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Demersal Fish (Northern) Committee



REPORT OF THE WORKING GROUP ON FISH STOCKS AT THE FAROES

Charlottenlund Slot, Denmark 10-14 February 1975

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## Report of the Working Group on Fish Stocks at the Faroes

### 1. Participants

Mr K. Hoydal (Chairman)	Denmark (Faroes)
Mr T. Jakobsen	Norway
Mr B.W. Jones	U.K. (England)
Mr J. Netzel	Poland
Dr H.H. Reinsch	Fed. Rep. of Germany
Mr J. Richards	U.K. (Scotland)

Mr D. de G. Griffith, ICES Statistician also took part in the meeting.

### 2. Terms of Reference

At the 62nd Statutory Meeting of ICES a Resolution (C.Res.1974/2:21) asked the Working Group to meet "in order to assess the state of the stocks and estimate Total Allowable Catches for 1976 for cod and haddock".

C.Res.1974/4:29 stated further that "data should be collected to enable stock assessment to be made for redfish, pollack, ling and blue ling from all areas".

### 3. Changes in Fishery Regulations in the Faroes Area

Since the last report of the Working Group (C.M.1974/F:3), there have been two important changes in fishery regulation. On 1 January 1974 the minimum trawl cod end mesh size was increased from 110 mm to 130 mm (manila). In addition, the "Arrangement Relating to Fisheries in the Waters Surrounding the Faroes" came into effect at the beginning of 1974. This arrangement restricted trawling by countries party to the Agreement to certain areas at certain times of year, set maximum national catch quotas for cod and haddock and placed restrictions on the amount by which catches of other demersal species could be increased. It is too early as yet for the effects of these regulations to be assessed.

As in 1971 and 1973, the licensed trawl fishery by Faroese boats under 55 GRT in the summer months was permitted to continue in 1974.

### Description of Fisheries

The participants in the meeting each prepared a short account of their nation's fishery at the Faroes, and these summary descriptions are presented in the Appendix to this Report. The Working Group noted with regret that it was not possible to include a description of the French fishery.

### 5. State of the Stocks

#### 5.1 Cod

As in the previous report, the assessment has been made on the Faroe Plateau stock of cod. The Plateau stock contributes the greater part of the catch from the Faroe area. Assessments of the much smaller self-contained Faroe Bank stock are less reliable, because not all countries report catch for the two stocks separately. Incorrect apportionment of catches between the stocks would result in large errors for the Bank stock and only small errors for the Plateau stock.

#### 5.1.1 Trends in catch and effort

Total landings of cod from ICES Division Vb have averaged about 27 000 tons in the last four years (Table 1). Catch rates recorded by British trawlers (Table 13) have been declining from the high levels recorded in the period 1967-1969. Figures for 1974 may not be comparable with those of earlier

years because of the effects of the mesh size increase and restrictions on areas open to trawling as a result of the "Arrangement Relating to Fisheries in the Waters Surrounding the Faroes". Fishing effort by English vessels has been increased since reaching a low level in 1970-71, Scottish total effort has remained relatively constant, but landings of saithe by Scottish vessels have shown a steady increase over the last 6 years. This is probably due to both a reduction in the rejection of this species and an increase in fishery directed at saithe.

#### 5.1.2 Estimates of mortality rates (Plateau stock)

Fishing mortality coefficients were estimated by Virtual Population Analysis (VPA). Since the last Working Group Report age composition data for 1973 have become available and there were preliminary data for 1974. Catch data used in the assessment are given in Table 14.

The results (Table 15) indicate that the level of fishing mortality in recent years has been fairly stable, being about 0.4 (0.3-0.5) on the fully exploited age groups. In the previous Report it was stated that yield per recruit calculations, using the Beverton and Holt constant parameter yield equation, indicated that this level of fishing mortality would give maximum yield per recruit for a mean age of first capture as at present of 3.5 years. Further yield per recruit calculations (Table 16) were made at this (February 1975) meeting of the Group, using a method in which F varies with age. These confirmed the previous findings that the present level of fishing mortality is that which will give the maximum sustained yield with the present exploitation pattern. The flat top of the yield curve for Faroe Plateau cod means that the yield per recruit will show little variation over a relatively wide range of fishing mortality.

#### 5.1.3 Estimates of recruitment and year class strength

Estimates of year class strength as numbers of two-year old fish are given in Table 17. The updated assessments indicate that the very poor year classes since 1967 referred to in the previous report were limited to the year classes of 1967 and 1968. The more recent year classes are nearer average strength, although these estimates must be regarded as being less reliable.

#### 5.1.4 Prognosis (Faroe Plateau stock)

Predictions of catches in 1975 and 1976 have been calculated from the estimated stock composition in 1974, but assuming that the 1972 and subsequent year classes were of average strength, as no adequate data of the abundance of recruiting year classes are available. 0-group surveys have been made annually since 1972 but as yet it is too early to know whether these surveys can provide reliable estimates of year class strengths for cod. The weight-at-age data used was the same as that given in Table 16. The catches are predicted on the assumption that the pattern of exploitation and level of fishing mortality will continue as at present.

Estimated catches are :	1975	25 328 tons
	1976	25 610 tons

To estimate catches for the whole Faroe area, these figures need to be increased by approximately 2 000 tons to allow for catches from the Faroe Bank stock which were not included in the assessment.

## 5.2 Haddock (total Division Vb)

### 5.2.1 Trends in catch and effort

Landings have declined from 20 000-23 000 tons in 1969-1971 to 18 000 tons in 1973. Landings for 1974 are expected to be in the region of 16 000 - 17 000 tons. This has been accompanied by a decline in catches per unit of effort by British trawlers since 1971 which reflects the lower abundance of recruits since the good year class of 1966 (Table 17).

### 5.2.2 Estimates of mortality rates

The Virtual Population Analysis (VPA) of the haddock stock at Faroe was updated by including catch figures for 1973 and provisional figures for 1974. The data used were estimates of the total numbers of haddock in each age group landed by Scottish, English and Faroese vessels raised to the total landings by all nations. Table 18 gives the input data for the VPA arranged by year and age. VPA estimates of F for Faroe haddock at age for each year of capture are given in Table 19. The results indicate that fishing mortalities on the fully recruited age groups are fairly stable at around 0.8.

### 5.2.3 Prognosis

For the purpose of predicting the catches of Faroe haddock in 1975 and 1976 recruitment of the year classes 1972 onwards was taken as the average for 1960-1970. Fishing mortality was assumed to remain constant at the 1974 levels as used in the VPA. The weight-at-age data (Table 20) used in the calculations were derived from mean lengths at age given in Jones (1962) converted to weights using the relationship  $W = L^3 \times 9.5 \times 10^{-6}$ .

Estimates of the catches for 1975 and 1976 are :

1975:	14 843 tons
1976:	17 153 tons

Yield per recruit calculations were made using the method that has been described for cod. The results show that with the present fishing mortality ( $F = 0.8$ ) and exploitation pattern the yield per recruit obtained is close to the maximum. However the yield curve is flat-topped and little variation in yield per recruit can be expected over a relatively wide range of fishing mortality. Taking the calculated yield per recruit and an average recruitment (1960-1970) of 37.5 million one-year old fish, the expected yield from the fishery would be 21 000-22 000 tons which compares with the average (1962-1972) landings of 20 200 tons.

