

INTERNATIONAL COUNCIL FOR THE
EXPLORATION OF THE SEA.

C.M. 1973/F : 35.
Demersal Fish (Northern) Committee.



REPORT ON THE I- AND II- GROUP COD, HADDOCK AND WHITING,
CAUGHT DURING THE INTERNATIONAL YOUNG HERRING SURVEY 1973.

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During the meeting of the North Sea Roundfish Working Group in March 1973 in Aberdeen it was concluded that the internationally coördinated trawling surveys in the North Sea, which are carried out yearly primarily in order to estimate abundance of juvenile herring, could also provide valuable information for young roundfish, according to the results of the 1972 survey, which were presented to last years Annual meeting (ANON, 1972). However, in view of the amount of time involved for the analysis of the data it was decided that countries should provide their data on standarised forms and that Dr. O. Bagge, Dr. J. Hislop and Mr. N. Daan would combine the results on cod, whiting and haddock respectively and carry out the final analysis (ANON, 1973). This report is the result of these activities.

Table 1A through 1H present the numbers per hour fishing of I-group, II-group and older cod, haddock and whiting caught in individual hauls by the different participating ships and these data have been combined in fig 1-6 in order to present the geographical distribution of the catches on a statistical rectangle basis. In addition table 2 summarises the length at age data, to which end statistical rectangles have been grouped to form greater geographical units, as was agreed upon during the meeting (ANON, 1973). General information on the survey can be found in the report by CORTEN & KUITER (1973).

Although it is not intended here to comment on the results in greater detail, some preliminary statements can be made about the yearclassstrength of the roundfish by comparison with the results obtained in former years (ANON, 1972).

Cod yearclass 1972 appeared to be extremely abundant all along the continental coast, the numbers being comparable to the very good 1969 yearclass. Smaller concentrations were found to the west and north of the Doggerbank, whereas in Scottish waters young cod were extremely scarce. The low abundance of yearclass 1971 in the southeastern part of the North Sea agrees with the observation of this yearclass as one year olds. In the northwestern part this agegroup was much better represented.

Haddock yearclass 1972 was caught in much smaller numbers and in a smaller area than yearclass 1971, its strength possibly being comparable to the 1968 and 1969 yearclasses.

For whiting only one more years survey is available for comparison (1972), which reveals that yearclass 1972 appears to be much better throughout the North Sea than yearclass 1971. Exceptionally large numbers were caught in Scottish waters, but the German bight yielded also large catches.

The coverage of the North Sea in 1973 can be stated to have been very good for the purpose of estimating abundance of young roundfish although the need should be stressed for extension of the survey in northerly direction, which is especially

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important for haddock because its nurseries lay partly well outside the area covered by the survey. Most countries have taken otolith samples of roundfish so far in order to establish length-age keys, and the information available seems good enough to make a split also for data of those countries, which do not take otolith samples. However, from the Skagerak area no age length data are available and therefore no reliable split according to yearclasses can be made in this area.

IJmuiden 1973.

REFERENCES.

ANON., 1972.

Preliminary compilation of the data on cod, haddock and whiting caught during the International Young Herring Survey 1972.

I.C.E.S. C.M. 1972 / F : 19 (mimeo).

ANON., 1973.

Report of the Roundfish Working Group 1973.

I.C.E.S. C.M. 1973 / F : (mimeo).

CORTEN, A.A.H.M. &
C.J. KUITER, 1973.

Report on the international trawling survey for immature herring in the North Sea in 1973.

I.C.E.S. C.M. 1973 / H : 6 (mimeo).

Table 1a

COUNTRY: ENGLAND SHIP: R.V. "Cirolana"							YEAR: 1973			IYHS					
Summary catches of Cod, Haddock and Whiting yearclasses in numbers per hour fishing															
AREA	DATE	STATION	statist. rectangle	DEPTH m.	time shot	POSITION	COD			HADDOCK			WHITING		
							I 1972	II 1971	older	I 1972	II 1971	older	I 1972	II 1971	older
GH	13-2	4	G/04	53		52° 43' N 2° 27' E	-	-	32	-	-	-	-	6	7
52-	14-2	5	G/03	51		52° 25' N 2° 31' E	-	-	2	-	-	-	-	-	-
30	15-2	6	H/03	32		52° 29' N 3° 40' E	1	-	22	-	-	-	6	34	25
	15-2	7	H/04	33		52° 42' N 3° 35' E	1	-	26	-	-	-	8	407	273
EF	9-2	1	E/06	45		53° 55' N 0° 33' E	2	1	9	-	-	1	48	166	23
53-	11-2	3	F/06	34		53° 47' N 1° 31' E	1	-	3	-	-	-	3	81	16
30	22-2	22	E/06	51		53° 55' N 0° 53' E	1	-	3	-	-	-	301	148	7
CD	21-2	18	D/08	67		54° 45' N 0° 30' W	5	5	34	-	238	307	1025	1211	46
54-	23-2	23	C/08	59		54° 53' N 1° 07' W	-	-	-	-	-	-	5022	721	8
30	24-2	26	C/08	53		54° 52' N 1° 10' W	39	7	12	-	-	-	784	81	1
EF	21-2	19	E/08	80		54° 44' N 0° 28' E	8	5	6	-	13	8	51	538	25
54-	21-2	20	E/08	83		54° 48' N 0° 39' E	15	14	22	-	3	2	312	2929	70
30	22-2	21	E/07	66		54° 13' N 0° 31' E	1	1	2	-	-	-	35	141	3
LM	16-2	9	L/09	43		55° 15' N 6° 29' E	18	8	52	-	-	1	526	19	8
55-	16-2	10	L/10	43		55° 42' N 6° 28' E	2	-	7	-	-	-	633	78	23
30															
LM	16-2	11	L/11	46		56° 03' N 6° 24' E	2	2	20	-	-	5	-	-	-
56-															
30															
EF	19-2	12	F/13	101		57° 18' N 1° 29' E	12	-	-	120	462	114	11	84	11
57-	19-2	13	F/14	95		57° 42' N 1° 30' E	2	1	-	16	29	6	-	-	-
30	19-2	14	F/14	95		57° 33' N 1° 05' E	-	-	2	-	81	36	-	20	11
	20-2	15	E/14	115		57° 44' N 0° 28' E	1	2	19	783	1234	193	410	286	21
	20-2	16	E/13	93		57° 15' N 0° 30' E	1	1	11	2078	11486	2539	330	345	75
	20-2	17	E/13	87		57° 06' N 0° 13' E	-	-	-	82	1645	149	1372	46	2

Table 1b

COUNTRY: DENMARK
SHIP: "Dana"

YEAR: 1973

IYHS

Summary catches of Cod, Haddock and Whiting yearclasses in numbers per hour fishing.

