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PORTUGUESE RESEARCH REPORT FOR 1996

by

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A. Status of the fisheries

In 1996 the Portuguese nominal catches proceeding from NAFO Regulatory Area recorded 9,167 ton (Tab. I). Since 1991 the nominal catches have been decreasing continuously: from 75,000 ton (1991) to 35,000 ton (1994), then to 11,441 ton in 1995 and finally to the actual level of 1996, the lowest on record for the modern history of the Portuguese Northwest Atlantic fisheries.
Div. 3L and 3N were the areas where the nominal catches increased from the previous year (670 ton to 2500 ton in Div. 3L and 1580 ton to 2400 ton in Div. 3N), due to an increase of the catches of Greenland halibut on both divivisions and roughhead grenadier and skates on Div. 3L. These trends were already observed from 1994 to 1995. These three species correspond to 89% of the overall trawl catch in Div. 3L and 78% in Div 3N. The gillnet catches in those divisions were almost null.
Nominal catches in Div. 3M in 1996 decrease to 1/3 of the 1995 catches (7,250 ton to 2,400 ton), and this decline is observed on both gears. Overall catch in Div. 3M was at same level of the other divisions. Cod was still the most important species for trawl but in gillnets has been replaced by Greenland halibut.
In Div. 3O the nominal catches maintained at the same level of 1995 (1,900 ton). Redfish represented 92.5% of the trawl catches while for gillnets red hake was the most important species.
The Portuguese fleet operating in the NAFO Regulatory Area in 1996 was composed of 11 trawlers and 2 gillneters. Total trawl fishing effort increased from 1425 days in 1995 to 1912 days in 1996, due to an increase in both divisions 3L and 3N, but in Div. 3M the fishing effort declined from 672 days in 1995 to 462 days in 1996. The gillnet fishing effort in 1996 is 1/3 of the 1995 value continuing to be spent in Div. 3M and 3O (Tab. II-A).
As in 1995, Greenland halibut was the priority species for the Portuguese trawl fleet during 1996 with 78% of the total directed effort of the monitored fishing vessels. Div. 3L was the major ground of the trawl fleet in 1996, accounting with 46% of the directed effort. The rest of the directed effort was spent in Div. 3N (29%) and in Div. 3M (22%). Only 3% of the trawl fishing effort was spent in Div 3O. This fact was mainly a consequence of the increasing interest for the Greenland halibut over the last two years (Tab. II-B, Fig. 1).
During 1996 the gillnet fleet was not monitored and so information on directed effort is not available.

B.Portuguese Annual Sampling Program

1. Catch and effort sampling.

The catch and effort data for 1996 Portuguese trawl fishery on NAFO Regulatory Area were obtained through the revision of skipper logbooks from 3 trawlers, kindly supplied by their owners. The gillnet fishery was not sampled as explained above. All the information has been recorded and put on file on a daily basis as regards round weight of the catch by species and on

a tow basis as regards fishing effort, positions and depths. The convertion factors used in each vessel were also used to convert its processed landings in catches.
Effort data obtained through the revision of the 1996 logbooks available were processed in order to convert the 1996 Portuguese effort, reported in fishing days on the 1996 Portuguese STATLANT 21-B, into NAFO standard effort units (Tab. II-A). The daily catch and effort data from the logbooks were also used to estimate the direct effort and CPUE for each of the target species/stock, as well as the main by-catch species and depth range of the different fisheries, on a monthly basis.
Following the September 1996 recommendation of the NAFO Scientific Council as regards of the availability of witch flounder fishery data, a table with the bycatch of this species on the Greenland fishery is presented (Tab. IV-B).
Data regarding directed effort and catch rates are presented in Table II-B and Tab. IV-A to V-D, Fig. 1 to 4.
The 1996 data have been use to update the standardized trawl cpue series for each stock available from 1988 onwards. The cod and redfish series are derived from observed monthly cpue's, while in the Greenland halibut series monthly cpue's were previously corrected for 130mm mesh size within the January 1988-April 1995 period (Ávila de Melo and Alpoim, 1996). These monthly cpue's were standardized by an aditive model for the month and Division of each monthly observation. In this analysis, for each of the stocks, any observation corresponding to a month and a trawler with less than 10 hours of directed effort on that stock was rejected. The cpues for each stock considered are presented in Tables V and Fig. 2 to 4, with the associated standard errors (+/- 2 standard errors in the Figures) and coefficients of variation. This model is fully decribed in a previous paper (Ávila de Melo and Alpoim, 1995).

1.1. Comments on catch and effort data (based on the vessels sampled)

1.1.1. Cod in Division 3M

On Division 3M cod trawl catch rates increased to 0.819 ton/h in 1989 (Tab. V - A and Fig. 2A), when the strong 1985 year class dominated the catches, along with the 1986 and 1984 ones. In 1990 trawl directed effort to cod partly diverted to Division 3L, while in Flemish Cap the 1985 year class started to loose its strength and was substituted by the 1986 class, leading to a decline of the catch rate down to 0.481 ton/h.
In 1991 cod trawl fishery almost vanished from 3M. The derived catch rate for that year has a very high coefficient of variation associated and so needs to be considered with caution. If the 1991 cpue value of 0.669 ton/h is accepted as a reasonable aproach of the catch rate for that year, then a steady increase of the cpue's is observed from 1990 to 1994, where a maximum of 0.977 ton/h is reached. A possible explanation for this increase would be the appearance of two strong year classes in 1990 and 1991, followed by a couple of years (1991 and 1992) where the trawl fishing pressure in Division 3M was kept at a relative low level. Those two cohorts would be allowed to growth with a higher survival rate and supported the 3M cod fishery at age 3 with high yields in 1993 and 1994. However the biomass indices from the EU survey (Fig. 2B) declined sharply between 1989 and 1992 and, apart an occasional increase in 1993 due to the recruitment to the survey gear of the 1991 year class, the biomass was in 1994 already at 41% of the 1989 level (Vazquez, 1997). Beside the relative strenght of those two year classes, the observed increase of the catch rates for the Portuguese trawl should also be related with a shrinkage of the distribution of the 3M cod on Flemish Cap along with its decline, resulting on a patchy pattern of dense concentrations of young cod easy to be detected and overfished.
Basing its success, till the first quarter of 1995, in the survival of two consecutive strong year classes at age 3 ,the fishery and the stock sunk when these classes, at least on a commercial perspective, "died". That was what happened at the spring of 1995, leading to a drop of the catch rate down to 0.472 ton/h. This situation suffered no changes in 1996 (Table V - A and Fig's 2A and 2B).

1.1.2. Redfish in Div. 3M

Redfish trawl catch rates on Division 3M gradually declined from 1989 (0.672 ton/h) to 1991 (0.570 ton/h), most probably as an immediate consequence of the unusually high catches observed in 1989 - 1990, and oscillated with no apparent trend from 1992 to 1996 (Table V - B and Figure 3B). The wide oscillations of this index should be related to interannual changes in the distribution of the Flemish Cap redfish populations within the water column, with direct impact

on the availability of the fish to the bottom trawl gear, either from survey or from commercial trawlers. Variability of the standardized catch rates for the most recent years is higher than during the former period, 1988 - 1990. However, the trends in the time series of the Portuguese cpue and the biomass indices of the EU survey (for the three species as a whole) generally agree over this more recent period (Figure 3C).
Although only based in two direct fishing month (August and September), the 1996 cpue increased again almost doubling the 1995 value (0.523 ton/h against 0.290 ton/h) and matching with the increase also observed in the 1996 trawlable biomass fom the EU survey.

1.1.3. Redfish in Div. 3LN and Div. 3O

Directed redfish fishery in 1996 has been carried out only in Div 3O, where cpue's generally declined from 1992 (0.746 ton/h) to 1995 (0.372 ton/h), increasing again to the 1992 level in 1996 (0.510 ton/h). Altough a couple of 1996 redfish catch rates are presented in Table IV - A for Div. 3N redfish (observed in the Greenland halibut fishery), no directed redfish fishery is recorded in Div. 3N since 1994 and since 1993 in Div. 3L. When all available information for the redfish trawl fishery in Div. 3LN and Div. 3O is used together, the derived catch rates present stability over the 1988-1996 period (Tab.V-B, Fig. 3A).

1.1.4. Greenland halibut in Div. 3L, 3M and 3N

In Division 3L catch rates declined prior to the boom of the deep water fishery (Table V-D and Fig. 4), however it is from 1990 to 1991, *i.e* from the first to the second year of this new fishery in the Regulatory Area, that cpue's fell by half (0.391 ton/h to 0.172 ton/h). Since then catch rates generally decline in Division 3L till 1995, when a minimum of this series is reached (0.108 ton/h).
In Divison 3N no trend is apparent on Greenland halibut trawl cpue's and the same is valid for Div. 3M.
An isolated increase in the cpue's, first recorded in Division 3N in 1992 and then in Division 3L in 1993, was sustained by the instant increase on these consecutive years and divisions of the catch of 4 and 5 years old fish. Those peaks could be related with the migration during the early nineties of the 1987 - 1989 cohorts from the shallower waters of Division 3N (less than 700m) down to depths of more than 1,000m in this division and its further movement north.
Greenland halibut standardised catch rate for 1996 in Div. 3L almost doubled the 1995 value, being now at the 1992 level (0.189 ton/h). As for divisions 3M and 3N the 1996 catch rates confirmed the stability already observed in previous years. The 1996 increase of the 3L Greenland halibut catch rate is also reflected in the 3LMN cpue analysis (Table V-D and Fig. 4).

2. Biological Sampling

During 1996 biological sampling was obtained from three stern trawlers fishing in all Divisions from February to December. Gillnet catches were not sampled, but fishing effort and catches for this fleet were extremely reduced anyway. Apart from cod, a priority species allways to be sampled whenever it appeared in the catch, the species sampled were the two most abundant species in the haul. Sampling of each species included a random length sample (by sex, except for cod) of the total catch prior to discards and a stratified subsample of otoliths and individual weights. Biological sampling was conducted for the most abundant species in each haul, following the NAFO sampling recommendations.
Cod, American plaice, Greenland halibut, roughhead grenadier and redfish (*S. mentella* and *S. marinus*) were the trawl catches sampled in all Divisions (Tab. III). As usual information on age composition of cod and Greenland halibut catches, were obtained for most of those sampled catches. Age composition for the 3M redfish (*S.mentella and S.marinus*) and 3M American plaice were obtained using the respective age/length keys of the July 96 EU survey, due to the lack of commercial age/length keys.
As in previous years the redfish catches were dominated by *S. mentella* in all Divisions. *S.marinus* was only sampled in September in Div. 3M.
For the above-mentioned species, length and age structure of the catches, respective mean lengths and mean weights in the catch and mean length and mean weight at age by Division are presented from Tables VI to XXI and Fig. 5 to 26.
In 1996 all tabulated sampling information is representative of the catch as a whole although sampling of redfish, Greenland halibut, American plaice and roughhead grenadier has been carried out by sex as in previous years. Mean length and weight at age are the mean of mean lengths and weights at age by sex, weighted by the abundance in the sampled catches of males and females at each age. For all species mean weight at age and mean weight in the catch are derived from the adopted length-weight relationship.

2.1. Comments on length and age composition of the 1996 trawl catches.

2.1.1. Division 3L

Information on length composition from trawl catches in Div. 3L is available for redfish (*S.mentella)*, Greenland halibut, American plaice and roughhead grenadier. Information on age composition is available just for Greenland halibut.

2.1.1.1. Redfish (*S.mentella)*

Information on length composition of the redfish (*S. mentella)* trawl catches is available for February, March, April and December, from depths between 682m and 1186m (Tab.VII-A, Fig.7).

The catches were dominated by lengths between 29cm-35cm, with two modes around 30 cm and 33cm. Mean length of the trawl catches was 31.2 cm

2.1.1.2. Greenland halibut

Greenland halibut trawl catches were intensively sampled during the period February-December covering a depth range of 617m-1186 m.
Lengths between 34cm and 52cm were the most abundant in the catch (Tab.XII-A, Fig. 14). Age composition (Tab. XII-B, Fig. 16) indicates a dominance of the 1990 year class at age 6, followed by the 1991and 1989 year classes. This dominance was already evident in the 1995 catches. The mean length and the mean weigth decreased around 4 cm and 400 g from 1995 to 1996, but at the same time the proportion of older fish (age 10+) in the catch is kept at the same level of 1995 (9%-10%).

2.1.1.3. American plaice

Information on length composition of the American plaice catches is available for February, March and April (Tab. XVI, Fig. 20) for depths between 682m-1186m.
This information suggest a dominance of fish within 32cm-38cm, with a mean length of 38.6cm and a correspondent mean weigth of 606g.

2.1.1.4. Roughhead grenadier

Length composition (anal length) of roughhead grenadier is available for the 1st, 3rd and 4th quarters, for a depth range of 617m-1185m.
Most of these catches fell in lengths between 10-16 cm (Tab. XIX, Fig.24).

2.1.2. Division 3M

Information on length and age composition of catches in Div. 3M is available for cod, redfish (*S.mentella* and *S.marinus*), Greenland halibut and American plaice. For the roughhead grenadier catches the only information available is the length composition.

2.1.2.1. Cod

Biological information of cod catches in division 3M is available for March, May and December from depths between 130m and 680m.
Length composition of trawl catches (Tab VI-A, Fig. 5) is distributed between a range of lengths from 33cm to 81cm, with a mode at 51cm. Compared to 1995 the mean length in the catch increased from 48.3cm in 1995 to 52.0 cm in 1996. Also the mean weight in the catch increased from 1.180kg in 1995 to 1.351 kg in 1996. This increase is justified by the annual increment of the 1991 year class, that continues to be dominant in 1996 at age 5 (Tab. VI-B, Fig 6).
The second more abundant year-class in 1996 is the one from 1993. The 1990 year class that dominated the catches in 1993 (68%) and decreased notoriously in 1994 (18%) showed some improvement (26%) in the 1995 trawl catches, but almost desapeared in 1996 (3.6%). Ages older than 6 are not present in the catch.

2.1.2.2. Redfish (*S.mentella*)

Both length and age composition of the redfish (*S. mentella)* catches are available for March, August and December, from depths between 130m and 1120m. The age composition derived from the (July) trawl EU research survey "Flemish Cap 96" (Vazquez, 97).
Length data from trawl show that in 1996 the bulk of the catch was between 20cm - 34cm with two modes one around 22cm and another less evident between 28cm-32cm. The respective age structure of the 1996 trawl catches is mainly built up of ages 5 to 10 with a clear mode for both strong year classes of 1990 and 1991 (Tab. VIII-B, Fig.12) . Comparing with 1995, where the most abundant cohorts were form the mid eighties (1983-1987), the 1996 trawl catches are dominated by younger fish. Following this shift mean length and mean weight in the trawl catch declined from 1995 to 1996.

2.1.2.3. Redfish (*S.marinus*).

Length and age composition of the redfish (*S. mentella)* catches are available only for September from depths around 280m. The age composition derived from the (July) trawl EU research survey "Flemish Cap 96" (Vazquez, 97).
Information on length composition of the catches came from a small sample and suggests a dominance of fish with 19cm-24cm (Tab.XI-A, Fig. 11). The correspondent 1996 age composition show the 1991 year-class as dominant at age 5 followed by the 1990 year-class at age 6 (Tab.XI-B, Fig.13). These results should be taken with care due to the scarcity of the sample.

2.1.2.4. Greenland halibut

Biological information of the Greenland halibut catches in Div. 3M is available for March-April and August-December, from depths between 270m and 1149m.. The age length key used was the Div. 3L age lenght key.
The trawl catches were mainly composed of lengths between 38 and 52cm (Tab XIII-A, Fig. 15) with a clear dominance of the 40cm-48cm length groups. As in Div. 3L the 1990 year class at age 6 dominated the catches, followed by the 1991 year class at age 5 in 1996 (Tab. XIII-B, Fig. 17). Altough with the same age groups dominating the 3M Greenland halibut trawl catch on both 1995 and 1996, the mean length and the mean weight declined from 52 cm and 1442 g in 1995 to 47 cm and 938 g in 1996, most probably as a consequence of the 1990 year class strenght relative to the 1989 year class.

2.1.2.5. American plaice

Information on length and age composition of the American plaice catches is only available for the 4th quarter (November and December), from depths between 130m and 1120m. The age composition is also derived from the July 1996 EU survey (Vazquez, 97).
Information on length composition show dominance of 34cm-40cm lengths in the trawl catch (Tab. XVII-A, Fig. 21). In terms of age composition available data suggest that the 1990 and 1991year-classes were by far the most abundant (Tab.XVII-B, Fig.23). The 1990 year-class appeared already in 1995 as the most abundant in the American plaice trawl catch, but at the time data were too scarce to take any firm conclusion on the strength of the 1990 cohort.

2.1.2.6. Roughhead grenadier

The length composition of roughhead grenadier caught by trawl in Div.3M between 270m and 1149m (Tab XX, Fig 25), show a range of dominant lengths between 10-18cm and two modes, one at 11 cm and another around 15cm.

2.1.3. Division 3N

Information on length composition of catches in Div. 3N is available for redfish (*S.mentella*), Greenland halibut, American plaice and roughhead grenadier. Information on age composition is not available for any species.

2.1.3.1. Redfish (*S. mentella*)

Data obtained for trawl for February and June (Tab. IX, Fig. 8) indicates that dominant lengths were between 28cm to 32cm, with a clear mode at 31cm.

2.1.3.2. Greenland halibut

Greenland halibut trawl catches were sampled during February-June, August and October from depths between 480m and 1396m (Tab. XIV, Fig. 18). Most of the lengths fell within a range of 36cm to 52cm with a clear mode around 40-44cm. The mean length and the mean weigth in the catch show a small increase from 1995 to 1996.

2.1.3.4. American plaice

The length composition of the American plaice trawl catches were obtained during the period February- April from depths between 480m and 1205m.
Length composition presents a mode around 36 cm (Tab.XVIII, Fig. 22). Some increase was observed in the mean length and mean weight in the catch relative to 1995.

2.1.3.5. Roughhead grenadier

Trawl catches of roughhead grenadier were sampled from February-May and October covering depths between 480m and 1367 m.
Information on length composition show a spectrum of lengths between 12 and 31cm with dominance for the 15-17cm length groups (Tab. XXI, Fig. 26). Compared to 1995 mean length and mean weight in the catch increased in 1996 about 1cm and 70 g respectivelly.

2.1.4. Division 3O

Information on length composition from trawl catches in Div. 3O is available for redfish (*S.mentella)* and Greenland halibut. For both species information on age composition is not available.

2.1.4.1 Redfish (*S. mentella*)

Length composition of the redfish catches in Div. 3O is available for trawl for June and August from depths within 344m and 972m. Most lengths were evenly spread between 27 and 42cm not showing any evident mode throughout the length spectrum (Tab.X, Fig. 9). The mean length and the mean weight increased about 1.5cm and 80 g from 1995 to 1996.

2.1.4.2. Greenland halibut

The length composition of the catches of Greenland halibut came from one small sample in June so the data should be taken with care. This length composition is dominated by fishes betwen 42cm and 50cm (Tab.XV, Fig. 19).

3. References

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TABLE I : PORTUGUESE NOMINAL CATCHES (mt) IN NAFO AREA, 1996

SPECIES	DIVISION								TOTAL
	3L		3M		3N		3O		
	OT	GNS	OT	GNS	OT	GNS	OT	GNS	1996
Cod	1.4		1221.6	62.7	18.0		8.2	6.4	1318
Redfish	38.5		215.2	65.4	198.6		1627.0	6.8	2152
American plaice	52.1		34.0	1.6	150.2	0.3	52.7	7.0	298
Yellowtail(1)									
Witch flounder	98.7		4.6	1.8	111.6		16.8	2.2	236
Greenland halibut	1708.6		550.8	94.0	925.8	1.3	14.1	13.7	3308
Atlantic halibut	0.9		0.2		5.3		4.3	1.0	12
Roughhead grenadier(2)	345.4		66.1		369.3		2.1	1.4	784
Anarhichas spp.	54.6		39.7	1.0	19.9		6.6	0.0	122
Hadocck									
Pollock									
Red hake	29.5		0.2				0.2	94.5	124
Capelin									
Skates	168.7		45.2		552.4		18.2	3.1	788
Monkfish									
Squid			1.6		0.5		1.3		3
Unidentified	4.9		0.1				5.9	11.5	22
TOTAL	2503.3	0.0	2179.3	226.5	2351.6	1.6	1757.4	147.6	9167

(1) From the 1996 sampling, there were no yellowtail catches recorded .
(2) Reported as Roundnose grenadier in years before.