## 5.3 Total allowable catches for cod and haddock

As has been mentioned in earlier sections of the report for both cod and haddock, the present levels of fishing mortality are those which can be expected to give the Maximum Sustainable Yields for the present patterns of exploitation. The Working Group therefore recommends that the Total Allowable Catches for 1976 should be set at the same level as predicted catches calculated on the assumption that the fishing mortality rates and exploitation pattern remain unaltered i.e.

Total Allowable Catch 1976:	Cod:	28 000 tons (including Faroe Bank)
	Haddock:	17 000 tons

In making this recommendation the Working Group wishes to point out that it has not yet been able to fully assess the effects of the new regulatory

measures introduced in 1974 and described briefly in Section 3 of this Report.

#### 5.4 Blue ling, ling and redfish

The group had a brief discussion on these species. Catch and effort data were to hand only for the major countries in these fisheries - Germany, (F.R.) and Norway. Other countries do not split their ling catches by species. From Tables 6 and 11 it can be seen that catches have increased in recent years, but on the basis of the material at hand it is not possible to assess if this reflects increases in effort or increases in stock sizes.

In the Appendix which contains descriptions of the fisheries of different countries some more detailed data are given for the exploitation of these species by the different fishing fleets.

Besides an updated table giving total catches and efforts based on German data (Table 21) a German age-length key for redfish type mentella is given in Table 22.

No data are at hand which make it possible to split the German catches by types (marinus and mentella).

### 6. Adequacy of Data

#### 6.1 Data on age, length and numbers

For cod and haddock the data on catches in weight, numbers, length and age have improved in the most recent years due to the improvement in Faroese catch statistics and sampling. At present the major part of the total catches of these species is being adequately sampled.

The Group noted with interest the Scottish study on their sampling of Faroe haddock catches presented at the Statutory Meeting of ICES (C.M.1974/F:39).

Sampling of numbers, length and age is done for certain flatfish species by Scotland and Faroe, but data for former years exist only for Scottish catches. As catches for lemon soles reached a very high level in 1973, it might be of interest to examine these data more closely.

For redfish, ling and blue ling the data available at present are inadequate for stock assessment purposes. If these stocks are to be assessed (and the increasing catches seem to make this more necessary), the countries involved will have to start regular sampling. In the Faroe Area the bulk of these species is taken by Germany (F.R.) and Norway. The assessments will therefore depend on the results of sampling by these countries.

#### 6.2 Data for estimating the abundance of recruiting year classes

The Group had a brief discussion on different ways of estimating the size of the recruiting year classes. Estimates of predicted future catches and TAC's are dependent on having good data on the strengths of the recruiting year classes in advance of their entry into the fishery. Such data might be obtained from 0-group surveys or from bottom trawl surveys of the youngest age groups before recruitment. 0-group surveys have been undertaken at Faroe by an English research ship since 1972 and by the Faroese research vessel in 1974. It is too early as yet to know whether these surveys will provide adequate abundance estimates which can be correlated with absolute year class strength data. The optimum time for conducting 0-group surveys differs for the various species; saithe, for example, have left the pelagic layers by early July when the surveys have been conducted up to now.

In addition, there are a number of other technical problems which need to be resolved.

The Group noted that in 1975 the English and Faroese surveys will be coordinated and the time period during which the surveys take place will be extended.

7. Reference

JONES, R., 1962. "Haddock Bionomics II. The Growth of Haddock in the North Sea and at Faroe. Mar. Res. 2.

Table 1

Catches in ICES Division Vb by country and species 1952-1974. Metric tons, round fresh

<u>COD</u>									
Year	Faroe Islands	France	Germany F.R.	Norway	Poland	U.K. England	U.K. Scotland	Others	Total
1952	4 550	175	-	-	-	12 365	13 283	-	30 373
1953	4 137	-	-	-	-	12 469	10 535	-	27 141
1954	5 190	600	37	124	-	16 017	14 238	-	36 206
1955	7 902	700	216	-	-	17 223	12 380	-	38 421
1956	7 938	-	689	-	-	8 337	10 610	-	27 574
1957	6 920	-	1 085	-	-	10 067	13 413	-	31 485
1958	6 535	-	1 011	-	-	9 828	10 523	-	27 897
1959	4 676	-	697	-	-	10 087	10 522	-	25 982
1960	8 723	-	451	-	-	13 746	16 300	-	39 220
1961	9 521	-	417	168	-	3 891	12 954	-	26 951
1962	6 751	100	301	505	-	5 521	11 052	-	24 230
1963	7 428	720	376	147	-	4 558	10 875	60	24 164
1964	8 888	989	1 162	333	-	5 845	7 791	50	25 058
1965	9 948	1 538	854	419	-	5 470	7 868	180	26 277
1966	7 957	1 120	669	314	-	4 871	7 855	132	22 918
1967	7 835	871	845	650	-	7 996	8 546	63	26 806
1968	13 763	2 519	1 180	686	-	7 096	8 524	-	33 768
1969	15 718	2 557	447	476	-	6 717	12 249	-	38 164
1970	15 245	2 616	225	238	-	3 707	9 790	-	31 821
1971	12 754	1 426	337	881	-	3 485	9 102	-	27 985
1972	12 143	1 462	262	266	-	3 019	6 483	-	23 635
1973	13 276	1 752	305	115	419	5 079	6 756	-	27 702
1974*	14 090	-	225	316	320	3 649	7 836	-	-

Table 2

HADDOCK

Year	Faroe Islands	France	Germany F.R.	Norway	Poland	U.K. England	U.K. Scotland	Others	Total
1952	3 225	-	-	-	-	7 714	6 653	-	17 592
1953	2 788	-	-	-	-	5 965	6 404	-	15 157
1954	2 645	-	1	-	-	6 069	6 832	-	15 547
1955	3 865	-	33	-	-	5 148	7 667	-	16 713
1956	4 221	-	20	-	-	5 937	7 512	-	17 690
1957	4 453	-	38	-	-	7 105	9 602	-	21 198
1958	6 850	-	19	-	-	7 637	9 573	-	24 079
1959	5 670	-	10	-	-	5 536	9 220	-	20 436
1960	7 772	-	6	-	-	7 298	10 943	-	26 019
1961	8 454	-	22	-	-	2 765	9 590	-	20 831
1962	7 042	166	18	-	-	3 766	16 159	-	27 151
1963	6 336	792	22	-	-	4 655	15 766	-	27 571
1964	6 952	1 866	32	111	-	3 442	7 087	-	19 490
1965	6 673	1 939	8	119	-	3 385	6 355	-	18 479
1966	6 902	2 717	40	-	-	2 867	6 240	-	18 766
1967	5 246	1 091	30	-	-	2 347	4 656	11	13 381
1968	6 751	2 286	31	-	-	2 445	6 339	-	17 852
1969	11 122	3 314	45	-	-	1 976	6 815	-	23 272
1970	11 791	2 006	6	-	-	1 137	6 421	-	21 361
1971	10 488	790	1	-	-	2 323	5 762	29	19 393
1972	8 314	2 666	25	-	-	1 371	4 109	-	16 485
1973	6 018	3 508	46	-	1 190	2 426	4 788	-	17 976
1974*	4 596	-	56	-	685	1 600	5 899	-	-

