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PRELIMINARY COMPILATION OF THE DATA ON COD, HADDOCK AND WHITING CAUGHT
DURING THE INTERNATIONAL YOUNG HERRING SURVEY 1972.

(Explanatory note:

From 1965 onwards yearly internationally coordinated surveys have been carried out in the months February/March in order to determine the abundance of young herring. During these surveys herringtrawls with small meshed codends are used, which retain also a variety of young other fish, among which particularly young Gadoids are often present in great numbers. Although up till recently no special effort has been coordinated by the different countries interested in North Sea roundfish to gather early estimates of yearclass strength, such information would obviously be very welcome. It therefore seemed worth to investigate if these International Young Herring Surveys, which are consuming an increasing amount of expensive research ship time, could possibly serve as a basis for such estimates and thus be made more profitable. With this in mind the undersigned tried already in previous years to gather the relevant data from the participating countries. Although these are still incomplete, the so far analysed results seemed promising and the interest of the North Sea Working Group in this matter was aroused last year. Accordingly it was planned to work up the catches of Cod, Haddock and Whiting of the 1972 survey in close cooperation and report to the present meeting.

However, because of a delay in the availability of the complete set of data it turned out to be impossible to present a final report, which had been accepted by all members of the Group and therefore the alternative was agreed upon that the undersigned would bring together all data and compile them in homogenous tables and charts, the results of which will be found in this paper. The rearrangement of the basic data supplied by the different countries for the three species mentioned turned out to be rather more time consuming than expected and as a consequence some important points of the analysis had to be omitted for the time, particularly the variation in mean length per age group.

Thus the information presented here is restricted to numbers of the youngest two agegroups per hour fishing. Tables 1 A-H summarise the catches per hour fishing per station fished by the subsequent countries. Fig. 1 gives the geographical distribution of the trawl stations. (More basic information about the survey 1972 can be found in the "Report of the International Trawling survey for Immature Herring in the North Sea 1972" by POSTUMA & KUITER, which is presented to the present meeting under code "CM 1972 / H:4).

Whenever possible the length-age distributions available from the otolith samples taken on a four rectangle basis by several countries and presented in tables 1 A-C, were used for the split up of the length distributions per station in different ageclasses. However, these samples are not adequately distributed over the total area covered by the survey and for those rectangles where there are no samples available inspection of the length distributions and possibly of the length-age data of neighbouring groups of rectangles have been used for the separation in age groups. It should be noted that this can make the estimates rather subjective, which is not corrected for in the present situation by the incorporation of the views of the other members of the Working Group.

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Thus the results presented here can only be preliminary and a reexamination of the data might well be needed. In order to make this possible the basic data have been distributed among all laboratories involved in these surveys.

Fig 2 A-C present the mean number per hour fishing of I and II year old Cod, Haddock and Whiting respectively per statistical rectangle from which the index of abundance, which is of course the ultimate goal, could be derived. At this place no detailed discussion of the results seems necessary, but in order to give some indication of the relative abundance of the 1971 yearclasses of Cod and Haddock (for whiting no comparable data are available), in the fig I, II and III of the appendix charts with the numbers of I-group per hour fishing are presented, which have been produced from comparable surveys in 1969, 1970 and 1971 respectively.

A comparison of these with the 1972 data reveals that the 1971 yearclass of cod must be a very poor one and the Haddock yearclass seems less numerous than 1970, but considerably better than 1968 and 1969.

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Table 1 A - Number of Gadoid species per age group per hour fishing during the International Young Herring Survey 1972.

ENGLAND ("CIROLANA").

HAUL/ STATION	REC- TANGLE	DATE	DEPTH (METER)	TIME SHOT	POSITION	COD			HADDOCK			WHITING ¹⁾		
						I 1971	II 1970	III+	I 1971	II 1970	III+	I 1971	II 1970	III+
20	3204	8-2	28	08.15	52°46' N 03°14' E	* —	—	1	—	—	—			
23	3203	8-2	51	11.38	52 23 03 12	—	—	—	—	—	—			
26	3103	8-2	37	17.00	52 23 02 58	* —	1	5	—	—	—			
34	3104	9-2		07.25	52 45 02 17	* —	65	26	* —	3	4			
38	3006	9-2	34	15.04	53 52 01 28	—	—	—	—	—	—			
62	3005	14-2	37	15.42	53 10 01 43	* —	2	24	—	—	—			
66	2906	15-2	49	08.44	53 54 00 54	* —	1	1	—	—	—			
1	2708	4-2	51	09.33	54 54 01 07 W	—	—	—	—	—	—			
3	2808	4-2	71	14.23	54 56 00 22	* —	19	5	* 818	777	71			
53	2710	11-2	77	13.10	55 58 01 43	* —	26	3	1683	443	6			
15	3010	7-2	77	08.24	55 40 01 05 E	* —	79	—	* 24	105	13			
16	2910	7-2	77	11.30	55 35 00 53	* —	159	8	* 87	357	12			
44	2909	10-2		12.54	55 04 00 47	* —	18	—	* 16	3	—			
46	2909	10-2	67	15.15	55 02 00 54	* —	12	1	* 1	2	1			
47	2909	10-2		17.10	55 04 00 56	* —	8	7	* 2	49	4			
56	3509	13-2	41	13.23	55 26 06 30	* —	1	—	* —	1	3			
58	3510	13-2	45	16.10	55 38 06 18	* —	8	—	* —	1	1			
50	2811	11-2	70	07.20	56 07 00 26 W	* —	30	4	* 728	1675	498			
6	3014	5-2		08.25	57 47 01 35 E	* 1	4	—	* 53	18	2			
9	2914	5-2		13.15	57 36 00 53	* —	3	1	* 158	1162	52			
11	2913	6-2	87	08.35	57 22 00 42	—	—	—	1856	717	—			
12	3013	6-2	91	11.58	57 27 01 10	* —	2	—	* 1632	2770	109			

NOTES : ¹⁾ No whiting data available.

* Ctolith sample taken.

Table 1. Number of Gadoid species per age group per hour fishing during the International Young Herring Survey 1972.

SCOTLAND ("EXPLORER").

HAUL/ STATION	REC- TANGLE	DATE	DEPTH (METER)	TIME SECT	POSITION	COD			HADDOCK			WHITING		
						I+	II+	III++	I+	II+	III++	I+	II+	III++
						1971	1970		1971	1970		1971	1970	
60	2616 d	18-2	73	05.55	58° 32' N 02° 27' W	* ----	----	----	* 159	758	41	* 227	21	14
61	2616 d	18-2	69	09.35	58 42 02 24	----	----	----	200	478	97	97	43	29
64	2615 a	19-2	38	08.35	58 15 02 44	----	----	----	0	0	2	0	0	0
65	2515 b	19-2	69	11.30	58 17 03 07	2	0	0	260	226	5	273	0	0
67	2514 a	20-2	44	06.30	57 55 03 29	----	----	----	----	----	----	14	0	0
68	2514 b	20-2	69	09.48	57 49 03 16	1	0	0	556	556	55	644	66	67
69	2614 a	20-2	95	16.20	57 53 02 50	0	7	0	1116	589	61	1722	1	7
70	2615 d	21-2	71	06.20	58 03 02 20	----	----	----	53	29	20	179	0	1
71	2614 b	21-2	91	09.50	57 57 02 14	1	1	2	3142	1454	59	3457	9	4
59	2713 b	17-2	102	17.20	57 20 01 18	* 3	0	10	* 403	348	49	* 80	22	7
72	2714 a	21-2	119	13.35	57 49 01 49	1	8	1	306	782	46	3	1	3
73	2714 d	21-2	104	18.45	57 39 01 16	----	----	----	91	294	19	64	1	0
74	2314 a	22-2	115	07.20	57 54 00 34	2	1	0	3141	438	55	125	120	0
75	2314 d	22-2	110	11.55	57 31 00 21	0	0	4	3888	954	102	66	1	0
76	2313 b	22-2	77	15.10	57 20 00 20	0	36	0	13	924	251	14	155	221
77	2813 c	23-2	73	06.00	57 03 00 55	2	5	4	133	639	125	52	11	21
78	2713 c	23-2	73	10.45	57 02 01 45	10	7	2	362	311	30	122	16	29
55	2611 d	13-2	60	07.00	56 09 02 16	* 8	26	20	* 1850	145	4	* 2445	119	47
56	2611 b	13-2	55	09.55	56 20 02 15	0	17	6	3956	280	25	4274	27	8
57	2612 d	13-2	55	13.55	56 32 02 19	0	6	0	455	283	12	919	9	94
32	3312 c	7-2	52	07.45	56 40 04 23 E	* 6	2	1	* 0	0	1	* 2	0	0
33	3412 a	7-2	62	11.45	56 48 04 58	8	1	2	14	8	5	68	8	0
34	3412 c	7-2	55	15.00	56 44 05 18	12	2	2	10	1	3	31	3	0
35	3412 d	7-2	55	17.22	56 40 05 34	4	2	1	9	2	2	69	4	0
36	3411 d	8-2	51	07.00	56 13 05 42	4	6	6	4	1	2	111	5	0
37	3411 a	8-2	53	10.45	56 23 05 09	3	0	0	0	1	1	67	5	0
38	3311 d	8-2	55	14.21	56 11 04 46	7	1	1	1	0	0	60	4	1
39	3311 b	8-2	60	17.15	56 17 04 30	0	0	4	2	1	0	149	9	0
41	3008 d	9-2	26	11.35	54 43 01 49	* 7	156	72	* 0	170	14	* 2	285	259
49	3007 b	11-2	40	15.15	54 22 01 50	1	1	0	0	9	0	83	20	7
50	3007 a	11-2	55	18.15	54 22 01 28	1	0	2	0	7	0	198	12	0
51	2907 d	12-2	49	06.35	54 10 00 45	2	0	0	----	----	----	464	28	0
52	2907 a	12-2	64	10.00	54 20 00 15	8	24	14	20	89	8	675	2883	675
53	2908 d	12-2	81	14.20	54 42 00 44	12	0	6	0	18	0	111	75	6
54	2908 a	12-2	77	17.50	54 50 00 20	24	2	1	217	18	1	117	190	1
40	3108 a	9-2	24	08.20	54 50 02 13	* 2	2	0	* ----	----	----	* 0	0	1
42	3108 d	9-2	27	16.30	54 36 02 49	0	0	2	0	1	1	1	1	0
43	3208 a	10-2	38	06.30	54 47 03 17	----	----	----	----	----	----	1	0	0
44	3208 d	10-2	44	09.40	54 40 03 37	0	2	10	0	4	0	11	9	0
45	3207 b	10-2	44	12.50	54 26 03 48	6	4	0	1	0	0	223	265	24
46	3207 d	10-2	44	16.30	54 08 03 48	2	2	2	0	3	0	872	729	53
48	3107 a	11-2	27	11.45	54 22 02 26	0	1	0	--	----	----	0	2	1

NOTES : *Cotolith samples taken per group of 4 rectangles.

