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Federal Republic of Germany Research Report, 1975

Subarea 1 and East Greenland

by

A. Meyer

A. Status of the Fisheries

1. General Trends

Table 1 gives the nominal catch off West- and East Greenland, taken by the Federal Republic of Germany fleet in 1963 and from 1968 to 1975. Compared to 1974 the catch tripled to 23,162 t. However the 1975 catch was only 9% of the maximum catch in 1963. The catch in Subarea 1 amounted to 15,917 t. 10,954 t of cod were taken, which is 91% of the German cod quota.

Table 1.

Subarea 1 and East Greenland: FRG nominal catches including industrial fish (tons), 1963 and 1968-1975

			COD			REDFISH			TOTAL		
	Year	Days fishing	Catch	Catch per day	% ind.	Catch	Catch per day	% ind.	Catch	Catch per day	% ind.
Subarea 1	1963	7,175	152,934	21.3	4.2	44,355	6.2	4.7	202,923	28.3	8.6
	1968	5,819	132,498	22.8	5.3	11,858	2.0	1.8	146,432	25.2	5.3
	1969	3,234	67,431	20.9	4.0	6,964	2.2	5.2	75,293	23.3	4.3
	1970	1,722	38,551	22.4	4.0	4,501	2.6	9.1	44,283	25.7	5.9
	1971	1,545	37,950	24.6	1.9	3,335	2.2	2.0	42,482	27.5	2.4
	1972	1,312	16,963	12.9	0.3	2,650	2.0	1.9	20,732	15.8	1.8
	1973	672	6,048	9.0	0.5	2,209	3.3	1.5	9,735	14.5	9.4
	1974	114	1,681	14.7	-	568	5.0	-	2,476	21.7	2.9
	1975	576	10,854	18.8	0.0	3,119	5.4	1.4	15,917	27.6	9.0
E.Greenland	1963	2,182	13,677	6.3	0.5	31,368	14.4	1.4	47,700	21.9	2.2
	1968	1,361	9,825	7.2	0.2	15,432	11.3	2.0	26,417	19.4	2.0
	1969	2,164	14,292	6.6	0.9	24,587	11.4	4.6	40,505	18.7	4.2
	1970	1,532	14,388	9.4	0.9	15,672	10.2	4.5	31,104	20.3	3.3
	1971	1,737	28,735	16.5	0.6	14,037	8.1	2.9	44,062	25.4	2.4
	1972	1,732	21,664	12.5	0.4	7,153	4.1	1.6	29,742	17.2	0.9
	1973	931	9,286	10.0	0.0	4,480	4.8	0.2	14,309	15.4	1.2
	1974	312	2,310	7.4	-	2,650	8.5	1.8	5,235	16.8	1.9
	1975	526	1,565	3.0	-	4,988	9.5	0.3	7,245	13.8	1.7
Total	1963	9,357	166,611	17.8	3.9	75,723	8.1	3.3	250,623	26.8	7.4
	1968	7,180	142,323	19.8	4.9	27,290	3.8	1.9	172,849	24.1	4.8
	1969	5,398	81,723	15.1	3.5	31,551	5.8	4.8	115,798	21.5	4.3
	1970	3,254	52,939	16.3	3.2	20,173	6.2	5.5	75,387	23.2	4.9
	1971	3,282	66,685	20.3	1.3	17,372	5.3	2.8	86,544	26.4	2.4
	1972	3,044	38,627	12.7	0.4	9,803	3.2	1.7	50,474	16.6	1.3
	1973	1,603	15,334	9.6	0.2	6,689	4.2	0.7	24,044	15.0	4.5
	1974	426	3,991	9.4	-	3,218	7.6	1.5	7,711	18.1	2.2
	1975	1,102	12,419	11.3	0.0	8,107	7.4	0.7	23,162	21.0	6.7

The reason, that in 1975 nearly the whole quota was taken, whilst in the preceding year with 1,681 t only 6% of the cod quota was fished is not better stock condition but the consequence of the new quota regulation for cod in the Northeast Atlantic.

The fishery of wetfish trawlers in Division 1F and off East Greenland was nearly as small as in 1974. This was again due to the poor state of the East Greenlandic cod stock as well as to the interruption of the chain of fishing grounds for wetfish trawlers from 1F via East Greenland, Iceland, Rosengarden to the Faroes as a consequence of the "Iceland-German fishery war" (which ended in November 1975)and kept the wetfish trawlers more in the eastern parts of the Atlantic.

2. Forecast for 1976

The small German cod quota in Subarea 1 of 6,300 t will be fully taken. Fishing in East Greenland waters for cod and redfish will increase considerably as consequence of the first appearance of the 1968 year class of cod on the spawning grounds off East Greenland, which also will attract the factory trawlers. Due to the new treaty with Iceland the wetfish trawlers will increase their activity off East Greenland.

B. Special Research Studies

1. Environmental Studies

See the paper of M. Stein (ICNAF Res.Doc.76/IV/92) on hydrographic investigations off West and East Greenland.

2. Biological Studies

Cod samples from commercial catches, both from factory and wetfish trawlers as well as research catches from R.V. "Walther Herwig" were available. Table 2, based on 2,282 length measurements and 1,964 age determinations from Subarea 1 and 3,739 length measurements and 2,109 age determinations from Southeast and East Greenland shows, that the West Greenland stock is composed mostly of the 1968, 1971, and 1973 year classes. In the East Greenland stock (feeding area in 1E and 1F) the 1968, 1970, and the 1973 year classes are well represented. Nothing can be said on the real strength of the 1973 year class, which for the first time was found in great numbers in the research catches, and whether this new year class is capable of increasing in future the commercial value of the two Greenlandic stocks, which at present are in a rather poor state, not only because of too

heavy fishing but probably much more due to adverse environmental conditions.

This is my last ICNAF-Research Report. I should like to say good-bye to all the good friends I met in ICNAF. For the future all the best to your work und your health.

Yours Arno Meyer

Table 2

Subarea 1 and S.E. and E.Greenland 1975: Age composition of cod of commercial (Comm.) and research (Res.) catches in ‰

Age-group	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1D (Comm.) April	-	-	827	128	22	23	-	-	-	-	-	-	-	-
1D (Res.) August	619	70	76	37	21	112	10	29	14	6	2	-	2	2
1E (Comm.) May	-	-	30	168	44	725	24	4	-	5	-	-	-	-
1E (Res.) August	797	25	16	8	2	120	12	10	4	6	-	-	-	-
1F (Comm.) February	-	-	-	47	32	839	48	13	5	12	3	1	-	-
1F (Res.) August	881	58	-	12	-	31	6	-	6	-	-	-	6	-
1F (Comm.) October	31	136	97	205	50	398	52	10	-	11	10	-	-	-
SE Greenland (Comm.) Jan.-April	-	3	14	105	74	534	114	61	20	32	21	14	7	1
SE Greenland (Res.) August	489	234	59	89	8	62	5	12	20	2	4	9	1	6
SE Greenland (Comm.) October	-	138	135	367	15	305	20	15	-	2	-	-	3	-
E Greenland (Res.) August	560	168	22	124	13	78	4	9	9	9	4	-	-	-
E Greenland (Comm.) October-December	2	52	38	277	27	383	69	43	5	54	43	7	-	-

Federal Republic of Germany Research Report, 1975

Subareas 2 and 3

by

J. Meßtorff

A. Status of the Fisheries

1. General Trends

The report is given for Subareas 2 and 3 combined, as 88 % of the total nominal catch was taken in the management area comprising Divisions 2 J + 3 KL.