\* Preliminary estimates



Table 3

SAITHE

Year	Faroe Islands	France	Germany F.R.	Norway	Poland	U.K. England	U.K. Scotland	Others	Total
1952	47	-	-	-	-	5 663	1 188	-	6 898
1953	9	-	-	-	-	6 087	1 088	-	7 184
1954	4	-	13	-	-	5 543	652	-	6 212
1955	89	-	484	-	-	5 643	1 018	-	7 234
1956	37	-	4 998	-	-	4 673	1 176	-	10 884
1957	979	-	21 082	-	-	3 869	928	-	26 858
1958	339	-	4 299	-	-	6 880	1 460	-	12 978
1959	536	-	6 781	-	-	5 688	1 540	-	14 545
1960	685	-	2 583	-	-	6 437	2 140	-	11 845
1961	929	-	2 219	-	-	4 230	2 214	-	9 592
1962	2 494	620	985	-	-	3 724	2 631	-	10 454
1963	2 431	2 207	1 471	-	-	3 178	3 463	-	12 750
1964	1 338	6 458	6 294	+	-	4 329	3 309	-	21 728
1965	1 000	8 565	3 611	-	-	5 265	3 794	-	22 235
1966	1 167	9 967	4 772	2 498	-	3 321	3 581	66	25 372
1967	2 242	5 555	6 119	-	-	3 536	3 996	193	21 641
1968	2 629	424	7 532	-	-	5 123	4 778	-	20 486
1969	4 835	7 899	4 775	378	-	4 303	5 346	-	27 536
1970	2 694	11 036	2 249	1 495	-	3 066	8 608	-	29 148
1971	5 653	10 621	2 251	1 839	-	3 305	7 198	63	30 930
1972	5 646	28 346	3 613	470	-	2 453	6 225	-	46 753
1973*	2 973	22 241	9 087	355	4 050	7 527	10 131	-	56 364
1974*	3 776	20 924	5 919	1 606	1 925	3 821	6 942	130	45 043

Table 4

WHITING

1952	-	-	-	-	-	332	1 300	-	1 632
1953	-	-	-	-	-	563	1 167	-	1 730
1954	-	-	-	-	-	522	716	-	1 238
1955	-	-	1	-	-	298	581	-	880
1956	-	-	+	-	-	213	415	-	628
1957	-	-	+	-	-	157	554	-	711
1958	-	-	+	-	-	167	333	-	500
1959	-	-	+	-	-	249	246	-	495
1960	-	-	-	-	-	70	403	-	473
1961	222	1 200	-	-	-	50	257	-	1 729
1962	-	-	-	-	-	26	197	-	223
1963	-	-	+	-	-	33	285	-	318
1964	-	-	+	-	-	25	117	-	142
1965	-	1 421 <sup>a)</sup>	+	-	-	29	97	-	1 547
1966	-	225	-	-	-	28	139	-	392
1967	-	254	1	-	-	31	138	3	427
1968	-	80	1	-	-	46	172	-	299
1969	-	16 991	+	-	-	46	515	-	17 552
1970	-	73	-	-	-	35	251	-	359
1971	150	195	1	-	-	26	166	4	542
1972	-	194	-	-	-	137	139	-	470
1973	384	72	7	-	8	235	394	-	1 100

x) Preliminary estimates

a) includes Iceland grounds (Va)

Table 5

TUSK

Year	Faroe Islands	France	Germany F.R.	Norway	U.K. England	U.K. Scotland	Total
1952	187	-	-	1 007	92	387	1 673
1953	593	-	-	711	93	483	1 880
1954	560	-	7	511	95	401	1 574
1955	1 005	-	40	384	114	472	2 015
1956	818	-	58	484	83	586	2 029
1957	845	-	99	199	80	694	1 917
1958	812	-	48	1 068	106	1 066	3 100
1959	984	-	87	637	69	1 275	3 052
1960	1 306	-	32	734	135	1 260	3 467
1961	1 301	-	29	1 401	67	1 062	3 860
1962	1 902	-	21	1 134	54	1 405	4 516
1963	2 007	-	29	802	28	695	3 561
1964	2 775	-	137	875	30	799	4 616
1965	1 645	-	115	1 565	32	924	4 281
1966	1 488	-	87	1 221	21	482	3 299
1967	2 070	-	109	2 729	18	432	5 358
1968	2 798	-	91	2 906	23	549	6 367
1969	1 454	-	21	1 338	16	412	3 241
1970	1 028	-	19	1 475	11	515	3 048
1971	1 489	-	44	1 872	13	419	3 837
1972	1 918	-	139	2 421	16	386	4 880
1973	3 402	-	134	3 066	36	531	7 169

Table 6

LING AND BLUE LING

Year	Faroe Islands	France	Germany F.R. *)		Norway		Poland	U.K. England	U.K. Scotland	Total
1952	56	-	-		679		-	489	540	1 764
1953	144	-	-		486		-	476	935	2 041
1954	122	-	1 247		414		-	474	479	2 736
1955	235	-	2 799		711		-	751	560	5 056
1956	277	-	2 025		1 036		-	533	749	4 620
1957	259	-	1 882		626		-	579	879	4 225
1958	616	-	2 115		795		-	589	823	4 938
1959	394	-	1 758		917		-	379	691	4 139
1960	520	-	895		400		-	629	855	3 299
1961	603	-	11		521		-	241	829	2 205
1962	450	387	9	B.Ling	326		-	247	572	1 991
1963	365	1 512	17	478	496	B.Ling	-	183	396	3 447
1964	480	2 844	48	2 493	736	182	-	322	632	7 737
1965	416	2 618	30	1 612	832	1 120	-	184	388	7 200
1966	416	1 827	39	850	2 115	430	-	276	496	6 449
1967	736	23	60	1 133	3 203	238	-	172	364	5 929
1968	1 209	177	68	1 858	3 340	788	-	152	679	8 271
1969	486	195	45	249	1 952	798	-	225	602	4 552
1970	699	578	42	335	1 737	2 612	-	164	883	7 050
1971	752	728	46	1 475	2 898	557	-	152	879	7 487
1972	1 572	866	74	2 779	3 958	1 203	-	146	772	11 370
1973	1 428	1 012	167	2 931	3 638	4 003	11	268	850	14 308

\*) 1954-1962 Ling and Blue Ling not separated.