TABLE I : cont.

SPECIES \ YEAR	TOTAL 1996	TOTAL 1995	TOTAL 1994	TOTAL 1993	TOTAL 1992	TOTAL 1991	TOTAL 1990	TOTAL 1989	TOTAL 1988
Cod	1318	1353	2636	3651	5984	13357	15138	24129	12931
Redfish	2152	2590	8609	9828	6581	12163	17810	18870	17072
American plaice	298	175	344	347	451	1288	714	1821	1791
Yellowtail(1)					1	10	11	5	
Witch flounder	236	375	573	289	849	1982	2254	16	12
Greenland halibut	3308	1814	5967	8805	10539	13961	11170	3614	4194
Atlantic halibut	12	18	45	53	81	228	91		
Roughhead grenadier(2)	784	1402	2223	1969	2000	4486	3211	290	914
Anarhichas spp.	122	1401	3219	2302	1696	2843	1940		
Hadocck		2	10	10	166	83	17		
Pollock			13	41	28	421	11		
Red hake	124	230	267	366	466	1009	467		
Capelin							77		
Skates	788	2068	6238	7626	7017	23301	13569	663	1097
Monkfish		2		8	37	10	2		
Squid	3								
Unidentified	22	14	12	238	325	174	852		
TOTAL	9167	11441	30156	35532	36220	75314	67334	49408	38011

TABLE II - A : PORTUGUESE EFFORT IN FISHING DAYS AND FISHING HOURS (TRAWL) IN NAFO AREA IN 1996.

MONTH	DIVISION 3L OT DAYS	3L OT HOURS	3L GNS DAYS	3L GNS NETS	3M OT DAYS	3M OT HOURS	3M GNS DAYS	3M GNS NETS	3N OT DAYS	3N OT HOURS	3N GNS DAYS	3N GNS NETS	3O OT DAYS	3O OT HOURS	3O GNS DAYS	3O GNS NETS	TOTAL 1996 OT DAYS	TOTAL 1996 OT HOURS	TOTAL 1996 GNS DAYS	TOTAL 1996 GNS NETS	MONTH
JAN.					35	457.5											35	458			JAN.
FEB.	29	477.1			11	143.8			15	199.9							55	821			FEB.
MAR.	45	737.2			44	575.1	16		55	608.3			2	16.3			146	1937	16		MAR.
APR.	65	1076.0			16	280.0	7		76	1149.0			5	40.8			162	2546	7		APR.
MAY	52	906.7			2	17.8			58	722.6	6		27	220.5	26		139	1868	32		MAY
JUN.	37	686.2			6	83.6			54	693.5			50	254.2	42		147	1717	42		JUN.
JUL.	5	46.3			17	236.9	17		6	81.3			78	994.5	11		106	1359	28		JUL.
AUG.	62	940.3			71	1108.4	35		5	78.5			76	1074.9			214	3202	35		AUG.
SEP.	59	685.3			40	572.4	6		43	574.4			27	381.9			169	2214	6		SEP.
OCT.	166	2421.9			57	894.9			83	1044.1			3	42.4			309	4403			OCT.
NOV.	78	1248.2			68	1065.1			81	1019.0							227	3332			NOV.
DEC.	88	1574.0			95	1523.3			20	251.6							203	3349			DEC.
TOTAL	686	10799	0	0	462	6959	81	0	496	6422	6	0	268	3026	79	0	1912	27206	166		TOTAL

Note: Fishing hours and number of nets estimated from their monthly rates to fishing days observed in the trawlers and gillnetters sampled by the IPIMAR.
Monthly effort of gillnetters is given by the sum of nets per fishing day

TABLE II - A: cont.

MONTH	TOTAL 1995 OT DAYS	TOTAL 1995 OT HOURS	TOTAL 1995 GNS DAYS	TOTAL 1995 GNS NETS	TOTAL 1994 OT DAYS	TOTAL 1994 OT HOURS	TOTAL 1994 GNS DAYS	TOTAL 1994 GNS NETS	TOTAL 1993 OT DAYS	TOTAL 1993 OT HOURS	TOTAL 1993 GNS DAYS	TOTAL 1993 GNS NETS	TOTAL 1992 OT DAYS	TOTAL 1992 OT HOURS	TOTAL 1992 GNS DAYS	TOTAL 1992 GNS NETS	TOTAL 1991 OT DAYS	TOTAL 1991 OT HOURS	TOTAL 1991 GNS DAYS	TOTAL 1991 GNS NETS	MONTH
JAN.	78	976			76	849			125	1480			227	2513			99	949			JAN.
FEB.	126	1318			115	1060			209	2656			244	3187			184	1774			FEB.
MAR.	149	1964	63	12448	173	1984	83	9890	278	3442	65	14640	215	2521	6	1810	326	4293	40	11759	MAR.
APR.	48	713	70	15681	146	2042	58	10201	200	2695	78	13341	417	4522	50	15083	732	9760	51	14992	APR.
MAY	84	1208	63	15919	136	2060	65	14335	224	3168	35	12198	321	3775	73	26273	647	8412	104	29428	MAY
JUN.	110	1785	83	24258	105	1691	63	15388	144	1835	97	29083	268	4112	145	67829	522	8172	42	16174	JUN.
JUL.	84	1389	66	20890	71	1277	50	13240	117	1755	137	33858	195	2658	128	61755	422	5986	71	31147	JUL.
AUG.	200	2787	91	31301	102	1691	94	23876	266	3886	101	28358	174	2458	101	42690	407	5266	153	93191	AUG.
SEP.	154	2146	64	25562	184	2935	108	28825	280	3769	43	15894	177	2452	118	35400	450	7330	69	33476	SEP.
OCT.	150	1694	77	23351	209	3373	98	25803	277	3723	80	28745	118	1208	37	11100	674	10833	84	36540	OCT.
NOV.	175	2405	35	4423	104	1466	49	1176	186	2000	75	27545	106	1085	14	4200	482	7137	87	32400	NOV.
DEC.	67	699			132	1637	8	24000	190	2073	20	5873	208	2170			352	4915	11	3300	DEC.
TOTAL	1425	19083	612	173833	1553	22065	676	166735	2496	32481	731	209536	2670	32662	672	266141	5297	74829	712	302407	TOTAL

TABLE II - A: cont.

MONTH	TOTAL 1990 OT DAYS	TOTAL 1990 OT HOURS	TOTAL 1990 GNS DAYS	TOTAL 1990 GNS NETS	TOTAL 1989 OT DAYS	TOTAL 1989 OT HOURS	TOTAL 1989 GNS DAYS	TOTAL 1989 GNS NETS	MONTH
JAN.	123	1616	25	6241	351	4612			JAN.
FEB.	155	2255	16	3994	348	5063			FEB.
MAR.	418	5785	43	10735	382	5287			MAR.
APR.	523	7019	45	14648	375	5033	6	1760	APR.
MAY	448	5833	74	24087	383	4987	127	43917	MAY
JUN.	400	5780	81	29962	501	7239	161	63144	JUN.
JUL.	293	4647	164	61516	301	4774	112	44834	JUL.
AUG.	482	8271	126	47263	178	3054	176	73251	AUG.
SEP.	469	7663	39	14629	219	3578	52	19609	SEP.
OCT.	466	6431	67	15377	361	4982	36	13885	OCT.
NOV.	968	13358	30	9464	270	3726	22	8485	NOV.
DEC.	281	3878	4	816	181	2498			DEC.
TOTAL	5026	72536	714	238732	3850	54833	692	268885	TOTAL

TABLE II - B : Breakdown of the 1996 Portuguese directed effort by species and division (%).

STERN TRAWL

DIVISION	G.HALIBUT	ROUGHHEAD G.	SKATES	REDFISH	COD	TOTAL/DIV.
3L	44	2	0.2			46
3M	20			1	2	22
3N	15	7	7			29
3O				3		3
TOTAL/SPECIES	78	9	7	4	2	

TABLE III: Intensity of trawl sampling during 1996, by species, division and month.

SPECIES	DIV.	MONTH	Nº OF SAMPLES	Nº FISH MEASURED	SAMPLING WEIGHT(Kg)	OTOLITHS Nº	LENGTH RANGE
COD	3M	MAR.	4	151	192	122	36-72 cm
		MAY	2	161	163	104	34-68 cm
		DEC.	7	982	1500	158	36-81 cm
REDFISH S.mentella	3L	FEB.	4	62	38	62	20-42 cm
		MAR.	2	39	19	39	28-35 cm
		APR.	1	48	22	48	23-45 cm
		DEC.	1	78	28		
	3M	MAR.	2	58	29	58	26-36 cm
		AUG.	8	585	169	74	17-50 cm
		DEC.	13	666	399	154	20-47 cm
	3N	FEB.	3	90	84	80	27-41 cm
		JUN.	1	81	33		
	3O	JUN.	1	75	32	53	27-37 cm
		AUG.	39	2700	1500	114	22-44 cm
REDFISH S.marinus	3M	SEP.	1	101	22		
AMERICAN PLAICE	3L	FEB.	2	59	35	59	29-63 cm
		MAR.	18	701	384	336	24-82 cm
		APR.	21	1149	613	303	25-73 cm
	3M	NOV.	9	165	122	121	30-57 cm
		DEC.	14	845	452	162	25-55 cm
	3N	FEB.	8	193	153	131	25-62 cm
		MAR.	15	434	276	143	30-65 cm
		APR.	21	1099	774	165	30-66 cm

TABLE III: count.

SPECIES	DIV.	MONTH	Nº OF SAMPLES	Nº FISH MEASURED	SAMPLING WEIGHT(Kg)	OTOLITHS Nº	LENGTH RANGE
GREENLAND HALIBUT	3L	FEB.	11	248	349	202	37-83 cm
		MAR.	31	1848	1763	409	29-94 cm
		APR.	66	5503	4185	267	28-90 cm
		MAY	100	7173	5193	407	27-90 cm
		JUN.	68	3819	4143	281	26-92 cm
		JUL.	2	98	127	53	35-75 cm
		AUG.	19	1006	1125	137	36-86 cm
		SET.	25	1296	1242	114	29-85 cm
		OCT	21	1793	1540	276	30-87 cm
		NOV.	36	2498	2518	293	32-87 cm
		DEC.	4	273	224		
	3M	MAR.	5	233	314	120	33-89 cm
		APR.	6	360	428	165	33-89 cm
		MAY	1	47	31	47	33-54 cm
		AUG.	9	469	485		
		SET.	46	2216	2128	190	30-86 cm
		OCT	23	1202	1228	145	34-82 cm
		NOV.	22	3002	2978	423	30-87 cm
		DEC.	12	1237	965	236	27-78 cm
	3N	FEB.	8	367	442	210	32-84 cm
		MAR.	22	1277	1685	461	27-86 cm
		APR.	27	1822	2222	449	25-97 cm
		MAY	3	81	88	72	35-87 cm
		JUN.	25	1540	1884	308	29-94 cm
		AUG.	7	441	327	78	31-81 cm
		OCT.	9	894	598	123	30-77 cm
	3O	JUN.	1	53	44		
ROUGHHEAD GRENADIER	3L	FEB.	2	61	64	61	11.5-32 cm
		MAR.	9	302	225	263	8.5-32 cm
		APR.	3	122	145	118	11-30 cm
		AUG.	3	245	155		
		SET.	9	566	314		
		OCT.	23	2232	1189	163	12.5-36 cm
		NOV.	34	2697	1336	213	12-32.5 cm
		DEC.	2	154	78		
	3M	MAR.	4	153	107	137	9.5-28.5 cm
		AUG.	4	296	199		
		SET.	14	883	512		
		OCT	19	1128	546		
		NOV.	21	2741	1349	297	10.5-32.0 cm
		DEC.	12	1065	474	165	11.5-36.0 cm
	3N	FEB.	8	210	165	170	11.5-32 cm
		MAR.	22	1056	729	217	12-35 cm
		APR.	27	1687	1098	284	12-36 cm
		MAY	3	65	43	65	12.5-25.5 cm
		OCT.	8	616	278	125	12-30 cm

TABLE IV - A. Portuguese trawl fishery: cpue and bycatch by month and division, for 1996.

DIVISION	TARGET SPECIES	MONTH	DEPTH RANGE (m) MIN.	MAX.	C.P.U.E. (ton/hour)	MAIN BY-CATCH SPECIES	%	TOTAL BYCATCH %
3M	COD	MAR.	280	688	0.235	REDFISH	9.4	19.0
3M	COD	MAY	281	650	0.076			
3M	COD	DEC.	130	278	0.517	A.PLAICE	0.3	0.5
3M	REDFISH	AUG.	298	559	0.504	G.HALIBUT	2.4	5.8
3M	REDFISH	SEP.	270	813	0.132	G.HALIBUT	33.3	60.9
3N	REDFISH	JUN.	550	800	0.321	G.HALIBUT	29.8	52.0
3N	REDFISH	OCT.	519	1287	0.033	G.HALIBUT	38.5	72.6
3O	REDFISH	MAY	534	720	0.216	SKATES	17.5	25.7
3O	REDFISH	JUN.	536	972	0.502	G.HALIBUT	8.6	14.8
3O	REDFISH	AUG.	344	809	0.630	G.HALIBUT	1.1	2.5
3L	G.HALIBUT	FEB.	798	1186	0.212	SKATES	5.5	13.9
3L	G.HALIBUT	MAR.	787	1185	0.166	ROUGHHEAD G.	7.2	19.9
3L	G.HALIBUT	APR.	682	1163	0.229	WITCH F.	3.6	13.6
3L	G.HALIBUT	MAY	699	1123	0.287	REDFISH	4.2	15.0
3L	G.HALIBUT	JUN.	799	1146	0.166	ROUGHHEAD G.	20.1	25.4
3L	G.HALIBUT	JUL.	896	917	0.118	ROUGHHEAD G.	16.5	22.4
3L	G.HALIBUT	AUG.	617	1085	0.119	ROUGHHEAD G.	28.2	36.6
3L	G.HALIBUT	SEP.	796	1132	0.132	ROUGHHEAD G.	28.4	33.9
3L	G.HALIBUT	OCT.	676	1132	0.094	ROUGHHEAD G.	26.5	29.3
3L	G.HALIBUT	NOV.	675	1181	0.164	ROUGHHEAD G.	20.0	27.7
3L	G.HALIBUT	DEC.	697	1027	0.196	ROUGHHEAD G.	13.7	34.5
3M	G.HALIBUT	MAR.	833	1117	0.180	ROUGHHEAD G.	3.7	7.3
3M	G.HALIBUT	APR.	829	1075	0.215	ROUGHHEAD G.	1.8	4.7
3M	G.HALIBUT	MAY	886	1108	0.119	ROUGHHEAD G.	13.3	13.3
3M	G.HALIBUT	AUG.	728	1087	0.172	ROUGHHEAD G.	19.9	27.1
3M	G.HALIBUT	SEP.	270	1149	0.148	ROUGHHEAD G.	24.0	31.8
3M	G.HALIBUT	OCT.	699	1081	0.128	ROUGHHEAD G.	13.7	19.7
3M	G.HALIBUT	NOV.	668	1046	0.125	ROUGHHEAD G.	12.4	23.3
3M	G.HALIBUT	DEC.	647	1120	0.136	ROUGHHEAD G.	13.1	25.3
3N	G.HALIBUT	FEB.	586	1659	0.218	ROUGHHEAD G.	25.2	54.9
3N	G.HALIBUT	MAR.	480	1116	0.183	ROUGHHEAD G.	18.9	52.0
3N	G.HALIBUT	APR.	505	1205	0.218	SKATES	28.6	60.9
3N	G.HALIBUT	MAY	983	1114	0.161	SKATES	31.5	68.1
3N	G.HALIBUT	JUN.	368	1396	0.169	ROUGHHEAD G.	17.8	46.8
3N	G.HALIBUT	AUG.	653	1051	0.116	ROUGHHEAD G.	24.7	35.3
3N	G.HALIBUT	OCT.	500	1367	0.045	REDFISH	16.3	58.6
3L	ROUGHHEAD G.	FEB.	952	1121	0.055	G.HALIBUT	35.2	77.3
3L	ROUGHHEAD G.	MAY	902	919	0.122	G.HALIBUT	45.3	58.2
3L	ROUGHHEAD G.	AUG.	908	1085	0.083	G.HALIBUT	49.1	53.9
3L	ROUGHHEAD G.	SEP.	930	1132	0.083	G.HALIBUT	51.4	60.7
3L	ROUGHHEAD G.	OCT.	745	1080	0.061	G.HALIBUT	47.0	55.8
3N	ROUGHHEAD G.	FEB.	740	1659	0.149	G.HALIBUT	40.5	72.8
3N	ROUGHHEAD G.	MAR.	574	1100	0.149	SKATES	32.3	68.1
3N	ROUGHHEAD G.	APR.	800	1138	0.173	G.HALIBUT	32.2	71.3
3N	ROUGHHEAD G.	MAY	860	983	0.220	SKATES	40.1	66.6
3N	ROUGHHEAD G.	JUN.	971	1137	0.072	G.HALIBUT	54.8	59.4
3N	ROUGHHEAD G.	OCT.	519	1367	0.033	G.HALIBUT	40.0	66.3
3L	SKATES	FEB.	952	1121	0.082	G.HALIBUT	35.2	65.9
3N	SKATES	MAR.	740	1150	0.130	G.HALIBUT	35.6	71.0
3N	SKATES	APR.	480	1205	0.180	G.HALIBUT	28.4	62.4
3N	SKATES	MAY	505	1114	0.198	G.HALIBUT	33.0	64.5
3N	SKATES	JUN.	860	2000	0.263	ROUGHHEAD G.	33.4	59.9
3N	SKATES	JUL.	550	1311	0.118	G.HALIBUT	36.7	64.6

TABLE IV - B : Portuguese Greenland halibut fishery: witch flounder bycatch by month and division, for 1996.

DIVISION	TARGET SPECIES	MONTH	DEPTH RANGE (m) MIN.	DEPTH RANGE (m) MAX.	C.P.U.E. (ton/hour)	WITCH FLOUNDER BY-CATCH (%)	TOTAL BY-CATCH (%)
3L	G.HALIBUT	FEB.	798	1186	0.212	1.3	13.9
3L	G.HALIBUT	MAR.	787	1185	0.166	3.7	19.9
3L	G.HALIBUT	APR.	682	1163	0.229	3.6	13.6
3L	G.HALIBUT	MAY	699	1123	0.287	2.9	15.0
3L	G.HALIBUT	JUN.	799	1146	0.166	0.4	25.4
3L	G.HALIBUT	JUL.	896	917	0.118	0.0	22.4
3L	G.HALIBUT	AUG.	617	1085	0.119	0.4	36.6
3L	G.HALIBUT	SEP.	796	1132	0.132	0.5	33.9
3L	G.HALIBUT	OCT.	676	1132	0.094	0.5	29.3
3L	G.HALIBUT	NOV.	675	1181	0.164	3.7	27.7
3M	G.HALIBUT	MAR.	833	1117	0.180	0.6	7.3
3M	G.HALIBUT	APR.	829	1075	0.215	0.7	4.7
3M	G.HALIBUT	MAY	886	1108	0.119	0.0	13.3
3M	G.HALIBUT	AUG.	728	1087	0.172	0.2	27.1
3M	G.HALIBUT	SEP.	270	1149	0.148	0.1	31.8
3M	G.HALIBUT	OCT.	699	1081	0.128	0.2	19.7
3M	G.HALIBUT	NOV.	668	1046	0.125	2.3	23.3
3M	G.HALIBUT	DEC.	647	1120	0.136	4.9	25.3
3N	G.HALIBUT	FEB.	586	1659	0.218	3.8	54.9
3N	G.HALIBUT	MAR.	480	1116	0.183	4.0	52.0
3N	G.HALIBUT	APR.	505	1205	0.218	3.8	60.9
3N	G.HALIBUT	MAY	983	1114	0.161	6.8	68.1
3N	G.HALIBUT	JUN.	368	1396	0.169	2.1	46.8
3N	G.HALIBUT	AUG.	653	1051	0.116	3.6	35.3
3N	G.HALIBUT	OCT.	500	1367	0.045	11.0	58.6

TABLE V - A: COD TRAWL CATCH RATES, 1988-96 : observed mean annual cpue's corrected for the month and division of each observation.