Table 1 -C - Number of Gadoid species per age group per hour fishing during the International Young Herring Survey 1972.

NORWAY ("G.O. SARS", "JOHAN HJORT").

HAUL/ STATION '1)	REC- TANGLE	DATE	DEPTH (METER)	TIME SHOT	POSITION	COD			HADDOCK			WHITING		
						I 1971	II 1970	III+	I 1971	II 1970	III+	I 1971	II 1970	III+
SA 33	3206	19-2	58	07.20	53° 53' N 03° 09' E	...	1	...	---	---	---	---	---	---
SA 34	3107	19-2	49	11.20	54 09 02 47	...	40	...	* ---	40	16	* 778	11.831	127
SA 35	3107	19-2	61	13.40	54 10 02 39	...	1	...	---	17	7	...	1136	...
SA 30	3307	18-2	51	06.05	54 10 04 13	...	9	...	---	---	---	478	2275	---
SA 31	3307	18-2	51	08.25	54 10 04 11	...	7	...	...	24	...	...	694	...
SA 28	3308	17-2	50	14.12	54 45 04 12	...	1	...	...	17	...	* 585	480	---
SA 29	3308	17-2	46	18.06	54 45 04 53	...	5	...	---	---	---	...	86	...
HJ 19	2810	18-2	84	13.56	55 55 01 28 W	...	3	...	93	79	11	93	44	21
HJ 20	2809	18-2	86	20.07	55 11 01 00	...	5	...	6	9	3	79	56	---
SA 25	3412	15-2	60	16.25	56 50 05 10 E	...	14	...	16	376	624	---	---	---
SA 26	3311	15-2	63	12.07	56 10 04 22	...	1	...	...	9	...	* 288	12	---
HJ 17	2814	17-2	100	00.02	57 30 00 34 W	...	3	...	* 72	55	5	32	2	---
SA 36	3113	20-2	81	09.02	57 08 02 18 E	...	2	...	* 1492	457	187	...	28	...
SA 23	3514	15-2	255	03.25	57 47 06 02	...	3	...	...	12	...	---	---	---
SA 24	3513	15-2	102	09.25	57 21 06 42	...	4	...	* 26	332	226	(4)	(15)	(7)
HJ 12	2616	14-2	65	08.00	58 32 02 28 W	---	---	---	* ---	1416	54	32	145	232
HJ 13	2715	14-2	68	17.53	58 07 01 29	...	3	...	(32)	(243)	(89)	(52)	(8)	(22)
HJ 11	2916	13-2	130	19.05	58 42 00 32 E	...	2	...	(117)	(22)	(13)	(10)	(21)	---
HJ 14	2915	15-2	150	03.15	58 07 00 34	...	3	...	(31)	(11)	(5)	(3)	(3)	---
HJ 15	3015	15-2	120	07.55	58 07 01 10	...	9	...	(30)	(3)	(4)	(4)	---	---
HJ 10	3116	13-2	118	06.30	58 42 02 46	...	4	...	* 75	14	36	---	---	---
SA 22	3415	14-2	239	14.55	58 04 05 08	---	---	---	---	---	---	---	---	---
SA 37	3315	20-2	114	18.30	58 03 04 35	---	---	---	* 1354	68	68	...	40	
SA 18	2717	12-2	126	20.30	59 17 01 07 W	...	5	...	* 1120	680	200	* 46	376	138
HJ 9	3218	12-2	145	13.16	59 47 03 18 E	...	8	...	* 260	6	---	---	---	---

NOTES : '1) Only bottomtrawl hauls have been used !!

* Otolith samples taken.

... 1 ... no length measurements available, no separation into yearclasses possible.

() estimated (no length age keys available from this group of rectangles).

Table 1 D - Number of Gadoid species per age group per hour fishing during the International Young Herring Survey 1972.

SWEDEN ("SKACERAK" & "THETIS").

HAUL/ STATION	REC- TANGLE	DATE	DEPTH (METER)	TIME SHOT	POSITION	COD 1)			HADDOCK 2)			WHITING 3)		
						I 1971	II+		I 1971	II 1970	III+	I	II	III+
Sk 23	3713	9-2	52- 70		57° 25' N 08° 27' E	(2)	(34)		---	---	---		8	
Sk 24	3713	9-2	43- 60		57 28 08 39	(2)	(9)		---	---	---		29	
Sk 25	3714	9-2	78	14.50	57 35 08 42	(8)	(344)		(2)	(1)	(1)		70	
Sk 26	3814	10-2	100	07.35	57 51 09 27	(2)	(22)		(1)	(1)	---		---	
Sk 27	3814	10-2	57- 58	11.25	57 53 09 51	(20)	(9)		(9)	---	---		153	
Sk 28	3814	10-2	36	14.00	57 45 09 47	(39)	(2)		(2)	---	---		217	
Sk 22	3916	8-2	75		58 37 10 59	(1)	(11)		(4)	---	(3)		58	
Th 11	4016	1-3	200-210		58 58 11 04	---	(9)		---	(1)	(1)		---	
Sk 21	4015	8-2	58	11.00	58 24 11 03	---	(10)		(17)	(3)	(8)		425	
Th 4	4015	28-2	110-115		58 08 11 05	---	(23)		(33)	(3)	---		136	
Th 5	4015	29-2	30- 33		58 19 11 22	(2)	(198)		(4)	---	---		276	
Th 6	4015	29-2	60- 58	11.33	58 26 11 04	(2)	(8)		(2)	---	---		510	
Th 7	4015	29-2	58- 63		58 24 11 03	(2)	(14)		(4)	---	---		202	
Th 8	4015	29-2	63- 57		58 25 11 04	---	---		(2)	---	---		44	
Th 9	4015	1-3	63- 57		58 26 11 04	---	(10)		---	---	(2)		788	
Th 10	4015	1-3	57- 63		58 24 11 03	---	(6)		---	---	(2)		194	
Sk 29	3914	10-2	26- 50		57 46 10 11	---	(6)		---	---	---		54	
Sk 34	3914	18-2	82- 85	07.15	57 54 10 16	(2)	(12)		---	---	---		121	
Sk 35	3914	18-2	90-100		57 50 10 33	---	(9)		(1)	---	---		10	
Sk 36	3914	21-2	30- 38	14.35	57 42 10 55	(82)	(56)		(1)	---	---		128	
Sk 30	4014	17-2	75		57 37 11 32	---	(15)		---	---	---		105	
Sk 31	4014	17-2	70	10.35	57 33 11 33	---	(62)		(6)	---	(1)		328	
Sk 32	4014	17-2	54- 58	13.00	57 36 11 24	(2)	(12)		(2)	(1)	---		524	
Sk 33	4014	17-2	67- 61	16.10	57 53 11 11	(14)	(13)		(5)	---	---		199	
Sk 45	4013	24-2	57- 60	06.55	57 10 11 56	---	(7)		---	---	---		66	
Sk 47	4013	24-2	80- 65	12.05	57 19 11 35	---	(1)		(1)	---	---		225	
Sk 46	4013	24-2	30- 25	09.30	57 20 11 60	(4)	(278)		---	---	---		54	
Sk 44	4113	23-2	33- 55	15.50	57 40 12 01	---	(3)		(1)	---	---		37	
Sk 43	4113	23-2	27- 35	13.30	56 59 12 12	---	(13)		---	---	---		13	
Sk 37	4112	22-2	13- 15		56 31 12 47	(12)	(354)		---	---	---		---	
Sk 38	4112	22-2	20	09.30	56 31 12 40	---	(6)		---	---	---		---	
Sk 41	4112	22-2	42		56 39 12 13	---	(8)		(2)	---	---		66	
Sk 42	4112	23-2	43	09.00	56 41 12 10	---	(19)		---	---	---		15	
Sk 39	4111	22-2	22- 23	11.50	56 22 12 33	(1)	(60)		---	---	---		56	
Sk 40	4111	22-2	30	14.45	56 22 12 16	(13)	(61)		(4)	---	---		476	

NOTES : Because no otolith samples were available from this sea area reliable estimates of numbers per yearclass can hardly be made.

1) division between I and II group cod arbitrarily set at 23 cm.

2) division between I and II group haddock arbitrarily set at 26 cm.

division between II and III group haddock arbitrarily set at 40 cm.

3) For whiting no division has been made.

Table 1 E - Number of Gadoid species per age group per hour fishing during the International Young Herring Survey 1972.

U.S.S.R. ("VAIDA").