Table 7

LEMON SOLE

Year	Faroe Islands	France	U.K. England	U.K. Scotland	Others	Total
1952	-	-	373	753	-	1 126
1953	-	-	361	462	-	823
1954	-	-	365	580	-	945
1955	-	-	307	480	-	787
1956	-	-	192	548	-	740
1957	-	-	343	678	-	1 021
1958	-	-	292	670	-	962
1959	-	-	358	752	-	1 110
1960	-	-	351	1 026	-	1 377
1961	-	-	156	1 009	-	1 165
1962	-	-	187	910	-	1 097
1963	-	-	142	706	-	848
1964	-	27	112	305	-	444
1965	-	42	110	393	-	545
1966	-	49	99	297	-	445
1967	-	14	104	321	-	439
1968	-	20	84	404	-	508
1969	-	-	77	362	2	441
1970	-	-	68	424	-	492
1971	590	-	76	303	-	969
1972	300	-	35	244	-	579
1973	1 190	-	126	393	-	1 709

Table 8

PLAICE

1952	115	-	79	140	-	334
1953	13	-	53	113	-	179
1954	27	-	78	142	-	247
1955	81	-	57	129	-	267
1956	19	-	57	145	-	221
1957	+	-	75	189	-	264
1958	4	-	75	157	-	236
1959	5	-	83	149	-	237
1960	64	-	62	209	-	335
1961	83	-	38	194	-	315
1962	26	-	73	164	-	263
1963	4	226	39	130	-	399
1964	11	131	64	99	-	305
1965	6	92	79	143	-	320
1966	1	108	106	161	-	376
1967	7	54	120	172	2	355
1968	102	28	158	170	-	458
1969	192	31	82	181	-	486
1970	288	-	59	205	-	552
1971	143	-	45	173	-	361
1972	130	+	50	111	-	291
1973	139	-	95	134	4	372

Table 9

HALIBUT

Year	Faroe Islands	France	Germany F.R.	Norway	Poland	U.K. England	U.K. Scotland	Total
1952	243	-	-	420	-	467	720	1 850
1953	149	-	-	437	-	414	663	1 663
1954	226	-	13	561	-	433	735	1 968
1955	335	-	428	560	-	554	866	2 743
1956	390	-	57	187	-	407	901	1 942
1957	374	-	125	366	-	557	1 165	2 587
1958	616	-	112	390	-	580	1 165	2 863
1959	404	-	125	180	-	593	1 261	2 563
1960	218	-	58	439	-	686	1 397	2 798
1961	222	-	165	327	-	287	1 237	2 238
1962	137	-	11	299	-	325	1 126	1 898
1963	161	-	10	128	-	241	887	1 427
1964	174	-	63	110	-	239	792	1 378
1965	276	-	35	124	-	292	725	1 452
1966	169	-	36	120	-	248	636	1 209
1967	245	-	57	180	-	178	749	1 409
1968	267	-	64	90	-	130	698	1 249
1969	205	-	18	151	-	124	558	1 056
1970	296	-	10	182	-	74	514	1 076
1971	234	-	14	197	-	92	371	908
1972	212	-	35	155	-	60	256	718
1973	256	-	52	78	5	144	359	894

Table 10

MEGRIM

1952	-	-	-	-	-	5	12	17
1953	-	-	-	-	-	4	19	23
1954	-	-	-	-	-	5	11	16
1955	-	-	-	-	-	5	21	26
1956	-	-	1	-	-	2	13	16
1957	-	-	3	-	-	3	12	18
1958	-	-	1	-	-	4	10	15
1959	-	-	1	-	-	5	6	12
1960	-	-	-	-	-	9	21	30
1961	-	-	-	-	-	8	17	25
1962	-	-	-	-	-	6	19	25
1963	-	-	-	-	-	5	26	31
1964	-	50	-	-	-	5	20	75
1965	-	47	-	-	-	5	17	69
1966	-	237	-	-	-	5	14	256
1967	-	212	-	-	-	1	6	219
1968	-	250	-	-	-	3	6	259
1969	-	312	1	-	-	3	8	324
1970	-	99	-	-	-	1	9	109
1971	-	37	-	-	-	2	9	48
1972	-	38	-	-	-	3	10	51
1973	-	-	-	-	-	4	11	15

Table 11

REDFISH

Year	Faroe Islands	France	Germany F.R.	U.K. England	U.K. Scotland	Total
1952	-	-	-	20	10	30
1953	-	-	-	139	16	155
1954	-	-	2 114	87	2	2 203
1955	-	-	10 020	151	2	10 173
1956	-	-	5 018	25	7	5 050
1957	-	-	5 217	27	7	5 251
1958	-	-	4 451	58	13	4 522
1959	-	-	3 440	38	11	3 489
1960	-	-	2 295	276	60	2 631
1961	-	-	3 577	50	38	3 665
1962	-	-	2 237	52	49	2 338
1963	1	366	2 035	31	60	2 493
1964	-	705	7 119	41	43	7 908
1965	1	582	4 864	38	27	5 512
1966	-	-	3 180	8	40	3 228
1967	-	-	4 853	24	22	4 899
1968	1	-	6 613	43	10	6 667
1969	5	-	1 225	13	15	1 258
1970	-	-	2 020	13	20	2 053
1971	-	-	2 479	12	12	2 503
1972	-	-	4 027	40	13	4 080
1973	121	-	9 439	72	13	9 645

Table 12

ANGLER (MONK)

1952	-	-	-	86	376	462
1953	-	-	-	69	320	389
1954	-	-	-	85	344	429
1955	-	-	3	157	338	498
1956	-	-	3	157	429	589
1957	-	-	3	214	631	848
1958	-	-	+	263	580	843
1959	-	-	13	269	629	911
1960	-	-	7	314	811	1 132
1961	-	-	11	167	695	873
1962	-	-	4	179	641	824
1963	-	-	2	160	618	780
1964	-	-	3	218	347	568
1965	-	-	-	212	326	538
1966	-	-	-	164	349	513
1967	-	-	-	118	308	426
1968	-	-	3	159	335	497
1969	1	26	1	175	429	632
1970	-	10	-	127	542	679
1971	-	-	-	132	532	664
1972	-	-	3	99	388	490
1973	535	-	6	193	414	1 148

Table 13. Faroe Division Vb. Fishing Effort and Landings per Unit Effort.

Year	Estimated Total Effort			Landings per Unit Effort		
	Cod (1)	Haddock (1)	Saithe (2)	Cod (3)	Haddock (3)	Saithe (4)
1950	54	45	34	666	303	160
1951	65	54	41	544	272	212
1952	65	59	32	511	298	216
1953	53	53	28	511	286	260
1954	56	55	27	641	283	227
1955	59	56	30	654	299	245
1956	58	49	42	474	363	259
1957	64	58	146	494	367	182
1958	76	79	53	368	304	243
1959	74	82	71	352	248	203
1960	118	141	74	331	199	161
1961	108	106	42	250	196	230
1962	101	92	56	239	295	186
1963	90	80	60	267	343	214
1964	80	78	80	315	250	267
1965	81	75	64	336	246	344
1966	63	70	91	363	268	279
1967	52	61	76	510	218	277
1968	74	71	51	464	252	399
1969	71	87	76	537	269	359
1970	79	85	68	405	252	427
1971	65	61	68	435	316	454
1972	72	79	189	328	209	247
1973	103	105	161	268	171	349