In 1975 fishing by freezer trawlers of the Federal Republic of Germany was carried out predominantly during the first quarter of the year (Jan.-Mar.). Later in the year insignificant catches were taken in October in Division 3 M and in December in 2 H. The nominal catches as well as the catches per day fished are given in detail in Table 3 . An additional species break-down of the by-catches (Summarised under "OTHER FINFISH" in Table 3) is shown in Table 4 .

The fishing activity in the northern Divisions 2 GH increased considerably relative to the previous three years and reached an effort level slightly higher than in 1971. The catch of cod (74 % of the total catch) and corresponding mean catch per day in 1975, however, more than doubled as compared to 1971. Accordingly 83 % of the 1975 national quota allocation of 4000 tons for cod in 2 GH could be obtained. More detailed information on the trends since 1965 of the cod fishery conducted by the Federal Republic of Germany in Divisions 2 GH is given in Table 5 and Figure 1.

In Divisions 2 J and 3 K the fishing season was restricted to the first quarter of the year and there was no fishery at all in Division 3 L and none directed on other species than cod which amounted to 84 % of the total nominal catch. However, a sharp reduction of the total fishing effort in 1975 by 47 % as to 1974 resulted in a decline of the total catch by 36 %. Contrary to last year redfish were only caught as by-catch and consequently the catch declined even by 74 %, by-catches of other finfish by 58 %. But due to a considerable increase of the mean catch per day of cod especially in February the effort reduction was of less consequence to the total catch of cod, which declined by only 20 % (Table 3 and 6 , Fig. 1).

But even so only 68 % of the allocated national quota for 1975 of 40 000 tons could be obtained and the yield was second lowest since 1965.

With regard to the present situation of the cod stock in Divisions 2 J + 3 KL the increased c.p.u.e. in the cod fishery of the Federal Republic of Germany in 1975 is obviously not an indication of in-

creased stock abundance but rather the consequence of concentrating and restricting the fishing activity to the period of optimum fishing conditions. Accordingly fishing was discontinued in March when the mean catch per day dropped off sharply by over 50 %.

A progressing reduction of apparent stock size was also indicated by survey results which showed a continuous decline of stock abundance from late autumn 1972 to 1974. Even a stabilisation in late 1975 as shown in Figure 3 does not improve the situation either at present or in the immediate future, as this is due only to the very high abundance of mainly three years old cod of the obviously stronger 1972 year-class (Figures 4 and 5). This year-class, however, will not contribute to the commercial catches in quantity before 1978. But in the years between - since recruitment of the relatively strong 1967 year-class, which predominated in the commercial catches from 1973-75 - no further year-classes seem to be of above average size. In 1975 for the first time the 1968 year-class (at age 7) amounted to over 20 % of the catches and occupied the second place (Figure 2).

2. Forecast for 1976

In view of the drastically reduced oath quotas for cod in Divisions 2 J + 3 KL for 1976 - in case of the Federal Republic of Germany by 50 % to 20 000 tons - combined with an effort limitation the total quota will presumably be taken, if the mean catch per day fished by German trawlers does not decline below 75-80 % of the 1975 level.

B. Special Research Studies

1. Environmental Studies

Oceanographic observations were again carried out during the routine autumn groundfish survey conducted by R/V "Anton Dohrn" in Divisions 2 J and 3 K (north of 51°N) between 23 November and 8 December 1975. The oceanographic data obtained consist of Nansen-casts as well as BT-records from all fishing stations covering the whole survey area. In addition the ICNAF-standard section from off Seal Island across Hamilton Inlet Bank had been occupied. The results are given and discussed by M. Stein in Res. Doc. 76/VI/ 88.

2. Biological Studies

R/V "Anton Dohrn" continued the time-series of late autumn groundfish surveys in Divisions 2 J and 3 K (north of 51°N) from 23 November to 8 December 1975. 73 Trawling stations, preselected according to the stratified random survey design, were occupied. All finfish species occurring in the catches were at least sampled for length frequencies. Numbers caught and total weight per set have been recorded for each species separately. Cod, redfish, Greenland halibut and Roundnose grenadier were also sampled for age compositions. Survey results on cod abundance, length- and age compositions are illustrated in Figures 3-5.

Length- and age compositinns of the redfish catches taken at different depths on the 1974 and 75 surveys are illustrated in Figures 6-8 as reported by K. Kosswig.

The cooperative and active participation of Mr. R. Bowering of the Newfoundland Biological Station, St. John's, Canada, was very helpful and is greatly acknowledged.

Commercial catches were sampled at sea during the fishing season in Divisions 2 J and 3 K in February and March 1975. The corresponding length- and age composition of cod are illustrated in Fig.2.

Table 3 : Nominal catches (tons) in SA 2 and 3 in 1975 (including industrial fish - converted to fish meal on board).