HAUL/ STATION	REC- TANGLE	DATE	DEPTH (METER)	TIME SHOT	POSITION	COD			HADDOCK			WHITING		
						I 1971	II 1970	III+	I 1971	II 1970	III+	I 1971	II 1970	III+
5	3106	14-2	30	11.34	53°46' N 02°30' E	(2)	(380)	(4)	(2)	---	---	(76)	(188)	(6)
6	3105	14-2	33- 34	16.20	53 16 02 32	---	---	(2)	---	---	---	(201)	(13)	(2)
7 a	3205	15-2	28- 29	07.30	53 12 03 15	---	---	---	---	---	---	(1220)	(94)	(2)
7 b	3205	15-2	25	10.48	53 22 03 42	---	(4)	(2)	---	(2)	---	(1070)	(36)	---
8 a	3206	15-2	40	13.53	53 36 03 17	---	---	(8)	---	---	---	(384)	(216)	---
8 b	3206	16-2	38- 37	13.45	53 47 03 46	---	---	(4)	---	(2)	(2)	(270)	(68)	(4)
9	3507	17-2	37	07.41	54 11 06 20	---	---	---	---	---	---	(24)	(6)	---
10	3607	17-2	40	13.17	54 29 07 09	---	(74)	(4)	---	---	---	---	(2)	---
11	3608	17-2	30- 35	16.35	54 40 07 07	(6)	(12)	(2)	---	---	---	(2)	(2)	---
12	3508	18-2	42- 43	07.44	54 53 06 38	---	---	---	---	(10)	---	(122)	---	---
1	2812	12-2	75	10.35	56 44 00 30 W	6	8	---	15.538	386	---	2374	4	---
2 a	2712	12-2	70	15.06	56 43 01 16	2	8	2	2238	346	24	2150	2	2
2 b	2712	12-2	66- 70	17.06	56 41 01 22	4	12	---	422	130	30	1101	22	5
3	2711	13-2	56- 55	07.58	56 18 01 20	2	6	---	1602	990	174	956	13	7
4 a	2811	13-2	78- 76	11.44	56 14 00 44	---	16	---	5606	406	16	322	45	7
4 b	2811	13-2	72- 73	15.55	56 02 00 35	---	70	---	186	2964	88	---	61	7
13	3511	18-2	42	16.24	56 14 06 26 E	(2)	(422)	(18)	(2)	(26)	(28)	(25)	(138)	(29)
14	3611	19-2	29- 31	07.42	56 18 07 23	---	---	(2)	---	---	---	(52)	---	---
15	3612	19-2	37- 35	11.25	56 37 07 16	---	(76)	(54)	---	---	---	(54)	---	(4)
16	3512	19-2	41- 40	16.07	56 40 06 39	(40)	(180)	---	---	---	---	(215)	(11)	---
17	3212	20-2	61	07.45	56 44 03 16	(6)	(2)	---	2	---	2	(186)	---	---
18	3211	20-2	65	12.50	56 22 03 28	(10)	(146)	(8)	826	316	22	(39)	(9)	---
19	3111	20-2	75- 76	16.16	56 17 02 45	---	(120)	(78)	42	72	12	(787)	(21)	---
20	3112	21-2	90- 92	07.57	56 57 02 15	(18)	(220)	(4)	1042	576	104	(22)	(12)	---
21	3016	22-2	115-121	07.33	58 39 01 24	---	---	---	(1334)	(364)	(106)	(110)	(34)	(4)
22 a	3015	22-2	127	11 02	58 19 01 19	---	(28)	(6)	(356)	(52)	(24)	(4)	---	---
22 b	3015	22-2	145-143	13.52	58 15 01 05	---	---	(2)	(412)	(92)	(34)	(4)	---	(2)
23 a	2915	22-2	150	16.12	58 16 00 47	---	(14)	(14)	(186)	(80)	(18)	(3)	(7)	(2)
23 b	2915	23-2	143-141	07.59	58 24 00 07	---	(22)	(4)	(520)	(140)	(40)	(23)	(21)	---
24 a	2916	23-2	145-151	12.57	58 49 00 29	(2)	(80)	(20)	(692)	(102)	(54)	(8)	(48)	(10)
24 b	2916	23-2	140	16.20	58 57 00 07	---	---	(12)	(294)	(446)	(112)	(32)	(219)	(49)

NOTES : () estimated (No length-age keys available from this group of rectangles).

Table 1 F - Number of Gadoid species per age group per hour fishing during the International Young Herring Survey 1972.

DENMARK ("DANA").

HAUL/ STATION	REC- TANGLE	DATE	DEPTH (METER)	TIME SHOT	POSITION	COD			HADDOCK			WHITING ¹⁾		
						I 1971	II 1970	III+	I 1971	II 1970	III+	I 1971	II 1970	III+
15.741	3008	19-2	25	07.50	54°44' N 01°40' E	2	74	---	---	---	---			
15.743	3007	19-2	50	11.25	54 27 01 24	---	---	6	---	---	---			
15.745	2908	19-2	70	15.10	54 39 00 50	2	2	---	---	20	40			
15.746	2907	19-2	70	18.15	54 26 00 32	---	6	---	---	---	16			
15.772	3608	23-2	18	10.36	54 38 07 45	---	(2)	---	---	---	---			
15.730	3310	18-2	34	07.06	55 39 04 10	---	---	---	---	(8)	---			
15.732	3309	18-2	48	12.03	55 28 04 50	---	---	(6)	...	22	...			
15.732	3309	18-2	48	14.03	55 19 04 50	(2)	---	(4)	...	10	...			
15.733	3409	18-2	46	17.05	55 20 05 11	(10)	---	---	---	---	(6)			
15.780	3410	24-2	50	15.50	55 50 05 45	(36)	(8)	(6)	---	---	(8)			
15.775	3609	23-2	25	17.10	55 19 07 37	---	---	---	---	---	---			
15.776	3610	24-2	18	08.16	55 45 07 38	4	---	---	---	---	---			
15.710	3612	15-2	27	08.16	56 57 07 31	(14)	(18)	---	---	---	---			
15.788	3612	1-3			56 55 07 24	...	?	...		no data				
15.791	3612	2-3			56 55 07 24	(3)	(218)	(10)		no data				
15.792	3612	2-3			56 55 07 08	(2)	(30)	(18)		no data				
15.794	3612	2-3			56 55 07 24	---	(181)	(29)		no data				
15.795	3612	2-3			56 55 07 24	(10)	(71)	(8)		no data				
15.711	3512	5-3	44	15.08	56 32 06 50	(122)	(1380)	(42)	---	---	(16)			
15.796	3512	5-3			56 33 06 50	(20)	(1266)	(36)		no data				
15.797	3512	5-3			56 33 06 50	...	?	...		no data				
15.798	3512	5-3			56 33 06 50	(4)	(572)	(51)		no data				
15.799	3512	5-3			56 33 06 50	(20)	(16)	---		no data				
15.800	3512	5-3			56 33 06 50	...	?	...		no data				
15.811	3512	13-3			56 33 06 50	...	?	...		no data				
15.721	3114	17-2	75	07.35	57 49 02 30	6	36	---	---	673	121			
15.722	3214	17-2	65	11.35	57 40 03 08	...	?	...	---	18	18			
15.723	3213	17-2	65	15.19	57 21 03 24	26	2	---	---	90	40			

NOTES : ¹⁾ No Whiting data available.

... 1... no length measurements available, no separation into yearclasses possible.

() estimated (no length age keys available from this group of rectangles).

Table 1 G - Number of Gadoid species per age group per hour fishing during the International Young Herring Survey 1972.

GERMANY ("ANTON DOHRN").

HAUL/ STATION	REC- TANGLE	DATE	DEPTH (METER)	TIME SHOT	POSITION	COD			HADDOCK			WHITING ')		
						I 1971	II 1970	III+	I 1971	II 1970	III+	I 1971	II 1970	III+
125	3407	4-2	44	08.10	54°13' N 05°20' E	---	(8)	(6)	---	---	---			
126	3407	4-2	45	09.35	54 16 05 18	---	(12)	(21)	---	(1)	---			
128	3307	4-2	48	17.15	54 15 04 57	---	(75)	(4)	---	(5)	---			
135	3308	5-2	51	08.00	54 45 04 32	---	(3)	---	---	---	---			
138	3408	5-2	47	12.45	54 50 05 17	---	---	(1)	---	---	---			
139	3408	5-2	44	14.15	54 55 05 18	---	(6)	(7)	---	(2)	(3)			
115	3607	3-2	42	08.45	54 23 07 11	(1)	(7)	(19)	---	---	---			
116	3607	3-2	44	10.25	54 19 07 13	(1)	(6)	(8)	---	---	---			
118	3507	3-2	40	16.07	54 14 06 15	---	---	(7)	---	---	---			
119	3507	3-2	42	17.40	54 15 06 06	---	---	(3)	---	---	---			
141	3409	5-2	46	17.05	55 06 05 24	(2)	(4)	(16)	---	(8)	(1)			
148	3410	6-2	58	08.00	55 44 05 28	(8)	(129)	(3)	---	(6)	(1)			
150	3310	6-2	42	11.50	55 40 04 45	(7)	(6)	---	---	(2)	---			
151	3310	6-2	39	13.15	55 37 04 39	(1)	(4)	(1)	---	---	(1)			
153	3309	6-2	49	16.45	55 19 04 30	(1)	(12)	(5)	---	(5)	(1)			
154	3309	6-2	50	18.10	55 15 04 22	---	(4)	(3)	---	(2)	---			
142	3409	5-2	45	18.35	55 10 05 27	---	(1)	(7)	---	(3)	---			
160	3011	7-2	91	08.20	56 15 01 27	---	(48)	---	(1037)	(338)	(49)			
162	2911	7-2	97	13.25	56 15 00 38	(18)	(41)	---	(621)	(352)	(16)			
164	2912	7-2	96	17.25	56 35 00 34	...	84	...	(7376)	...617	...			
170	3012	8-2	98	08.05	56 38 01 42	(13)	(297)	(55)	(2463)	(786)	(107)			
172	3112	8-2	88	11.55	56 44 02 15	...	201	...	...	1744	...			
218	3212	19-2	71	17.35	56 51 03 32	...	33	...	...	43	...			
223	3211	14-2	79	08.00	56 15 03 41	...	173	...	1649	105	11			
225	3311	14-2	71	12.00	56 15 04 27	...	16	...	---	... 15	...			
234	3511	15-2	47	08.40	56 13 06 14	...	114	...	...	123	...			
174	3113	8-2	90	15.40	57 09 02 26	(82)	(139)	(5)	846	419	189			
216	3213	13-2	70	13.40	57 15 03 31	...	24	...	---	... 6	...			
202	3313	11-2	70	14.15	57 17 04 09	...	18	...	...	18	...			
208	3414	12-2	132	17.35	57 41 05 27	...	10	...	(7)	(6)	(36)			
214	3314	13-2	90	07.35	57 41 04 31	...	8	...	(468)	(167)	(18)			
181	2815	9-2	120	08.20	58 14 00 35 W	---	---	---	(2190)	(265)	(2)			
184	2715	9-2	120	13.30	58 17 01 38	...	3	...	(661)	(718)	(226)			
186	2716	9-2	127	17.00	58 37 01 30	...	5	...	...	2249	...			
192	2816	10-2	141	08.10	58 41 00 32	...	27	...	...	2478	...			
194	2916	10-2	154	13.15	58 38 00 23	...	41	...	...	416	...			

NOTES : ') No whiting data available.

... 1 ... no length measurements taken, no separation into yearclasses possible.

() estimated (no length age keys available for this group of rectangles).

Table 1 H - Number of Gadoid species per age group per hour fishing during the International Young Herring Survey 1972.

THE NETHERLANDS ("TRIDENS").