(1) British Units = Million Ton-hours

(2) English Units = Million Ton-hours steam + motor trawl

(3) Tons per Million Ton-hours, British Trawlers

(4) Tons per Million Ton-hours, English Trawlers

Table 14

COD (Faroe Plateau) Total Numbers of Fish Caught at Each Age  $\times 10^{-3}$ 

Year Age	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
1	272	859	1 223	815	1 181	122	162	53	127	34	68	35	78	44	211	255
2	2 002	4 728	3 093	4 424	4 110	2 033	852	1 337	1 609	1 529	878	402	328	875	719	2 293
3	4 239	4 027	2 686	2 500	3 958	3 021	3 230	970	2 690	3 322	3 106	1 163	757	1 176	3 111	1 694
4	858	2 574	1 331	1 255	1 280	2 300	2 564	2 080	860	2 663	3 300	2 172	821	810	1 586	2 287
5	1 731	513	1 066	855	662	630	1 416	1 339	1 706	945	1 538	1 685	1 287	596	705	1 184
6	200	876	232	481	284	350	363	606	847	1 226	477	752	1 451	1 021	384	544
7	207	171	372	93	204	158	155	197	309	452	713	244	510	596	312	289
8	50	131	78	94	48	79	48	104	64	105	203	300	114	154	227	236
9	10	61	29	22	30	41	63	33	27	11	92	44	179	25	121	146

Table 15

Faroe Plateau Cod

Values of F (M = 0.2) from Virtual Population Analysis

Year Age	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 <sup>x</sup>
1	0.02	0.06	0.05	0.04	0.05	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01
2	0.18	0.46	0.34	0.27	0.26	0.11	0.12	0.09	0.08	0.10	0.12	0.06	0.03	0.05	0.07	0.10
3	0.48	0.67	0.51	0.50	0.41	0.30	0.25	0.20	0.25	0.23	0.29	0.23	0.14	0.14	0.25	0.25
4	0.44	0.62	0.49	0.48	0.52	0.45	0.45	0.26	0.27	0.41	0.39	0.35	0.25	0.22	0.28	0.30
5	0.63	0.53	0.57	0.69	0.51	0.53	0.55	0.46	0.35	0.55	0.44	0.35	0.36	0.29	0.30	0.35
6	0.39	0.79	0.48	0.55	0.52	0.56	0.66	0.49	0.59	0.45	0.60	0.40	0.57	0.53	0.31	0.40
7	0.61	0.67	0.96	0.36	0.48	0.62	0.52	0.97	0.50	0.74	0.52	0.71	0.53	0.49	0.31	0.40
8	0.29	1.05	0.76	0.70	0.32	0.34	0.38	0.80	1.05	0.31	0.91	0.43	0.90	0.30	0.35	0.40
9 <sup>x</sup>	0.50	0.70	0.70	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.40	0.40

<sup>x</sup>) Assumed values



Table 16

Faroe Plateau Cod

Calculations of yield per  
recruit with F varying with age

A. Data

Age	Relative F	Mean Weight
1	0.026	0.46
2	0.26	1.06
3	0.62	1.89
4	0.76	2.92
5	0.88	4.07
6	1.00	5.30
7	1.00	6.58
8	1.00	7.85
9	1.00	9.08
10	1.00	10.27

B. Results

$F_{max}$	Yield per Recruit	Correponding yield (tons) for a mean year class strength at 1 year of $19\ 429 \times 10^3$
0.3	1.419	27 570
0.4	1.423	27 647
0.5	1.390	27 006
0.6	1.360	26 462

$$\frac{Y_w}{R} = \sum_{t=1}^{10} \left[ \frac{N_t \bar{w}_t F_t (1 - e^{-Z_t})}{Z_t} \right]$$

Table 17

Faroe Plateau Cod and Haddock

Estimates of year class strength as numbers of  
2 year old fish from Virtual Population Analysis  
Natural Mortality  $M = 0.2$

Year class	Stock size (millions)	
	Cod	Haddock
1955	-	34.6
1956	-	38.8
1957	13.1	42.8
1958	14.1	35.2
1959	11.9	50.4
1960	20.6	38.0
1961	20.0	46.7
1962	21.6	29.4
1963	8.1	21.8
1964	18.1	19.2
1965	23.1	24.0
1966	18.0	43.2
1967	8.6	26.6
1968	8.2	25.1
1969	12.6	10.2
1970	19.6	33.5

Table 18

Haddock (total Vb) Total number of fish caught at each age  $\times 10^{-3}$ 

Year Age	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
1	44.7	116.0	524.5	853.6	941.2	784.2	356.2	45.5	39.4	89.6	69.6	48.8	94.7	56.7	55.1	42.7	663.0	199.0
2	4 133.3	6 255.3	3 970.6	6 060.9	7 932.4	9 631.1	13 551.8	2 284.1	1 367.8	1 080.8	1 424.9	5 881.4	2 383.8	1 728.2	717.4	750.0	3 039.0	5 230.0
3	7 130.2	8 020.7	7 662.8	10 659.1	7 330.3	13 976.7	8 907.4	7 457.0	4 285.6	3 303.5	2 405.1	4 096.8	7 539.1	4 855.4	4 392.7	3 744.1	7 944.0	2 831.0
4	8 442.0	5 679.4	4 543.6	6 655.2	5 134.0	5 232.5	7 403.4	3 898.5	5 133.1	4 804.3	2 598.8	2 812.0	4 567.0	6 580.8	4 727.0	4 179.3	1 175.0	3 969.0
5	1 615.2	3 378.1	2 055.8	2 482.4	1 937.3	2 361.2	2 242.3	2 359.8	1 442.5	2 710.0	1 784.9	1 524.3	1 564.8	1 624.1	3 267.4	2 706.4	2 635.0	453.0
6	893.9	1 298.8	1 843.6	1 559.0	1 305.1	1 406.6	1 539.4	1 119.8	1 208.5	1 111.8	1 426.2	1 525.8	1 484.9	1 383.0	1 292.2	1 170.6	871.0	980.0
7	585.2	817.3	720.5	1 169.0	838.2	867.5	859.7	727.7	472.5	739.7	630.5	922.6	1 223.9	1 098.5	863.5	695.7	969.0	499.0
8	226.6	293.5	235.7	243.2	236.2	270.1	256.8	198.4	1 345.0	179.8	197.2	230.2	377.9	325.7	222.3	179.6	139.0	565.0
9	93.9	125.2	97.8	85.3	59.2	72.3	74.7	49.1	42.5	53.5	51.8	68.1	113.9	68.0	146.7	113.1	66.0	68.0

Table 19

Faroe Haddock Values of F (M = 0.2) from Virtual Population Analysis

Year Age	1957	1958	1959	1960	1961	1962	1963	1966	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 *
1	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
2	0.14	0.20	0.11	0.21	0.19	0.33	0.38	0.09	0.07	0.06	0.07	0.16	0.10	0.08	0.08	0.03	0.15	0.06
3	0.37	0.44	0.39	0.46	0.42	0.59	0.57	0.38	0.24	0.25	0.20	0.28	0.32	0.32	0.29	0.75	0.39	0.20
4	0.62	0.58	0.48	0.69	0.43	0.61	0.74	0.53	0.48	0.46	0.31	0.37	0.58	0.51	0.58	0.50	0.56	0.35
5	0.40	0.55	0.42	0.54	0.44	0.36	0.57	0.55	0.38	0.51	0.31	0.30	0.37	0.42	0.52	0.80	0.70	0.44
6	0.45	0.65	0.66	0.67	0.60	0.68	0.42	0.64	0.62	0.56	0.56	0.48	0.55	0.64	0.70	0.36	0.66	0.61
7	0.66	0.98	0.98	1.26	0.98	1.11	1.25	0.35	1.05	1.01	0.73	0.89	0.93	1.06	1.15	1.08	0.57	1.04
8	0.60	0.86	0.89	1.14	0.99	1.05	1.31	1.23	0.62	0.94	0.84	0.65	1.25	0.69	0.64	0.80	0.65	0.80
9 *	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80