	3M			
	CPUE	ST.ERROR	C.V.	
1988	0.515	0.139	66.1	1998
1989	0.819	0.059	21.6	1989
1990	0.481	0.101	66.6	1990
1991	0.669	0.434	91.8	1991
1992	0.868	0.222	51.2	1992
1993	0.970	0.186	57.4	1993
1994	0.977	0.166	44.8	1994
1995	0.472	0.173	89.7	1995
1996	0.424	0.230	94.0	1996

TABLE V - C: REDFISH TRAWL CATCH RATES, 1988-96: observed mean cpue's by division corrected for the year and month of each observation.

	CPUE	ST.ERROR	C.V.	
3L	0.443	0.032	35.8	3L
3N	0.400	0.032	47.8	3N
3O	0.558	0.064	47.2	3O
3LNO	0.449	0.029	56.4	3LNO
3M	0.592	0.033	37.9	3M

TABLE V - E: GREENLAND HALIBUT TRAWL CATCH RATES , 1988-96 : mean cpue's by division corrected for the year and month of each observation.

	CPUE	ST.ERROR	C.V.	
3L	0.265	0.014	36.9	3L
3M	0.138	0.008	20.7	3M
3N	0.187	0.008	23.8	3N
3LMN	0.218	0.009	38.2	3LMN

TABLE V - B: REDFISH TRAWL CATCH RATES, 1988-96 : observed mean annual cpue's corrected for the month and division of each observation.

	3L			3N			3O			3LNO			3M			
	CPUE	ST.ERROR	C.V.	CPUE	ST.ERROR	C.V.	CPUE	ST.ERROR	C.V.	CPUE	ST.ERROR	C.V.	CPUE	ST.ERROR	C.V.	
1988	0.557	0.118	42.4							0.586	0.225	76.7	0.564	0.040	12.2	1988
1989	0.467	0.062	26.6							0.462	0.081	35.3	0.663	0.086	39.0	1989
1990	0.475	0.033	18.6	0.366	0.086	47.2				0.481	0.060	41.7	0.645	0.049	25.1	1990
1991	0.459	0.082	39.9	0.290	0.063	61.2				0.389	0.058	53.3	0.562	0.093	43.7	1991
1992	0.230	0.101	88.0	0.364	0.055	36.9	0.746	0.188	35.6	0.408	0.058	49.6	0.828	0.177	37.0	1992
1993	0.443			0.362	0.035	30.9	0.492	0.176	71.3	0.374	0.044	45.9	0.448	0.148	66.2	1993
1994				0.628	0.131	55.3	0.649	0.103	38.9	0.574	0.099	62.1	0.792	0.199	43.5	1994
1995							0.372	0.093	43.5	0.383	0.361	162.9	0.290	0.075	58.2	1995
1996							0.510	0.048	13.3	0.446	0.117	37.2	0.523	0.164	44.5	1996

TABLE V - D: GREENLAND HALIBUT TRAWL CATCH RATES, 1988-96 : mean annual cpue's corrected for the month and division of each observation.

	3L			3M			3N			3LMN			
	CPUE	ST.ERROR	C.V.	CPUE	ST.ERROR	C.V.	CPUE	ST.ERROR	C.V.	CPUE	ST.ERROR	C.V.	
1988	0.422	0.075	30.8							0.408	0.098	41.7	1998
1989	0.446	0.060	35.5							0.400	0.067	44.5	1989
1990	0.391	0.035	25.0	0.151			0.187			0.325	0.031	30.0	1990
1991	0.172	0.045	45.6				0.131	0.039	51.4	0.132	0.019	35.9	1991
1992	0.191	0.025	29.1				0.273	0.024	23.4	0.232	0.029	43.6	1992
1993	0.222	0.022	13.8				0.179	0.016	24.1	0.192	0.018	28.5	1993
1994	0.122						0.127	0.004	4.9	0.140	0.031	44.1	1994
1995	0.108	0.033	82.1	0.126	0.009	16.1	0.166	0.017	23.2	0.138	0.023	67.5	1995
1996	0.189	0.030	50.5	0.144	0.006	12.5	0.172	0.014	21.4	0.192	0.015	38.5	1996

TABLE VI - A: COD DIV.3M, 1996: length composition of the trawl catches.

LENGTH GROUP	MAR.=1st Q.	MAY=2nd Q.	DEC.=4th Q.	TOTAL	LENGTH GROUP
33		19.5		1.0	33
36	101.9	25.1	1.0	13.8	36
39	115.6	123.9	17.2	34.0	39
42	82.6	104.4	74.2	76.7	42
45	142.5	78.0	153.7	148.6	45
48	101.8	154.6	166.7	158.7	48
51	109.4	224.2	183.0	176.7	51
54	163.8	175.6	138.7	143.5	54
57	71.6	18.1	121.2	110.3	57
60	52.3	44.6	65.3	62.8	60
63	12.4	7.0	43.3	37.9	63
66	26.8	25.1	21.3	22.1	66
69	12.4		7.2	7.4	69
72	6.9		4.6	4.7	72
75			2.1	1.7	75
78					78
81			0.3	0.3	81
TOTAL	1000	1000	1000	1000	
No. SAMPLES	4	2	7	13	
SAMPLING WEIGHT(kg)	192	163	1500	1855	
No.F.MEASURED	151	161	982	1294	
MEAN LENGTH(cm)	49.5	49.4	52.5	52.0	
MEAN WEIGHT (g)	1198	1163	1383	1351	
DEPTH RANGE (m)	280/688	281/650	130/278	130/688	

TABLE VI - B : COD, DIVISION 3M, 1996: age composition (‰), mean length (cm) and mean weight (Kg) at age of the trawl catches.

AGE	MAR.=1st Q.			MAY=2nd Q.			DEC.=4th Q.			TOTAL 1996			AGE
	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	
2							6.8	39.5	0.563	5.7	39.5	0.563	2
3	190.7	39.0	0.546	137.0	39.3	0.561	353.4	46.4	0.919	323.7	45.8	0.886	3
4	146.0	43.1	0.735	149.4	42.8	0.721	147.5	51.3	1.234	147.4	49.9	1.151	4
5	549.7	52.1	1.322	643.7	51.8	1.290	469.2	57.0	1.719	487.3	56.0	1.638	5
6	113.6	62.7	2.291	69.9	61.1	2.114	23.2	67.7	2.873	36.0	65.2	2.587	6
TOTAL	1000			1000			1000			1000			
No FISH AGED										383			

TABLE VII: RED-FISH (S.mentella), DIV. 3L, 1996: length composition of the trawl catches.

LENGTH GROUP	FEB.	MAR.	1st Q.	APR.=2nd Q.	DEC.=4th Q.	TOTAL	LENGTH GROUP
19					12.8	5.0	19
20	50.3		40.2		25.6	17.7	20
21							21
22					64.1	25.0	22
23				20.8	89.7	43.7	23
24				20.8	76.9	38.7	24
25				20.8	76.9	38.7	25
26	10.3		8.3		51.3	21.6	26
27	61.0		48.8	20.8	51.3	38.1	27
28	50.3	52.8	50.8	62.5	25.6	45.9	28
29	121.5	222.8	141.8	145.8	38.5	103.2	29
30	99.1	199.4	119.2	145.8	76.9	113.8	30
31	71.3	176.0	92.2	62.5	51.3	63.9	31
32	202.8	126.1	187.4	62.5	38.5	77.2	32
33	20.7	52.8	27.1	125.0	102.6	97.4	33
34	56.4	117.3	68.6	104.2	64.1	81.7	34
35	73.0	52.8	69.0	62.5	76.9	69.4	35
36	34.6		27.7	20.8	25.6	24.0	36
37	17.1		13.7	20.8	12.8	16.3	37
38	55.3		44.2		12.8	13.5	38
39	6.8		5.4	41.7	12.8	23.4	39
40	24.3		19.4		12.8	8.7	40
41	27.8		22.3			4.3	41
42	17.5		14.0			2.7	42
43				20.8		8.7	43
44				20.8		8.7	44
45				20.8		8.7	45
TOTAL	1000	1000	1000	1000	1000	1000	
No. SAMPLES	4	2	6	1	1	8	
SAMPLING WEIGHT(Kg)	38	19	57	22	28	107	
No.F.MEASURED	62	39	101	48	78	227	
MEAN LENGTH(cm)	32.3	31.5	32.1	32.6	29.3	31.2	
MEAN WEIGHT (g)	517	458	505	534	402	477	
DEPTH RANGE (m)	798/1186	787/1148	787/1148	682/1163	697/1027	682/1186	

TABLE VIII - A: RED-FISH (S.mentella), DIV. 3M, 1996: length composition of the trawl catches.

LENGTH GROUP	MAR.=1st Q.	AUG.=3rd Q.	DEC.=4th Q.	TOTAL	LENGTH GROUP
16		1.5		1.4	16
17		1.5		1.4	17
18		1.5		1.4	18
19		4.9		4.7	19
20		26.5	2.3	25.2	20
21		71.0		67.4	21
22		162.2		153.9	22
23		120.6		114.4	23
24		96.1	3.2	91.3	24
25		54.4		51.6	25
26	10.2	33.3	3.4	31.9	26
27		52.4	11.0	50.1	27
28	137.9	50.0	19.5	51.0	28
29	153.0	56.9	29.7	58.2	29
30	168.4	53.4	67.6	56.4	30
31	109.7	57.4	80.8	59.2	31
32	155.6	45.1	103.7	49.2	32
33	76.5	34.3	96.9	37.1	33
34	109.7	31.9	87.9	35.2	34
35	23.0	9.8	91.4	12.5	35
36	46.0	5.9	101.8	9.6	36
37	10.2	11.3	84.6	13.4	37
38		3.4	68.1	5.3	38
39		7.4	49.9	8.4	39
40		2.0	32.5	2.8	40
41		1.5	9.9	1.7	41
42		2.0	12.0	2.2	42
43			21.5	0.6	43
44			6.4	0.2	44
45			4.9	0.1	45
46			8.4	0.2	46
47			2.4	0.1	47
48					48
49					49
50		2.0		1.9	50
TOTAL	1000	1000	1000	1000	
No. SAMPLES	2	8	13	23	
SAMPLING WEIGHT(Kg)	29	169	399	597	
No.F.MEASURED	58	585	666	1309	
MEAN LENGTH(cm)	31.6	26.8	35.1	27.1	
MEAN WEIGHT (g)	465	306	655	320	
DEPTH RANGE (m)	280/688	298/559	130/1120	130/1120	

TABLE VIII - B: REDFISH (S.mentella), DIV. 3M, 1996: age composition (%), mean length (cm) and mean weight (Kg) at age of the trawl catches.

AGE	MAR=1st Q.			AUG=3rd Q.			DEC=4th Q.			TOTAL			AGE
	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	
3				1.5	16.8	0.069				1.4	16.8	0.069	3
4				12.6	19.8	0.115	0.3	20.5	0.126	12.0	19.8	0.115	4
5				284.7	22.3	0.162	2.3	21.0	0.137	270.2	22.3	0.162	5
6	0.5	26.5	0.274	208.4	24.0	0.201	3.4	25.0	0.230	197.9	24.0	0.201	6
7	37.0	28.1	0.323	93.8	26.6	0.275	12.5	28.0	0.322	90.2	26.7	0.275	7
8	171.8	29.0	0.356	94.7	28.4	0.334	37.2	28.9	0.352	94.7	28.5	0.335	8
9	236.6	30.1	0.395	90.6	30.1	0.392	83.4	30.5	0.411	93.5	30.1	0.393	9
10	146.8	31.4	0.454	56.5	31.4	0.450	87.6	31.6	0.460	59.4	31.5	0.451	10
11	108.6	32.2	0.485	39.3	32.2	0.478	81.5	32.4	0.489	42.0	32.2	0.479	11
12	105.6	33.4	0.547	35.1	33.4	0.548	98.3	33.5	0.547	38.5	33.5	0.548	12
13	57.3	34.3	0.592	20.3	34.4	0.602	71.5	34.8	0.616	22.6	34.5	0.602	13
14	64.3	34.7	0.612	21.0	34.5	0.604	89.7	35.2	0.638	24.0	34.6	0.608	14
15	32.4	35.8	0.664	11.0	35.9	0.678	99.2	36.2	0.695	14.0	35.9	0.681	15
16	22.6	35.9	0.669	5.8	36.9	0.738	75.2	37.0	0.738	8.2	36.9	0.734	16
17	9.3	36.2	0.678	4.9	38.0	0.808	56.0	37.9	0.794	6.5	38.0	0.800	17
18	5.3	37.0	0.740	6.9	38.2	0.823	58.4	38.2	0.820	8.4	38.2	0.821	18
19	0.6	37.5	0.781	2.3	38.7	0.844	25.0	38.6	0.831	2.9	38.7	0.840	19
20	1.3	37.5	0.781	4.9	39.9	0.922	39.5	40.2	0.948	5.8	40.0	0.926	20
21				1.1	40.9	0.995	13.8	40.8	0.989	1.5	40.9	0.993	21
22				0.4	40.5	0.985	3.9	40.7	0.998	0.5	40.5	0.988	22
23				1.6	42.0	1.053	8.6	41.7	1.063	1.7	42.0	1.054	23
24				0.2	40.5	0.985	10.0	43.0	1.156	0.5	42.0	1.090	24
25+				2.4	48.7	1.743	42.3	44.0	1.267	3.5	47.0	1.573	25+
TOTAL	1000			1000			1000			1000			
No FISH AGED										1267*			

(*) based on 96 EC survey, due to the lack of commercial age length key

TABLE IX: RED-FISH (S.mentella), DIV. 3N, 1996: length composition of the trawl catches.

LENGTH GROUP	FEB.=1st Q.	JUN.=2nd Q.	TOTAL	LENGTH GROUP
23		12.3	10.7	23
24				24
25				25
26		12.3	10.7	26
27	47.4	37.0	38.4	27
28	60.9	98.8	93.9	28
29	100.4	74.1	77.5	29
30	97.1	246.9	227.5	30
31	139.8	284.0	265.2	31
32	158.6	111.1	117.3	32
33	92.7	61.7	65.7	33
34	55.9	12.3	18.0	34
35	55.9	24.7	28.7	35
36	35.9	24.7	26.1	36
37	43.0		5.6	37
38	26.5		3.4	38
39	64.5		8.4	39
40				40
41	21.5		2.8	41
TOTAL	1000	1000	1000	
No. SAMPLES	3	1	4	
SAMPLING WEIGHT(Kg)	84	33	117	
No.F.MEASURED	90	81	171	
MEAN LENGTH(cm)	32.9	31.0	31.2	
MEAN WEIGHT (g)	535	434	447	
DEPTH RANGE (m)	586/1659	368/1396	368/1659	

TABLE X: REDFISH (S.mentella), DIV. 3O, 1996: length composition of the trawl catches.

LENGTH GROUP	JUN.=2nd Q.	AUG.=3rd Q.	TOTAL	LENGTH GROUP
19		0.2	0.2	19
20		2.5	2.4	20
21		1.9	1.8	21
22		13.6	12.7	22
23		8.5	8.0	23
24		10.6	9.9	24
25		15.2	14.2	25
26		17.8	16.6	26
27	13.3	28.3	27.3	27
28	40.0	33.3	33.7	28
29	133.3	40.8	46.9	29
30	293.3	57.6	73.1	30
31	186.7	57.8	66.3	31
32	133.3	54.2	59.4	32
33	66.7	50.9	52.0	33
34	53.3	63.4	62.8	34
35	40.0	65.2	63.5	35
36	26.7	78.0	74.6	36
37	13.3	79.8	75.4	37
38		83.8	78.3	38
39		67.9	63.4	39
40		79.5	74.3	40
41		38.0	35.5	41
42		27.3	25.5	42
43		12.3	11.5	43
44		6.8	6.3	44
45		4.2	3.9	45
46				46
47		0.8	0.7	47
TOTAL	1000	1000	1000	
No. SAMPLES	1	39	40	
SAMPLING WEIGHT(Kg)	32	1500	1532	
No.F.MEASURED	75	2700	2775	
MEAN LENGTH(cm)	31.6	35.0	34.7	
MEAN WEIGHT (g)	461	656	644	
DEPTH RANGE (m)	536/972	344/809	344/972	

TABLE XI - A: REDFISH (S.marinus), DIV. 3M, 1996: length composition of the trawl catches.

LENGTH GROUP	SEP.=TOTAL	LENGTH GROUP
18	9.9	18
19	9.9	19
20	19.8	20
21	158.4	21
22	277.2	22
23	227.7	23
24	79.2	24
25	19.8	25
26	19.8	26
27	39.6	27
28	29.7	28
29	19.8	29
30		30
31		31
32	19.8	32
33	19.8	33
34	9.9	34
35	19.8	35
36		36
37		37
38	9.9	38
39	9.9	39
TOTAL	1000	
No. SAMPLES	1	
SAMPLING WEIGHT(Kg)	22	
No.F.MEASURED	101	
MEAN LENGTH(cm)	24.4	
MEAN WEIGHT (g)	228	
DEPTH RANGE (m)	270/288	

TABLE XI - B: REDFISH (S.marinus), DIV. 3M, 1996: age composition (‰), mean length (cm) and mean weight (Kg) at age of the trawl catches.

AGE	SEP=TOTAL AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE
4	22.1	19.7	0.112	4
5	535.1	22.3	0.163	5
6	251.9	24.0	0.200	6
7	65.3	27.4	0.298	7
8	33.1	28.8	0.342	8
9	4.5	31.0	0.431	9
10	13.0	33.1	0.523	10
11	16.9	33.1	0.517	11
12	18.8	34.0	0.567	12
13	17.1	35.7	0.663	13
14	7.4	37.8	0.784	14
15	10.5	38.1	0.806	15
16				16
17	4.2	38.5	0.803	17
TOTAL	1000			
No FISH AGED	1057*			

(*) based on 96 EC survey, due to the lack of commercial age length key

TABLE XII - A: GREENLAND HALIBUT, DIV. 3L, 1996: length composition of the trawl catches.