HAUL/ STATION	REC- TANGLE	DATE	DEPTH (METER)	TIME SHOT	POSITION	COD			HADDOCK			WHITING		
						I 1971	II 1970	III+	I 1971	II 1970	III+	I 1971	II 1970	III+
38	3204	25-2	14	10.25	52° 54' N 03° 47' E	----	4	4	----	----	----	(56)	(183)	(17)
22	3303	17-2	10	08.20	52 16 04 10	* 4	38	2	----	----	----	(36)	(4)	----
23	3303	17-2	10	09.50	52 26 04 10	2	90	2	----	----	----	(20)	(2)	----
24	3304	21-2	15	13.25	52 53 04 11	----	44	12	----	----	----	(2)	(2)	----
25	3304	21-2	13	14.50	52 58 04 08	----	2	12	----	----	----	----	(16)	(2)
37	3205	25-2	14	07.30	53 11 03 42	----	(8)	----	----	----	----	(78)	(150)	(52)
1	3305	7-2	15	16.20	53 27 04 27	* 1	139	27	----	----	3	* 308	1749	363
26	3305	21-2	14	16.45	53 12 04 07	----	----	----	----	----	----	13	23	2
20	3306	16-2	22	14.30	53 53 04 22	----	4	24	----	----	2	* 402	582	----
21	3306	16-2	20	17.05	53 48 04 56	* 1	21	58	----	----	4	77	50	8
33	3406	24-2	18	08.30	53 50 05 19	----	8	8	----	----	2	54	12	2
34	3406	24-2	20	11.10	54 00 05 13	----	8	32	----	----	2	142	12	4
35	3406	24-2	15	14.05	53 51 05 44	----	4	2	----	----	2	4	----	----
36	3506	24-2	14	16.45	53 51 06 20	----	(10)	----	----	----	----	----	----	----
2	2809	8-2		08.25	55 12 00 17 W	* 4	68	98	* 96	1320	48	* 144	161	143
3	2709	8-2	52	11.35	55 15 01 07	----	12	8	4	104	20	1161	1107	108
4	2710	8-2	38	14.55	55 38 01 12	----	50	110	120	2820	180	----	96	1584
27	2809	22-2	42	08.20	55 09 00 15	* ----	27	31	* 646	1934	----	* 304	1634	532
28	2810	22-2	40	11.35	55 36 00 35	----	----	2	504	96	10	* 353	115	18
29	2811	22-2	40	14.55	56 09 00 41	----	----	4	896	802	40	4	48	62
30	2711	22-2	32	17.15	56 17 01 20	----	----	----	1088	32	16	480	----	8
16	3210	15-2	31	07.50	55 50 03 25 E	* ----	8	24	(4)	(14)	(10)	4	2	----
17	3209	15-2	16	11.10	55 23 03 19	----	----	2	----	----	----	----	----	----
18	3109	15-2	20	14.30	55 23 02 24	----	32	----	----	(2)	----	2	4	----
19	3110	15-2	39	16.50	55 40 02 28	----	3	1	(2)	(2)	----	* 6	28	1
31	3211	23-2	36	11.30	56 20 03 47	----	2	----	* 172	54	36	----	----	----
32	3311	23-2	30	16.40	56 21 04 44	----	----	2	2	4	4	----	----	----
9	3214	10-2	34	11.20	57 45 03 25	(10)	----	----	136	2	----	(2)	----	----
10	3114	10-2	40	14.33	57 37 02 35	----	----	----	3320	----	2	(21)	(5)	(2)
11	3113	10-2	42	16.45	57 23 02 35	----	(2)	----	4400	110	32	(11)	(13)	(2)
5	3115	9-2	42	08.35	58 16 02 23	2	2	2	1104	16	----	(16)	----	(16)
6	3116	9-2	58	13.25	58 46 02 16	2	2	4	* 792	248	90	----	(8)	(8)
7	3116	9-2	64	16.00	58 49 02 54	* 3	32	9	152	69	24	----	(2)	----
8	3215	10-2	45	08.25	58 12 03 15	----	----	----	1472	128	42	(2)	(18)	----
12	3513	11-2	39	08.30	57 14 06 20	----	9	7	* 60	75	33	(34)	----	(4)
13	3613	11-2	27	15.10	57 10 07 38	----	51	1	----	41	43	----	----	----
14	3614	14-2	118	11.35	57 32 07 48	----	4	----	----	----	----	----	----	(2)
15	3514	14-2	90	16.05	57 36 06 27	----	9	5	2	----	----	----	(1)	(1)

NOTES: * otolith samples taken.

() estimated (no length age keys available for this group of rectangles).

TABLE 2a - Length-age distribution of COD samples per group of 4 statistical rectangles.

Group of rectangles	3103-3204			3303-3404			2905-3006			3305-3406			2707-2808			2907-3008			3107-3208			2709-2810			2909-3010		
Origin of samples	ENGLAND			HOLLAND			ENGLAND			HOLLAND			ENGLAND			SCOTLAND			SCOTLAND			ENGLAND HOLLAND			ENGLAND		
Yearclass	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older
Length <15																1						2					
16																											
17				1												1											
18																1			1								
19																1											
20																											
21										1	1					1							1				
22																											
23															1				2				1				4
24																2			2				2				1
25		1		2											2				2				3				2
26		1													1				2				1				3
27		2										1					2		2				2				1
28												2				1							2				2
29		2			1							2							1	1			2				
30												2				1				2			1				
31		1										2								2			1				1
32					1							2								2			1				1
33												2				1				2			1				1
34					3							2				1				2			1	1			
35					3							2								1			1	1			1
36		1			3					1		2				1				1			1	1			1
37		2			2							2											1	1			1
38		1			3							2											1	1			1
39					1							2				1								1			
40					3							2												1			
41		1			4					1		2			1			1		1			1	2			
42		1			2							2						1					1	2			2
43					1							2			1									1			
44		1			3							2			1									2			
45					2							1												2			
46		2			4				1			2						1						1			1
47					3							1												2			
48																											
49					4	1																		2			
>50			15			2						1						36						3			4
TOTAL in sample	31			49			17			42			17			87			25			46			29		

To be continued

TABLE 2 a - Continued.

3109-3210			3509-3610			2711-2812			3311-3412			2713-2814			2913-3014			3513-3614			2515-2616			3115-3216			
HOLLAND			ENGLAND			ENGLAND SCOTLAND			SCOTLAND			SCOTLAND			ENGLAND			HOLLAND			SCOTLAND			HOLLAND			
1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	Length
									3			1									2						< 15
									1																		16
									1																		17
									1																		18
									1																		19
									1																		20
									1																		21
									1																		22
									1																		23
									1																		24
									1																		25
									1																		26
									1																		27
									1																		28
									1																		29
									1																		30
									1																		31
									1																		32
									1																		33
									1																		34
									1																		35
									1																		36
									1																		37
									1																		38
									1																		39
									1																		40
									1																		41
									1																		42
									1																		43
									1																		44
									1																		45
									1																		46
									1																		47
									1																		48
									1																		49
									19																		>= 50
5			8			51			32			44			12			39			8			18			

TABLE 2 b - Length-age distributions of HADDOCK samples per group of 4 statistical rectangles.

Group of rectangles	3103-3204			2707-2808			2907-3008			3107-3208			2709-2810			2909-3010			3509-3610			2711-2812			3111-3212		
Origin of samples	ENGLAND			ENGLAND			SCOTLAND			SCOTLAND NORWAY			HOLLAND			ENGLAND			ENGLAND			SCOTLAND ENGLAND			HOLLAND		
Yearclass	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older
Length 15													11			1						9					
16							2						2			2						6			1		
17				1			2						3									8			2		
18				2			2						2									7			2		
19				2			2						2			3						7			2		
20							2						2									5			2		
21							2			1			2			1						5			2		
22							2															4			2		
23							2															1			2		
24							1						1									2			1		
25				1									1									2					
26													2									7			1		
27													2									5			2		
28													2									7			1		
29				2									2									7					
30				1									2									7			2		
31				2									2					1				7			3		
32				2									2					1				8			2		
33				1									2					1				7			1		
34		1											2									5			2		
35			2										1							1		5			1		
36															1					1		1					1
37									1													1					1
38									2									1							1		
39																									1		
40																											
41						2												1									2
42																		1									1
43																		1									
44																		1									
45			4			3			13						8						5			4			
TOTAL in sample	7			19			78			39			65			32			7			145			42		

To be continued

TABLE 2 b - continued.

3311-3412			2713-2814			2913-3014			3113-3214			3513-3614			2515-2616			3115-3216			3315-3416			2717-2818			3117-3216		Length
SCOTLAND			SCOTLAND NORWAY			ENGLAND			NORWAY			NORWAY HOLLAND			NORWAY SCOTLAND			NORWAY HOLLAND			NORWAY			NORWAY			NORWAY		
1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	
1			18									9			14			1			38			10			38	+	
2			15			2			3			2			10						1			24			10	older	
2			15			2			7			2			10			2			1			12			1		
2			11	2		2						2			9	1		2						8			1		
2			8	3		2			3			2			8			3						1					
2			7	9					3			2			5	7								1					
2			2	14					1			1			1	10													
2				26					2			1	1		1	17													
2				26								1	1		1	20													
3	1		21		1		1								14		1				2								
			22												22						1								
	2		18				2		4						28	2													
			16	1			1		4	1			1		27														
	2		14	1			1		2	2			5		22	1													
			20						2				7		20	2													
	2		10	4			2		5	2			8	1	9	2													
	2		12				1	1					9	1	12	6													
	2		5	3					4	1			17		9	3													
	2		3	6					1	1			6	2	7	4													
	2			4									6	2	5	4													
				10									1	5		4													
				8				1			1		3	1		2													
	3	2		9										4		7													
				11										2		4													
				6							1		1	2		4													
				6							1		1	1		6													
				6							3			3		7													
	2	1		3							3			2		4													
		2		5			1				1			2		1													
				1			1				3			2		3													
		16		11			4				10			16		11													
61			398			24			72			134			368			73			40			99			50		

TABLE 2 c - Length-age distributions of WHITING samples per group of 4 statistical rectangles.

Group of rectangles	3305-3406			2907-3008			3107-3208			3307-3408			2709-2810			3109-3210		
Origin of samples	HOLLAND			SCOTLAND			SCOTLAND NORWAY			NORWAY			HOLLAND			HOLLAND		
Yearclass	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older
Length ≤ 15	5			15			15			2			10			1		
16				10			10			3						2		
17				10			10			6						2		
18	3			9			9			3			3	1		2		
19				10			10			1			3			2		
20	1			10			10			1						1	1	
21	3			4	5		4	5			4			2			3	
22				5	5		7	7			4			1			2	
23	1	1		1	5		2	9			7			2			2	
24					5			14			8			2			2	
25		3			3			12			2			2			1	1
26		3			7	1		18	1		4			2			2	
27		3			7			14			2			2			2	
28		3			8	2		12	2		1				1		2	
29		3			4	5		8	5		1				2			
30		2	1		3	7		6	7					2				
31		1	2		2	7		2	7						2			
32		3			3	4		4	4						2			
33		2	2		1	9		1	9						2			
34			1			10			10									
35		1	1			10			10						2			
36			1			7												
37						9												
38						4												
39						3												
≥ 40						4												
TOTAL in sample	46			214			244			49			43			28		

To be continued.