\*) Assumed values

Table 20

Faroe Haddock

Calculations of yield per  
recruit with F varying with age

A. Data

Age	Relative F	Mean Weight
1	0.013	0.3
2	0.075	0.47
3	0.25	0.73
4	0.44	1.13
5	0.63	1.55
6	0.76	1.97
7	1.30	2.41
8	1.0	2.76
9	1.0	3.67
10	1.0	3.55

Mean recruitment (1960-1970) 37.5 million fish

B. Results

$F_{\max}$	Yield per Recruit	Yield (tons) assuming average recruitment
0.7	0.573	21 488
0.8	0.591	22 163
0.9	0.571	21 413
1.0	0.564	21 150

Table 21

Blue Ling and Redfish catches off Faroe Islands 1963-1973 and total effort from the Federal Republic of Germany's catches per fishing day

Year	Federal Republic of Germany catch (tons)		Federal Republic of Germany catch (tons)per fishing day		Total catches by all countries (tons)		Total effort for all countries	
	Blue Ling	Redfish	Blue Ling	Redfish	Blue Ling	Redfish	Blue Ling	Redfish
1963	478	2 035	1.0	4.1	478	2 493	-	608.05
1964	2 493	7 119	1.5	4.3	2 675	7 908	1 783.33	1 839.07
1965	1 612	4 864	1.2	3.5	2 732	5 512	2 276.67	1 574.85
1966	850	3 180	0.7	2.7	1 280	3 228	1 828.57	1 195.56
1967	1 133	4 853	0.8	3.3	1 371	4 899	1 713.75	1 484.55
1968	1 858	6 613	1.0	3.5	2 646	6 667	2 646.00	1 904.86
1969	249	1 225	0.4	1.8	1 047	1 258	2 617.50	698.89
1970	335	2 020	0.6	3.7	2 947	2 053	4 911.67	554.86
1971	1 475	2 479	1.9	3.1	2 032	2 503	1 069.47	807.42
1972	2 779	4 027	2.2	3.2	3 982	4 080	1 810.00	1 275.00
1973	2 931	9 439	1.5	4.8	6 934	9 645	4 622.67	2 009.38

Table 22

Redfish (type mentella) Faroe 1974. Age/length key data  
from Federal Republic of Germany

Age(years) Length (cm)	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
38	1	1	2												4
39			1	1	2										4
40			3	3	9			1							16
41			1		10	1	2								14
42					9	3	2	1							15
43					3	2	10	4							19
44					1	2	12	6	3	3					27
45							6	6	3	1					16
46							2	11	2	2					17
47								8	2	3	1	1			15
48								2	2	1	6				11
49										1	1				2
50											1				1
Total	1	1	7	4	34	8	34	39	12	11	9	1			161
Mean length per age	38.50	39.93	41.65	44.21	46.25	48.72									
		38.50	40.25	43.13	45.78	46.59	47.50								

ADDENDUM

The following data on catches by French vessels in the Faroe area (Vb1 and Vb2) during 1974 were received by the Chairman of the Working Group after the meeting. They comprise catches (in metric tons) made by trawlers landing in Boulogne (January-December 1974) and Lorient (January-June 1974).

Cod	658 tons
Haddock	1 440 tons
Redfish	181 tons
Ling	163 tons
Blue Ling	252 tons



APPENDIX

(C.M.1975/F:3)

DESCRIPTIONS OF FISHERIES AT THE FAROES

### The English Fishery at Faroe

English vessels fishing at Faroe (ICES Division Vb) consist of a fairly small group of side-trawlers of about 400 tons GRT which fish in the area regularly. In addition, there are other vessels, predominantly side-trawlers but of a larger size range, which make less frequent trips to Faroe or which fish a few hauls en route to or from other grounds. The bottom trawl is now the only gear used by English vessels. Fishing takes place on both Faroe Plateau and on Faroe Bank with fishing effort on the Plateau generally about double that on the Bank. The main species sought are cod, haddock and saithe which account for about 80% of the catches. Other demersal species, including halibut, lemon sole, whiting, ling, tusk and plaice, are taken in smaller quantities. Fishing continues throughout the year but the intensity of fishing tends to be greatest when catch rates are highest in spring and again in summer.

Although cod and haddock are the main species sought some vessels will fish specifically for saithe on some voyages or parts of voyages. The proportions of saithe in the catches can be controlled by selection of grounds as the maximum density of saithe tends to be in deeper water than for cod and haddock.

The amount of fishing at Faroe by English vessels (Table A1) reached a maximum in 1960 but subsequently fell as catch rates declined with over-exploitation of the stocks. Fishing effort continued to decline to a minimum in 1970-72 but has increased somewhat in the last two years.

### The Faroese Fishery in the Waters around Faroes

The Faroese fishery in the waters around the Faroes is performed mainly by rather small vessels. Some of the bigger ships operate in the area during part of the year, but as a rule they take part in the distant water fishery.

In weight the catch from Faroe is about 10-12% of total landings by Faroese vessels, and in 1973 it was about 20% of the total catch in ICES Division Vb.

### Classification of the Boats Operating in the Area all the Year

<u>Class</u>	<u>Number</u>	
1 - 24.9	139	(open boats not included)
25 - 49.9	53	
50 - 99.9	31	
100 - 149.9	2	(side trawler, Scottish type)
150 - 499.9	5-10	(steel ships, gillnetters taking part in the fishery for spawning cod in late winter)

The 3 first classes are wooden boats, fishing most of the year with long-lines, but trawling during the summer.

### Catch, Effort and Catch per Effort during the Year

The first year with a detailed record of the fishery is 1973, when the new statistical system was introduced.

Tables A2 and A3 give details of the main species by method of capture for this year.

Trawling and the gill-netting is seen to be clearly seasonal. The long-line fishery is stable during the year, except for the summer months, where the cod especially, foraging on sandeel all over the plateau, seem not so willing to take the bait. The hand line (snella) fishery is also rather stable through the year.

The higher CPE for tusk and ling during summer are due to a seasonal fishery directed at these species during the summer by boats not taking part in the summer trawling.

In the summer trawl fishery significant quantities of lemon sole, angler, plaice and other species are taken in addition to cod and haddock.

#### Geographical Distribution of the Fishery

The winter and spring fishery for cod and haddock takes place north and northeast of the islands on the spawning grounds. After spawning the stocks disperse all over the Plateau. In October to November the long-line fishery starts again rather close to the Islands especially east of the Faroes.

The saithe fishery starts in February and moves from the northeast southwards and spreads out over the Plateau.

Due to a special Act a summer trawl fishery has been allowed in 5 areas inside the 12-mile limit from 1 June to 1 September. The flatfishes move into these areas in May, and move out again in September.

In August the trawlers mainly seek cod in the area west of the southernmost Island, Suðuroy.