		COD			REDFISH			OTHER FINFISH*			TOTAL FINFISH		
Div./Month	days fished	nom. catch	catch p.day	% ind.	nom. catch	catch p. day	% ind.	nom. catch	catch p. day	% ind.	nom. catch	catch p.day	% ind.
2 G Mar	29	869	30.0	-	48	1.7	12.5	163	5.6	16.6	1080	37.2	3.1
2 H Jan	1	72	72.0	-	-	-	-	7	7.0	100.0	79	79.0	8.9
Feb	13	719	55.3	-	29	2.2	34.5	59	4.5	54.2	807	62.1	5.2
Mar	50	1592	31.8	-	67	1.3	32.8	755	15.1	20.7	2414	48.2	7.4
Dec	3	83	27.7	-	-	-	-	44	14.7	100.0	127	42.3	34.6
Total	67	2466	36.8	-	96	1.5	33.3	865	12.9	27.6	3427	51.1	7.9
2 G, H	96	3335	34.7	-	144	1.5	26.4	1028	10.7	25.9	4507	46.9	6.7
2 J Jan	308	7587	24.6	0.1	848	2.8	58.0	1018	3.3	68.3	9453	30.7	12.7
Feb	185	8356	45.2	0.1	167	0.9	18.6	805	4.4	62.1	9328	50.4	5.8
Mar	49	951	19.4	-	88	1.8	19.3	316	6.4	42.7	1355	27.7	11.2
Total	542	16894	31.2	0.1	1103	2.0	49.0	2139	3.9	62.2	20136	37.2	9.4
3 K Jan	11	279	25.4	-	19	1.7	10.5	30	2.7	80.0	328	29.8	7.9
Feb	293	9408	32.1	0.1	567	1.9	31.4	1044	3.6	72.4	11019	37.6	8.5
Mar	31	485	16.6	0.2	17	0.5	5.9	194	6.3	63.4	696	22.5	18.0
Total	335	10172	30.4	0.1	603	1.8	30.0	1268	3.8	71.2	12043	35.9	9.1
3 L No Fishery													
2 J+3 K,L	877	27066	30.9	0.1	1706	1.9	42.3	3407	3.9	65.5	32179	36.7	9.3
3 M Oct	3	28	9.3	-	4	1.3	-	5	1.7	100.0	37	12.3	13.5
SA 2 Total	638	20229	31.7	0.1	1247	2.0	46.4	3167	5.0	50.4	24643	38.6	8.9
SA 3 Total	338	10200	30.2	0.1	607	1.8	29.8	1273	3.8	71.3	12080	35.7	9.1

* Species breakdown, see Table 2.

Table 4 : Nominal catches (tons) of "OTHER FINFISH" (Table 1) by species in SA 2 and SA 3 in 1975

Div./month	Am. plaice	Witch	Grld. halib.	Atl. halib.	Wolf-fish	NS	Total
2 G Mar	1	76	0	43	16	27	163
2 H Jan	-	-	0	-	-	7	7
Feb	0	17	-	6	4	32	59
Mar	0	413	158	8	17	159	755
Dec	-	-	-	-	-	44	44
Total	0	430	158	14	21	242	865
2 G, H	1	506	158	57	37	269	1028
2 J Jan	63	70	199	14	66	606	1018
Feb	7	148	62	15	69	504	805
Mar	-	99	64	9	6	138	316
Total	70	317	325	38	141	1248	2139
3 K Jan	-	-	-	3	3	24	30
Feb	21	128	99	11	43	742	1044
Mar	0	48	8	3	9	126	194
Total	21	176	107	17	55	892	1268
3 L	No Fishery						
2 J+3 KL	91	493	432	55	196	2140	3407
3 M Oct	-	-	-	-	-	5	5
SA 2	71	823	483	95	178	1517	3167
SA 3	21	176	107	17	55	897	1273

Table 5 : COD - 2 GH, nominal catches and catch per day fished (tons) 1965 - 75

	2 G			2 H			2 G+H		
year	days fished	nom. catch	catch per day	days fished	nom. catch	catch per day	days fished	nom. catch	catch per day
1965	113	3289	29.1	219	4895	22.4	332	8184	24.7
66	177	4660	26.3	767	22350	29.1	944	27010	28.6
67	11	239	21.7	447	11069	24.8	458	11308	24.7
68	15	157	10.5	163	6092	37.4	178	6249	35.1
69	-	-	-	298	11389	38.2	298	11389	38.2
70	-	-	-	189	4957	26.2	189	4957	26.2
71	11	277	25.2	79	1283	16.2	90	1560	17.3
72	-	-	-	6	113	18.8	6	113	18.8
73	-	-	-	7	120	17.1	7	120	17.1
74	-	-	-	24	678	28.3	24	678	28.3
75	29	869	30.0	67	2466	36.8	96	3335	34.7

Table 6 : COD - 2 J + 3 KL, nominal catches and catch per day fished (Tons) 1965 - 75

year	2 J			3 K			3 L			2 J + 3 KL		
	days fished	nom. catch	catch per day	days fished	nom. catch	catch per day	days fished	nom. catch	catch per day	days fished	nom. catch	catch per day
1965	990	31274	31.6	31	629	20.3	504	4921	9.8	1525	36824	24.1
66	1191	36395	30.6	132	2394	18.1	436	6303	14.5	1759	45092	25.6
67	776	21047	27.1	24	247	10.3	60	906	15.1	860	22200	25.8
68	1312	47868	36.5	-	-	-	-	-	-	1312	47868	36.5
69	1749	60391	34.5	6	229	38.2	-	-	-	1755	60620	34.5
70	1391	45050	32.4	414	11856	28.6	-	-	-	1805	56906	31.5
71	646	18120	28.0	341	10355	30.4	10	171	17.1	997	28646	28.7
72*	339	10052	29.7	514	19465	37.9	6	12	2.0	859	29529	34.4
73*	383	6678	17.4	943	27654	29.3	70	1316	18.8	1396	35648	25.5
74*	1087	28174	25.9	232	5776	24.9	-	-	-	1319	33950	25.7
75	542	16894	31.2	335	10172	30.4	-	-	-	877	27066	30.9

*) days fished and cod by-catches in the fishery directed on redfish excluded!