AREA	DATE	STATION	statist. rectangle	DEPTH m.	time shot	POSITION	COD			HADDOCK			WHITING		
							I 1972	II 1971	older	I 1972	II 1971	older	I 1972	II 1971	older
EF	14-2	16100	F 7	60	1100	54° 26' N 01° 22' E	2	6	12	-	-	-	3771	28729	-
54- 30	14-2	16101	F 8	50	1545	54° 52' N 01° 10' E	557	177	166	-	94	896	2594	12874	1158
LM	22-2	16141	L 8	42	0904	54° 46' N 06° 36' E	4	-	2	-	-	-	1584	20	-
54- 30	22-2	16143	M 8	26	1356	54° 57' N 07° 26' E	294	-	-	-	-	-	10910	-	-
	22-2	16143	M 8	26	1510	54° 57' N 07° 26' E	496	-	2	-	-	-	9440	30	-
JK	11-2	16089	K 10	50	1443	55° 50' N 05° 46' E	4	-	-	-	-	-	332	6	-
55- 30	13-2	16091	K 9	47	1202	55° 24' N 05° 21' E	52	10	2	-	-	6	340	10	-
	13-2	16092	J 9	49	1606	55° 19' N 04° 48' E	64	6	2	-	-	6	722	60	2
	20-2	16136	J 10	50	1140	55° 53' N 04° 15' E	26	4	-	-	-	-	214	108	6
LM	21-2	16139	M 10	19	1330	55° 45' N 07° 38' E	108	-	4	-	-	-	40	2	-
55- 30	23-2	16145	M 9	26	0805	55° 21' N 07° 30' E	280	-	6	-	-	-	1660	14	-
LM	9-2	16083	M 12	29	0840	56° 57' N 07° 31' E	520	20	28	-	4	34	170	28	10
56- 30	9-2	16085	L 12	35	1336	56° 34' N 06° 53' E	102	20	18	-	6	14	472	150	40
	10-2	16086	M 11	34	0728	56° 24' N 07° 08' E	514	38	34	-	-	-	2484	192	132
	10-2	16087	L 11	42	1134	56° 14' N 06° 34' E	76	4	10	-	8	-	438	8	-
	21-2	16137	M 11	34	0745	56° 24' N 07° 08' E	264	38	24	-	-	2	748	300	174
GH	15-2	16112	H 13	65	1605	57° 13' N 03° 33' E	26	-	-	-	42	4	74	8	-
57- 30	16-2	16113	H 14	65	0755	57° 40' N 03° 08' E	152	10	4	2	22	8	2613	19	-
	16-2	16114	G 14	80	1110	57° 41' N 02° 35' E	12	4	4	140	570	-	252	-	-
	16-2	16115	G 13	85	1430	57° 20' N 02° 21' E	200	224	42	-	7722	754	7345	2423	74

GEAR specifications: -----

notes:

Table 1c

COUNTRY: THE NETHERLANDS SHIP: "Iridans"							YEAR: 1973			IYHS					
Summary catches of Cod, Haddock and Whiting yearclasses in numbers per hour fishing.															
AREA	DATE	STATION	statist. rectangle	DEPTH m.	time shot	POSITION	COD			HADDOCK			WHITING		
							I 1972	II 1971	older	I 1972	II 1971	older	I 1972	II 1971	older
GH 52- 30	14-2	35	3204	23	1210	52° 48'N 3° 50'E	8	-	67	-	-	-	387	368	317
JK 52- 30	29-1	1	3303	18	1506	52° 20'N 4° 15'E	10	6	52	-	-	-	54	21	31
	29-1	2	3304	18	1710	52° 32'N 4° 14'E	488	4	18	-	-	-	1140	120	148
	8-2	34	3304	21	0830	52° 53'N 4° 20'E	16	79	4953	-	-	-	37	75	80
GH 53- 30	14-2	36	3205	21	1505	53° 12'N 3° 45'E	-	-	-	-	-	-	411	102	27
	16-2	41	3206	32	0745	53° 40'N 3° 35'E	4	-	9	-	-	1	5327	929	68
JK 53- 30	6-2	25	3306	40	0820	53° 50'N 4° 23'E	10	-	12	-	-	-	126	104	34
	6-2	26	3306	25	1100	53° 35'N 4° 41'E	250	2	8	-	-	-	4244	470	86
	6-2	27	3305	23	1430	53° 19'N 4° 08'E	216	5	145	-	2	-	1296	408	168
	6-2	28	3305	27	1630	53° 05'N 4° 11'E	138	2	62	-	-	-	616	1315	1149
	7-2	30	3406	18	0820	53° 34'N 5° 20'E	16	7	199	-	-	-	355	144	93
	7-2	31	3406	27	1110	53° 43'N 5° 42'E	38	2	36	-	-	-	1366	42	32
LM 53- 30	7-2	32	3506	18	1355	53° 45'N 6° 23'E	340	1	1	-	-	-	448	125	11
	7-2	33	3506	21	1640	53° 52'N 6° 46'E	100	-	-	-	-	-	328	52	12
LM 54- 30	15-2	37	3507	32	0730	54° 17'N 6° 33'E	10	-	8	-	-	-	2160	-	-
	15-2	38	3607	32	1125	54° 11'N 7° 18'E	24	-	28	-	-	-	824	-	8
	15-2	39	3607	21	1410	54° 21'N 7° 56'E	432	-	-	-	-	-	1440	-	-
	15-2	40	3708	11	1740	54° 37'N 8° 05'E	8	-	-	-	-	-	10	-	-
EF 54- 30	5-2	24	2908	77	1640	54° 48'N 0° 22'E	53	80	52	-	600	90	480	10200	1080
CD 55- 30	2-2	17	2810	72	1135	55° 55'N 0° 12'W	-	1	47	-	2118	2062	161	2464	1511
	2-2	18	2810	74	1435	55° 36'N 0° 41'W	31	16	43	-	8534	5067	2500	5633	1667
	2-2	19	2710	72	1640	55° 42'N 1° 08'W	3	1	27	180	1920	1800	1460	2400	580
	3-2	20	2709	77	0830	55° 15'N 1° 07'W	2	-	2	2	58	92	227	90	11
	5-2	21	2709	80	0910	55° 11'N 1° 02'W	8	2	12	-	12	50	214	484	94
	5-2	22	2809	81	1130	55° 19'N 0° 39'W	120	13	15	-	539	389	360	532	212
	5-2	23	2809	81	1405	55° 03'N 0° 12'W	72	181	103	-	947	373	267	2112	661
GEAR specifications: Herring trawl 73 ft. with small meshed inner codend. Headline with two kites Bridles 54 ft. Legs 20 fathom. Otterboards 3.20 m ² .															

GEAR specifications: Herring trawl 73 ft. with small meshed inner codend. Headline with two kites
Bridles 54 ft. Legs 20 fathom. Otterboards 3.20 m².

notes:

Table 1c - continuation

COUNTRY: THE NETHERLANDS							YEAR: 1973			IYHS					
SHIP: "Tridens"															
Summary catches of Cod, Haddock and Whiting yearclasses in numbers per hour fishing.															
AREA	DATE	STATION	statist. rectangle	DEPTH m.	time shot	POSITION	COD			HADDOCK			WHITING		
							I 1972	II 1971	older	I 1972	II 1971	older	I 1972	II 1971	older
EF	1-2	10	2912	79	0820	56° 43' N 0° 32' E	-	4	2	40	3780	140	10210	153	39
56-	1-2	11	3012	97	1125	56° 47' N 1° 10' E	72	6	-	160	1320	240	490	210	80
30	1-2	12	3012	90	1350	56° 33' N 1° 31' E	92	42	78	-	649	1079	256	197	347
	1-2	13	3011	83	1550	56° 18' N 1° 21' E	35	5	4	56	695	132	4273	35	2
	1-2	14	3011	79	1735	56° 14' N 1° 13' E	-	18	46	-	1070	2350	209	710	677
	2-2	16	2911	74	0820	56° 12' N 0° 28' E	-	6	10	-	2907	313	1904	6515	765
GH	30-1	3	3210	43	0940	55° 46' N 3° 29' E	6	-	-	2	14	22	10	16	26
55-															
30															
GH	30-1	4	3211	65	1200	56° 08' N 3° 23' E	3	14	18	2	210	17	330	34	-
56-	30-1	5	3212	59	1625	56° 46' N 3° 30' E	-	4	2	-	12	6	69	7	-
30															
GH	31-1	6	3215	79	0830	58° 10' N 3° 22' E	1	49	2	54	7106	30	82	249	5
58-	31-1	7	3115	68	1130	58° 18' N 2° 35' E	1	13	-	360	2150	-	2801	253	66
30	31-1	8	3116	100	1435	58° 43' N 2° 44' E	-	12	4	4368	8892	156	266	506	178
	31-1	9	3216	114	1645	58° 51' N 3° 12' E	-	60	32	864	1092	156	21	14	15
		</													