LENGTH GROUP	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	1st Q.	2nd Q.	3rd Q.	4th Q.	TOTAL	LENGTH GROUP
24											5.8				1.5	0.4	24
26				0.4	0.3			0.7	0.7				0.3	0.5	0.1	0.2	26
28		0.5	0.7	2.9	1.0		1.0	1.8		0.5	2.6	0.3	1.8	1.5	0.9	1.4	28
30		1.2	7.5	11.1	4.3		2.5	4.1	3.1	2.6		0.8	8.9	3.4	2.1	5.9	30
32		1.8	12.9	29.3	13.3		9.6	11.0	8.8	12.4	25.7	1.2	21.3	10.3	15.1	16.6	32
34	1.5	12.1	46.5	59.5	28.7	30.6	18.1	23.6	23.7	26.5	50.6	8.4	50.7	21.8	32.1	39.2	34
36	6.1	47.5	92.4	101.4	55.1	40.8	66.4	55.6	38.6	57.1	61.2	32.9	91.8	59.0	54.6	73.3	36
38	29.2	94.8	120.3	141.5	73.5	40.8	90.3	90.9	79.4	72.0	102.6	71.7	124.6	89.7	81.1	105.1	38
40	48.9	136.2	151.1	157.0	108.2	71.4	111.2	103.5	137.5	117.9	151.1	105.4	148.2	105.5	130.0	135.9	40
42	46.7	159.4	160.5	146.1	111.5	122.4	123.8	102.9	125.1	102.1	84.4	119.7	146.4	110.5	101.9	129.9	42
44	178.4	149.4	128.2	121.2	124.1	61.2	110.4	131.0	167.5	137.8	141.9	159.6	124.1	122.5	144.4	133.5	44
46	198.8	100.2	93.2	83.1	105.9	61.2	127.0	130.9	101.2	103.7	87.5	135.0	89.9	128.1	99.1	99.9	46
48	92.4	52.3	51.5	46.6	73.5	71.4	79.0	89.4	76.6	90.9	99.2	66.5	52.1	85.4	90.3	65.4	48
50	103.9	48.9	38.5	30.4	67.6	81.6	56.6	80.4	61.4	78.9	68.0	68.3	38.5	72.2	72.9	52.7	50
52	61.2	43.2	26.7	19.9	48.9	51.0	58.3	58.0	49.2	48.3	21.3	49.5	26.3	58.0	41.7	34.8	52
54	42.2	33.9	18.1	14.8	34.7	61.2	26.4	35.4	33.2	37.7	43.2	36.8	18.8	32.8	38.3	26.7	54
56	47.0	22.6	15.1	8.5	33.2	40.8	16.6	14.0	30.2	27.9	25.7	31.2	14.2	15.5	27.8	19.8	56
58	9.4	17.7	10.7	9.0	23.8	81.6	25.4	13.3	6.3	20.6	8.6	14.8	11.6	18.9	14.9	13.3	58
60	14.1	15.7	8.1	4.6	20.1	30.6	8.9	10.2	11.3	14.9	6.9	15.1	8.0	10.2	12.2	10.0	60
62	28.9	15.9	4.9	4.2	15.9	30.6	10.2	10.6	9.6	7.9	5.2	20.5	6.1	10.8	7.5	8.5	62
64	8.7	7.9	4.2	2.4	10.9	51.0	12.1	12.3	7.6	12.4		8.2	4.2	13.0	8.4	6.3	64
66	3.1	7.2	2.7	1.9	9.1	30.6	6.9	5.7	6.0	4.5	6.0	5.8	3.2	6.6	5.2	4.2	66
68	25.9	8.3	1.7	1.4	6.3	10.2	8.2	0.8	5.2	4.4		14.5	2.2	3.5	3.4	4.1	68
70	17.8	6.6	0.4	0.6	6.4	20.4	3.8	3.8	0.4	4.3	2.6	10.6	1.3	4.1	3.1	3.1	70
72	10.7	2.1	0.9	0.7	6.0		4.3	2.2	1.5	2.3		5.1	1.5	2.8	1.5	2.0	72
74	13.8	2.0	1.1	0.3	4.5	10.2	5.0	0.8	1.7	4.5		6.2	1.2	2.4	2.9	2.3	74
76	1.6	3.3	0.9	0.2	4.0		7.3		2.0	1.7		2.7	1.0	2.5	1.3	1.4	76
78	7.4	2.4		0.3	2.1		2.2	1.8	3.5	1.0		4.1	0.4	1.9	1.2	1.2	78
80	1.6	0.9	0.4	0.1	1.8		4.4	3.5	7.1	2.6		1.1	0.5	3.8	2.8	1.3	80
82	0.7	2.8	0.1	0.1	1.4		1.2	1.3		0.4		2.0	0.3	1.2	0.2	0.5	82
84		2.0	0.3	0.1	1.3		1.5	0.9		0.9		1.3	0.3	1.1	0.5	0.5	84
86					1.9		1.2		1.5	0.8			0.3	0.4	0.7	0.4	86
88			0.1	0.1						0.2			0.1		0.1	0.1	88
90				0.1	0.7					0.4			0.1		0.2	0.1	90
92		0.5			0.2							0.4	0.02			0.1	92
94		0.5										0.4				0.04	94
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	11	31	66	100	68	2	19	25	21	36	4	42	234	46	61	383	
SAMPLING WEIGHT(Kg)	349	1763	4185	5193	4143	127	1125	1242	1540	2518	224	2112	13521	2494	4282	22409	
No.F.MEASURED	248	1848	5503	7173	3819	98	1006	1296	1793	2498	273	2096	16495	2400	4564	25555	
MEAN LENGTH(cm)	50.6	46.7	43.8	42.7	47.4	51.0	47.0	46.4	46.4	46.8	44.6	48.1	43.7	46.7	46.2	45.1	
MEAN WEIGHT (g)	1235	961	739	676	1026	1283	992	916	929	957	784	1058	747	950	908	837	
DEPTH RANGE (m)	798/1186	787/1185	682/1163	699/1123	799/1146	896/917	617/1085	796/1132	676/1132	675/1181	697/1027	787/1186	682/1163	617/1132	675/1181	617/1186	

TABLE XII - B: GREENLAND HALIBUT, DIV.3L, 1996: age composition (‰), mean length (cm) and mean weight (Kg) at age of the trawl catches.

AGE	FEB.			MAR.			APR.			MAY			JUN.			AGE
	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	
3				0.8	30.4	0.200	3.6	31.1	0.215	6.9	30.8	0.209	2.3	30.8	0.211	3
4	0.7	35.0	0.320	8.2	35.3	0.333	29.0	34.6	0.311	43.7	34.1	0.299	19.6	34.3	0.305	4
5	66.2	41.7	0.583	194.3	40.1	0.512	277.5	39.0	0.470	311.4	38.6	0.455	186.2	39.2	0.478	5
6	232.6	44.8	0.742	327.1	42.9	0.640	339.2	42.4	0.620	340.4	42.2	0.609	266.2	43.1	0.653	6
7	174.8	46.3	0.825	151.0	45.3	0.769	142.4	45.2	0.761	130.9	45.0	0.752	141.4	45.8	0.798	7
8	182.8	49.1	1.007	107.8	49.0	0.999	92.6	48.5	0.966	80.4	48.3	0.954	125.1	49.2	1.015	8
9	98.5	53.1	1.318	59.7	53.2	1.322	42.1	52.4	1.260	32.8	52.3	1.247	74.3	53.2	1.321	9
10+	244.3	61.9	2.316	151.1	61.6	2.295	73.6	58.4	1.877	53.5	57.8	1.807	184.8	61.4	2.266	10+
TOTAL	1000			1000			1000			1000			1000			

TABLE XII - B: count.

AGE	JUL.			AUG.			SEP.			OCT.			NOV.			DEC.			AGE
	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	
3							1.6	28.1	0.154	0.7	27.0	0.134	0.3	29.0	0.170	7.1	25.7	0.116	3
4	33.2	35.6	0.340	32.0	34.7	0.316	39.4	34.5	0.310	27.4	34.8	0.316	37.5	34.7	0.315	63.4	34.5	0.308	4
5	169.2	40.6	0.532	274.0	40.2	0.516	251.1	40.2	0.519	264.6	40.6	0.534	247.0	40.2	0.517	285.8	39.7	0.496	5
6	210.9	44.3	0.713	308.4	44.6	0.729	317.0	44.7	0.735	342.6	44.4	0.720	305.6	44.6	0.730	311.6	44.3	0.717	6
7	83.3	48.4	0.963	92.9	46.8	0.856	98.1	46.9	0.863	88.3	46.0	0.815	96.3	46.7	0.853	103.4	46.4	0.841	7
8	107.0	52.2	1.241	92.0	50.8	1.123	119.3	50.6	1.105	102.1	50.6	1.106	117.4	50.8	1.121	106.4	50.6	1.109	8
9	126.0	56.1	1.572	77.8	54.1	1.396	82.6	54.1	1.389	77.0	54.2	1.400	85.0	54.4	1.423	67.5	54.0	1.384	9
10+	270.4	62.5	2.292	122.8	64.3	2.639	90.8	61.8	2.300	97.2	62.9	2.470	110.8	62.1	2.340	54.8	58.5	1.832	10+
TOTAL	1000			1000			1000			1000			1000			1000			

TABLE XII - B: count.

AGE	1st Q.			2nd Q.			3rd Q.			4th Q.			TOTAL.			AGE
	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	
3	0.5	30.4	0.200	5.1	30.8	0.211	1.0	28.1	0.154	2.1	26.0	0.121	3.5	30.1	0.197	3
4	5.6	35.3	0.333	35.1	34.3	0.303	36.7	34.6	0.313	42.2	34.7	0.313	33.4	34.4	0.307	4
5	149.1	40.3	0.523	282.0	38.8	0.462	257.4	40.2	0.518	260.1	40.1	0.514	258.7	39.3	0.483	5
6	293.8	43.4	0.669	329.7	42.4	0.618	311.9	44.6	0.733	314.0	44.5	0.725	320.3	43.1	0.656	6
7	159.4	45.7	0.791	136.4	45.2	0.762	96.0	46.9	0.862	96.6	46.5	0.844	127.0	45.6	0.786	7
8	134.3	49.0	1.003	90.9	48.6	0.970	109.6	50.7	1.113	111.8	50.7	1.115	102.6	49.4	1.024	8
9	73.4	53.2	1.320	41.6	52.6	1.270	81.8	54.2	1.397	79.1	54.3	1.411	57.4	53.4	1.337	9
10+	184.0	61.7	2.305	78.8	59.2	1.979	105.6	62.8	2.436	94.1	61.7	2.290	97.1	60.6	2.159	10+
TOTAL	1000			1000			1000			1000			1000			

No FISH AGED 1097

TABLE XIII - A: GREENLAND HALIBUT, DIV. 3M, 1996: length composition of the trawl catches.

LENGTH GROUP	APR.	MAY.	AUG.	SEP.	OCT.	NOV.	DEC.	MAR.=1st Q.	2nd Q.	3rd Q.	4th Q.	TOTAL	LENGTH GROUP
26							0.4				0.1	0.1	26
28				0.7			1.7			0.6	0.5	0.5	28
30			2.5	1.5	2.3	3.2	7.5			1.7	4.1	3.0	30
32	3.0	21.3		3.0	1.4	5.2	18.5	7.2	9.2	2.5	7.4	6.0	32
34	2.5	42.6	9.1	17.5	11.7	7.4	74.2	2.6	16.0	16.0	27.2	22.2	34
36	13.6	42.6	16.0	36.1	32.3	20.4	83.4	20.4	23.3	32.6	41.9	37.3	36
38	28.7	106.4	28.5	58.0	47.3	45.6	139.0	35.4	54.8	53.0	71.6	63.6	38
40	83.1	234.0	69.3	95.1	85.1	86.2	171.0	68.2	133.8	90.7	108.9	102.7	40
42	95.3	191.5	120.4	131.9	115.5	112.1	125.6	91.2	127.6	129.9	117.1	120.4	42
44	175.4	106.4	107.9	153.2	154.9	153.6	91.4	183.9	152.2	145.4	137.1	142.3	44
46	145.1	127.7	135.0	144.2	142.3	135.8	75.9	104.9	139.3	142.6	121.9	128.4	46
48	97.2	42.6	131.5	103.7	115.4	142.2	64.1	94.2	78.8	108.4	111.1	108.1	48
50	85.7	21.3	125.5	81.3	105.7	94.2	47.9	90.0	64.0	88.9	85.8	86.0	50
52	58.4	42.6	74.6	52.0	57.2	61.9	42.7	77.7	53.1	55.9	54.9	56.1	52
54	40.8	21.3	82.3	38.1	49.6	44.7	27.3	12.4	34.3	45.7	41.8	41.4	54
56	33.7		39.1	24.2	24.8	31.4	21.7	52.6	22.4	26.7	26.3	27.4	56
58	25.2		10.7	15.6	17.2	11.4	3.7	32.3	16.7	14.8	11.5	13.6	58
60	15.1		17.9	12.7	9.9	12.5	0.7	24.6	10.0	13.6	8.3	10.7	60
62	22.2		9.2	7.1	4.3	6.6	0.4	12.1	14.7	7.5	4.1	5.9	62
64	16.6		6.2	5.4	5.5	5.3		7.1	11.0	5.5	3.9	4.9	64
66	9.1			3.6	2.8	4.4		19.7	6.0	3.0	2.6	3.6	66
68	11.1			3.6	4.8	1.5		2.6	7.4	3.0	2.3	2.8	68
70	11.6		2.5	1.7	0.6	3.7		7.2	7.7	1.8	1.6	2.2	70
72			2.5	2.0	1.3	2.1		5.3		2.1	1.2	1.6	72
74				1.5	1.6	3.0		2.6		1.2	1.7	1.5	74
76	3.0			1.9	0.7	0.8	0.4	2.6	2.0	1.6	0.7	1.1	76
78	5.5			1.0	0.7	0.9	2.6		3.7	0.9	1.3	1.2	78
80			2.5	0.4	2.0	1.4				0.7	1.2	1.0	80
82	3.0			1.3	1.1	0.6		16.2	2.0	1.1	0.6	1.5	82
84	3.0		1.8	0.3	0.6	1.7		4.5	2.0	0.6	0.8	1.0	84
86			5.0	0.4		0.2		4.5		1.2	0.1	0.6	86
88	12.1			0.4	1.2			17.8	8.0	0.3	0.4	1.4	88
90				0.4						0.3		0.1	90
92				0.4						0.3		0.1	92
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	6	1	9	46	23	22	12	5	7	55	57	119	
SAMPLING WEIGHT(Kg)	428	31	485	2128	1228	2978	965	314	459	2613	5171	8243	
No.F.MEASURED	360	47	469	2216	1202	3002	1237	233	407	2685	5441	8533	
MEAN LENGTH(cm)	49.8	43.1	48.7	47.0	47.5	47.7	43.2	50.5	47.5	47.3	46.4	46.9	
MEAN WEIGHT (g)	1195	673	1051	937	962	979	702	1312	1019	956	897	938	
DEPTH RANGE (m)	829/1075	886/1108	298/1087	270/1149	699/1081	668/1046	647/1120	833/1117	829/1108	270/1149	647/1120	270/1149	

TABLE XIII - B: GREENLAND HALIBUT, DIV.3M, 1996: age composition (‰), mean length (cm) and mean weight (Kg) at age of the trawl catches.

AGE	APR. AGE COMP.	APR. MEAN LENGTH	APR. MEAN WEIGHT	MAY AGE COMP.	MAY MEAN LENGTH	MAY MEAN WEIGHT	AUG. AGE COMP.	AUG. MEAN LENGTH	AUG. MEAN WEIGHT	SEP. AGE COMP.	SEP. MEAN LENGTH	SEP. MEAN WEIGHT	AGE
3	0.3	33.0	0.263	2.1	33.0	0.263				0.4	29.0	0.170	3
4	2.8	35.2	0.329	29.8	34.4	0.303	12.2	34.7	0.313	19.4	34.8	0.319	4
5	95.5	41.2	0.560	265.2	39.7	0.497	146.5	41.6	0.577	216.2	40.8	0.544	5
6	259.3	44.1	0.705	372.1	42.5	0.623	302.5	45.3	0.767	352.7	44.9	0.745	6
7	173.2	46.1	0.816	148.5	44.7	0.731	112.9	47.8	0.922	111.4	46.9	0.861	7
8	163.1	49.2	1.013	109.4	47.9	0.930	172.9	50.7	1.110	126.7	50.6	1.110	8
9	89.4	53.1	1.312	35.8	51.9	1.205	131.3	54.0	1.385	87.1	54.2	1.402	9
10+	216.4	62.4	2.466	37.0	52.5	1.253	121.8	59.7	2.081	86.2	61.0	2.219	10+
TOTAL	1000			1000			1000			1000			

TABLE XIII - B: count.

AGE	OCT. AGE COMP.	OCT. MEAN LENGTH	OCT. MEAN WEIGHT	NOV. AGE COMP.	NOV. MEAN LENGTH	NOV. MEAN WEIGHT	DEC. AGE COMP.	DEC. MEAN LENGTH	DEC. MEAN WEIGHT	MAR.=1st Q. AGE COMP.	MAR.=1st Q. MEAN LENGTH	MAR.=1st Q. MEAN WEIGHT	AGE
3							0.9	28.1	0.153	0.7	33.0	0.263	3
4	14.1	34.8	0.317	12.3	33.6	0.283	66.5	34.6	0.310	6.3	34.7	0.315	4
5	188.4	40.9	0.549	189.3	41.3	0.570	398.6	39.4	0.486	98.5	40.8	0.544	5
6	342.0	45.1	0.756	341.4	45.3	0.764	285.5	43.9	0.693	249.1	44.0	0.696	6
7	119.0	47.1	0.874	85.4	46.8	0.865	61.0	45.1	0.768	162.8	46.3	0.825	7
8	148.2	50.7	1.113	181.2	50.4	1.094	94.7	50.6	1.104	150.6	49.6	1.039	8
9	98.1	53.9	1.370	100.7	53.8	1.366	54.7	53.2	1.305	88.5	52.8	1.291	9
10+	90.2	60.3	2.132	89.7	60.9	2.197	38.1	57.3	1.762	243.5	64.2	2.785	10+
TOTAL	1000			1000			1000			1000			

TABLE XIII - B: count.

AGE	2nd Q. AGE COMP.	2nd Q. MEAN LENGTH	2nd Q. MEAN WEIGHT	3rd Q. AGE COMP.	3rd Q. MEAN LENGTH	3rd Q. MEAN WEIGHT	4th Q. AGE COMP.	4th Q. MEAN LENGTH	4th Q. MEAN WEIGHT	TOTAL. AGE COMP.	TOTAL. MEAN LENGTH	TOTAL. MEAN WEIGHT	AGE
3	0.9	33.0	0.263	0.3	29.0	0.170	0.2	28.1	0.153	0.3	29.4	0.183	3
4	11.8	34.5	0.307	18.2	34.8	0.318	27.7	34.5	0.307	23.2	34.5	0.310	4
5	152.5	40.3	0.523	204.2	40.9	0.548	246.0	40.4	0.527	222.8	40.5	0.533	5
6	297.3	43.5	0.671	344.1	45.0	0.749	326.4	44.9	0.744	327.4	44.8	0.741	6
7	164.9	45.7	0.790	111.6	47.0	0.871	91.1	46.6	0.852	103.7	46.7	0.852	7
8	145.1	48.9	0.992	134.6	50.7	1.110	145.5	50.6	1.103	142.3	50.5	1.097	8
9	71.4	52.9	1.294	94.7	54.2	1.398	87.2	53.7	1.357	88.9	53.8	1.366	9
10+	156.1	61.6	2.369	92.2	60.7	2.187	75.8	60.2	2.109	91.4	60.9	2.228	10+
TOTAL	1000			1000			1000			1000			

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TABLE XIV: GREENLAND HALIBUT, DIV. 3N, 1996: length composition of the trawl catches.