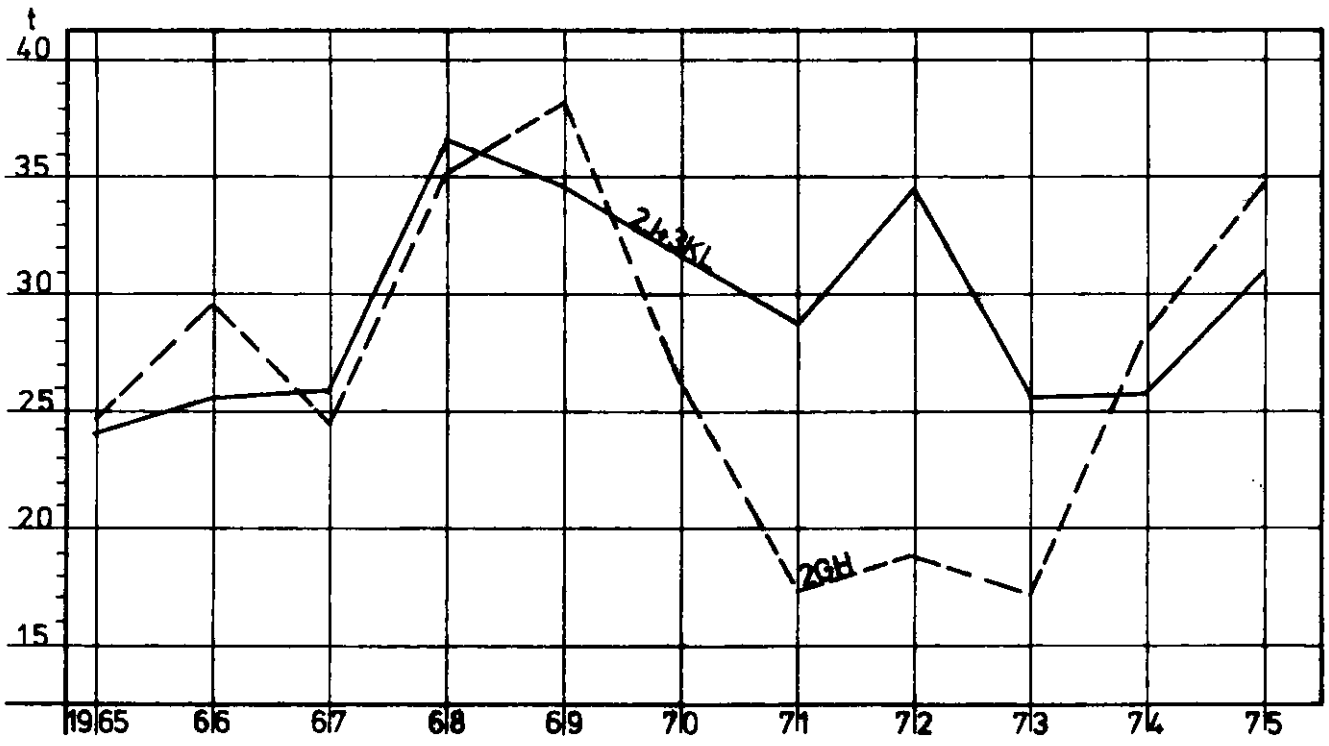

Figure 1 : COD - Mean catch per day fished in Divisions 2 GH and 2 J + 3 KL by trawlers of the Federal Republic of Germany, 1965 - 75.

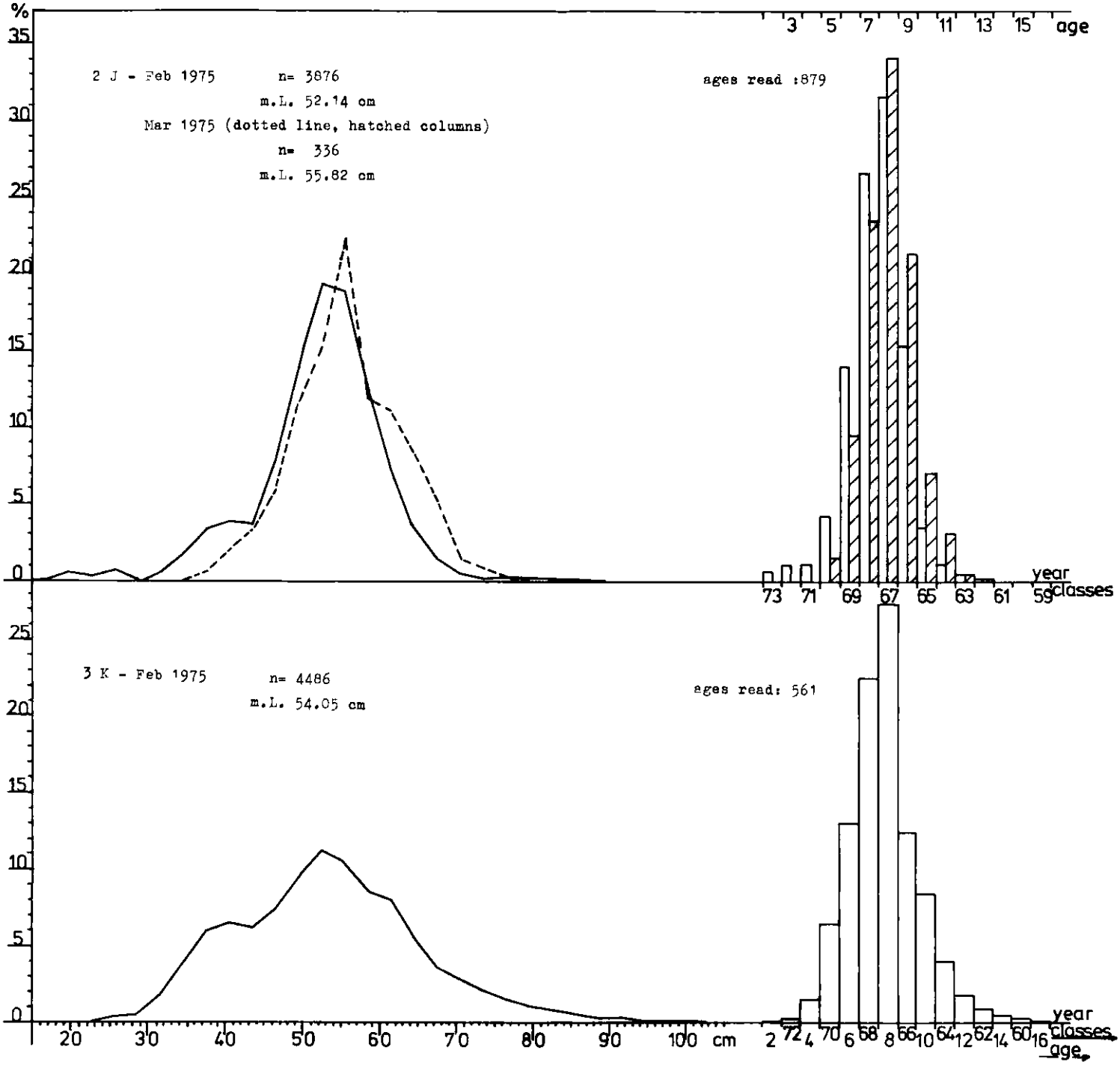

Figure 2 : COD - length frequencies and age compositions in commercial trawl catches of the Federal Republic of Germany.