GEAR specifications: Herring trawl 73 ft. with small meshed inner codend. Headline with two kites
 Bridles 54 ft. Legs 20 fathom. Otterboards 3.20 m².

notes:

Table 1d

COUNTRY: GERMANY F.R.										YEAR: 1973			IYHS		
SHIP: R.V. "Anton Dohrn" (ex "Walther Herwig")															
Summary catches of Cod, Haddock and Whiting yearclasses in numbers per hour fishing															
AREA	DATE	STATION	statist. rectangle	DEPTH m.	time shot	POSITION	COD 1)			HADDOCK			WHITING 1)		
							I 1972	II 1971	older	I 1972	II 1971	older	I 1972	II 1971	older
GH	9-2	137	3206	37		53° 37'N 3° 31'E	-	-	4	-	-	-	252	81	32
53-	9-2	138	3205	28		53° 25'N 3° 26'E	-	-	3	-	-	-	297	22	2
30	9-2	139	3105	28		53° 24'N 2° 53'E	-	-	4	-	-	-	48	11	6
	9-2	140	3106	28		53° 34'N 2° 44'E	-	-	3	-	-	-	222	15	-
JK	10-2	142	3307	46		54° 16'N 4° 48'E	1	-	5	-	-	-	178	318	164
54-	10-2	143	3307	46		54° 19'N 4° 54'E	4	2	3	-	-	2	?	?	670*
30	10-2	144	3407	42		54° 18'N 5° 31'E	-	-	2	-	-	-	325	136	73
	10-2	145	3408	44		54° 37'N 5° 23'E	1	-	3	-	-	1	513	130	38
	10-2	146	3308	44		54° 39'N 4° 51'E	2	-	6	-	-	-	764	437	87
CD	19-2	191	2710	76		55° 50'N 1° 10'W	-	-	2	85	1037	498	?	?	3917*
55-															
30															
EF	11-2	148	3009	50		55° 18'N 1° 31'E	4	2	56	1	75	86	19	44	21
55-	11-2	149	2909	72		55° 18'N 0° 47'E	-	-	35	-	168	155	-	44	57
30	11-2	150	2910	84		55° 38'N 0° 30'E	-	1	6	-	275	217	?	?	13*
	11-2	151	3010	80		55° 44'N 1° 15'E	-	2	5	-	387	201	?	?	184*
JK	20-2	195	3310	36		55° 44'N 4° 20'E	-	-	1	-	-	2	-	4	-
55-	20-2	196	3309	48		55° 15'N 4° 42'E	8	1	5	-	-	3	1320	85	25
30	20-2	197	3409	44		55° 15'N 5° 30'E	2	-	2	-	-	0	49	1	-
	14-2	166	3410	48		55° 46'N 5° 54'E	-	-	2	-	-	-	9	1	-
LM	14-2	165	3510	44		55° 51'N 6° 28'E	-	-	1	-	-	-	16	1	1
55-															
30															
CD	19-2	189	2712	66		56° 40'N 1° 15'W	-	-	6	18	296	121	1325	239	1
56-	19-2	190	2711	62		56° 18'N 1° 14'W	-	-	1	83	450	68	2908	112	-
30															
EF	15-2	167	3011	90		56° 11'N 1° 49'E	1	2	63	-	46	159	85	1	19
56-	15-2	168	2912	86		56° 43'N 0° 36'E	-	-	6	13	175	50	558	23	13
30															
JK	12-2	153	3311	76		56° 19'N 4° 29'E	2	1	2	-	-	6	18	-	-
56-	12-2	154	3312	62		56° 40'N 4° 35'E	-	-	3	-	-	3	-	-	-
30	12-2	155	3412	60		56° 40'N 5° 24'E	-	-	3	-	3	15	-	-	1
	12-2	156	3411	52		56° 20'N 5° 30'E	3	-	1	-	-	4	17	3	1
	14-2	163	3411	55		56° 25'N 5° 29'E	-	1	1	-	-	-	-	-	-
GEAR specifications. 180' Herring bottom-trawl with inserted codend															

GEAR specifications. 180' Herring bottom-trawl with inserted codend

notes: *) total catch, no length distributions available

1) no otolith samples for cod and whiting taken. Breakdown according to length-age keys of other countries.

Table 1d - continuation

COUNTRY: GERMANY F.R.						YEAR: 1973						IYHS			
SHIP: R.V. "Anton Dohrn" (ex "Walther Herwig")						Summary catches of Cod, Haddock and Whiting yearclasses in numbers per hour fishing.									
AREA	DATE	STATION	statist. rectangle	DEPTH m.	time shot	POSITION	COD 1)			HADDOCK			WHITING 1)		
							I 1972	II 1971	older	I 1972	II 1971	older	I 1972	II 1971	older
LM	14-2	164	3511	42		55° 14' N 6° 15' E	-	10	14	-	-	1	6	-	1
56-30															
CD	15-2	169	2813	65		57° 11' N 0° 20' W	-	-	4	87	1492	413	143	129	40
57-30	17-2	177	2814	118		57° 43' N 0° 30' W	-	-	2	181	198	51	35	12	2
EF	17-2	178	2914	117		57° 45' N 0° 30' E	-	-	1	280	337	42	189	6	-
57-30	17-2	179	3014	88		57° 45' N 1° 32' E	-	1	19	-	459	470	1	3	-
	18-2	186	3013	100		57° 15' N 1° 32' E	1	-	-	27	60	53	12	17	8
GH	17-2	180	3114	81		57° 43' N 2° 21' E	-	-	10	21	182	292	11	4	6
57-30	18-2	183	3214	65		57° 43' N 3° 30' E	7	-	-	24	1	11	20	-	-
	18-2	184	3213	61		57° 16' N 3° 27' E	-	-	2	3	24	23	1	-	-
	18-2	185	3113	82		57° 16' N 2° 30' E	-	6	26	-	1059	824	43	71	14
LM	13-2	158	3513	68		57° 12' N 6° 33' E	1	33	31	17	131	189	2	10	1
57-30	13-2	159	3613	67		57° 18' N 7° 25' E	-	5	25	1	23	87	-	-	1
	13-2	160	3614	305		57° 38' N 7° 30' E	-	-	4	-	-	-	-	-	-
	13-2	161	3514	180		57° 36' N 6° 47' E	-	7	15	-	-	-	-	-	1
CD	16-2	172	2715	112		58° 14' N 1° 32' W	-	2	-	128	603	365	62	436	19
58-30	16-2	173	2815	120		58° 15' N 0° 23' W	-	-	3	15	54	58	4	2	4
EF	16-2	174	2915	144		58° 13' N 0° 28' W	-	-	13	11	28	20	2	3	2
58-30	16-2	175	3015	140		58° 15' N 1° 15' W	-	1	2	1	23	14	1	5	3

notes: 1) No otolith samples for cod and whiting taken. Breakdown according to length-age keys of other countries.