LENGTH GROUP	FEB.	MAR.	APR.	MAY.	JUN.	1st Q.	2nd Q.	AUG.=3rd Q.	OCT.=4th Q.	TOTAL	LENGTH GROUP
20					1.9		0.4			0.2	20
22											22
24			0.6		0.3		0.5			0.3	24
26		4.2	5.3		2.0	2.8	4.5			3.4	26
28		9.5	7.3		1.2	6.2	5.8		1.0	5.6	28
30		29.5	9.1		7.6	19.4	8.4	10.8	3.7	12.8	30
32	9.5	31.0	11.3		17.6	23.6	12.0	8.6	24.2	17.2	32
34	4.7	46.8	22.9	3.4	55.9	32.4	28.4	59.8	36.9	31.7	34
36	4.7	40.9	44.0	17.2	72.4	28.5	48.4	109.1	68.2	43.5	36
38	59.5	36.7	49.8	37.2	63.6	44.5	52.0	129.8	90.8	53.7	38
40	229.4	133.9	125.6	199.5	128.6	166.7	129.3	138.3	203.9	148.3	40
42	129.3	121.6	114.8	209.2	126.0	124.2	121.0	132.8	173.8	125.1	42
44	110.6	108.6	107.3	116.6	97.6	109.3	105.8	134.0	138.7	109.8	44
46	65.4	142.5	83.9	88.7	74.8	116.1	82.3	79.9	93.2	96.6	46
48	82.7	82.4	85.2	90.9	52.3	82.5	79.1	58.6	57.7	78.8	48
50	72.9	50.0	62.7	37.2	57.0	57.8	60.5	36.2	44.0	57.7	50
52	75.8	30.5	48.4	105.2	33.8	46.0	48.0	18.1	16.0	44.6	52
54	33.0	12.6	32.5	36.1	25.0	19.6	31.2	16.1	19.9	25.3	54
56	21.1	16.0	25.7	17.2	23.5	17.8	24.9	12.6	8.2	20.8	56
58	34.9	14.5	29.7		20.0	21.4	26.6	12.6	7.8	23.1	58
60	12.8	19.5	20.2		17.6	17.2	18.8	14.9	4.0	17.4	60
62	8.2	11.6	20.2	1.7	17.7	10.5	19.0	3.6	6.2	14.3	62
64	1.3	7.6	16.7	1.7	19.6	5.5	16.6	6.8	0.5	10.9	64
66	10.4	7.1	10.6		12.2	8.2	10.4	4.0		8.8	66
68	12.3	5.4	12.4		13.9	7.8	12.2	4.3		9.5	68
70		9.8	9.3		14.5	6.4	9.9	2.5		7.8	70
72		4.9	7.4		11.3	3.2	7.9			5.3	72
74	5.9	5.6	6.2		6.4	5.7	6.0			5.4	74
76	1.3	4.1	7.6	18.3	7.1	3.2	7.9	2.5	1.1	5.5	76
78	9.2	4.1	7.2	18.3	6.3	5.8	7.5			6.2	78
80		3.7	4.6		3.6	2.4	4.2	4.0		3.3	80
82	4.3	0.9	3.5		3.0	2.1	3.3			2.5	82
84	1.0	3.6	2.4		4.4	2.7	2.7			2.5	84
86		0.5	2.0	1.7	0.6	0.3	1.8			1.0	86
88			0.9		0.2		0.8			0.4	88
90		0.2	0.3			0.2	0.2			0.2	90
92			1.3		0.2		1.0			0.5	92
94			0.6		0.2		0.5			0.2	94
96			0.4				0.3			0.1	96
98											98
100											100
102		0.2				0.2				0.1	102
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	8	22	27	3	25	30	55	7	9	101	
SAMPLING WEIGHT(Kg)	442	1685	2222	88	1884	2126	4194	327	598	7245	
No.F.MEASURED	367	1277	1822	81	1540	1644	3443	441	894	6422	
MEAN LENGTH(cm)	47.5	46.0	48.5	46.9	47.5	46.5	48.3	43.8	43.5	47.2	
MEAN WEIGHT (g)	1006	955	1160	966	1096	973	1140	763	703	1037	
DEPTH RANGE (m)	586/1659	480/1150	505/1205	860/1114	368/1396	480/1659	368/1396	653/1051	500/1367	368/1396	

TABLE XV: GREENLAND HALIBUT, DIV. 3O, 1996: length composition of the trawl catches.

LENGTH GROUP	JUN.=TOTAL	LENGTH GROUP
28	18.9	28
30	18.9	30
32	37.7	32
34	37.7	34
36	94.3	36
38	75.5	38
40	75.5	40
42	132.1	42
44	113.2	44
46	132.1	46
48	75.5	48
50	113.2	50
52	18.9	52
54	18.9	54
56	18.9	56
58		58
60		60
62		62
64		64
66		66
68	18.9	68
TOTAL	1000	
No. SAMPLES	1	
SAMPLING WEIGHT(Kg)	44	
No.F.MEASURED	53	
MEAN LENGTH(cm)	44.1	
MEAN WEIGHT (g)	765	
DEPTH RANGE (m)	536/972	

TABLE XVI: AMERICAN PLAICE, DIV. 3L, 1996: length composition of the trawl catches.

LENGTH GROUP	FEB.	MAR.	1st Q.	APR.=2nd Q.	TOTAL	LENGTH GROUP
24		0.3	0.2	1.4	0.8	24
26		22.7	18.6	12.7	15.6	26
28	69.6	29.6	36.8	35.9	36.3	28
30	112.1	79.2	85.1	73.0	78.9	30
32	152.8	123.0	128.3	126.8	127.6	32
34	201.2	123.0	137.1	145.5	141.4	34
36	102.6	124.7	120.7	141.4	131.4	36
38	152.8	162.6	160.8	96.7	127.6	38
40	56.1	77.6	73.7	77.1	75.5	40
42	56.1	60.5	59.7	72.6	66.4	42
44	27.1	57.3	51.8	49.0	50.4	44
46	13.6	30.6	27.5	46.1	37.1	46
48	21.3	41.1	37.5	49.9	43.9	48
50		36.9	30.3	48.7	39.8	50
52		16.1	13.2	13.2	13.2	52
54		8.4	6.9	5.8	6.4	54
56	21.3		3.8	2.0	2.9	56
58		4.6	3.7	1.5	2.6	58
60				0.2	0.1	60
62	13.6		2.4		1.2	62
64				0.6	0.3	64
66		0.3	0.3		0.1	66
68		1.5	1.3		0.6	68
TOTAL	1000	1000	1000	1000	1000	
No. SAMPLES	2	18	20	21	41	
SAMPLING WEIGHT(Kg)	35	384	419	613	1032	
No.F.MEASURED	59	701	760	1149	1909	
MEAN LENGTH(cm)	37.0	38.7	38.4	38.8	38.6	
MEAN WEIGHT (g)	537	609	596	615	606	
DEPTH RANGE (m)	798/1186	787/1185	787/1186	682/1163	682/1186	

TABLE XVII - A: AMERICAN PLAICE, DIV. 3M, 1996:
length composition of the trawl catches.

LENGTH GROUP	NOV.	DEC.	4th Q.=TOTAL	LENGTH GROUP
24		0.6	0.5	24
26		1.6	1.2	26
28		18.5	13.6	28
30	22.2	53.0	44.8	30
32	46.5	106.5	90.4	32
34	117.8	189.9	170.6	34
36	155.3	187.0	178.5	36
38	97.9	128.9	120.7	38
40	122.0	128.6	126.9	40
42	118.9	74.7	86.5	42
44	81.7	55.2	62.3	44
46	72.9	24.8	37.6	46
48	77.9	18.1	34.1	48
50	59.5	8.8	22.4	50
52	20.8	2.7	7.5	52
54	3.3	1.0	1.6	54
56	3.3		0.9	56
TOTAL	1000	1000	1000	
No. SAMPLES	9	14	23	
SAMPLING WEIGHT(Kg)	122	452	574	
No.F.MEASURED	165	845	1010	
MEAN LENGTH(cm)	41.5	38.0	38.9	
MEAN WEIGHT (g)	756	566	617	
DEPTH RANGE (m)	692/1041	130/1120	130/1120	

TABLE XVII - B: AMERICAN PLAICE, DIV. 3M, 1996:
age composition (‰), mean length (cm) and mean weight (Kg) at age of the trawl catches.

AGE	NOV.			DEZ.			4th Q.= TOTAL			AGE
	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	AGE COMP.	MEAN LENGTH	MEAN WEIGHT	
3	4.0	32.0	0.310	12.0	29.6	0.246	9.9	29.8	0.253	3
4	50.6	33.7	0.370	110.5	32.0	0.315	94.5	32.3	0.323	4
5	117.4	35.9	0.453	285.6	35.6	0.440	240.7	35.6	0.442	5
6	319.1	39.1	0.603	360.5	38.8	0.583	349.5	38.9	0.588	6
7	134.7	41.8	0.746	80.9	41.6	0.732	95.2	41.7	0.737	7
8	122.4	43.6	0.864	67.4	42.6	0.796	82.1	43.0	0.823	8
9	76.6	46.1	1.027	26.2	44.5	0.921	39.6	45.3	0.975	9
10	78.7	45.6	0.997	35.4	43.4	0.848	47.0	44.4	0.915	10
11	22.7	48.8	1.216	5.9	46.8	1.076	10.4	48.0	1.158	11
12	18.0	50.2	1.314	3.8	49.6	1.265	7.6	49.9	1.296	12
13	21.5	48.9	1.215	6.2	47.6	1.118	10.3	48.3	1.172	13
14	20.1	51.1	1.392	3.6	50.8	1.366	8.0	51.0	1.383	14
15	11.4	53.0	1.567	1.5	51.8	1.453	4.2	52.7	1.537	15
16+	2.8	50.9	1.388	0.5	49.0	1.211	1.1	50.3	1.330	16+
TOTAL	1000			1000			1000			
No FISH AGED							534*			

(*) based on 96 EC survey, due to the lack of commercial age length key

TABLE XVIII: AMERICAN PLAICE, DIV. 3N, 1996: length composition of the trawl catches.

LENGTH GROUP	FEB.	MAR.	1st Q.	APR.=2nd Q.	TOTAL	LENGTH GROUP
24	8.6		2.8		1.4	24
26						26
28	2.2		0.7	1.5	1.2	28
30	20.6	28.4	25.8	23.2	24.5	30
32	90.5	77.8	82.0	68.2	74.8	32
34	65.2	139.3	115.0	121.7	118.5	34
36	200.2	187.6	191.7	183.5	187.4	36
38	159.9	117.8	131.6	193.7	164.1	38
40	99.7	139.6	126.5	129.2	127.9	40
42	171.9	128.6	142.8	79.5	109.7	42
44	77.7	59.2	65.2	52.5	58.6	44
46	44.5	78.9	67.7	55.1	61.1	46
48	16.6	15.4	15.7	40.4	28.6	48
50	22.1	8.4	12.9	16.9	15.0	50
52	12.9	7.2	9.1	11.0	10.1	52
54	3.1	6.3	5.2	8.1	6.7	54
56		0.7	0.5	1.8	1.2	56
58	1.8	0.7	1.1	3.7	2.4	58
60	1.8		0.6	0.5	0.5	60
62	0.9		0.3	5.3	2.9	62
64		3.9	2.6	3.2	2.9	64
66				1.1	0.6	66
TOTAL	1000	1000	1000	1000	1000	
No. SAMPLES	8	15	23	21	44	
SAMPLING WEIGHT(Kg)	153	276	429	774	1203	
No.F.MEASURED	193	434	627	1099	1726	
MEAN LENGTH(cm)	40.0	39.7	39.8	40.1	40.0	
MEAN WEIGHT (g)	650	639	642	665	654	
DEPTH RANGE (m)	586/1117	480/1116	480/1117	505/1205	480/1205	

TABLE XIX: ROUGHHEAD GRENADIER, DIV. 3L, 1996: length composition of the trawl catches.

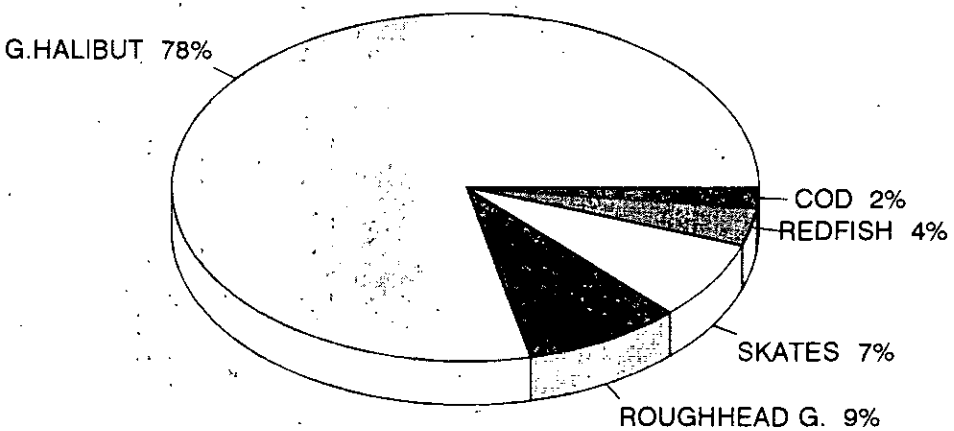
LENGTH GROUP	FEB.	MAR.	AUG.	SEP.	OCT.	NOV.	DEC.	1st Q.	APR.=2nd Q.	3rd Q.	4th Q.	TOTAL	LENGTH GROUP
8					5.8	2.5					2.9	2.1	8
9		51.0	30.5	12.3	20.4	13.8		43.0		18.2	13.0	14.7	9
10		107.1	63.8	71.2	65.0	146.0	166.5	90.3		68.8	129.0	113.2	10
11		78.8	203.6	224.0	113.7	192.9	225.1	66.4		217.4	178.5	181.6	11
12	90.1	3.8	163.4	156.6	92.4	142.4	137.5	17.3		158.8	128.7	130.5	12
13		3.5	78.5	119.1	103.6	129.7	58.1	3.0		106.0	109.8	104.7	13
14	90.1	26.4	146.5	141.5	122.4	103.8	123.5	36.4	115.2	143.1	112.2	116.9	14
15		177.9	107.2	86.5	121.1	84.0	79.4	150.0	220.5	93.2	92.7	96.0	15
16		276.8	78.0	84.6	96.9	68.6	108.7	233.4	293.2	82.4	83.2	89.9	16
17		26.9	78.3	23.4	76.1	38.9	57.4	22.7	125.2	41.1	51.8	49.6	17
18	135.1	54.4	22.7	43.8	79.3	28.2	44.0	67.1	62.0	37.0	44.2	43.5	18
19	90.1	21.3	14.0	5.8	49.0	18.8		32.1		8.4	23.1	19.8	19
20		53.6	13.4	7.0	17.1	10.6		45.2		9.1	10.3	10.9	20
21	330.4	72.6		4.1	12.4	6.6		113.0		2.8	6.9	8.8	21
22	132.1	45.9		5.4	7.6	4.3		59.4	31.0	3.7	4.4	6.1	22
23					4.5	2.9			31.0		2.8	2.5	23
24				5.4	5.5	3.1				3.7	3.2	3.1	24
25				6.6	0.7	1.1			90.8	4.4	0.8	2.7	25
26	132.1			2.7	0.2	0.4		20.7		1.8	0.2	1.2	26
27					4.2	1.0			31.0		1.6	1.6	27
28													28
29					2.2						0.6	0.4	29
30						0.1					0.1	0.1	30
31													31
32						0.3					0.2	0.1	32
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	2	9	3	9	23	34	2	11	3	12	59	82	
SAMPLING WEIGHT(Kg)	64	225	155	314	1189	1336	78	289	145	469	2603	3361	
No.F.MEASURED	61	302	245	566	2232	2697	154	363	122	811	5083	6257	
MEAN LENGTH(cm)	20.3	15.9	13.8	13.9	15.0	13.6	13.5	16.6	17.9	13.8	14.0	14.1	
MEAN WEIGHT (g)	844	440	282	292	372	280	263	503	601	289	300	307	
DEPTH RANGE (m)	798/1183	787/1185	617/1085	796/1132	676/1132	675/1181	697/1027	787/1185	715/1163	617/1132	675/1181	617/1185	

TABLE XX: ROUGHHEAD GRENADIER, DIV. 3M, 1996: length composition of the trawl catches.

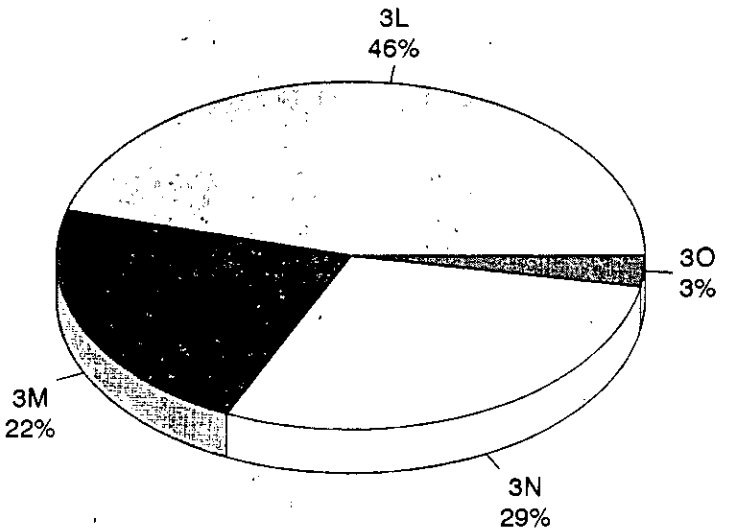
LENGTH GROUP	AUG.	SEP.	OCT.	NOV.	DEC.	MAR.=1st Q.	3rd Q.	4th Q.	TOTAL	LENGTH GROUP
8			17.1					5.8	3.2	8
9		12.7	66.8				10.6	22.7	17.2	9
10	67.2	110.3	161.1	4.1			103.0	56.4	76.3	10
11	133.0	173.5	198.4	10.3		76.2	166.6	71.4	113.0	11
12	86.4	146.7	143.4	17.0	5.1	36.3	136.5	56.7	91.4	12
13	99.4	94.3	85.6	50.5	24.2	204.4	95.2	55.3	73.8	13
14	121.5	125.4	85.9	127.9	86.6	50.7	124.7	102.4	111.8	14
15	235.5	79.1	104.3	155.3	191.3	238.5	105.5	147.7	130.0	15
16	127.2	83.7	64.4	169.0	225.9	160.1	91.1	148.8	123.7	16
17	72.2	62.6	21.4	128.3	200.5	153.7	64.2	111.5	91.2	17
18	36.5	70.4	37.2	127.7	137.9	80.1	64.7	99.7	84.3	18
19		25.5	11.2	76.1	71.6		21.2	52.8	38.6	19
20		4.8	2.2	48.8	27.7		4.0	27.3	16.9	20
21	8.9	3.0		32.0	10.0		4.0	15.2	10.2	21
22	4.4	4.8		19.1	5.7		4.8	9.0	7.1	22
23	4.4			11.3	4.1		0.8	5.5	3.4	23
24	3.3	3.2	1.0	4.5	6.4		3.2	3.8	3.5	24
25				3.2	1.4			1.6	0.9	25
26				9.7	1.7			4.2	2.4	26
27				1.1				0.4	0.2	27
28				2.3				0.9	0.5	28
29				1.0				0.4	0.2	29
30				0.7				0.3	0.1	30
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	4	14	19	21	12	4	18	52	74	
SAMPLING WEIGHT(Kg)	199	512	546	1349	474	107	710	2369	3186	
No.F.MEASURED	296	883	1128	2741	1065	153	1179	4934	6266	
MEAN LENGTH(cm)	14.6	14.1	13.0	17.2	17.0	15.3	14.1	15.7	15.0	
MEAN WEIGHT (g)	326	302	241	517	488	364	306	415	367	
DEPTH RANGE (m)	350/1087	270/1149	699/1081	668/1046	647/1120	833/1117	270/1149	647/1120	270/1149	

TABLE XXI: ROUGHHEAD GRENADIER, DIV. 3N, 1996: length composition of the trawl catches.

LENGTH GROUP	FEB.	MAR.	APR.	MAY	1st Q.	2nd Q.	OCT.=4th Q.	TOTAL	LENGTH GROUP
12	29.0	6.6	8.2		12.7	7.5	14.8	9.6	12
13	79.7	69.2	85.7	86.0	72.0	85.7	100.5	81.9	13
14	20.2	64.6	106.9	124.9	52.4	108.5	210.8	94.7	14
15	73.4	108.4	161.2	169.6	98.8	161.9	177.7	141.9	15
16	133.8	127.2	150.1	169.3	129.0	151.8	150.4	144.2	16
17	244.8	176.1	127.1		194.9	115.9	67.3	139.7	17
18	15.5	99.9	130.2	212.3	76.8	137.4	71.4	114.4	18
19	20.2	91.9	79.8		72.3	72.8	60.7	72.1	19
20	132.6	72.6	35.7	237.9	89.0	53.5	51.6	65.1	20
21	148.8	86.2	26.4		103.3	24.1	48.5	51.4	21
22		41.7	20.1		30.3	18.3	13.5	22.0	22
23		34.7	13.4		25.2	12.2	8.9	16.3	23
24	33.0	11.0	10.5		17.0	9.6	12.9	12.2	24
25	13.5	2.1	13.9		5.2	12.7	5.5	9.9	25
26	13.8	3.4	7.7		6.2	7.0	5.5	6.7	26
27		3.2	5.5		2.3	5.0		3.9	27
28	13.5	1.1	7.6		4.5	7.0		5.8	28
29			6.7			6.1		3.8	29
30	19.1		2.3		5.2	2.1		3.0	30
31	9.2		0.9		2.5	0.8		1.4	31
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	8	22	27	3	30	30	8	68	
SAMPLING WEIGHT(Kg)	165	729	1098	43	894	1141	278	2314	
No.F.MEASURED	210	1056	1687	65	1266	1752	616	3634	
MEAN LENGTH(cm)	18.7	18.1	17.5	17.2	18.3	17.5	16.7	17.7	
MEAN WEIGHT (g)	690	596	559	508	622	555	482	574	
DEPTH RANGE (m)	740/1044	480/1150	505/1205	860/983	480/1150	505/1205	500/1367	480/1367	



SPECIES



DIVISIONS

Fig.1: Breakdown of the 1996 Portuguese trawl directed effort.