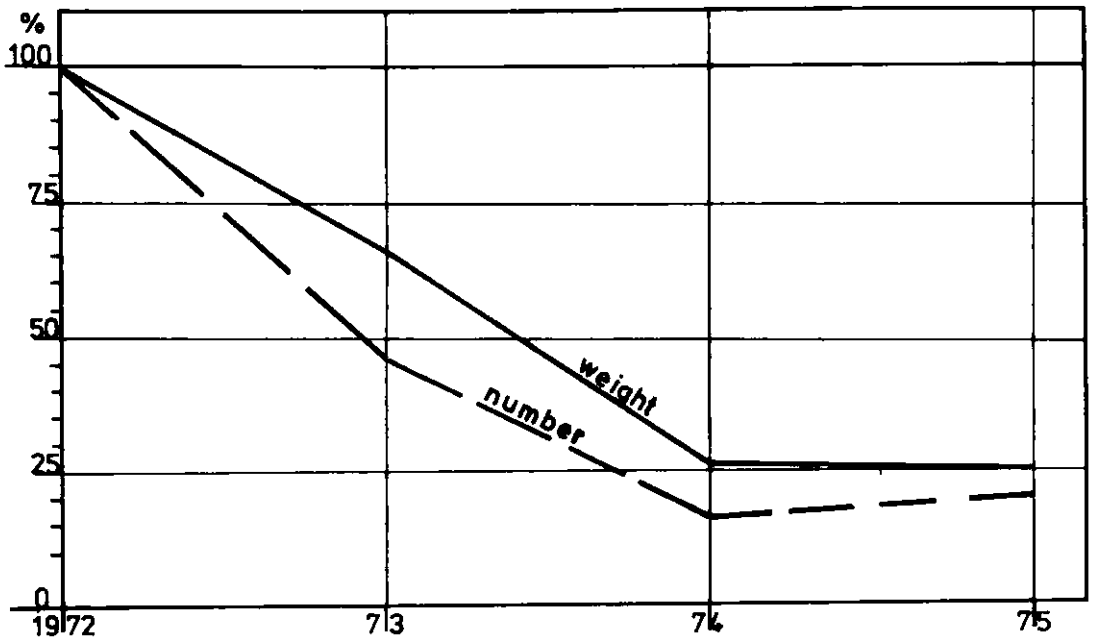

Fig. 3. Percentage changes in stock abundance of cod according to weight and number of fish in Div. 2J relative to 1972 based on groundfish survey data, 1972–75.

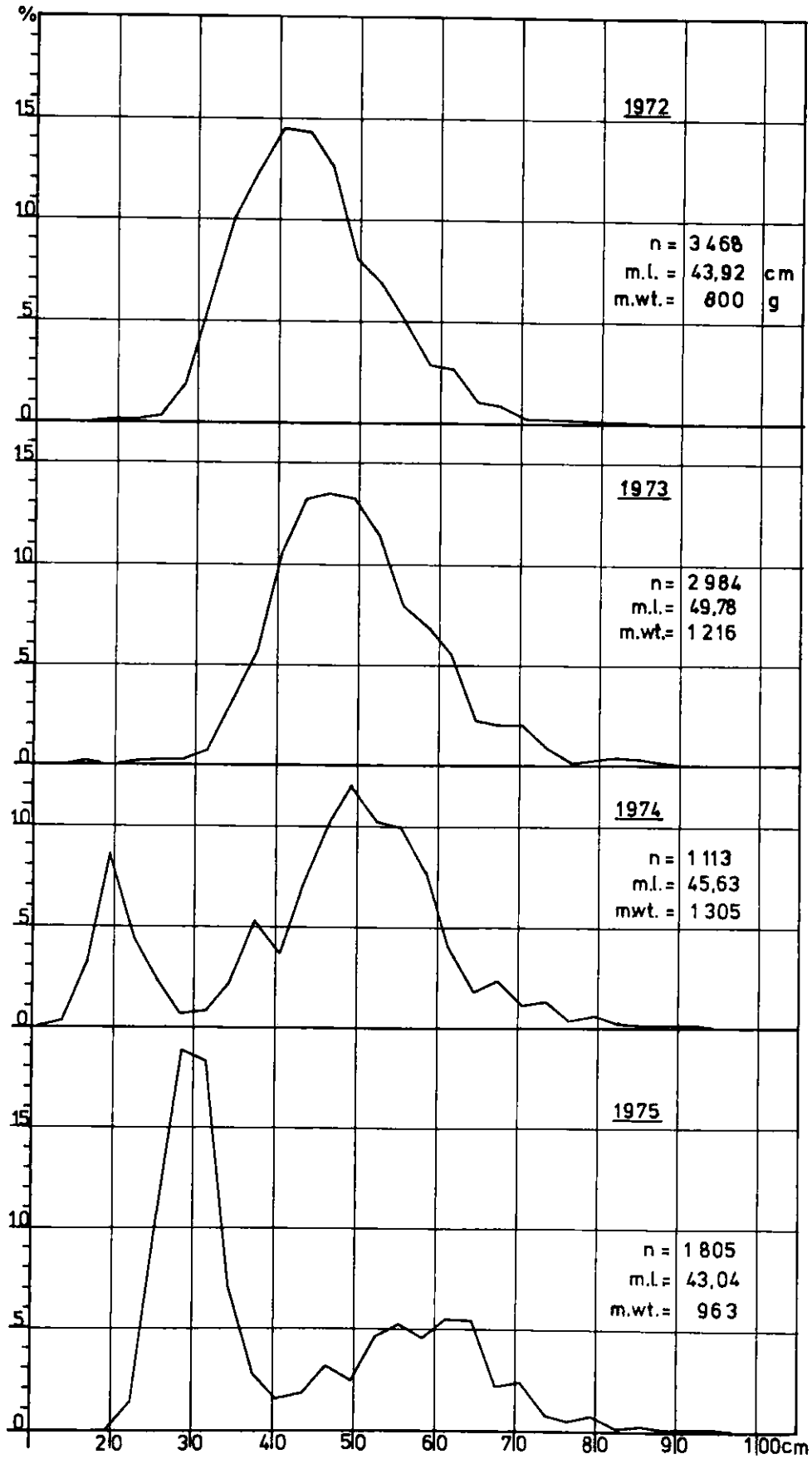

Fig. 4. Length frequencies of cod in Div. 2J in November/December 1972, 1973, 1974 and 1975 according to groundfish survey data.