Table 1f

COUNTRY: U.S.S.R. SHIP: "Aliot"							YEAR: 1973			IYHS					
Summary catches of Cod, Haddock and Whiting yearclasses in numbers per hour fishing.															
AREA	DATE	STATION	statist. rectangle	DEPTH m.	time shot	POSITION	COD			HADDOCK *)			WHITING *)		
							I 197	II 197	older	I 1972	II 1971	older	I 1972	II 1971	older
CD	14-2	10	2712	58	0747	56°34'N 1°26'W				164	939	25	1696	474	-
56-	14-2	11	2711	65	1720	56°20'N 1°06'W				166	550	40	12044	1258	-
30	15-2	12	2811	75	0821	56°11'N 0°30'W				168	1628	50	1100	848	-
	15-2	13	2811	71	1217	56°27'N 0°32'W				46	376	14	282	62	-
	15-2	14	2812	70	1550	56°43'N 0°38'W				110	1455	35	3579	295	-
GH	16-2	15	3111	76	0744	56°13'N 2°19'E				-	1858	-	2986	1250	126
56-	16-2	16	3111	77	1120	56°22'N 2°43'E				-	416	6	-	5	1
30	16-2	17	3112	69	1441	56°37'N 2°43'E				2	30	10	52	12	2
	16-2	18	3112	70	1700	56°48'N 2°23'E				2	44	4	156	8	-
	17-2	19	3212	68	0736	56°55'N 3°15'E				-	16	38	2	-	-
	17-2	20	3212		1021	56°46'N 3°25'E				-	12	4	12	-	-
	17-2	21	3211	68	1418	56°18'N 3°47'E				-	8	10	722	29	1
	17-2	22	3211	71	1657	56°04'N 3°20'E				-	46	8	89	147	60
JK	20-2	23	3414	97	0748	57°34'N 5°52'E				48	50	56	2	8	18
57-	21-2	24	3413	56	0820	57°03'N 5°06'E				82	700	14	4	5	5
30	22-2	25	3313	71	0746	57°15'N 4°20'E				2	302	30	2	20	24
	22-2	26	3314	71	1127	57°34'N 4°09'E				115	1027	44	4	37	15
							no data available								
CD	7-2	1	2815	95	1614	58°13'N 0°34'W				98	759	243	429	80	3
58-	11-2	9	2816	126	0750	58°40'N 0°41'W				3	15	16	7	15	-
30	24-2	27	2715	106	0720	58°09'N 1°14'W				1236	2076	200	3172	270	32
	24-2	28	2715	110	1100	58°22'N 1°17'W				2057	2114	589	1263	992	124
	25-2	29	2716	101	0705	58°48'N 1°39'W				67	1280	1395	22	326	16
EF	8-2	2	2915	147	0852	58°08'N 0°38'E				23	92	33	67	23	20
58-	8-2	3	2915	145	1113	58°24'N 0°32'E				6	64	52	345	19	6
30	8-2	4	3015	129	1440	58°22'N 1°12'E				16	89	57	98	3	5
	8-2	5	3015	105	1649	58°14'N 1°37'E				276	624	248	385	32	21
	9-2	6	3016	110	0740	58°40'N 1°45'E				8	88	74	-	8	-
	9-2	7	3016	102	1215	58°49'N 1°14'E				1550	1271	135	332	64	-
	9-2	8	2916	136	1520	58°39'N 0°50'E				10	115	65	226	42	4
GEAR specifications:															

notes: *) no otolith samples taken. Breakdown according to length-age keys of other countries.

Table 1g

COUNTRY: SCOTLAND SHIP: "Explorer"							YEAR: 1973			IYHS					
Summary catches of Cod, Haddock and Whiting yearclasses in numbers per hour fishing.															
AREA	DATE	STATION	statist. rectangle	DEPTH m.	time shot	POSITION	COD 1)			HADDOCK 1)			WHITING 1)		
							I 1972	II 1971	older	I 1972	II 1971	older	I 1972	II 1971	older
AB	19-1	6	2514	59	1420	57° 55'N 03° 20'W)				)					
57-	19-1	7	2514	56	1710	57° 51'N 03° 20'W)	-	-	1	)	90	1128	778	5377	683
30	9-2	50	2514	55	0940	57° 55'N 03° 27'W)				)					68
	19-1	5	2614	91	0945	57° 53'N 02° 51'W)	-	-	-	)	81	178	73	21831	1973
	9-2	51	2614	91	1245	57° 52'N 02° 54'W)				)					-
	21-1	8	2515	40	0955	58° 04'N 03° 25'W)	-	21	12	)	3	114	255	648	64
	21-1	9	2515	64	1500	57° 15'N 03° 09'W)				)					92
	22-1	10	2615	42	0915	58° 15'N 02° 47'W)				)					
	22-1	11	2615	71	1220	58° 05'N 02° 25'W)	-	28	12	)	433	3985	859	728	369
	9-2	52	2615	88	1530	58° 05'N 02° 25'W)				)					37
AB															
58-	17-1	1	2616	79	1040	58° 45'N 02° 26'W)	-	-	-	)	924	3662	1483	2623	4001
30	18-1	4	2616	72	1648	58° 33'N 02° 28'W)				)					88
CD	23-1	15	2713	110	1800	57° 24'N 01° 18'W)				)					
57-	25-1	19	2713	73	1050	57° 02'N 01° 44'W)	1	3	4	)	87	944	305	364	147
30										)					145
	23-1	13	2714	101	0950	57° 49'N 01° 54'W)	-	-	-	)	470	1012	354	1685	118
	23-1	14	2714	101	1420	57° 39'N 01° 18'W)				)					7
	25-1	20	2813	73	1555	57° 03'N 00° 55'W)	-	2	10	)	264	1867	212	1335	108
	8-2	47	2813	88	0830	57° 23'N 00° 19'W)				)					17
	24-1	16	2814	115	0920	57° 57'N 00° 32'W)				)					
	24-1	17	2814	106	1552	57° 35'N 00° 22'W)	-	1	1	)	1856	1530	133	2035	122
	8-2	48	2814	110	1055	57° 35'N 00° 21'W)				)					10
AB	26-1	21	2611	59	1440	56° 08'N 02° 16'W)				)					
56-	27-1	22	2611	51	1130	56° 21'N 02° 15'W)	24	10	8	)	277	2412	118	4560	361
30	7-2	44	2611	55	1127	56° 22'N 02° 14'W)				)					8
	27-1	23	2612	56	1525	56° 32'N 02° 19'W)				)					
	28-1	24	2612	55	0930	56° 45'N 02° 06'W)	4	4	38	)	27	739	124	788	139
	7-2	45	2612	55	1405	56° 32'N 02° 19'W)				)					12
GH	2-2	32	3109	34	1835	55° 08'N 02° 15'E	2	1	2	-	6	13	8	20	21
55-															
30	2-2	29	3110	73	0730	55° 50'N 03° 00'E)	25	11	7	)	2	183	14	1201	185
	2-2	30	3110	77	1110	55° 40'N 02° 30'E)				)					10
GEAR specifications:															

notes: 1) Mean numbers per hour fishing only available on a statistical rectangle basis.