#### The German (F.R.) Fishery off Faroe

In 1974 German trawlers were fishing throughout the year on the grounds off Faroe as in previous years. The fishery was by bottom trawl, the trawlers mainly using a 180 foot trawl. The type of gear used by trawlers is not dependent on the type of the vessel but on the ground. In 1974 both fresh-fish and freezer trawlers were operating off Faroe.

Except for the coalfish fishery during the spawning time in late winter and early spring, the German fishery off Faroe is an occasional fishery, carried out mainly by trawlers on their way to and from the Icelandic fishing grounds. The German trawlers mainly fish on the NE-Shelf and on the grounds around Suðuroy. Table A4 gives the monthly catch of each species for 1973.

#### The Norwegian Fishery in Faroese Waters

The Norwegian Fishery in Faroese waters is comprised of a gill-net fishery for spawning saithe in winter and a long-line fishery for ling, blue ling and tusk from May to December. Relatively small quantities of cod and halibut are taken chiefly as a by-catch, cod mostly by gill-net and halibut by long-line. The catch at Faroe in 1973 was only 1.3% by weight of the total Norwegian catch of demersal species. However, the catches of ling, blue ling and tusk make up significant proportions of the total Norwegian catches of these species, 14.6%, 34.1% and 11.3% respectively in 1973. The Norwegian catches of different species at Faroe are given in the catch tables of the report.

### The Fishing Fleet

The boats fishing at Faroe are based on the Norwegian west coast and may operate in several different areas during the year including the west coast of Norway, the northern North Sea, Shetland, the Hebrides and Rockall. The size range of the boats is 60-105 feet and the average maximum loading capacity is approximately 70 metric tons.

### The Gill-Net Fishery

The gill-net fishery takes place chiefly in February and March during the spawning season of the saithe and the boats are operating mainly east of the islands. The catches of saithe are generally slightly higher in February than in March. Cod is also caught by the gill nets, mostly as a by-catch. The catches of cod tend to increase during the gill-net season, but this may be the effect of decreasing catches of saithe. The number of boats participating in the fishery in 1974 was 19, which altogether made 35 trips to the Faroes. This indicates an increase in the effort (Table A5).

### The Long-Line Fishery

The long-line fishery at Faroe is carried out from May to December, generally with highest effort in September (Table A5). In 1974 there were 43 boats participating, making 81 trips. This is 10 below the average for the last six years, but there is no clear trend towards a reduction in the effort. Table A6 gives the average catch/trip per month for the period 1969-1974. These data do not give information about catch/effort because the boats usually fish until they are loaded. The table does, however, give information about the relative occurrence of the different species during the long-line season. The catch of tusk is very stable throughout the season, whereas for ling the highest catch/trip ratios occur in May and June and then gradually decrease towards the end of the year. The catch ratios for blue ling are lowest in May and increase to a maximum level in September-November. The catches of cod and halibut are by-catches and are both relatively stable throughout the season, except for an increase towards the end of the year.

For the three main species there is no clear indication of any change in their relative occurrence. The catches of blue ling may, however, be extremely variable from year to year. For halibut and especially for cod there has been a decrease in catch/trip. For cod the average for 1969-1971 was 4.1 tons and for 1972-1974 it was 0.6 tons. The corresponding averages for halibut were 2.1 and 1.0 tons.

The geographical distribution of the Norwegian long-line fishery is poorly known, except that the boats are fishing mainly off the shelf.

### The Polish Fishery at Faroe in 1973

The fishery at Faroe is conducted mainly by side trawlers of the B14 type. These are trawlers of slightly more than 500 BRT and are powered by 800 or 1200 HP steam engines. The gear used by these trawlers is the otter trawl. Occasionally trawlers of the B23 type fished in this region also. In 1973 the main part of the fishery was in the period May to September. Saithe was the main species taken in the Polish catches with haddock and cod second and third in importance. The other species present in the catches may be regarded as by-catch. The Polish catches and effort are given in Table A7.

The Scottish Fishery at Faroe in 1973 and 1974

The Scottish Fishery at Faroe has traditionally been an all-year fishery but with a slight increase in fishing effort during the second and third quarters of the year. Fishing effort in the last quarter of 1974 was much reduced due to the quota allocation having been reached before the end of the year. The main fishery is a side trawl fishery conducted by boats in the 150-499.9 GRT class with an average GRT of approximately 250 tons. Less important is the great line fishery by up to 4 boats in the 100-149.9 class and 150-499.9 GRT classes.

The main species fished are cod, haddock and saithe but significant quantities of other species are also taken as a by-catch (see Table A8).

The distribution of fishing effort in the Faroe region in 1973 and the first half of 1974 is shown in the attached charts. Fishing effort by the lines is mainly at Faroe Bank.

Appendix Table A1

Fishing effort and landings of cod, haddock and saithe by English trawlers fishing at Faroe (ICES Division Vb)

Year	Thousands of Hours Fishing	Landings (Metric Tons, Whole Weight)		
		Cod	Haddock	Saithe
1960	104	13 746	7 298	6 437
1961	50	3 891	2 765	4 230
1962	57	5 521	3 766	3 724
1963	46	4 558	4 655	3 187
1964	50	5 845	3 442	4 329
1965	44	5 470	3 385	5 265
1966	36	4 871	2 867	3 321
1967	35	7 996	2 347	3 536
1968	35	7 096	2 445	5 123
1969	35	6 717	1 976	4 303
1970	22	3 707	1 137	3 066
1971	22	3 485	2 323	3 305
1972	22	3 019	1 371	2 453
1973	46	5 079	2 426	7 527
1974	(34)	(3 649)	(1 600)	(3 821)

Appendix Table A2

Catch by method of capture  
Effort  
Catch per effort

Faroese Catches. ICES Area Vb1  
Tons

Cod, Haddock, Saithe

1973

	Trawl Effort:10 trawl hours			Gill Net Effort: No. of nets			Long Line Effort:1000 Hooks			Handline No. of Handlin Effort: per Trip			OTHER GEARS CATCH	TOTAL CATCH
	CATCH	EFFORT	CPE	CATCH	EFFORT	CPE	CATCH	EFFORT	CPE	CATCH	EFFORT	CPE		
J COD	3	-	-				852	8968	.095	11	78	.142	2	868
A HADDOCK	1	-	-	+	+	+	986	9860	.100	+	+	+	+	989
N SAI THE				51	-	-	+	+	+	+	+	+	+	52
F COD	4	-	-	56	1474	.038	622	6158	.101	24	141	.170	4	710
E HADDOCK	2	-	-	+	+	+	604	6637	.091	1	+	+	3	610
B SAI THE				56	727	.077				53	349	.152	+	112
M COD	37	-	-	1181	8880	.133	947	8307	.114	455	2500	.182	25	2645
A HADDOCK	5	-	-				268	4188	.064	+	+	+	3	276
R SAI THE	1	-	-				2		+	327	1185	.276	9	339
A COD	62	50	1.23	233	5682	.041	177	2855	.062	293	2139	.137	5	770
P HADDOCK	6	-	-	+	+	+	145	2132	.068	+	+	+	2	155
R SAI THE	2	-	-	4	-	-	1		-	287	1087	.264	+	294
M COD	71	93	.76	4	-	-	81	3681	.022	156	1544	.101	2	314
A HADDOCK	13	-	-				66	825	.080	+	+	+	+	82
Y SAI THE	3	-	-				2	+	+	346	627	.552	16	368
J COD	712	1002	.71				140	1505	.093	157	1440	.109	6	1015
U HADDOCK	159	723	.22				60	706	.085	4	-	-	5	229
N SAI THE	41	455	.09				+	+	+	185	1968	.094	1	228
J COD	792	1257	.63				63	1432	.044	406	2417	.168	11	1272
U HADDOCK	279	962	.29				101	1098	.092	9	429	.021	2	391
L SAI THE	41	315	.13				+	+	+	259	300	.862	+	300
A COD	1066	935	1.14				42	1200	.035	40	286	.104	2	1151
U HADDOCK	343	858	.40				76	1134	.067	2	-	-		422
G SAI THE	31	388	.08				+	+	+	10	77	.130	1	43
S COD	42	58	.72				65	1160	.056	83	564	.147	2	192
E HADDOCK	14	47	.30				168	1953	.086	5	-	-		187
P SAI THE	1	-	-							65	67	.972	2	68
O COD	7	-	-				534	7026	.076	133	881	.151	11	685
C HADDOCK	3	-	-				734	7892	.093	3	-	-		741
T SAI THE	1	-	-							71	29	2.457	2	74
N COD							644	6252	.103	24	-	-	2	670
O HADDOCK							694	7383	.094	1	-	-	1	694
V SAI THE							2	-	-					2
D COD							140	1443	.097	2	-	-		142
E HADDOCK							161	1210	.133					161
C SAI THE							1		-					1