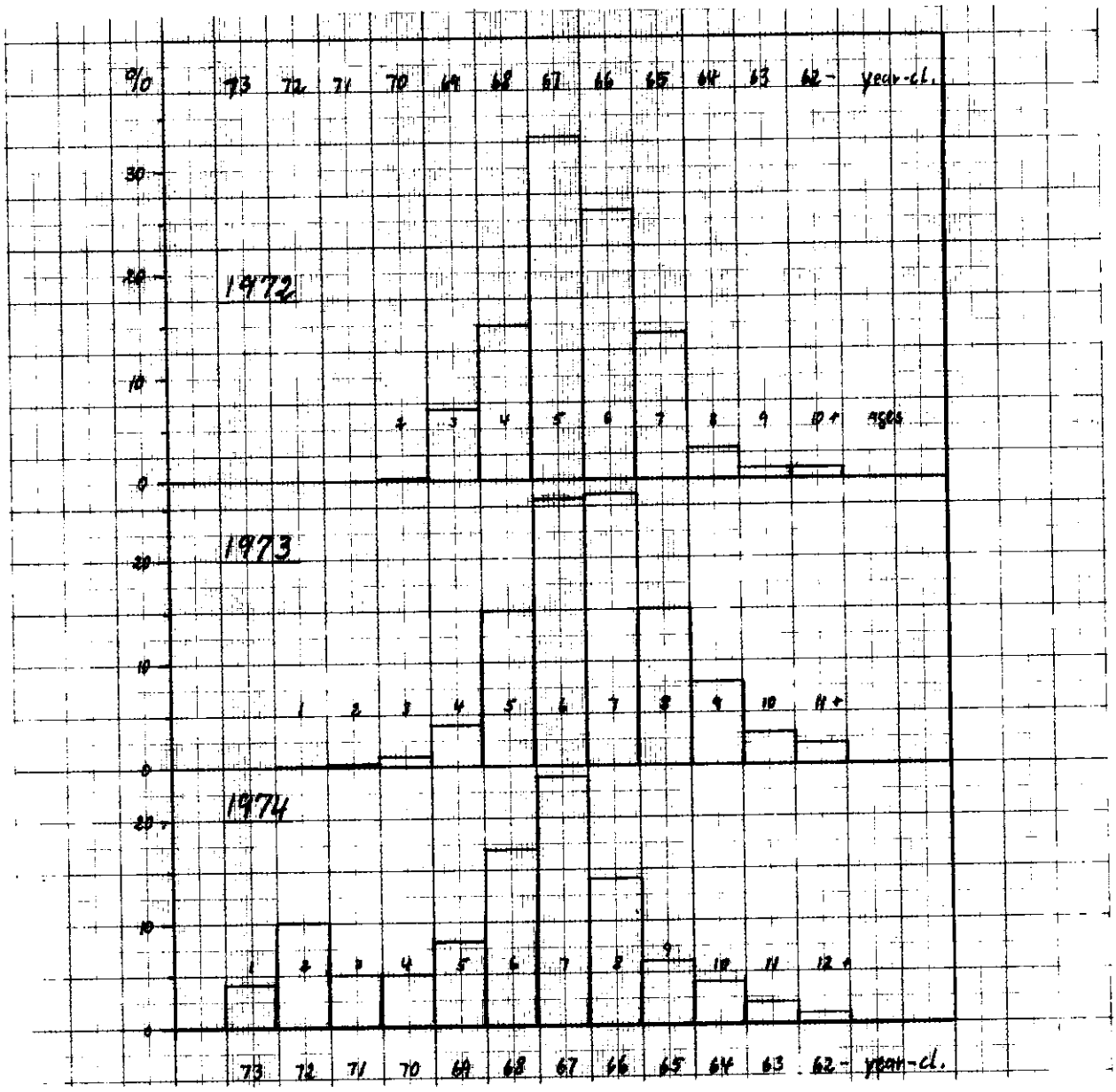

Fig. 5. Precentage age composition of cod in Div. 2J based on groundfish survey data obtained in November/December of 1972, 1973 and 1974.

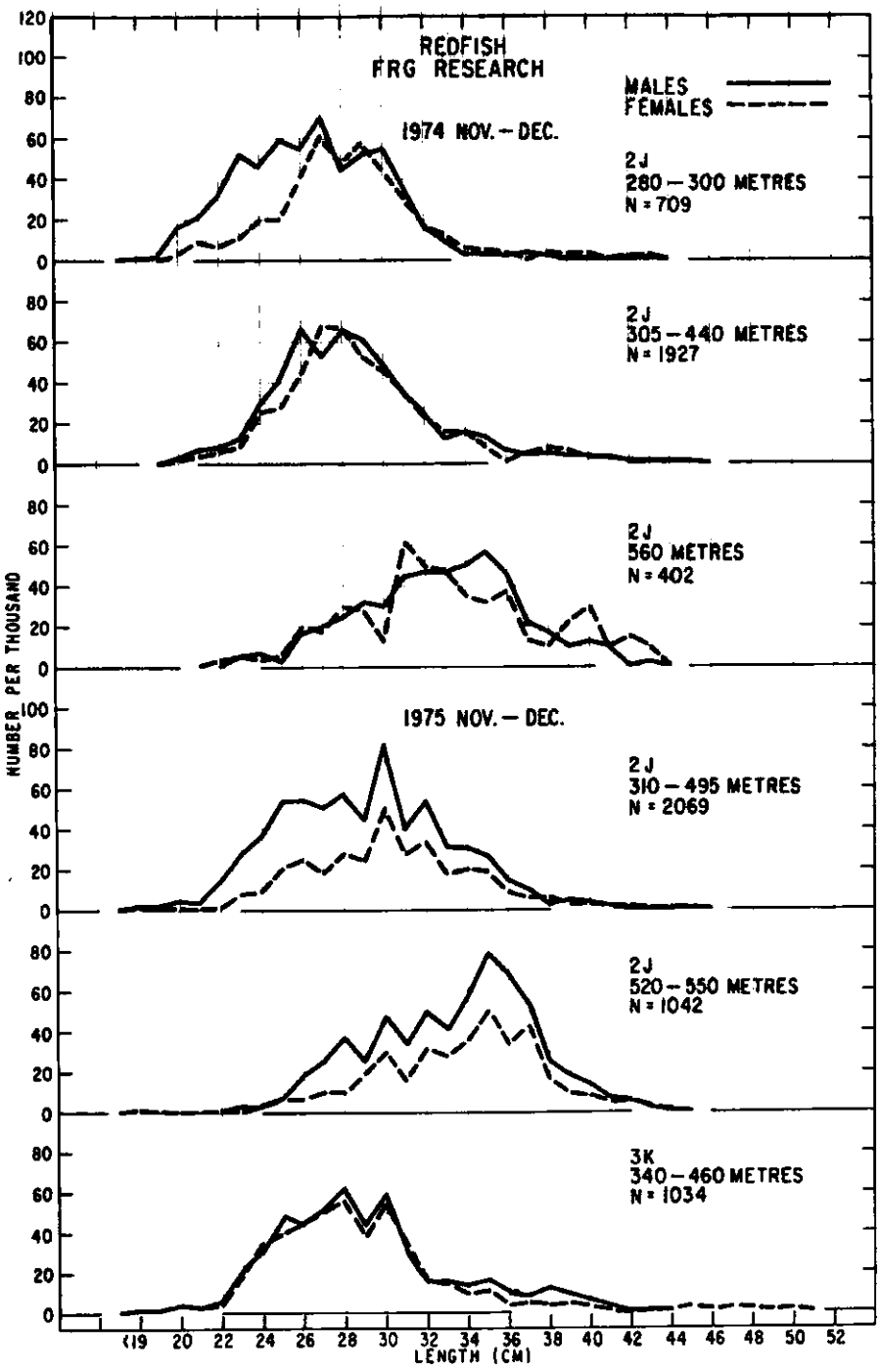

Fig. 6. Length frequencies of redfish according to groundfish survey data.