Table 1g - continuation

COUNTRY: SCOTLAND SHIP: "Explorer"							YEAR: 1973			IYHS					
Summary catches of Cod, Haddock and Whiting yearclasses in numbers per hour fishing.															
AREA	DATE	STATION	statist. rectangle	DEPTH m.	time shot	POSITION	COD 1)			HADDOCK 1)			WHITING 1)		
							I 1972	II 1971	older	I 1972	II 1971	older	I 1972	II 1971	older
GH	1-2	25	3209	27	0845	55° 09' N 03° 26' E)	-	-	-	-	-	-	-	-	-
55-	1-2	26	3209	26	1130	55° 19' N 03° 41' E)	-	-	-	-	-	-	-	-	-
30	1-2	27	3210	51	1437	55° 35' N 03° 44' E)	-	-	-	-	-	-	-	-	-
	1-2	28	3210	69	1835	55° 55' N 03° 20' E)	-	1	1	-	5	1	3	1	1
GH	4-2	38	3107	62	0730	54° 09' N 02° 38' E)	-	-	-	-	1	1	324	173	15
54-	4-2	39	3107	29	1000	54° 18' N 02° 29' E)	-	-	-	-	-	-	-	-	-
30	4-2	40	3108	18	1430	54° 50' N 02° 15' E)	-	-	-	-	-	-	-	-	-
	4-2	41	3108	16	1740	54° 40' N 02° 42' E)	-	-	-	-	-	-	-	-	-
	3-2	35	3207	40	1447	54° 24' N 03° 50' E)	-	-	-	-	-	-	-	-	-
	3-2	36	3207	44	1720	54° 09' N 03° 45' E)	-	-	-	-	1	-	1099	198	19
	3-2	37	3207	40	1945	54° 05' N 03° 50' E)	-	-	-	-	-	-	-	-	-
	3-2	33	3208	37	0725	54° 49' N 03° 18' E)	4	-	2	-	-	1	222	25	5
	3-2	34	3208	42	1015	54° 41' N 03° 43' E)	-	-	-	-	-	-	-	-	-
JK	5-2	42	3308	48	0830	54° 49' N 04° 16' E	50	5	4	-	10	8	744	517	8
54-															
30															
JK	5-2	43	3309	46	1140	55° 06' N 04° 11' E	14	-	-	-	2	-	512	14	1
55-															
30															
GEAR specifications.															

Notes. 1) Mean numbers per hour fishing only available on a statistical rectangle basis.

Table 1h

COUNTRY: SWEDEN							YEAR: 1973			IYHS					
SHIP: "Skagerak"							Summary catches of Cod, Haddock and Whiting yearclasses in numbers per hour fishing.1)								
AREA	DATE	STATION	statist. rectangle	DEPTH m.	time shot	POSITION	COD 3)			HADDOCK 2)			WHITING 3)		
							I 197	II 197	older	I 1972	II 197	older	I 197	II 197	older
Skagerak - Kattegat	31-1		R/12	22	0757	56° 31'N 12° 38'E		942		-		-		152	
	31-1		R/11	32	1210	56° 21'N 12° 16'E		274		2		-		518	
	31-1		R/11	22	1545	56° 21'N 12° 34'E		575		-		-		224	
	1-2		R/12	42	0748	56° 39'N 12° 13'E		44		2		-		612	
	1-2		R/13	37	1235	57° 01'N 12° 12'E		366		-		-		195	
	1-2		Q/13	55	1535	57° 09'N 11° 57'E		33		9		-		180	
	2-2		Q/13	64	0955	57° 18'N 11° 36'E		6		28		6		77	
	6-2		Q/14	70	0955	57° 33'N 11° 32'E		12		4		3		49	
	6-2		Q/14	62	1418	57° 51'N 11° 13'E		10		4		2		172	
	14-2		P/14	105	1530	57° 50'N 10° 34'E		4		3		1		33	
	15-2		P/14	80	0715	57° 44'N 10° 08'E		5		-		1		15	
	15-2		P/14	90	1655	57° 48'N 10° 14'E		4		-		-		9	
	16-2		P/14	30	0930	57° 41'N 10° 54'E		39		-		-		109	
	15-2		O/14	35	1015	57° 44'N 09° 43'E		2		-		-		25	
	15-2		O/14	60	1327	57° 52'N 09° 48'E		26		23		13		69	
	14-2		Q/15	110	1025	58° 10'N 11° 04'E		4		1		-		54	
GEAR specifications.															

- notes: 1) no length/age keys available from the Skagerak-Kattegat area.
 2) from the total length distribution of all stations it appears that for haddock the range from 14-25 cm with a maximum at 20 cm is covered by one age group and these are supposed to be I-group. No split has been made for II-group and older.
 3) for cod and whiting no split has been made.

Table 2

ALL COUNTRIES COMBINED												YEAR: 1973			IYHS			
SUMMARY LENGTH DATA PER YEARCLASS AND AREA																		
AREA	COD 1)						HADDOCK 2)						WHITING 3)					
	1972			1971			1972			1971			1972			1971		
	L	S ²	range	L	S ²	range	L	S ²	range	L	S ²	range	L	S ²	range	L	S ²	range
CD 58-30							16.3	1.47	12-19	23.2	8.06	18-31	15.0	4.93	10-23	25.7	9.75	18-33
EF 58-30							15.9	1.33	11-19	24.2	6.55	18-32	14.7	12.30	8-23	25.6	6.21	21-31
GH 58-30	23.5		23-24	30.7	14.47	21-43	14.9	1.32	12-21	24.7	4.31	19-33	18.2	4.58	12-24	26.1	6.73	21-33
AB 58-30 + 57-30							17.6	2.40	12-20	24.0	9.04	18-32	16.5	5.70	8-23	23.8	9.09	18-33
CD 57-30	13.8	6.33	11-16	35.2	34.03	24-44	16.8	2.88	11-22	23.5	7.12	18-32	14.0	4.35	8-24	25.7	13.81	17-34
EF 57-30	18.5	38.71	10-28	34.1	19.30	28-40	16.6	1.90	12-20	24.5	4.96	18-35	16.7	2.53	11-19	24.2	4.46	20-29
GH 57-30	16.5	10.52	6-26	31.0	17.15	24-41	17.7	4.13	14-24	26.6	5.89	18-34	16.0	6.37	9-22	25.0	3.66	20-30
JK 57-30							18.7	4.76	12-23	27.9	5.51	21-34	20.3	2.97	18-22	27.5	4.10	22-31
AB 56-30	18.4	7.30	13-28	35.7	36.70	27-45	19.0	2.20	15-22	27.0	2.85	22-32	14.4	2.96	9-20	23.0	7.72	18-31
CD 56-30							18.8	2.40	15-22	25.2	1.92	19-32	16.5	2.22	11-20	20.6	4.95	18-30
EF 56-30	14.9	4.89	9-21	31.2	9.38	24-38	17.3	1.86	14-20	25.8	3.66	19-33	15.2	7.46	9-23	25.1	3.02	22-32
GH 56-30	25.2	14.30	22-30	30.8	2.80	27-33	21.5	0.80	20-23	28.5	4.82	22-38	17.8	9.75	9-23	23.8	6.10	19-31
JK 56-30							-	-	-	32.5	7.00	30-36						
LM 56-30	16.7	17.70	7-28	34.3	23.28	24-42	-	-	-	25.8	10.12	22-31	15.5	5.06	8-23	26.3	5.01	21-30
CD 55-30	17.7	4.56	12-24	28.4	8.48	22-41	18.3	1.03	16-20	25.6	8.01	18-32	17.1	4.59	10-21	25.2	7.37	20-32
EF 55-30							14.5	-	14-15	28.9	7.77	20-37						
GH 55-30	19.8	5.07	17-23	-	-	-	20.2	7.07	17-24	28.3	5.78	21-38	17.1	3.30	10-22	24.0	4.80	20-31
JK 55-30	18.0	14.29	9-26	28.9	17.52	24-36	-	-	-	33.5	18.00	30-37	15.0	5.01	7-23	23.8	4.13	19-29
LM 55-30	15.6	9.89	8-26	31.2	35.87	23-40	-	-	-	-	-	-	14.9	4.11	7-19	24.7	8.80	19-29
CD 54-30	19.8	7.55	14-25	27.9	69.05	20-42	-	-	-	28.5	6.00	22-35	17.0	4.30	10-19	22.6	5.22	20-28
EF 54-30	20.1	5.68	10-29	27.5	14.36	20-41	-	-	-	28.3	4.09	22-34	18.4	2.98	12-20	23.1	3.11	19-29
GH 54-30	21.4	8.27	16-25	47.5	-	47-48	-	-	-	33.8	0.33	33-36	16.3	10.90	7-24	24.0	3.20	20-29
JK 54-30	20.7	10.64	13-28	35.5	14.00	31-39	-	-	-	35.0	7.27	29-39	17.0	6.56	11-24	24.4	6.31	19-31
LM 54-30	17.5	6.59	11-40	-	-	-	-	-	-	-	-	-	14.8	4.16	9-21	22.7	0.29	22-25
EF 53-30	21.9	6.30	18-25	-	-	-	-	-	-	-	-	-	16.4	5.22	9-19	24.0	7.77	20-29
GH 53-30	20.0	1.67	18-22	-	-	-	-	-	-	-	-	-	17.0	13.09	10-28	24.2	5.82	20-35
JK 53-30	23.2	10.49	11-33	44.4	45.94	33-52	-	-	-	28.5	-	28-29	17.6	9.96	9-25	26.0	13.09	20-35
LM 53-30	24.6	8.98	17-33	45.5	-	45-46	-	-	-	-	-	-	19.0	6.74	11-25	22.8	8.09	20-35
GH 52-30	27.9	4.99	23-31	-	-	-	-	-	-	-	-	-	22.9	9.92	13-28	27.1	5.83	20-33
JK 52-30	25.0	8.81	19-37	49.3	13.61	43-54	-	-	-	-	-	-	20.6	7.92	13-28	29.1	4.91	25-33
Skagerak							19.3	6.84	14-24									