Long Line (Only Negligible Quantities in Other Gears)

		Catch (tons)	Effort (1000 hocks)	CPU (tons per 1000 hocks)
JANUARY	TUSK	95	3518	.027
	LING	63	2625	.024
FEBRUARY	TUSK	122	5083	.024
	LING	82	3280	.025
MARCH	TUSK	171	3226	.053
	LING	61	2346	.026
APRIL	TUSK	284	3021	.094
	LING	78	2229	.035
MAY	TUSK	313	1542	.203
	LING	111	1291	.086
JUNE	TUSK	138	1030	.134
	LING	93	930	.100
JULY	TUSK	161	1238	.130
	LING	132	917	.144
AUGUST	TUSK	210	925	.227
	LING	117	944	.124
SEPTEMBER	TUSK	241	1868	.129
	LING	116	3742	.031
OCTOBER	TUSK	191	3032	.063
	LING	49	1167	.042
NOVEMBER	TUSK	119	5174	.023
	LING	43	4778	.009
DECEMBER	TUSK	21	-	-
	LING	9	-	-



Appendix Table A4.

Federal Republic of Germany catches off Faroe, 1973 (tons, round fresh)

Month Species	1	2	3	4	5	6	7	8	9	10	11	12	Total	Catch per day kg
Cod	37	7	5	-	25	44	23	6	20	24	37	77	305	156.9
Haddock	5	1	8	-	1	2	-	3	-	1	3	22	46	23.6
Whiting	-	-	-	-	-	-	7	-	-	-	-	-	7	3.6
Saithe	1 549	97	140	20	347	1 094	37	157	154	239	1 279	3 974	9 087	4 674.4
Ling	13	5	3	-	12	20	1	8	6	7	22	70	167	85.9
Blue Ling	162	29	18	2	168	352	159	279	628	377	373	384	2 931	1 507.7
Hake	-	-	-	-	-	5	-	-	-	-	-	-	5	2.6
Tusk	9	2	2	-	16	30	4	3	11	15	13	29	134	68.9
Pollack	-	-	-	-	-	1	-	-	-	1	-	-	2	1.0
Grenadier	7	-	-	-	1	-	-	-	-	-	-	-	8	4.1
Redfish	307	110	92	26	2 829	2 589	101	646	523	482	765	969	9 439	4 855.4
Blue Whiting	-	-	-	-	-	-	-	-	-	-	-	3	3	1.5
Catfish	1	-	1	1	3	5	1	1	3	3	2	4	25	12.8
Monk	1	-	-	-	1	-	-	-	-	1	1	2	6	3.1
Halibut	2	1	-	-	12	12	-	6	5	3	8	3	52	26.7
Greenland Halibut	13	14	90	5	28	42	40	17	6	16	3	9	283	145.5
Skates and Sharks	8	3	5	-	9	19	1	1	1	3	8	8	66	33.9
Others	15	25	12	1	80	24	24	4	12	20	81	247	545	280.3
Total	2 129	294	376	55	3 532	4 239	398	1 131	1 369	1 192	2 595	5 801	23 111	11 888.4
Days Fished	205	40	49	9	173	263	51	109	160	139	245	501	1 944	

Appendix Table A5. Number of landings per month in Ålesund, Norway<sup>1)</sup> from Norwegian boats coming from Faroese waters. Average 1969-1974.

Gill-Net Landings				Long-Line Landings							
J	F	M	A	M	J	J	A	S	O	N	D
1	9	16	2	4	12	11	14	19	17	8	7
Total: 28				Total: 92							

<sup>1)</sup> The Norwegian effort data presented here are based on landings in Ålesund which are estimated to make up 85-90% of the total.

Appendix Table A6. Average monthly catch per trip to Faroese waters 1969-1974 by Norwegian long-line boats (based on landings in Ålesund, Norway) Metric tons round fresh weight.

Species	M	J	J	A	S	O	N	D	Total
Cod	1.4	0.6	0.3	0.9	1.6	1.0	3.4	14.0	2.4
Ling	40.4	41.8	30.7	25.5	22.3	19.5	13.9	14.8	25.4
Blue Ling	2.7	5.1	7.8	15.7	26.9	27.9	27.2	15.0	19.4
Tusk	12.7	20.2	23.0	17.0	21.0	19.0	22.7	21.4	20.5
Halibut	1.0	1.8	1.9	1.1	1.0	1.6	1.8	4.4	1.5

Appendix Table A7. Polish Catches from Faroe (Vb).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
No. of days fished			70	75	66	223	262	166	58	95	38	22	1 075
Saithe			305	133	264	635	952	1 006	392	254	56	29	4 026
Haddock			-	96	83	571	325	62	34	10	6	1	1 188
Cod			-	26	17	99	126	85	36	17	4	7	417
Whiting										4	3		7
Hake										4	1		5
Ling						4	-	-	4	-	3		11
Other Gadiform sp.			21	19	20	-	7	5	-	4			76
Halibut								5					5
Greenland Halibut							9						9
Plaice										4			4
Flounder not specified						33	30	31	-	5			99
Herring			56	-	34	31	11	37	-	84	2		255
Mackerel					38	36	-	12			1		87
Miscellaneous Marine Fishes							3	-	3	3			9
Total			382	274	456	1 409	1 463	1 243	469	389	75	38	6 198

Appendix Table A8. Scottish Landings from Faroe 1973.

Species	Tonnes
Cod	6 756
Haddock	4 788
Saithe	10 131
Plaice	134
Lemon Sole	393
Ling	850
Tusk	531
Whiting	394

Hours fished: 64 079

Appendix Figure A1. Distribution of Scottish fishing effort (hours fishing) at Faroe in 1973 (top figure) and the first half of 1974 (bottom figure).