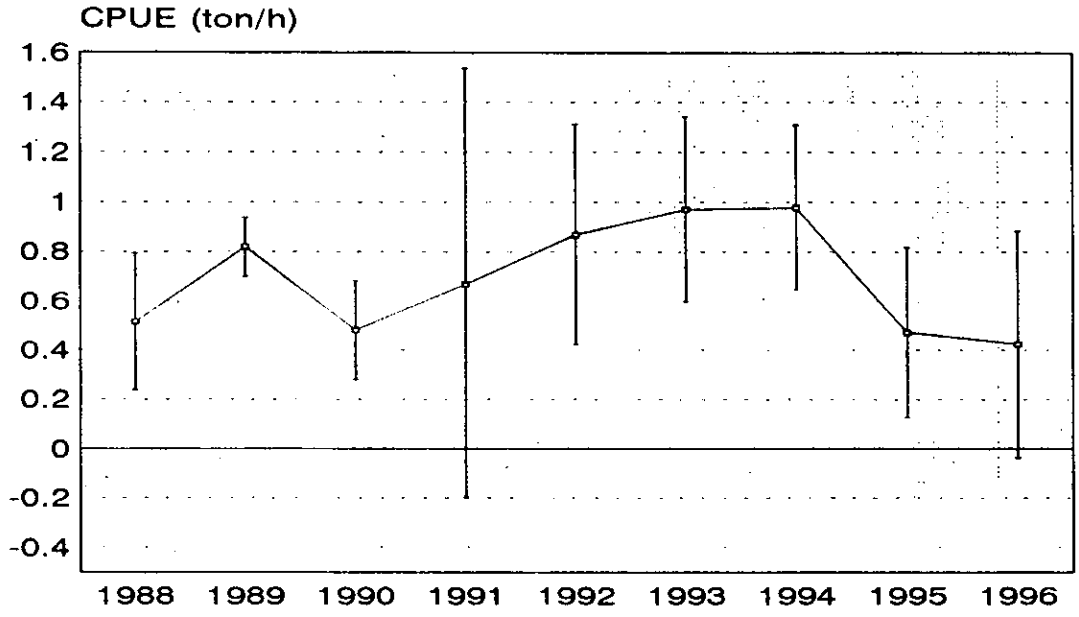


Fig 2A: 3M Cod observed trawl catch rates, 1988 - 1996.

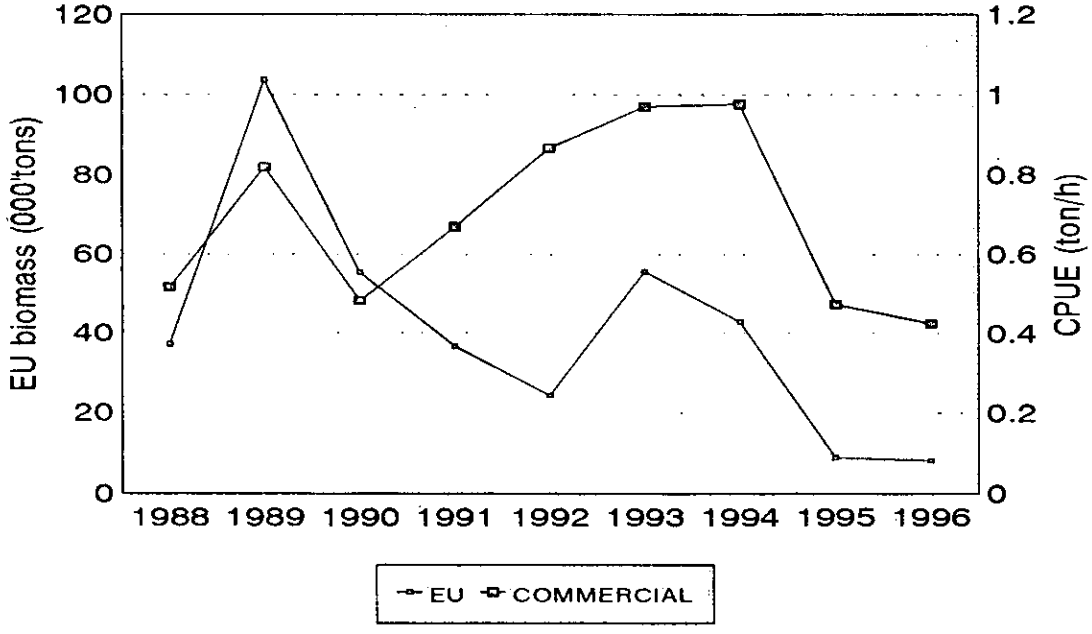
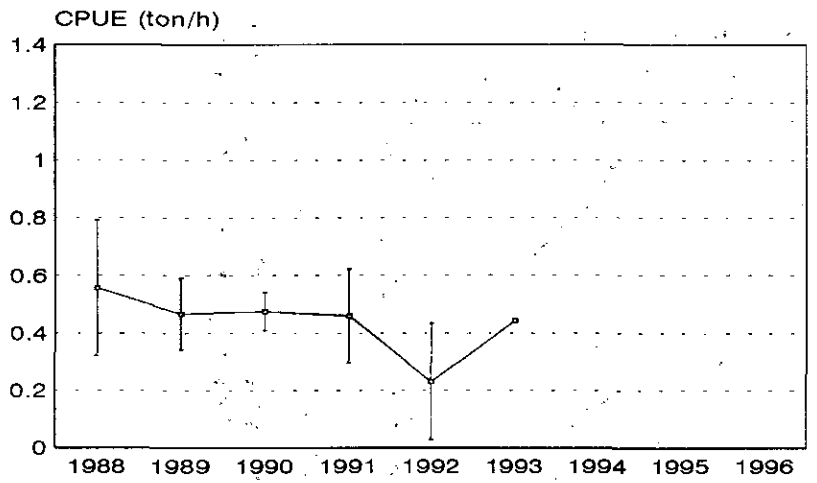
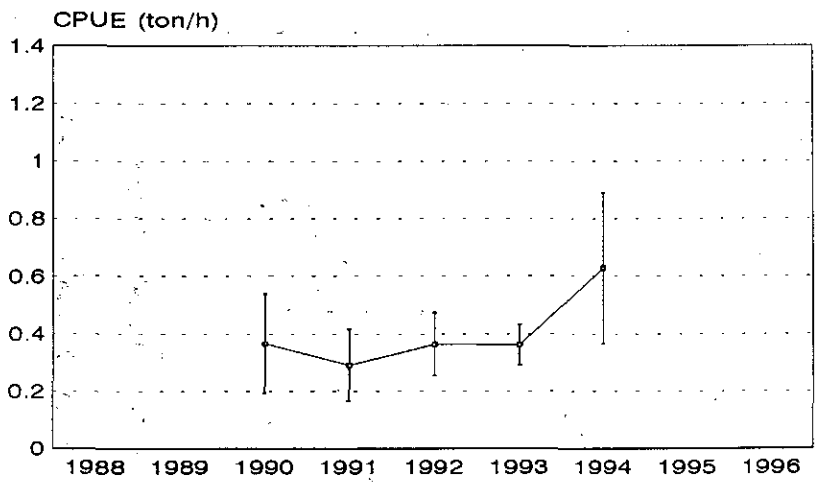


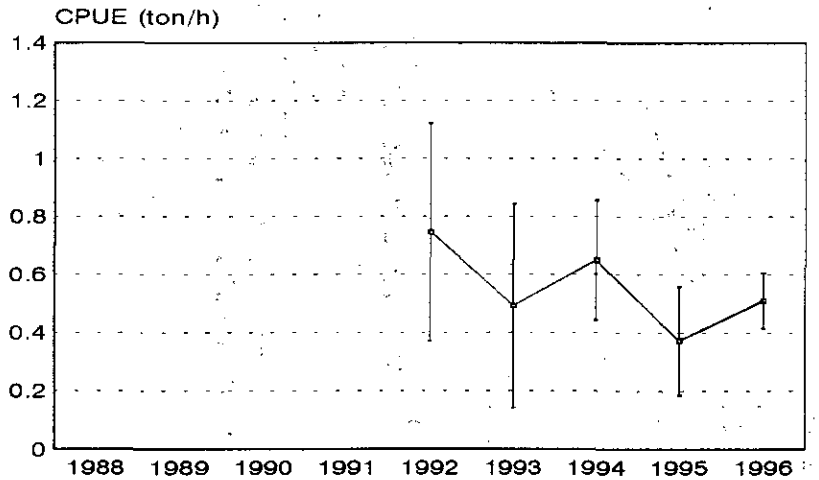
Fig. 2B: Comparison between 3M cod commercial observed catch rates and 3M cod trawlable biomass indices from the EU surveys.



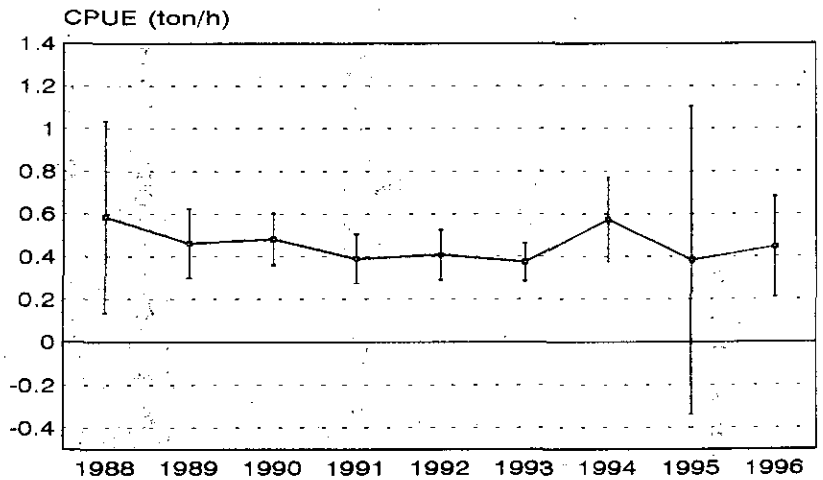
Div. 3L



Div. 3N



Div. 3O



Div. 3LNO

Fig 3A: Redfish observed trawl catch rates by division, 1988 - 1996.

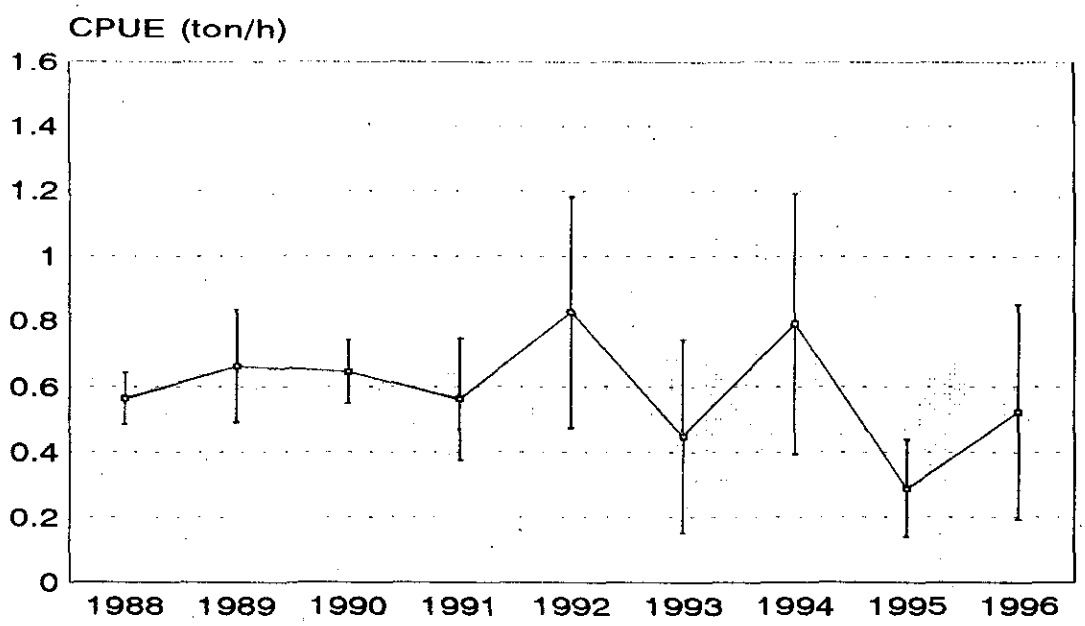


Fig 3B: 3M Redfish observed trawl catch rates, 1988 - 1996.

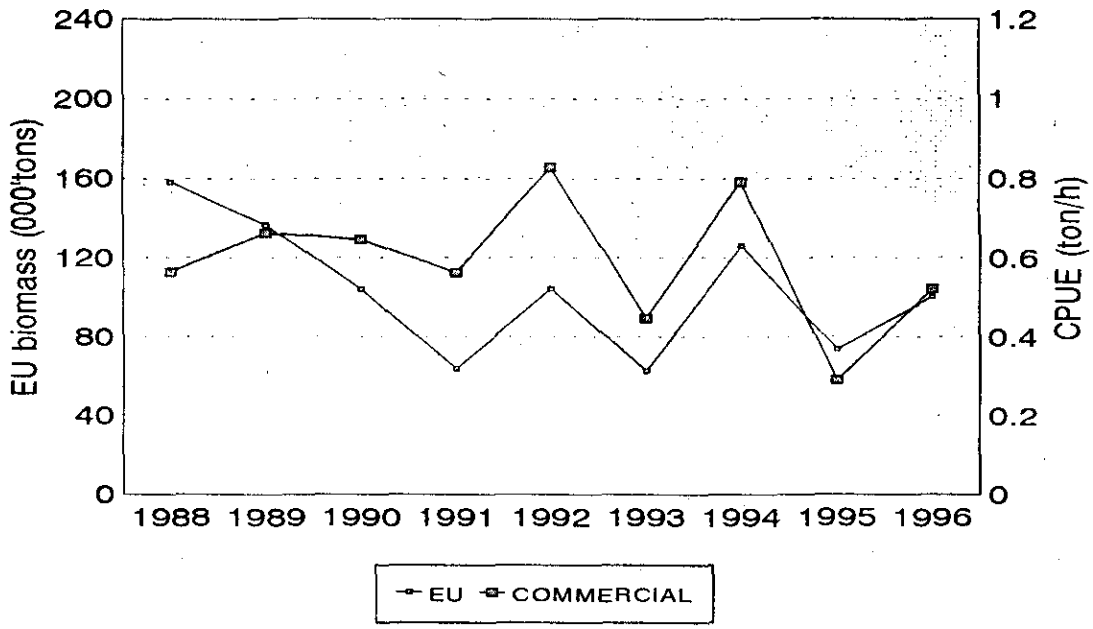
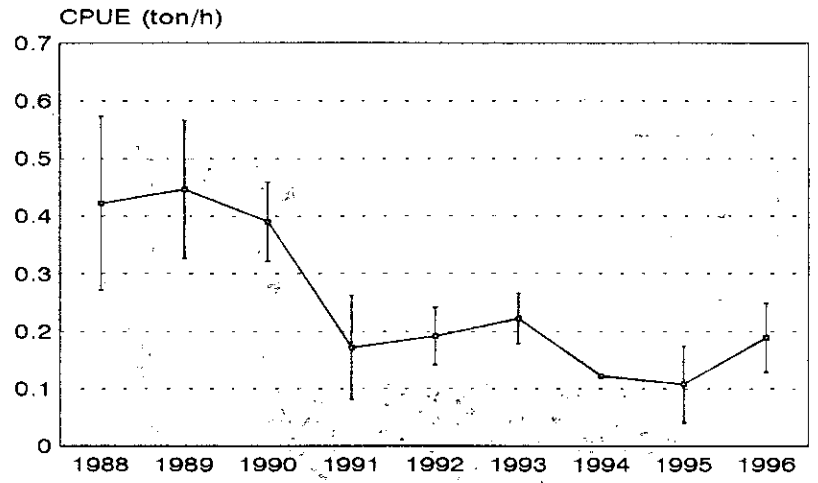
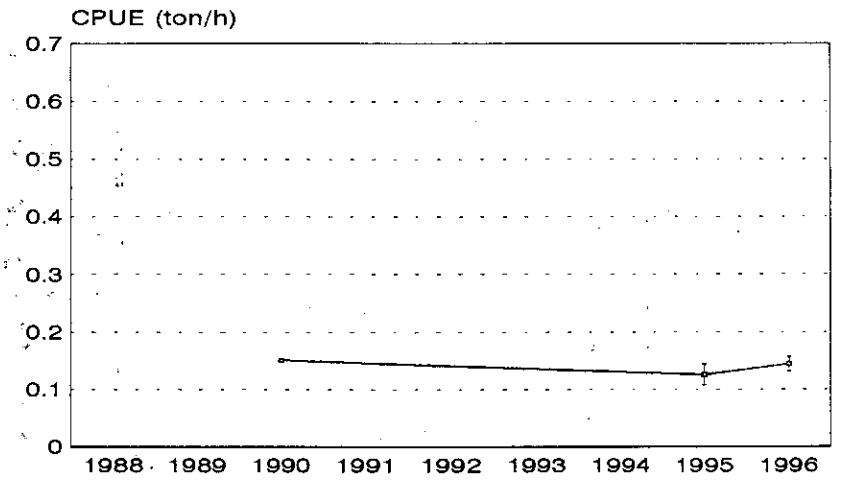


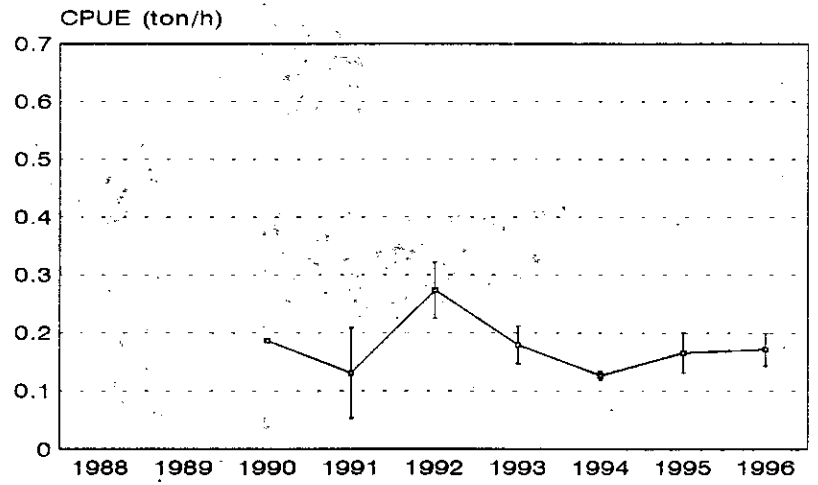
Fig. 3C: Comparison between 3M redfish commercial observed catch rates and 3M redfish trawlable biomass indices from the EU surveys.