notes: 1) Only the Scottish, English, Danish and Dutch data could be used for cod.

2) For haddock the data of all countries have been combined.

3) For whiting only the Scottish, English, Danish, USSR and Dutch data could be used.

FIGURE 1 - Mean number per hour fishing of I-group Cod (yearclass 1972) caught during the 1973 survey.

Figures in brackets represent number of valid hauls.

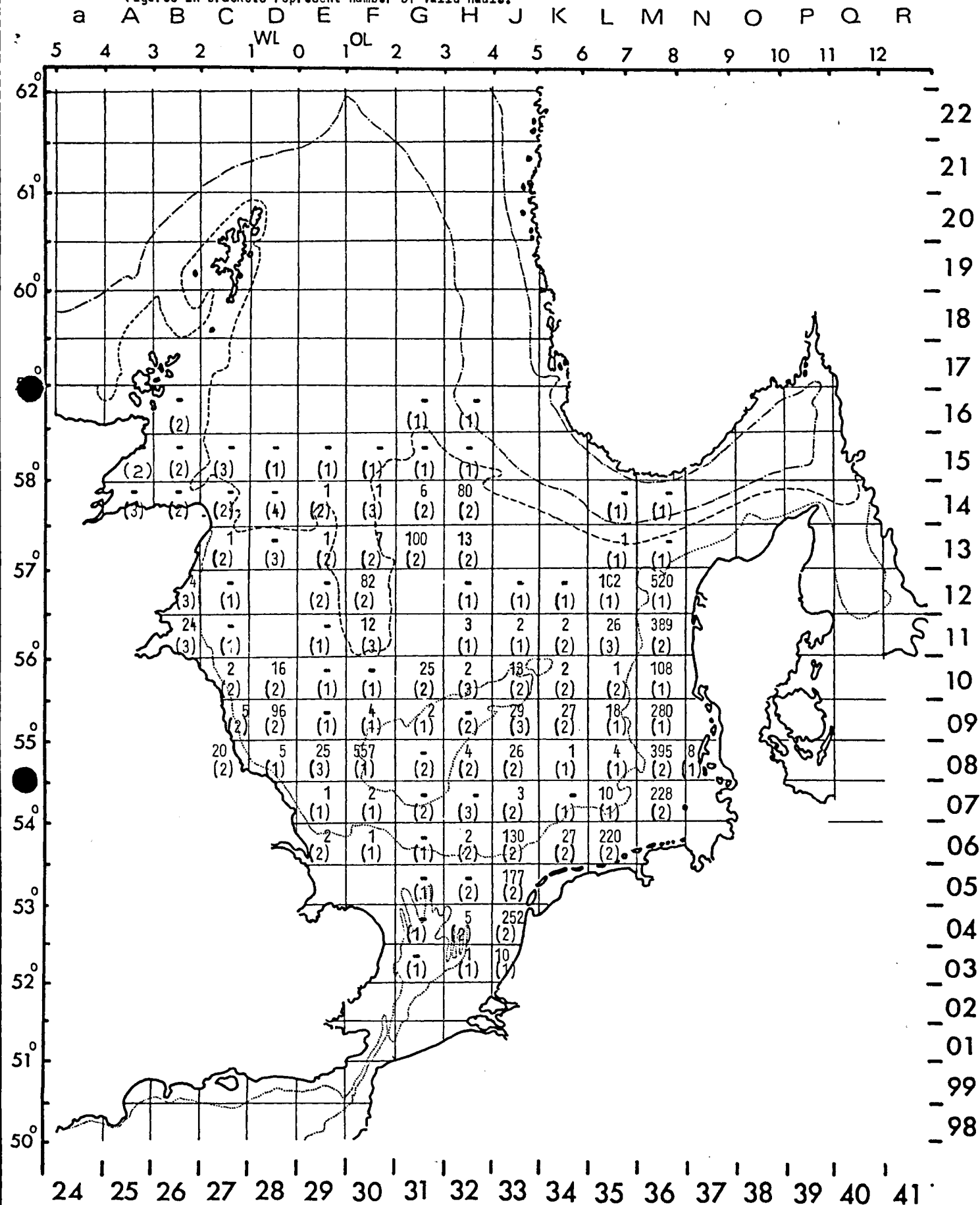
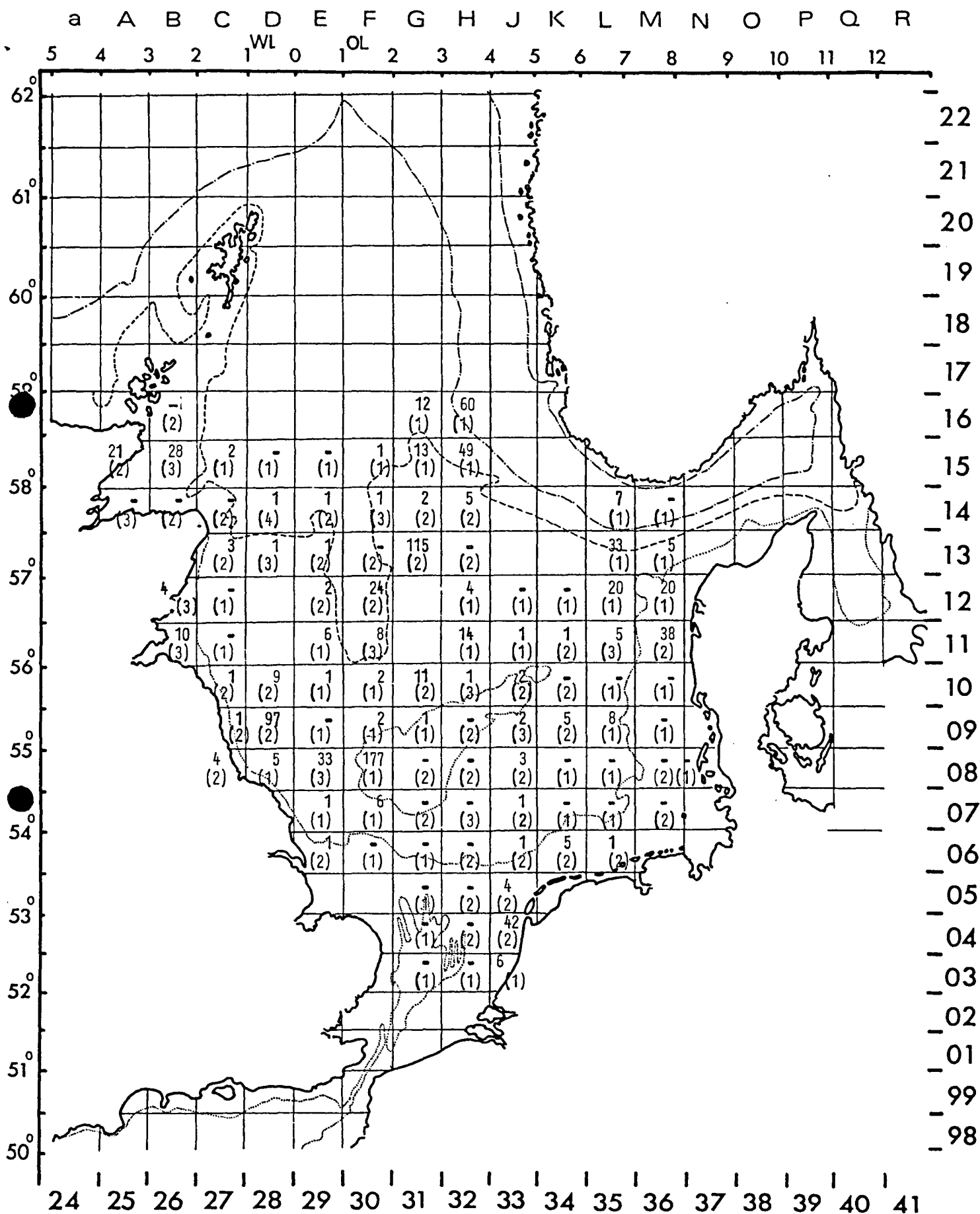
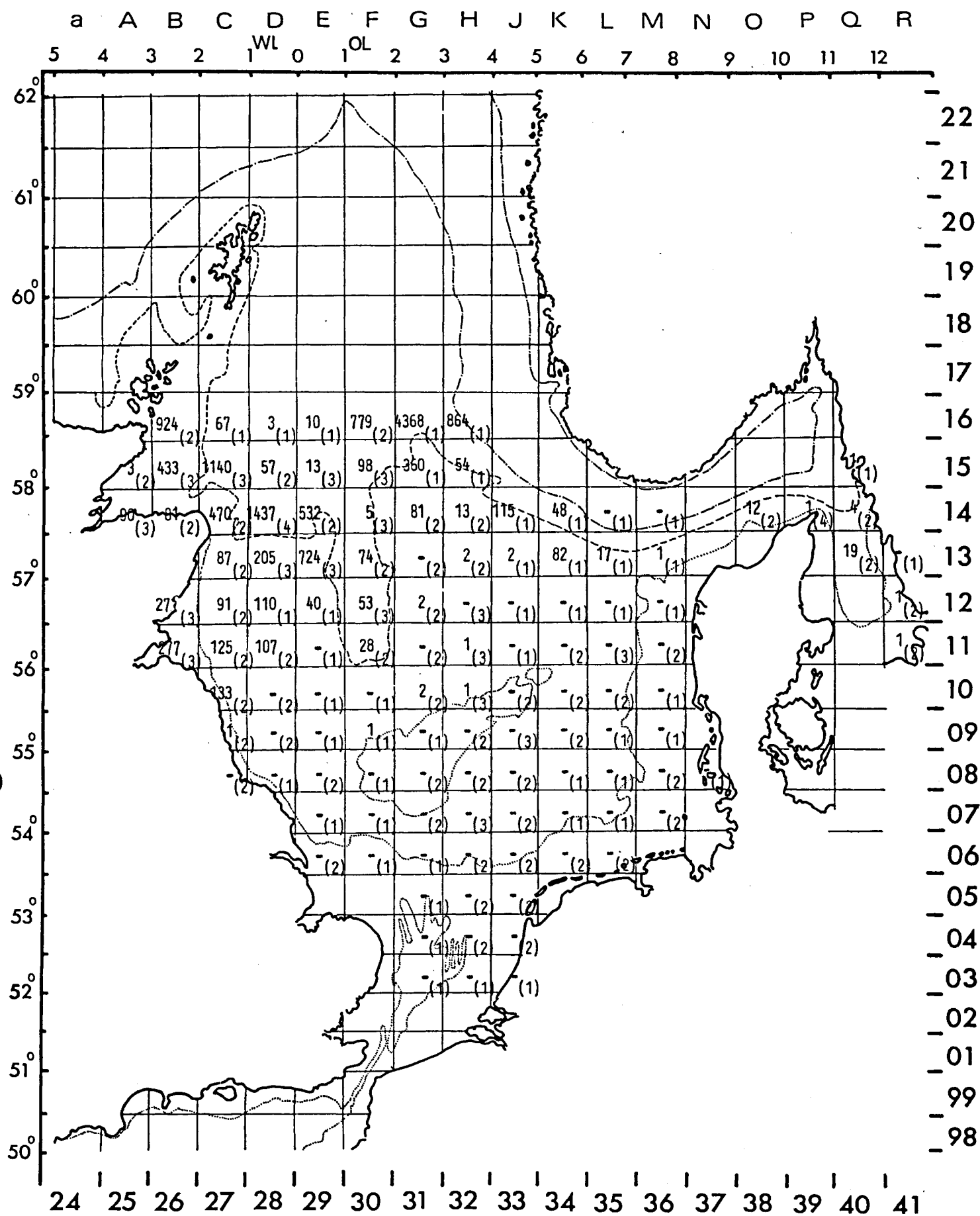


Figure 2 - Mean number per hour fishing of II-group Cod (yearclass 1971) caught during the 1973 survey.