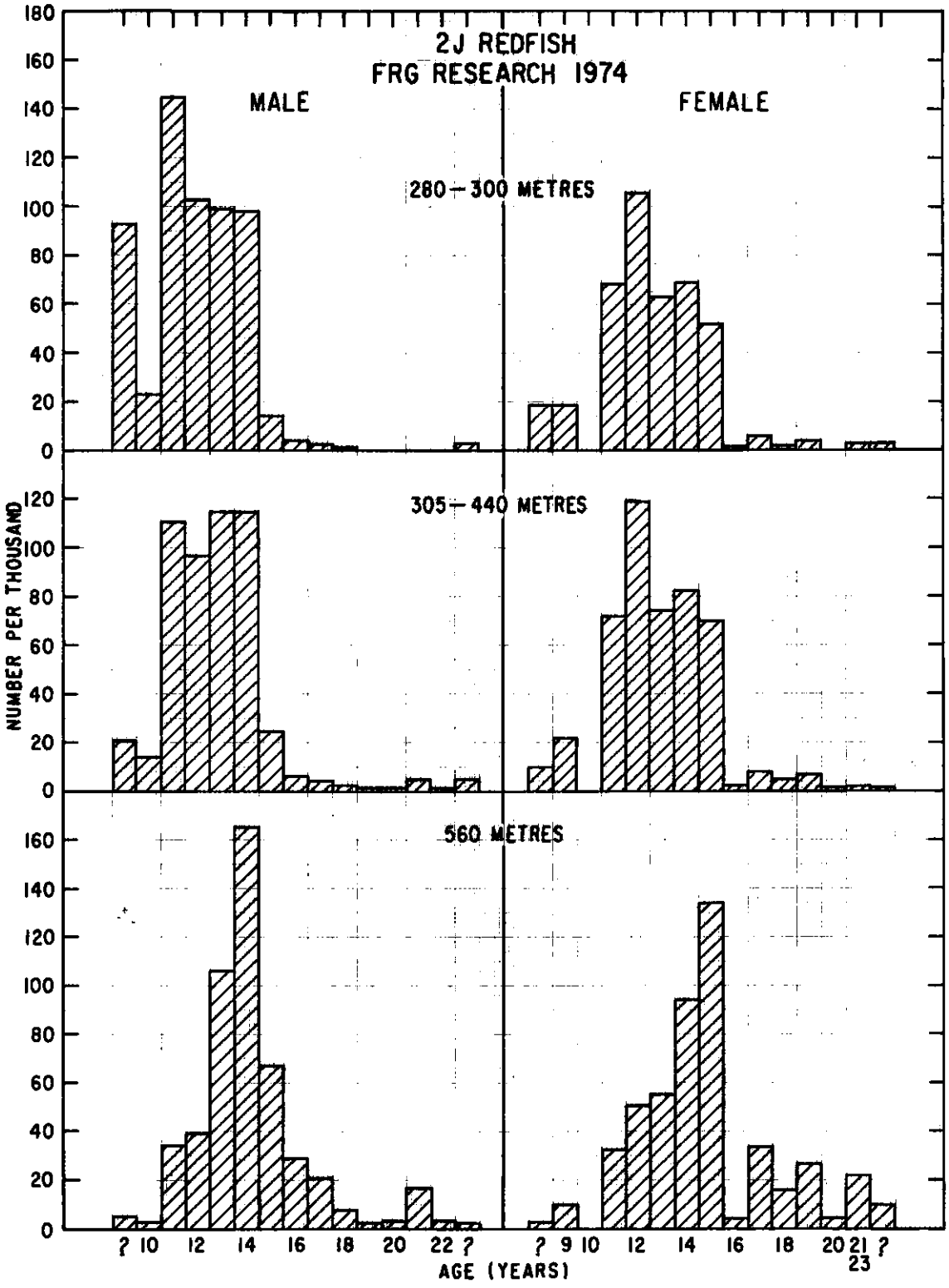

Fig. 7. Redfish age compositions based on groundfish survey data, 1974.