TABLE 2 c - Continued.

2711-2812			3311-3412			2713-2814			2515-2616			2717-2818			Group of rectangles
SCOTLAND			NORWAY			SCOTLAND			SCOTLAND			NORWAY			Origin of samples
1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	1971	1970	older	Yearclass
16			30			24			24						Length ≤ 15
10			25			15			20						16
10			21			21			20						17
10			12			16			20						18
10			12			20			21			1			19
9	1		10	1		16	1		21			1			20
9	1		5	5		18	1		20						21
10			5	5		12	2		18	1		2	1		22
4	6		1	4		4	11		6	3		3	2		23
	8	2		5			13	3	1	5	2	1	2		24
				7			11	1		2	1		6		25
	9	1		2			12	1		8	5		4		26
	7	3		3			10	4		12	1		13	1	27
	5	5					6	5		10	1		13	1	28
	4	6			1		4	6		9	5		5	1	29
	5	5		1			5	5		6	7		3	2	30
	4	6					4	7		6	6		2	3	31
		10		2				10		3	5			3	32
	1	8					1	8		2	5		2	2	33
	2	8					2	9			6		2	3	34
		9						9			2		1	1	35
		10						10			2			1	36
		1						7			1				37
		1						7			2			1	38
		4						4			1				39
		11						11			3				>40
231			157			336			293			83			TOTAL

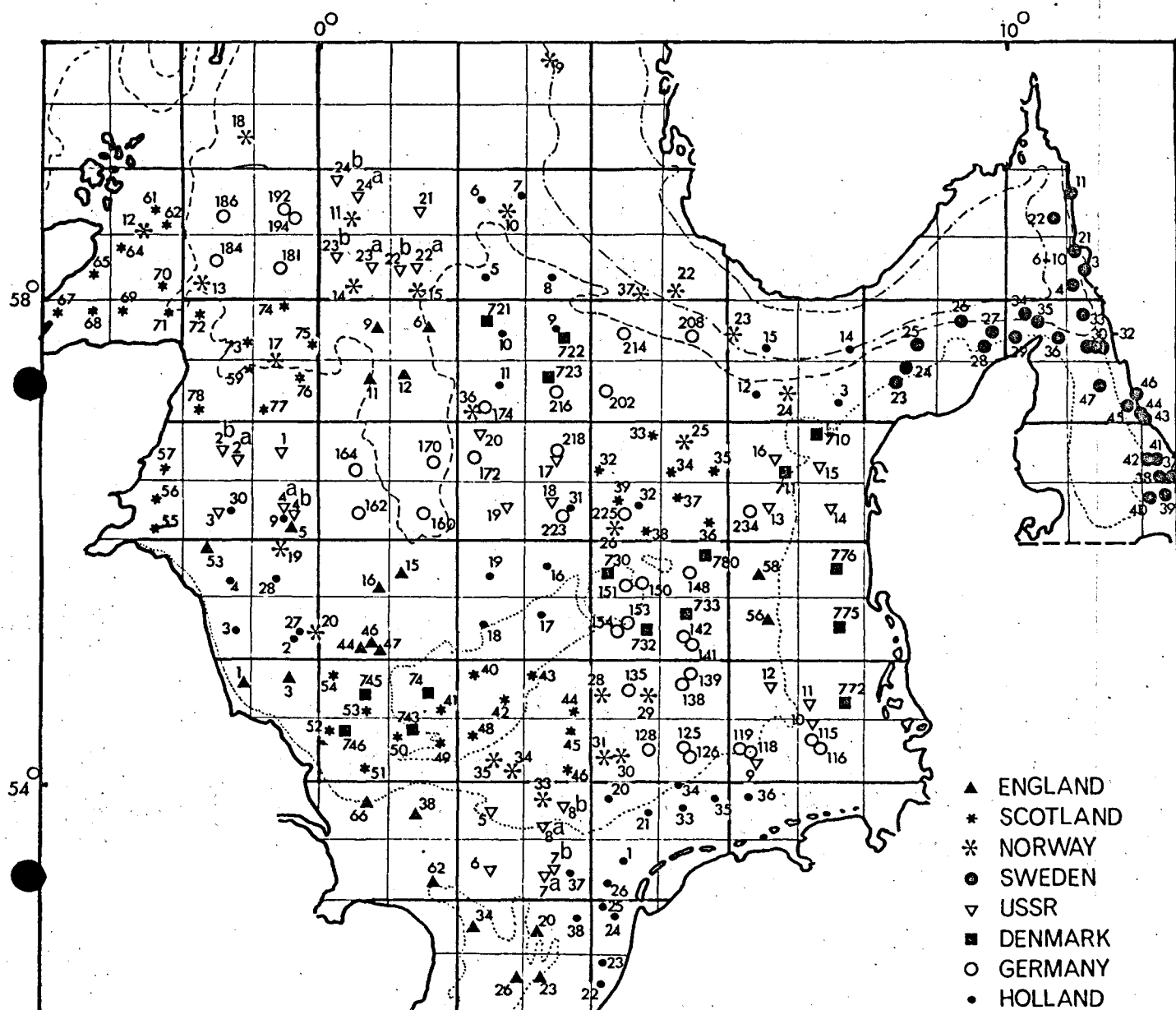
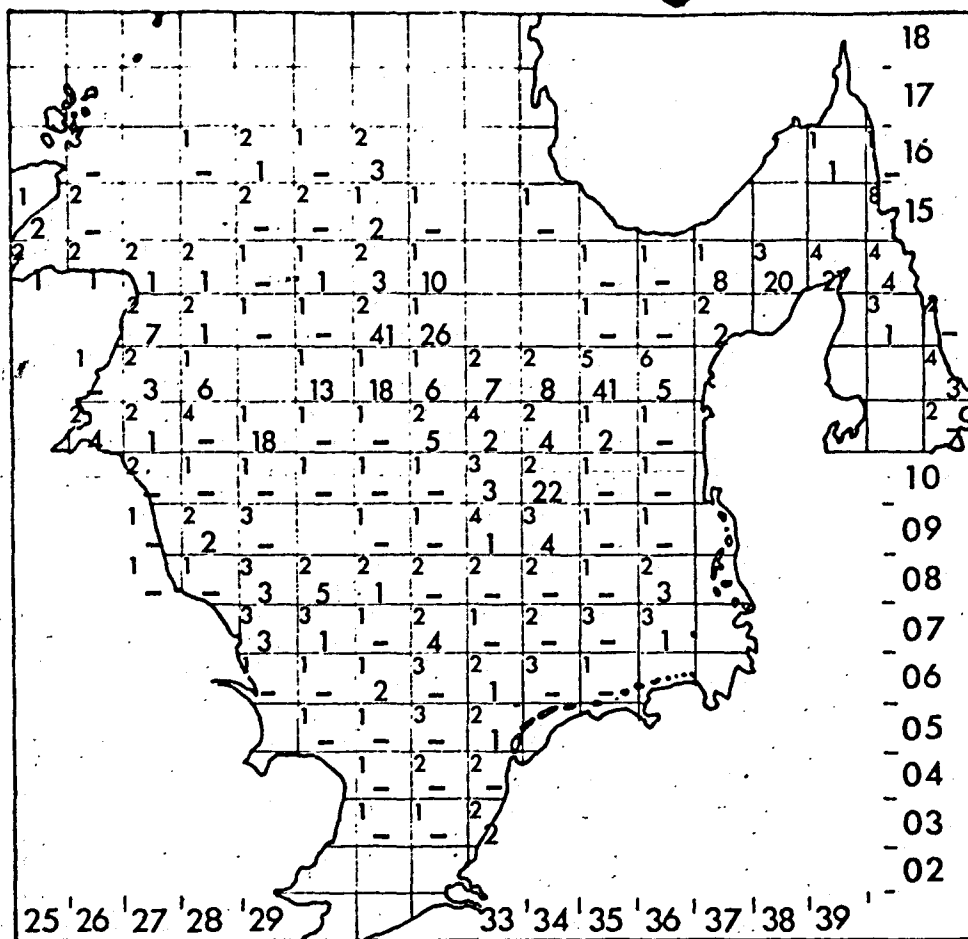
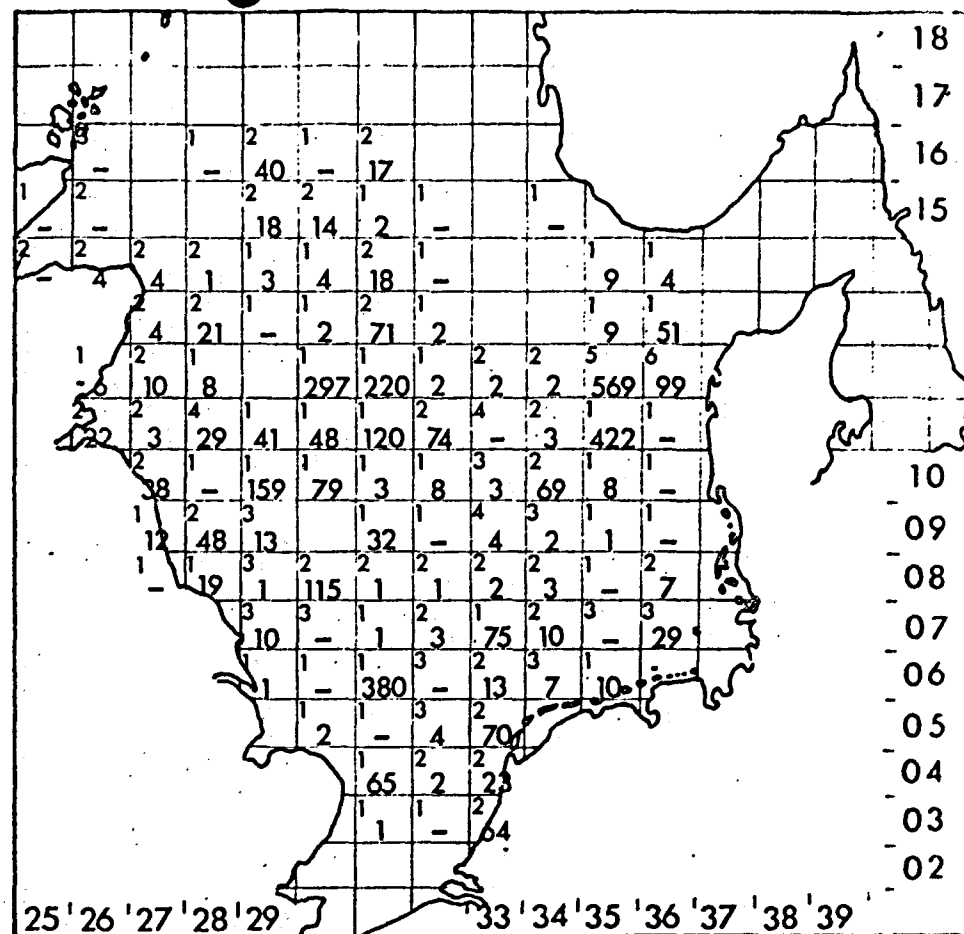


Fig 1. Positions of trawl stations of different countries during the Int. Young Herring Survey 1972.