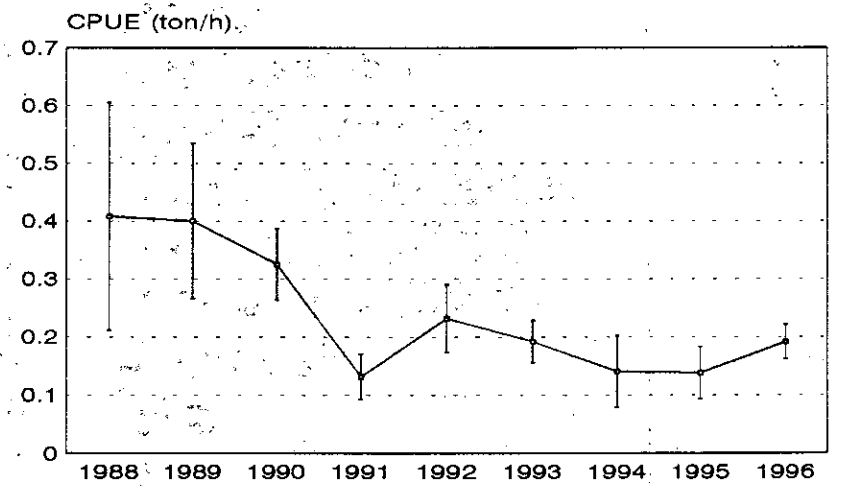
Div. 3L



Div. 3M



Div. 3N



Div. 3LMN

Fig 4: Greenland halibut trawl catch rates by division, 1988 - 1996.

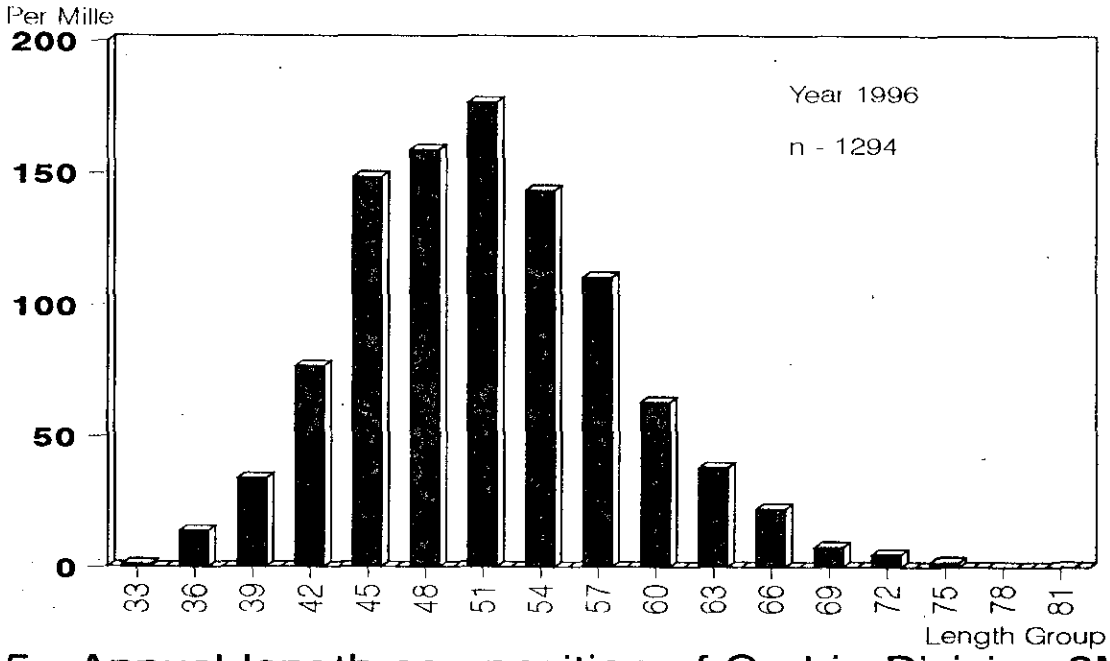


Fig. 5 - Annual length composition of Cod in Division 3M, trawl fishery in 1996.

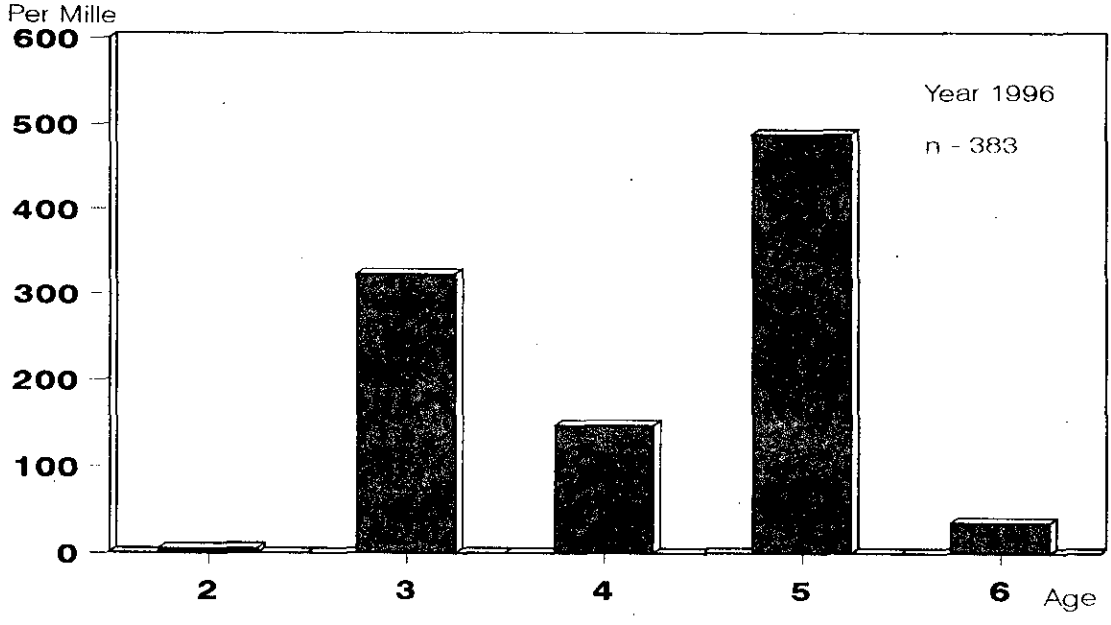


Fig. 6 - Annual age composition of Cod in Division 3M, trawl fishery in 1996.

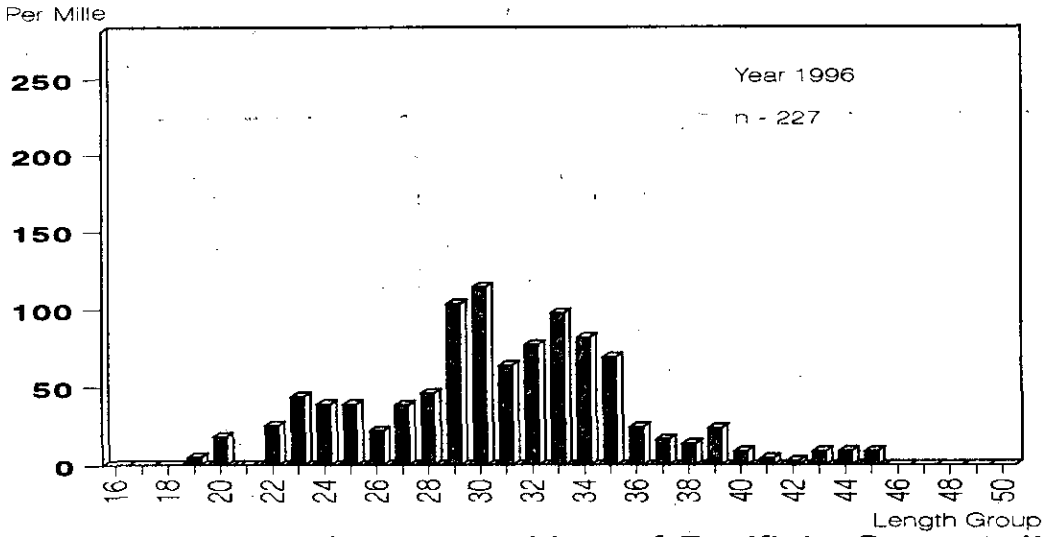


Fig. 7 - Annual length composition of Redfish, ***S.mentella*** in Division 3L, trawl fishery in 1996.

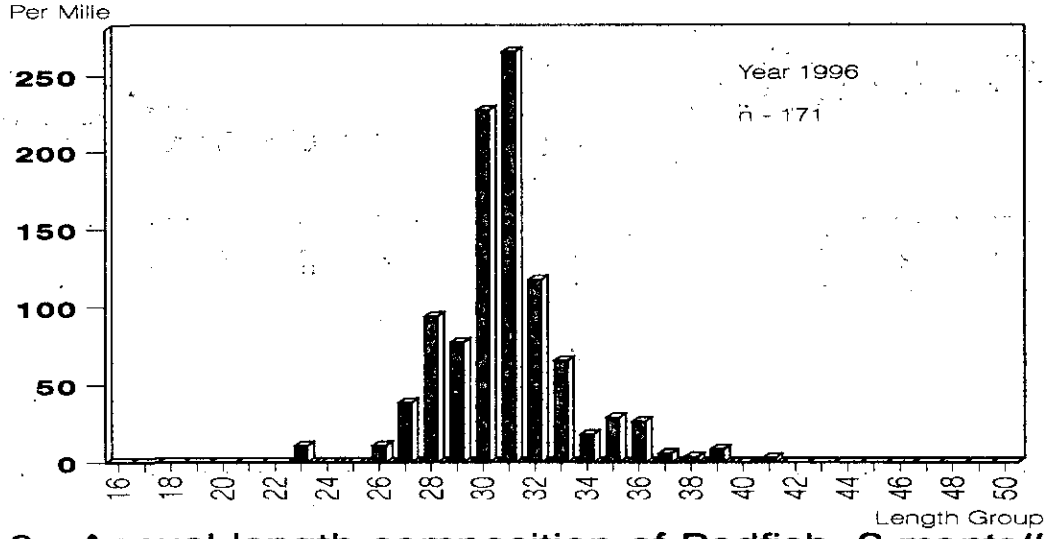


Fig. 8 - Annual length composition of Redfish, ***S.mentella*** in Division 3N, trawl fishery in 1996.

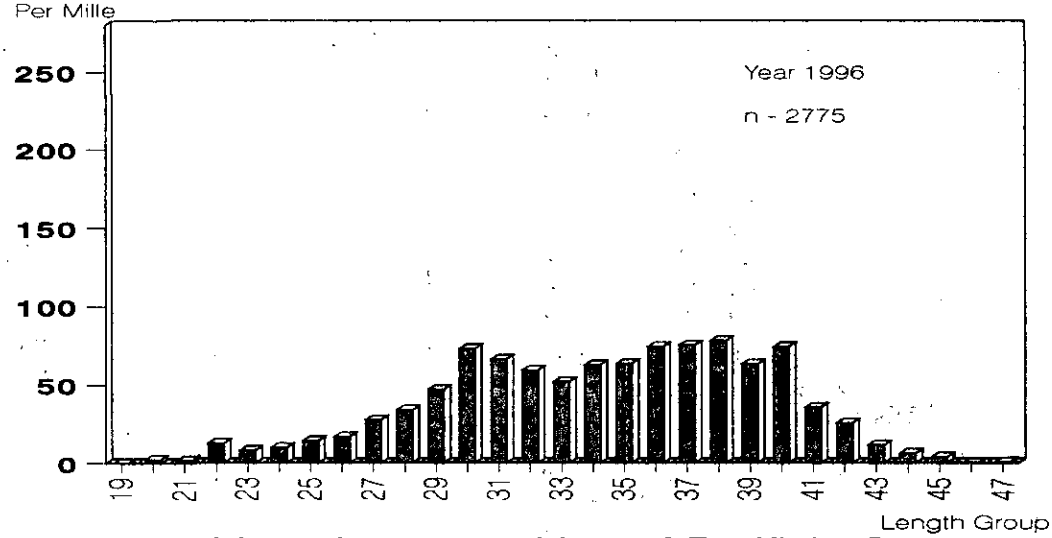


Fig. 9 - Annual length composition of Redfish, ***S.mentella*** in Division 3O, trawl fishery in 1996.

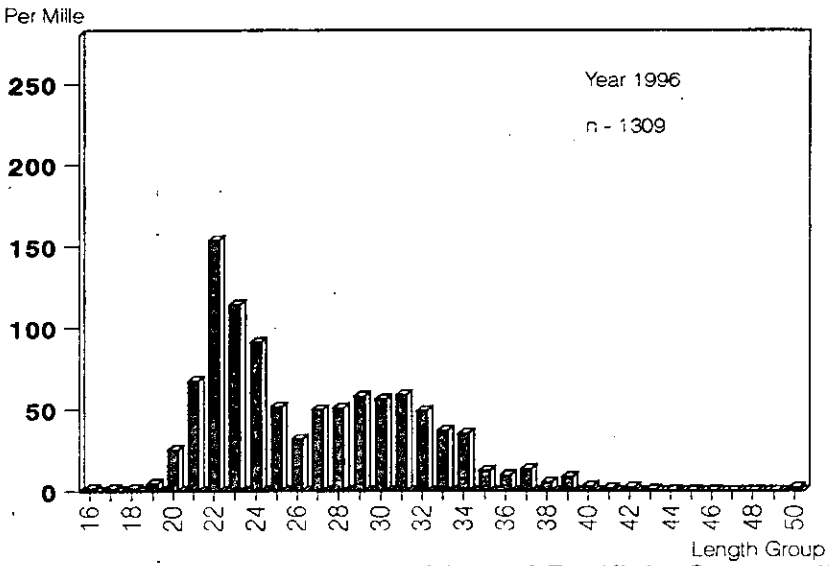


Fig.10 - Annual length composition of Redfish, *S.mentella* in Division 3M, trawl fishery in 1996.

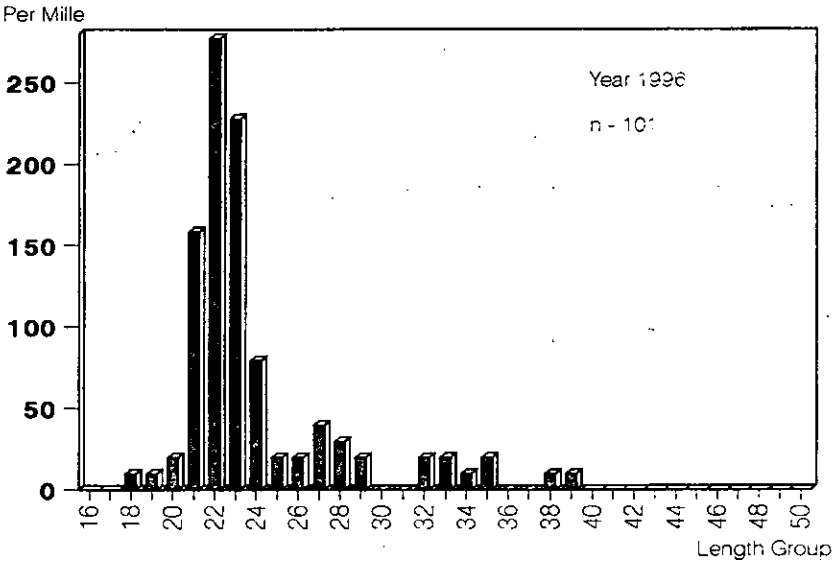
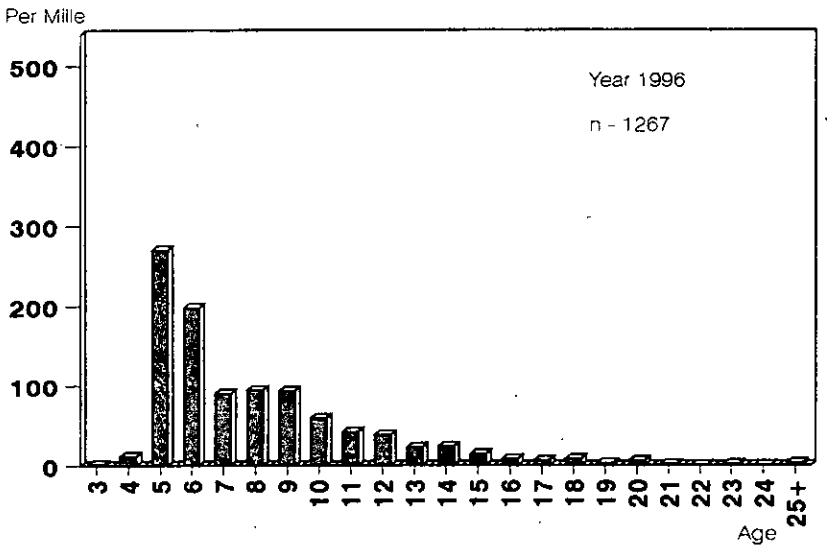


Fig.11 - Annual length composition of Redfish, *S.marinus* in Division 3M, trawl fishery in 1996.



ig.12 - Annual age composition of Redfish *S.mentella* in Division 3M, trawl fishery in 1996.

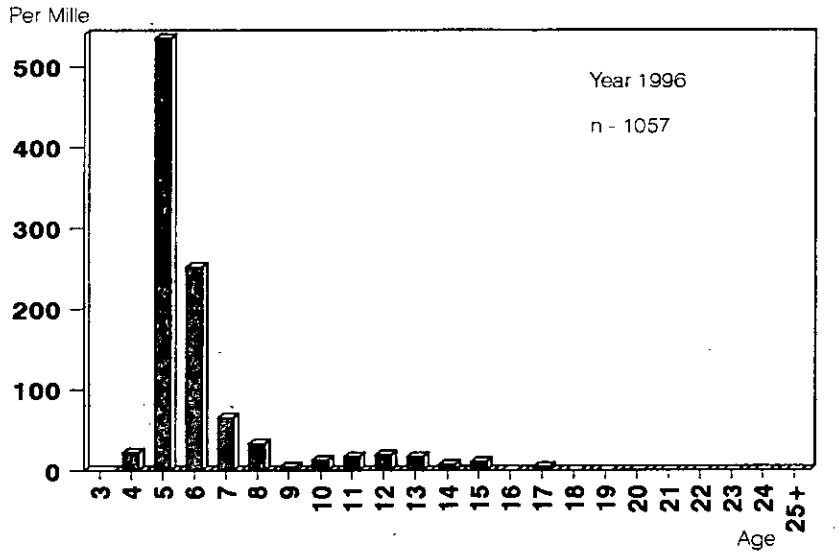


Fig.13 - Annual age composition of Redfish *S.marinus* in Division 3M, trawl fishery in 1996.

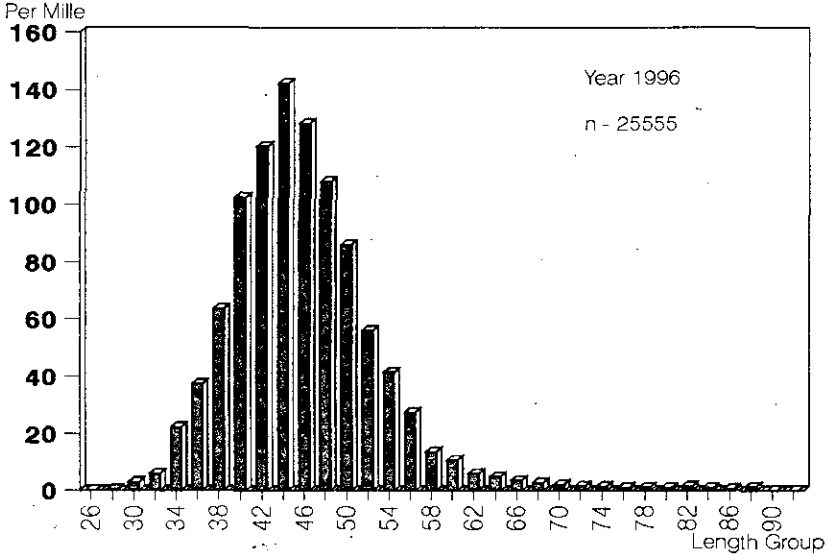


Fig.14 - Annual length composition of Greenland halibut, in Division 3L, trawl fishery in 1996.