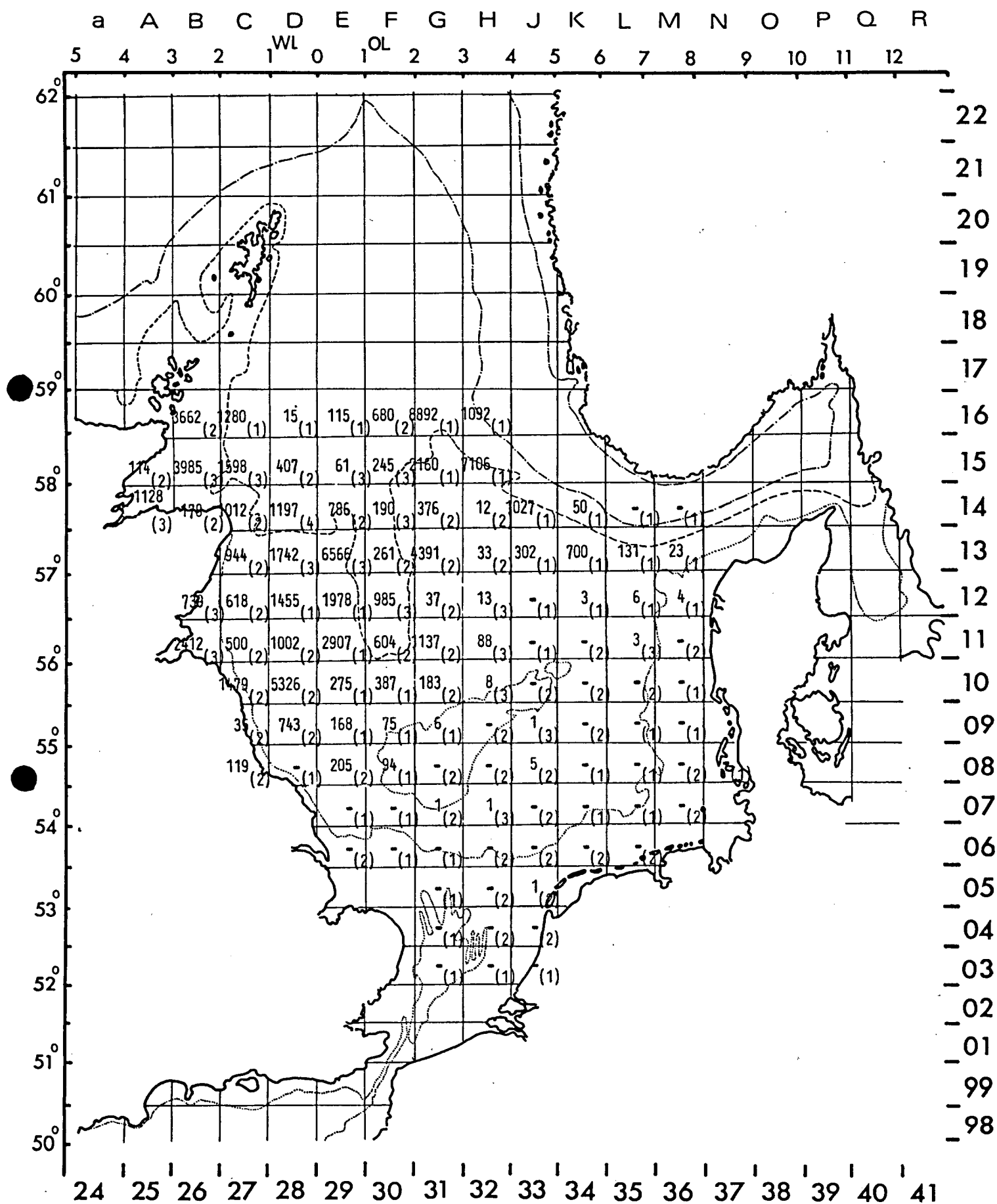
Figures in brackets represent number of valid hauls.



Figures in brackets represent number of valid hauls.



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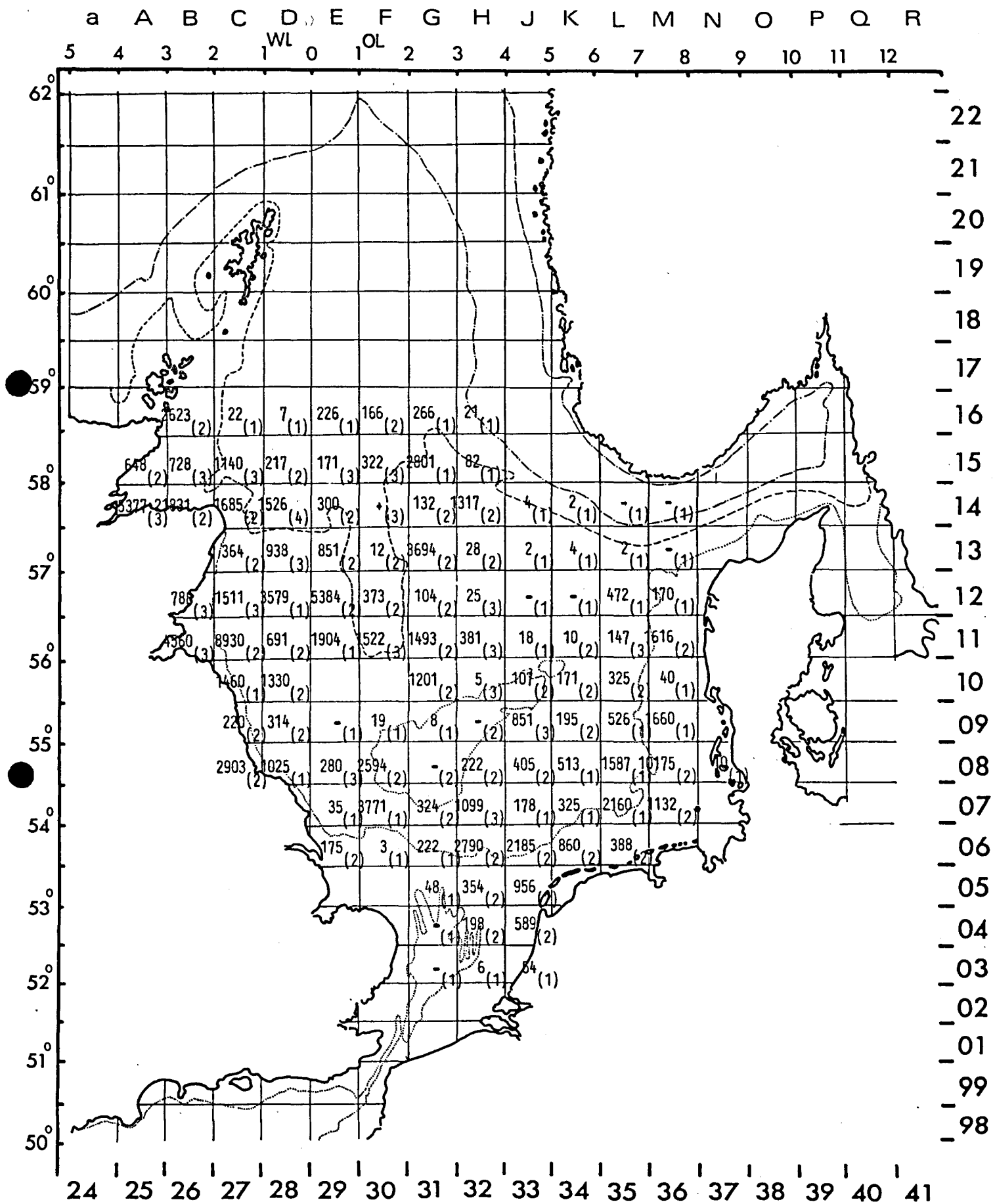


Fig. 6 Mean number per hour fishing of II-group WHITING (yearclass 1971) caught during the 1973 survey. Figures in brackets represent number of valid hauls.