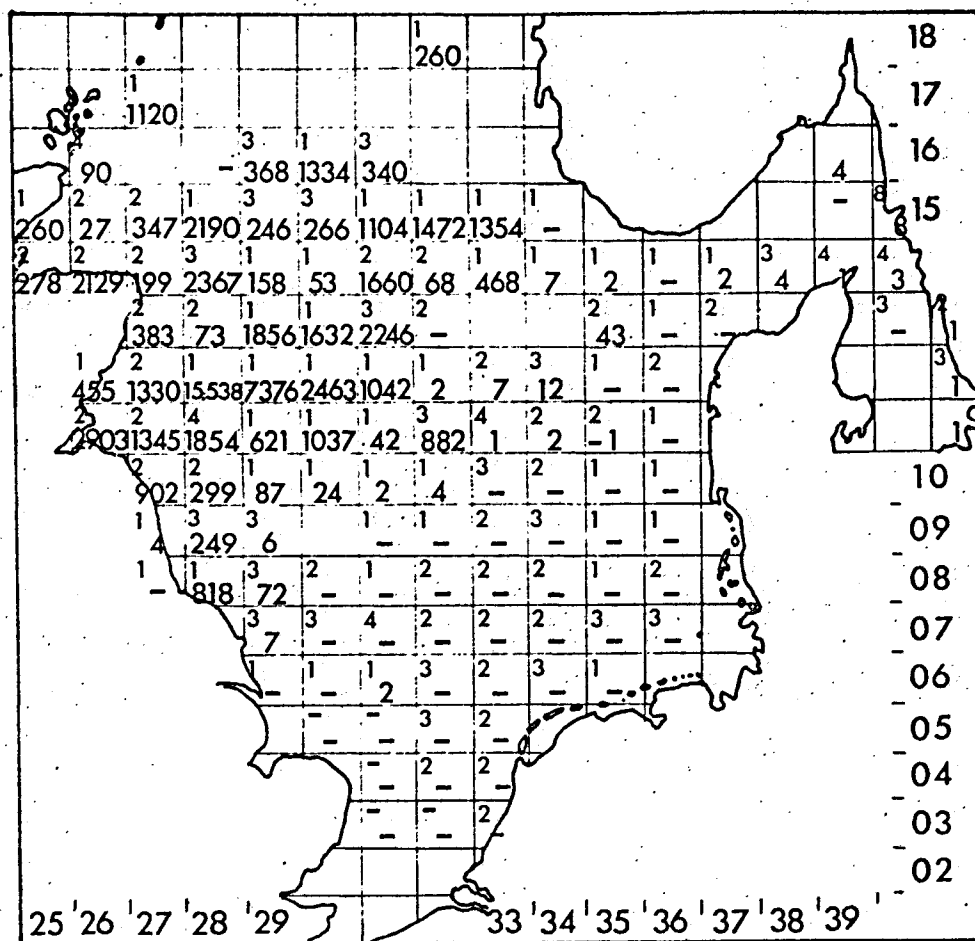
I year old COD, yearclass 1971



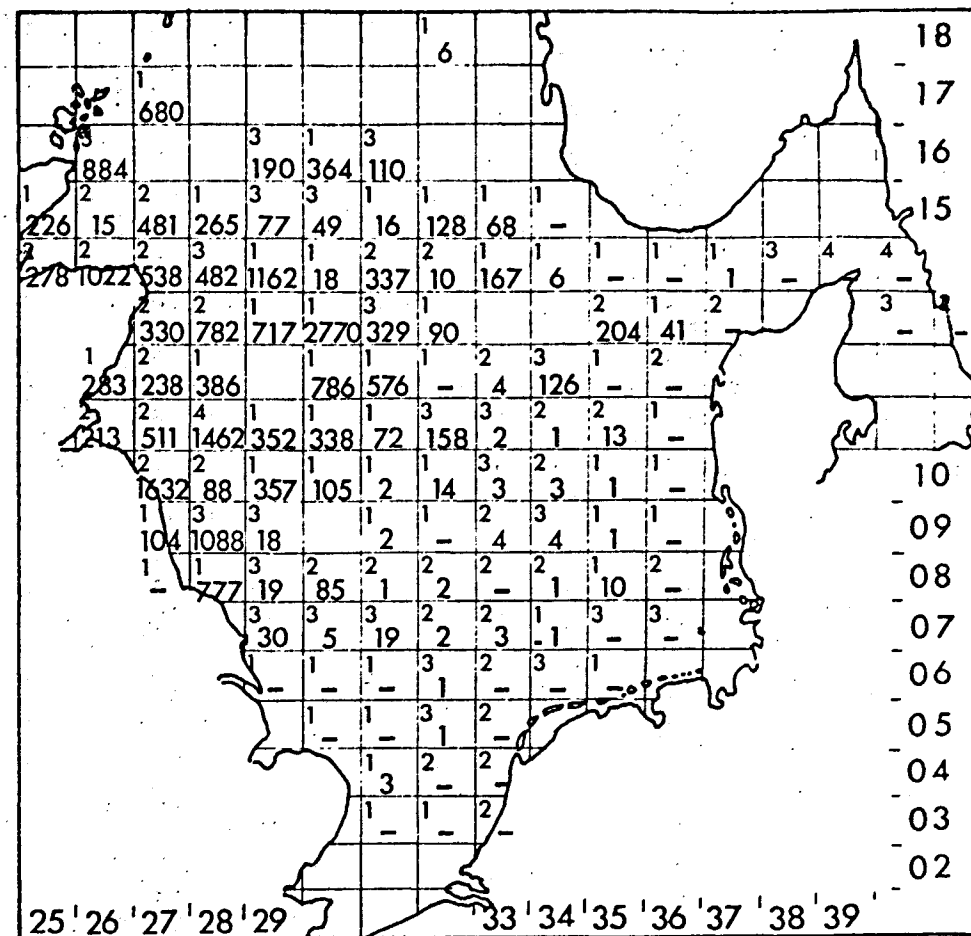
II year old COD, yearclass 1970

(small figures represent number of hauls per rectangle)

Fig 2^A Mean number of I and II year old COD per hour fishing, caught during the International Young Herring Survey 1972.