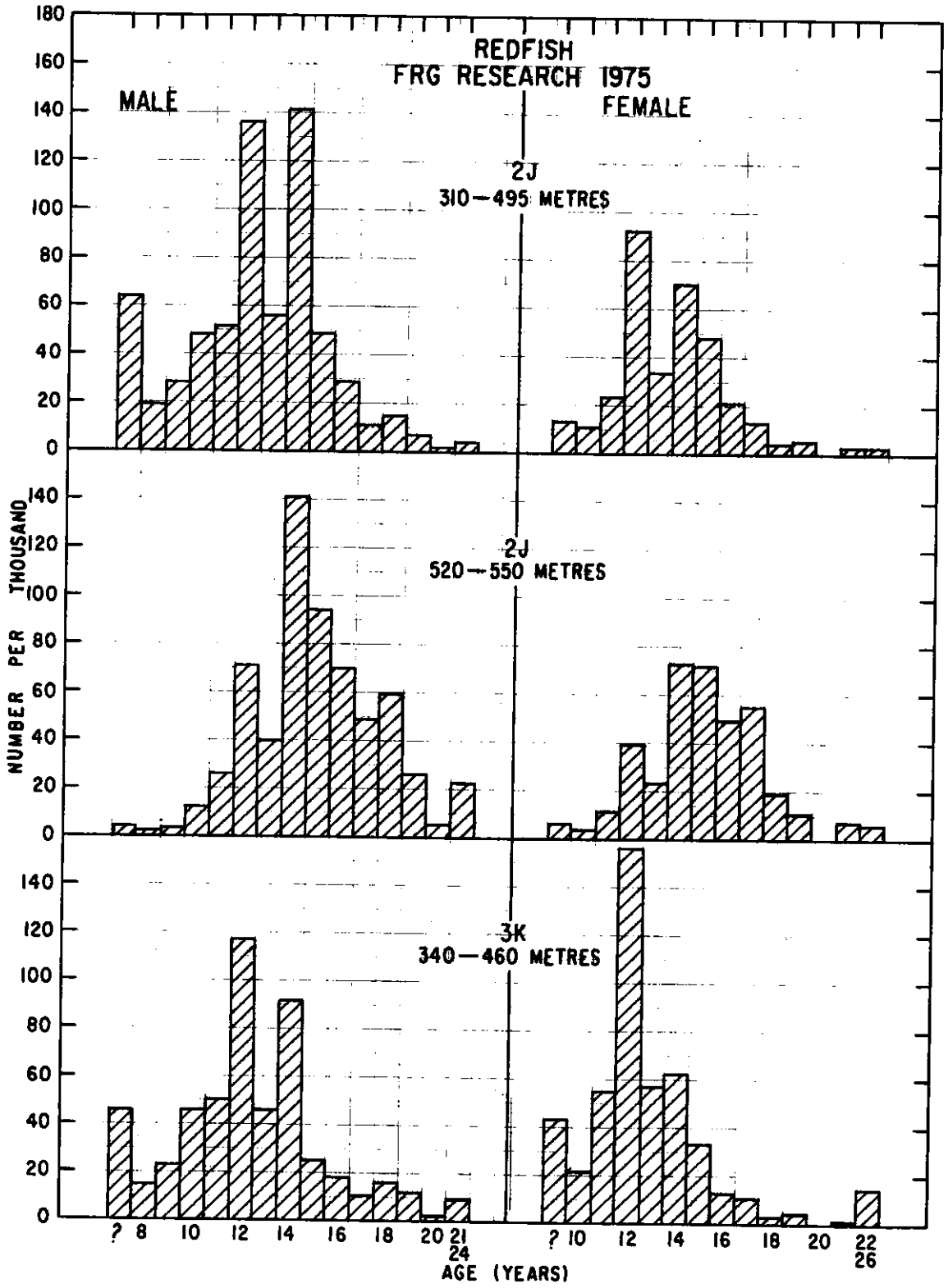

Fig. 8. Redfish age compositions based on groundfish survey data, 1975.

Subareas 4 and 5

by

H. Dornheim

A. Status of the Fisheries

1. General Trends

In 1975 the total German (Fed. Rep.) catch in SA 4 amounted to 2.378 to, in SA 5 25.192 to. Most of the effort in both areas was directed in the herring fishery yielding 1.336 to in SA 4 (FRG catch quota 2.500 to from January 1975 to June 1976) and 23.015 to in SA 5 (1975 FRG catch quota 24.250 to). More detailed information is given in Table 7.
As in 1974 the biggest herring catches 1975 were made in August and September, in the same period the highest effort was observed, too. No fishing took place in Stat. Area 6.

2. Forecast for 1976

Fishing activities in SA 4 and 5 will be directed in 1976 mainly to herring in the Georges-Bank area from July to October. It is expected that the total FRG herring quotas for 1976 will be taken in both areas. Considering the age-composition of the 1975 catches and the results of the FRG Juvenile Herring Survey in spring 1976 the bulk of the 76 commercial catches will be formed out of the 1970 year-class but the 1973 year-class herring will have some importance, too.

B. Special Research Studies

1. Environmental Studies

During the FRG Juvenile Herring Survey (11.-27. March 1975) by RV "Walther Herwig" and the FRG Larval Herring Survey (31. Oct.-16. Nov. 1975) by RV "Anton Dohrn" both hydrographic- (Series, BT's) and plankton-studies (61-cm-Bongonet, Neustonnet) were carried out in SA 4 and 5. All results are to be published as research documents at the Szczecin-meeting in April 1976 and at the annual meeting in June 1976, Havanna/Cuba.

In addition, during the FRG 1975 Larval Herring Survey XBT-measurements, oxygen-, nutrient- and chlorophyll-data as well as 20-cm-bongo-catches were taken to be worked up by NEFC, Woods Hole.

2. Biological Studies

Herring investigations were carried out during the FRG Juvenile Herring Survey by RV "Walther Herwig" in March in Div. 4 X and 5 Z. During the main herring fishing season in August/September on board different stern factory trawlers samples were taken from Div. 5 Z. Results (Table 8) show that both in the research vessel catches and in commercial catches the 1970 year-class herring is still predominant in Div. 5 Z as already observed in former years since 1973. All other year-classes except the 1971 which has some importance in August/September catches are represented in only very small numbers in the samples investigated. Briefly, the Georges-Bank herring fishery was also in 1975 largely depending on one year-class.

Stages of maturity (Table 9) show that almost all herring in the samples were antumn-spawners.

3. Gear and Selectivity Studies

No specific studies carried out 1975 in ICNAF area.

Table.?.. *Nominal catch (tons), effort (days fished), and discards (tons) of FRG freezer trawlers in Subareas 4 and 5, 1975*

Div.	Month	Nominal catch Her	Mac	Cod	Had	Pol	Silv.hake	Redf.	Squid	other finfish(MS)*	Total	Effort D.F.	Discards Her	Squid	Total
4Vn	IX	777	–	–	–	–	–	–	–	26	803	7	–	–	–
	X	15	–	–	–	–	–	–	–	5	20	1	–	–	–
4W	X	344	–	–	–	–	–	–	–	27	371	4	–	–	–
	XI	11	5	5	–	6	1	–	–	5	33	3	–	–	–
4X	IX	64	126	+	–	+	38	–	–	9	237	3	–	–	–
	X	111	535	2	–	45	66	–	–	101	860	18	1	–	1
	XI	14	–	1	–	32	–	–	–	7	54	2	–	–	–
SA 4	Total	1336	666	8	–	83	105	–	–	180	2378	38	1	–	1
5Y	VIII	–	–	–	–	–	–	–	–	–	–	1	–	–	–
	IX	28	83	–	–	–	11	–	–	17	139	3	–	–	–
	X	28	–	–	–	–	–	–	–	4	32	1	–	–	–
5Ze	VII	445	–	–	–	–	–	–	–	–	445	6	–	–	–
	VIII	5837	1	1	–	1	2	1	6	302	6151	205	11	35	46
	IX	14545	320	5	2	7	17	1	19	894	15810	288	15	10	25
	X	2112	4	9	1	21	4	+	0	222	2373	87	3	–	3
	XI	20	57	9	–	125	2	–	–	29	242	16	–	–	–
SA 5	Total	23015	465	24	3	154	36	2	25	1468	25192	607	29	45	74

Average gross registered tonnage of FRG trawlers fishing with pelagic trawls, Subarea 4 and 5: 3162 GRT (1728 - 3577 GRT).

**probably mostly Atlantic saury*

Table 8: A g e composition (°/oo) in 1975

Area		5 Z			4 X
Month		Mar	Aug	Sep	Mar
Yearcl.	Age				
1974	1	-	-	-	-
73	2	-	-	-	51o
72	3	91	3	1o	349
71	4	53	185	117	52
7o	5	764	72o	782	89
69	6	37	37	38	-
68	7	41	19	25	-
67	8	1o	14	15	-
66	9	2	1o	3	-
< 66 >	9	2	12	1o	-
Total		1ooo	1ooo	1ooo	1ooo
n		813	593	395	192
Mean length					
	mm	296	3o6	3o4	189
	n	6158	612	4o4	424

Table 9: Stages of maturity (°/oo) in 1975

Area		5 Z		4 X
Month	Mar	Aug	Sep	Mar
Stages				
1	-	-	-	5o8
2	9o	-	-	352
3	55	15	8	21
4	1	417	57	-
5	-	566	93o	5
6	1	2	-	-
7	1	-	5	-
8	852	-	-	114
Total	1ooo	1ooo	1ooo	1ooo
n	819	597	4oo	193