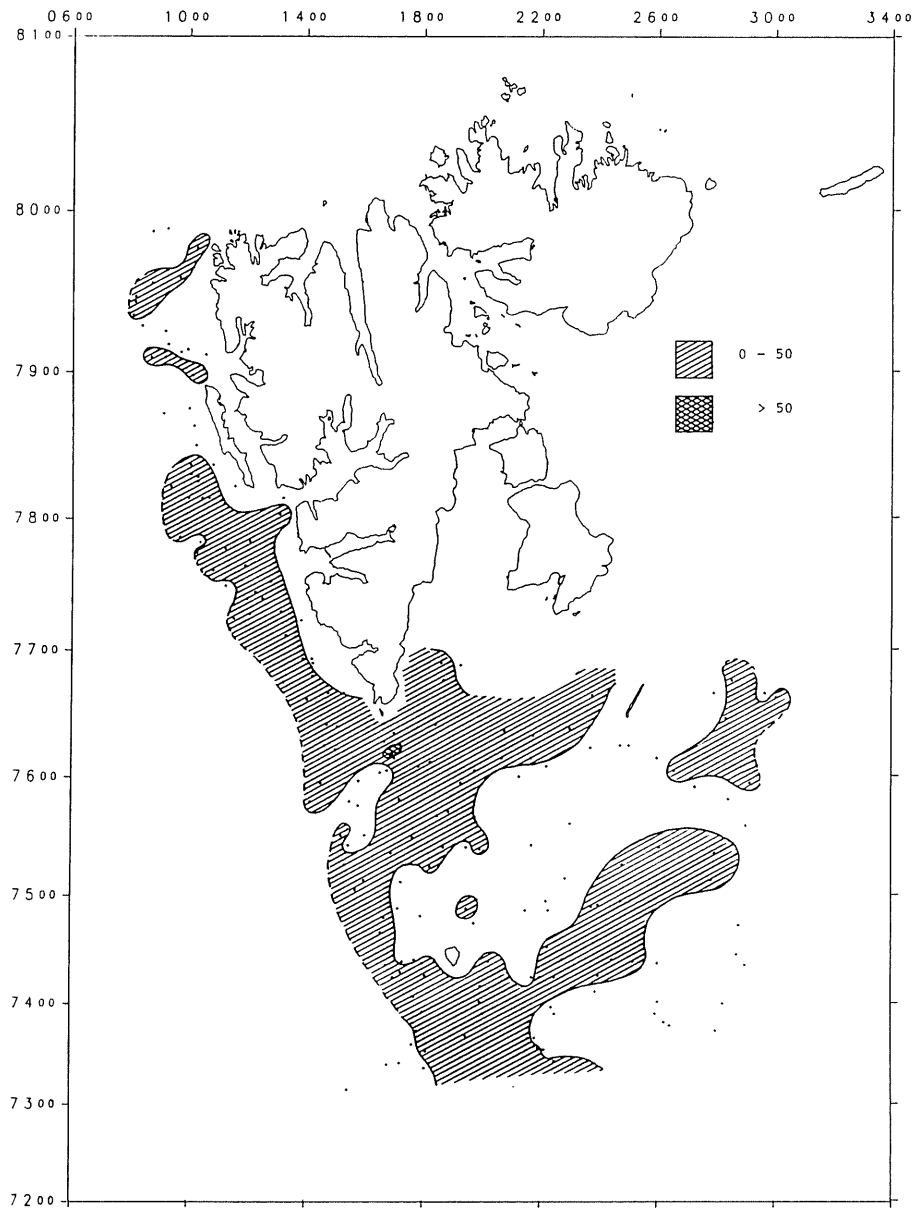


Fig:11. Distribution of SMALLER CATFISH in the trawl catches (number per hour trawling).

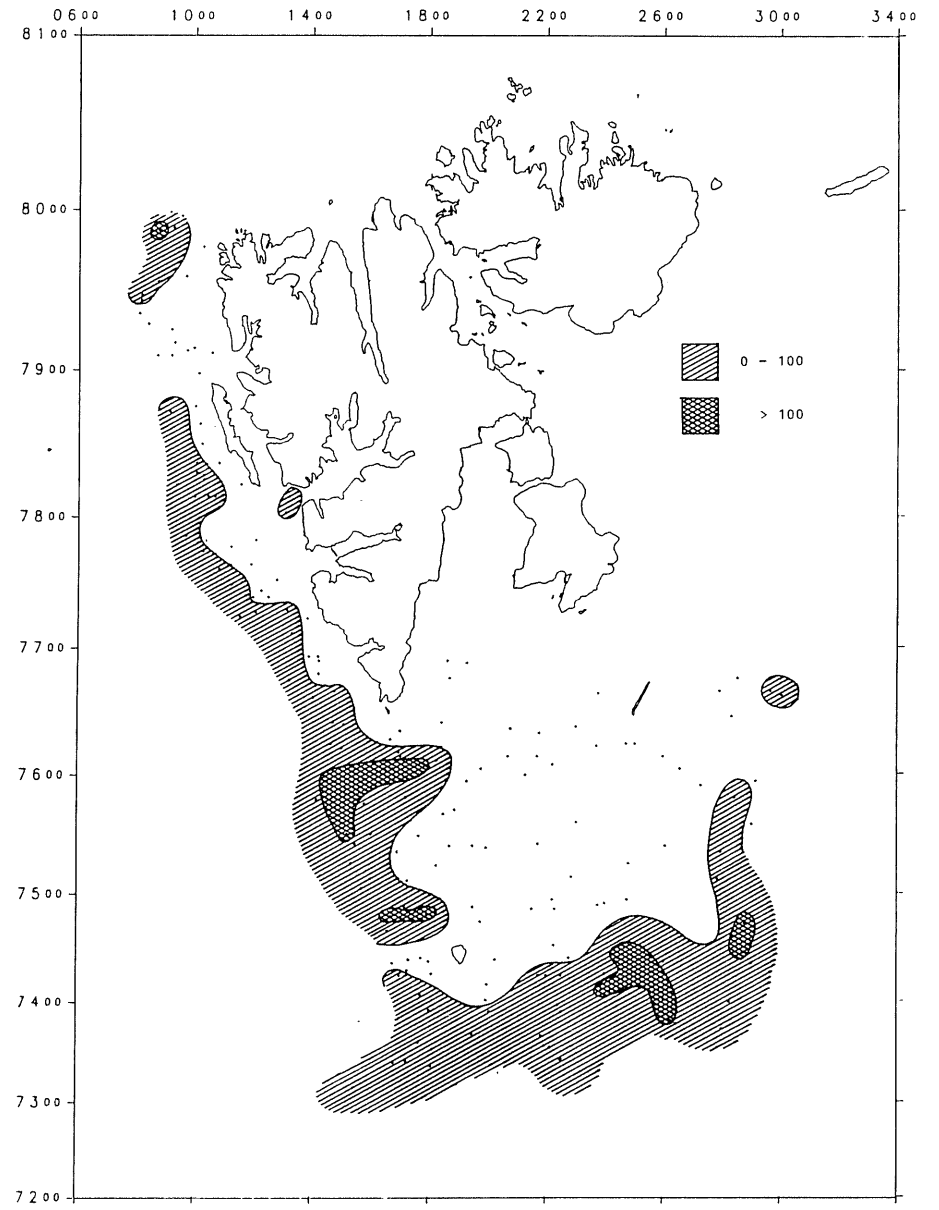


Fig:12. Distribution of SHRIMPS in the trawl catches (kilos per hour trawling).