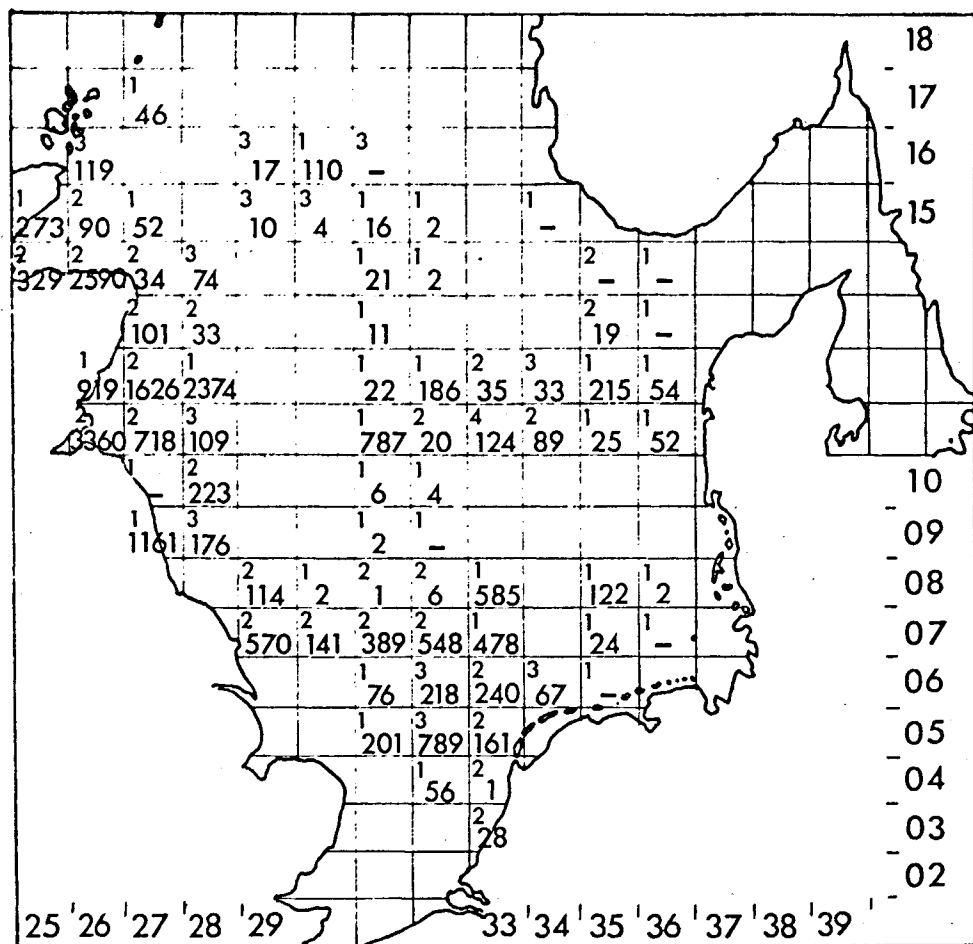
I year old HADDOCK, yearclass 1971



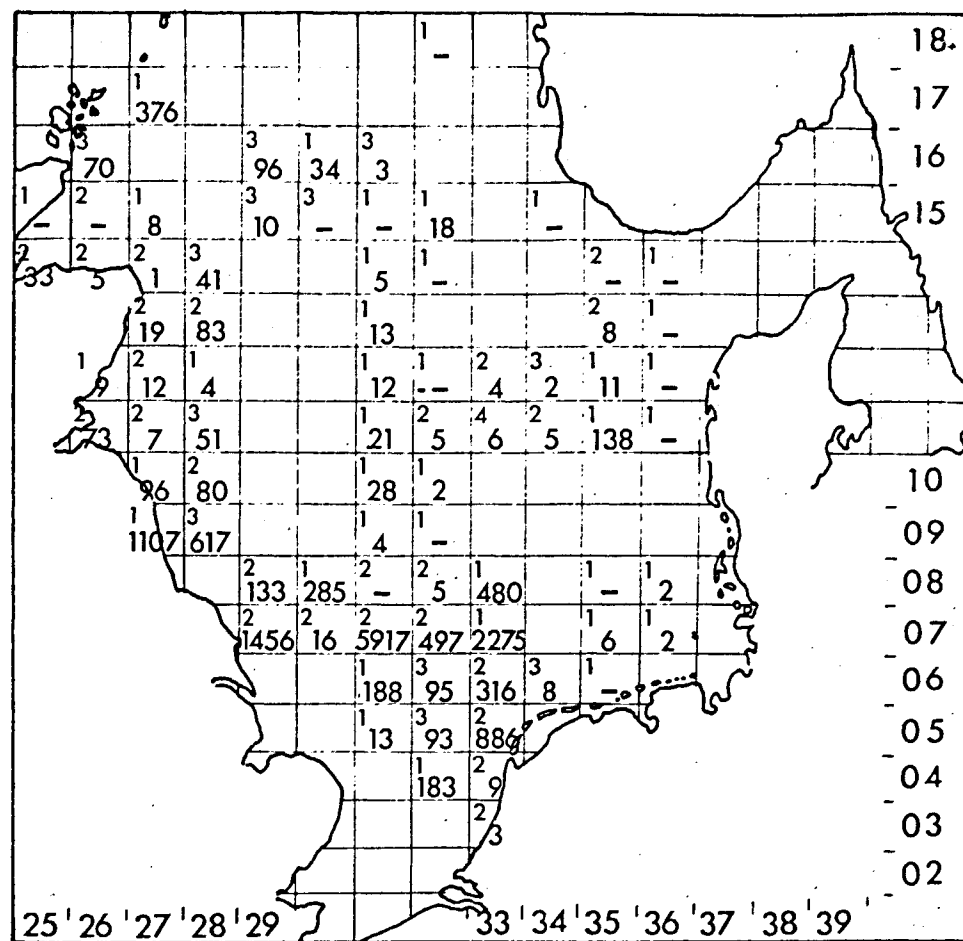
II year old HADDOCK, yearclass 1970

(small figures represent number of hauls per rectangle)

Fig 2^B Mean number of I and II year old HADDOCK per hour fishing, caught during the International Young Herring Survey 1972.



I year old WHITING, yearclass 1971



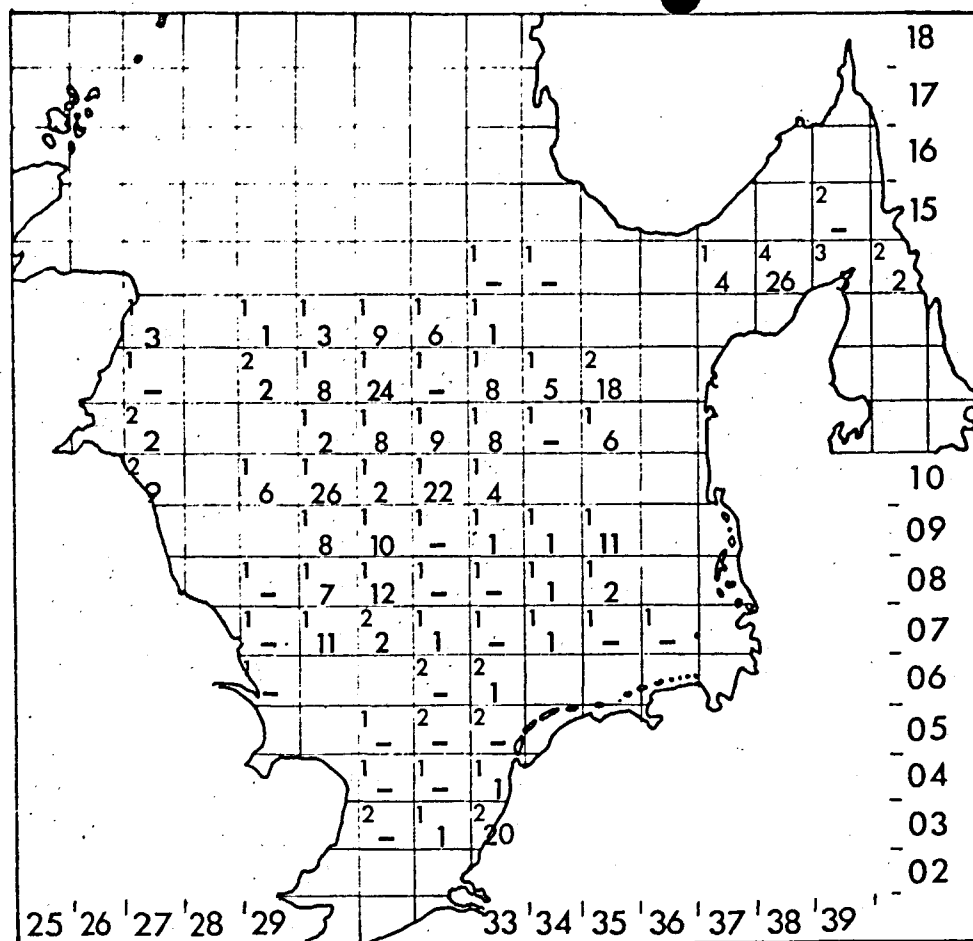
II year old WHITING, yearclass 1970

(small figures represent number of hauls per rectangle)

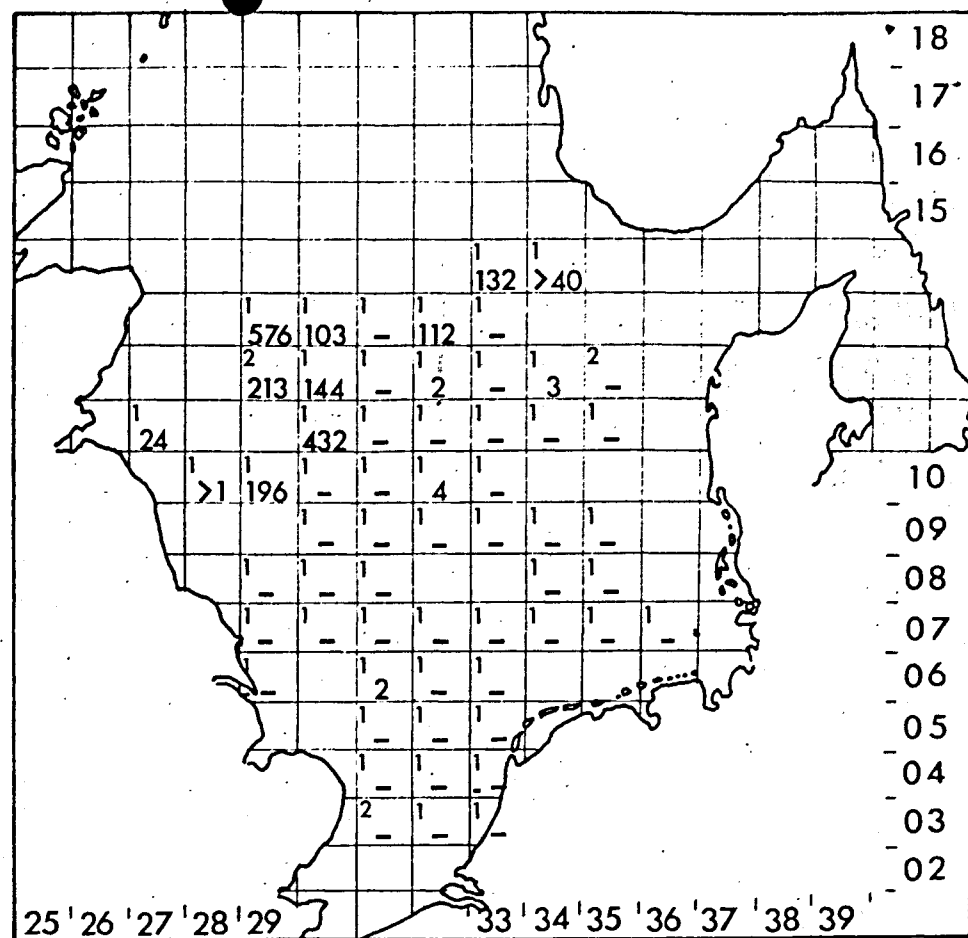
Fig 2^c Mean number of I and II year old WHITING per hour fishing, caught during the International Young Herring Survey 1972.

APPENDIX.

Preliminary charts presenting the estimated numbers of I group Cod, respectively Haddock per hour fishing during the International Young Herring Surveys in 1969, 1970 and 1971.



A. COD



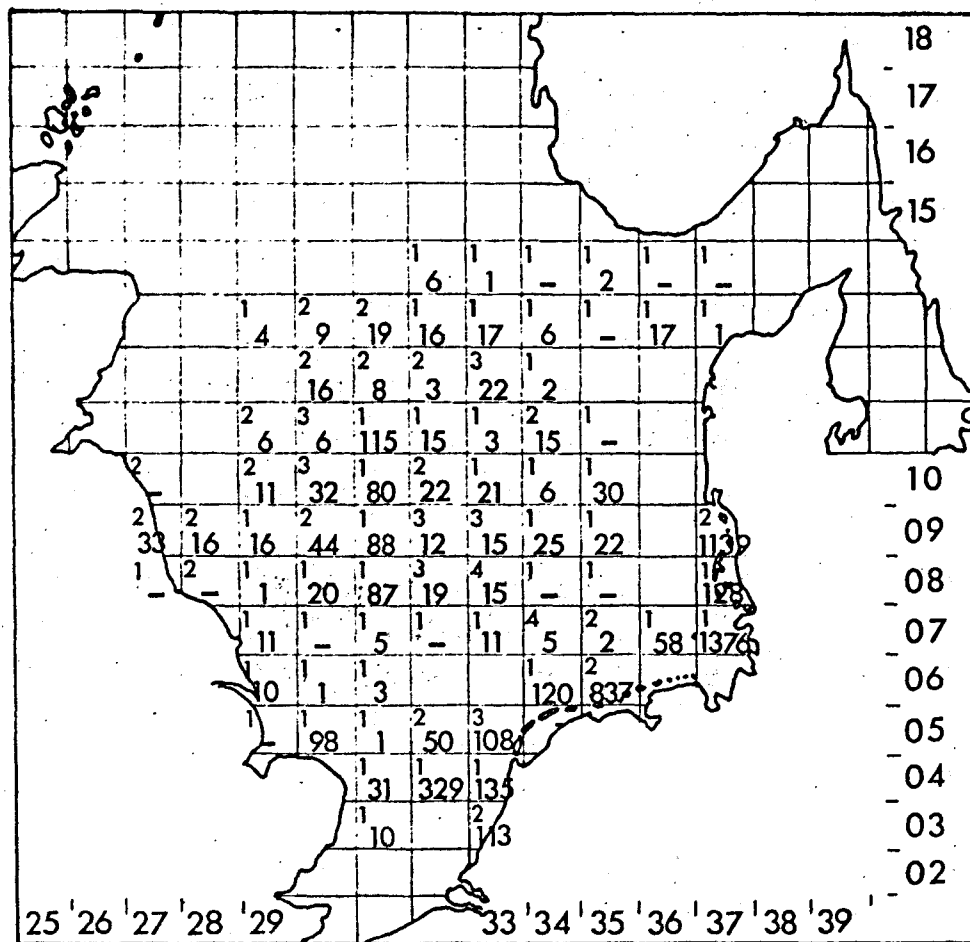
B. HADDOCK

(small figures represent number of hauls per rectangle)

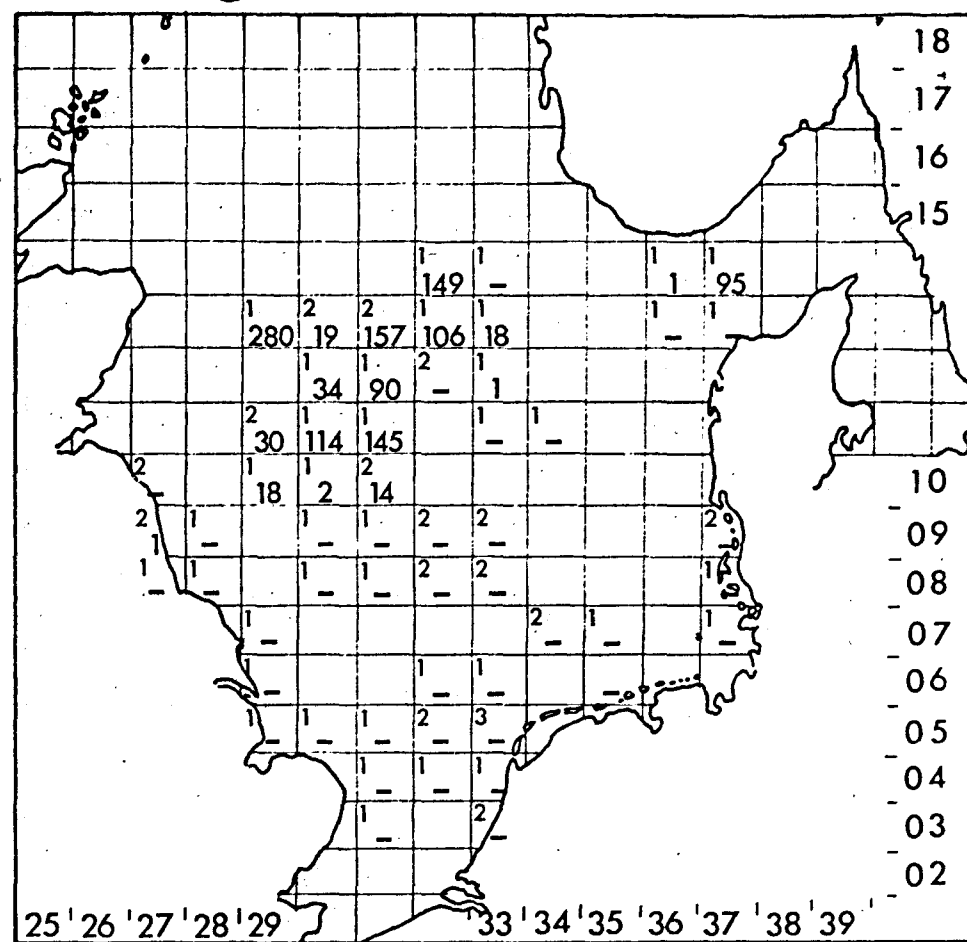
Fig I. International Young Herring Survey 1969

Mean number of 1 year old COD (A), resp. HADDOCK (B) (yearclass 1968) per hour fishing.

(English, Scottish, Swedish & Dutch data)



A. COD



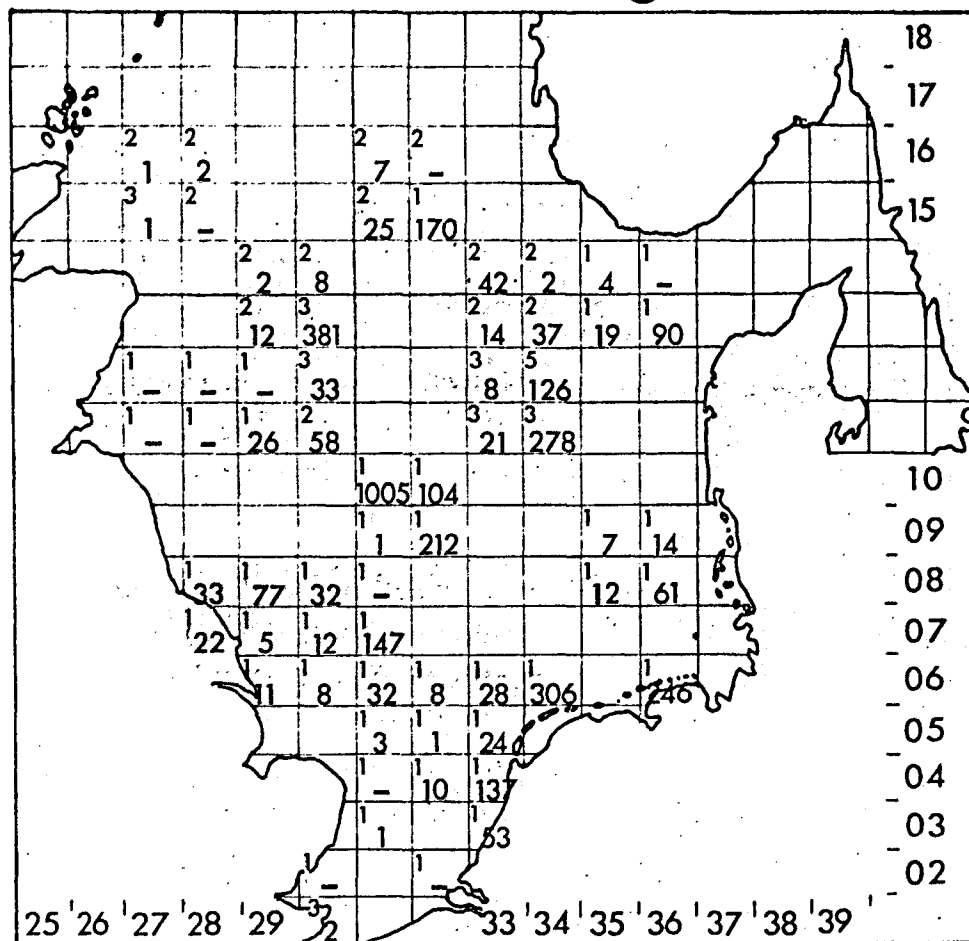
B. HADDOCK

(small figures represent number of hauls per rectangle)

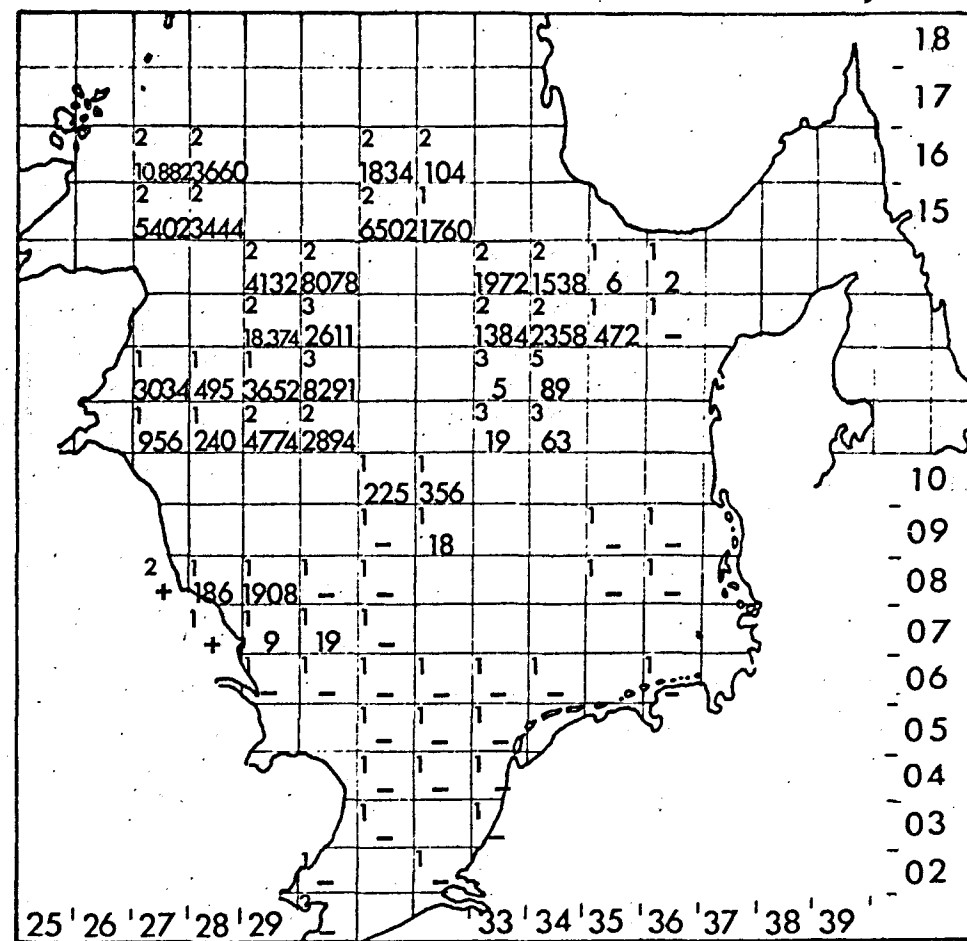
Fig II. International Young Herring Survey 1970.

Mean number of 1 year old COD (A), resp. HADDOCK (B) (yearclass 1969) per hour fishing.

(English, German & Dutch data)



A. COD



B. HADDOCK

(small figures represent number of hauls per rectangle)

Fig III. International Young Herring Survey 1971.

Mean number of 1 year old COD (A), resp. HADDOCK (B) (yearclass 1970) per hour fishing.

(English, Russian & Dutch data)