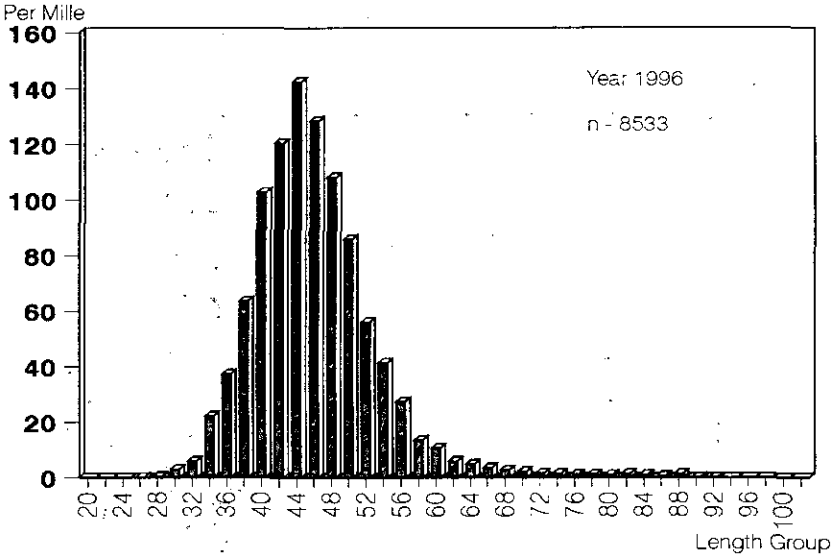


Fig.15 - Annual length composition of Greenland halibut, in Division 3M, trawl fishery in 1996.

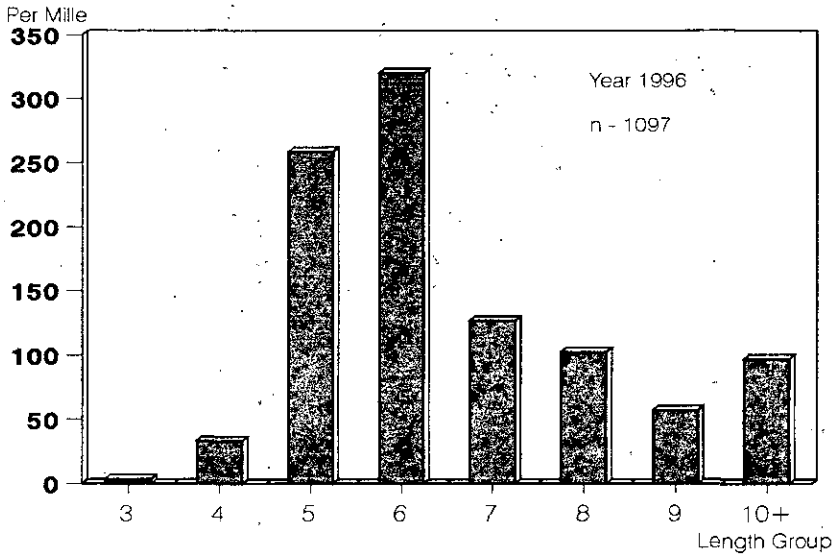


Fig.16 - Annual age composition of Greenland halibut, in Division 3L, trawl fishery in 1996.

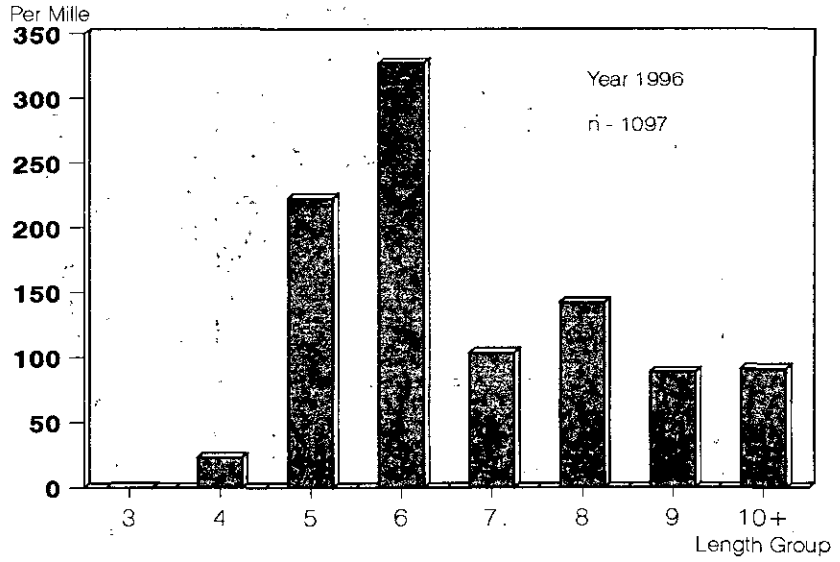


Fig.17 - Annual age composition of Greenland halibut, in Division 3M, trawl fishery in 1996.

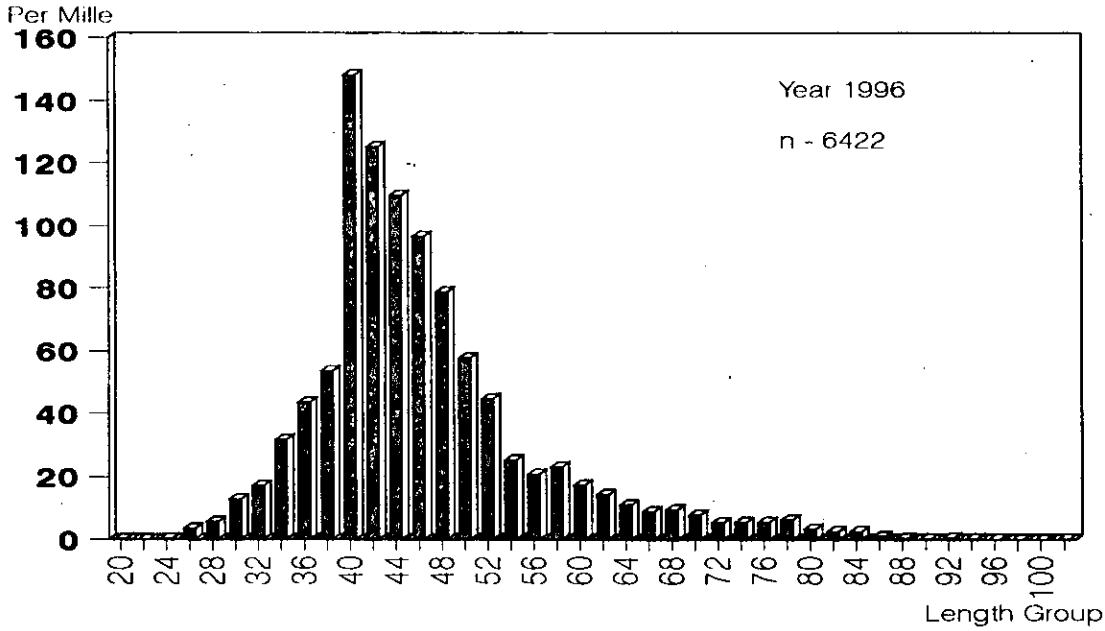


Fig.18 - Annual length composition of Greenland halibut, in Division 3N, trawl fishery in 1996.

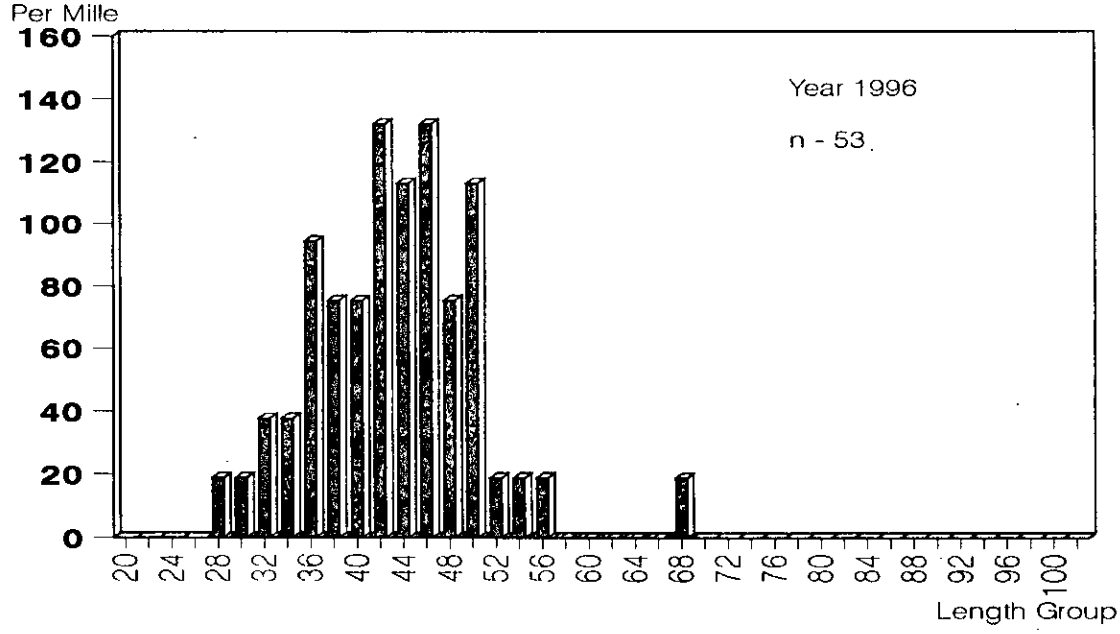


Fig.19 - Annual length composition of Greenland halibut, in Division 3O, trawl fishery in 1996.

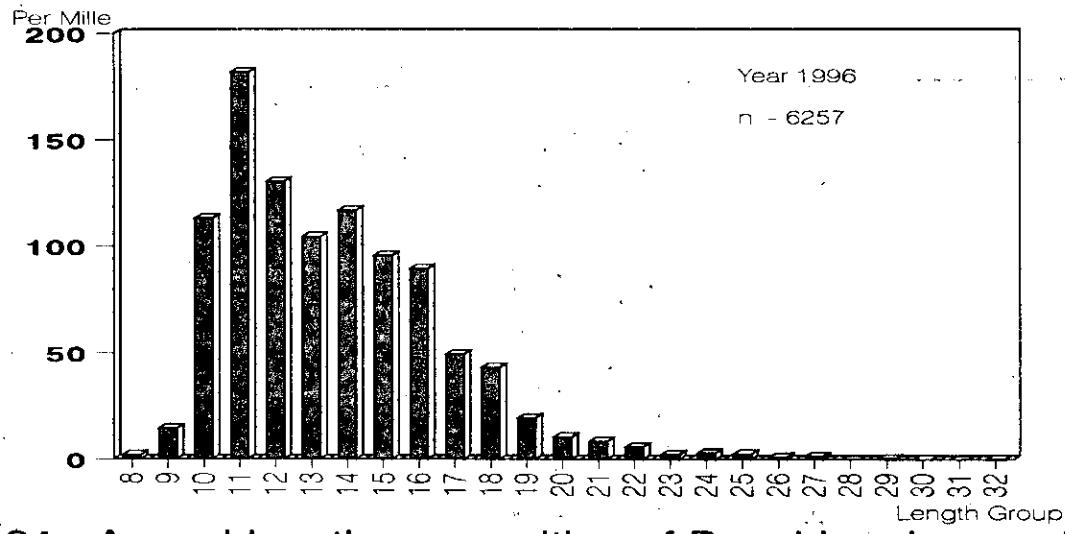


Fig.24 - Annual length composition of Roughhead grenadier in Division 3L, trawl fishery in 1996.

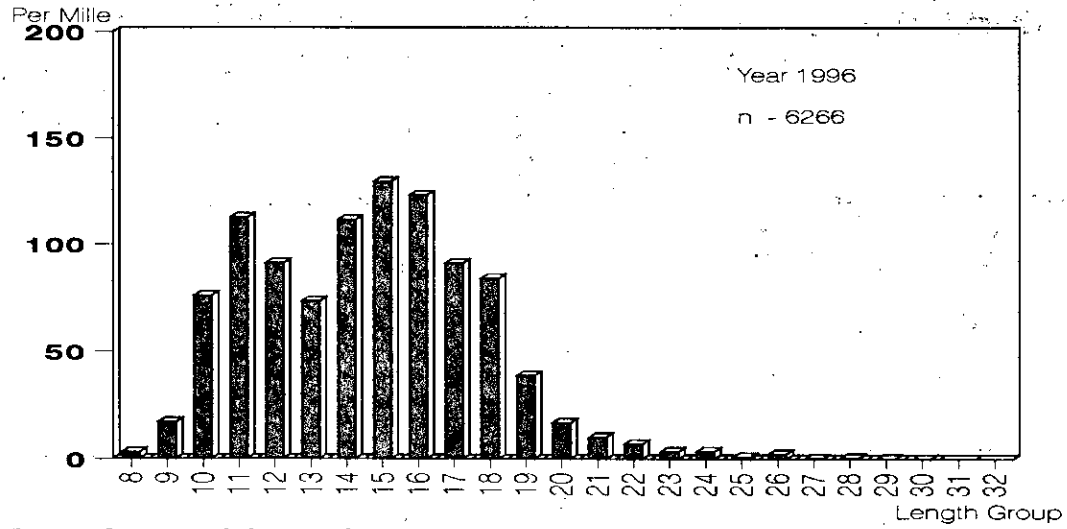


Fig.25 - Annual length composition of Roughhead grenadier in Division 3M, trawl fishery in 1996.

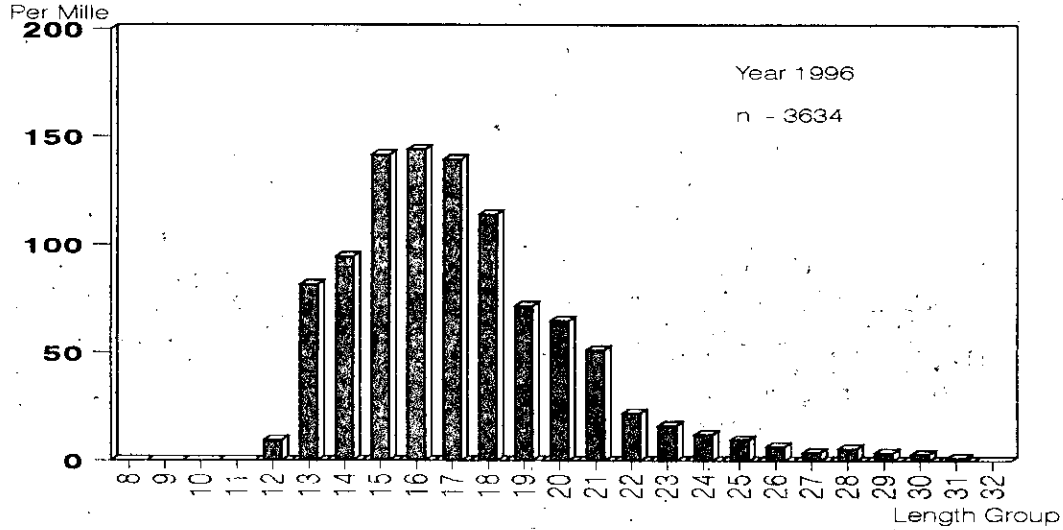


Fig.26 - Annual length composition of Roughhead grenadier in Division 3N, trawl fishery in 1996.

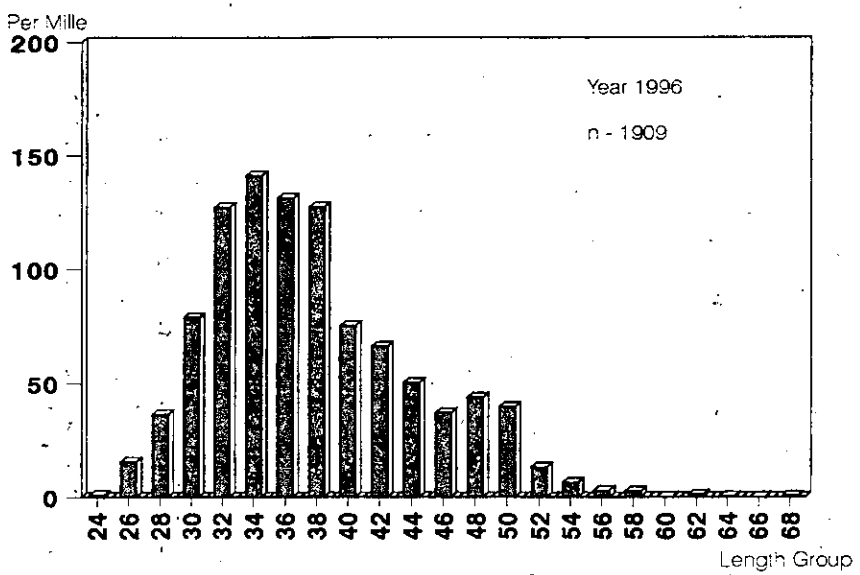


Fig.20 - Annual length composition of American plaice, in Division 3L, trawl fishery in 1996.

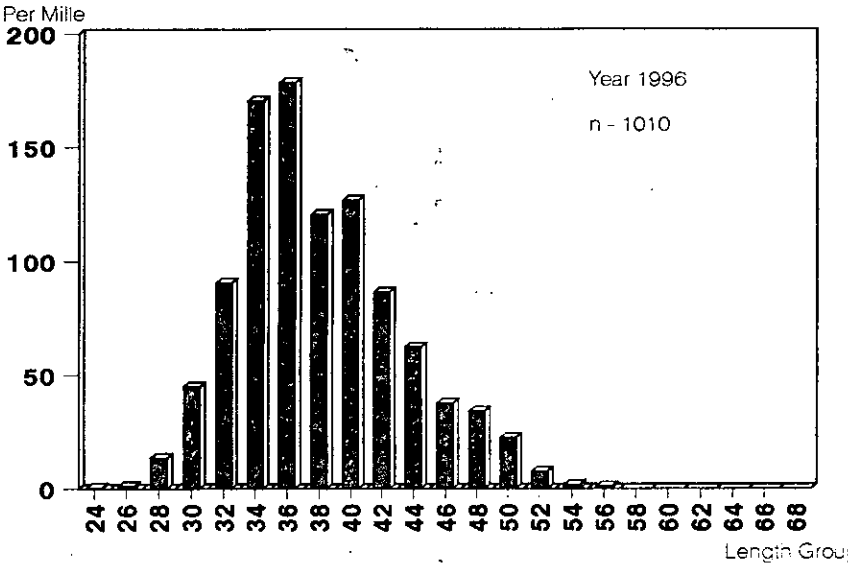


Fig.21 - Annual length composition of American plaice, in Division 3M, trawl fishery in 1996.

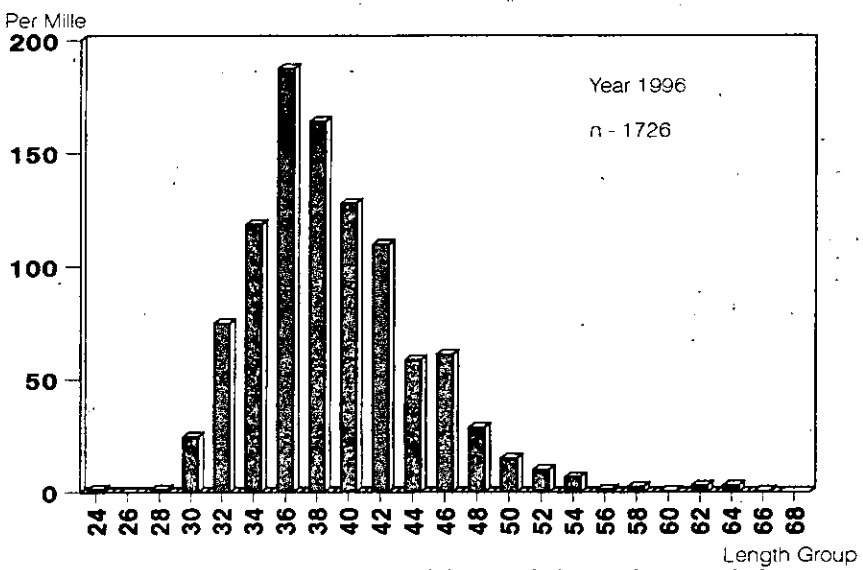


Fig.22 - Annual length composition of American plaice, in Division 3N, trawl fishery in 1996.

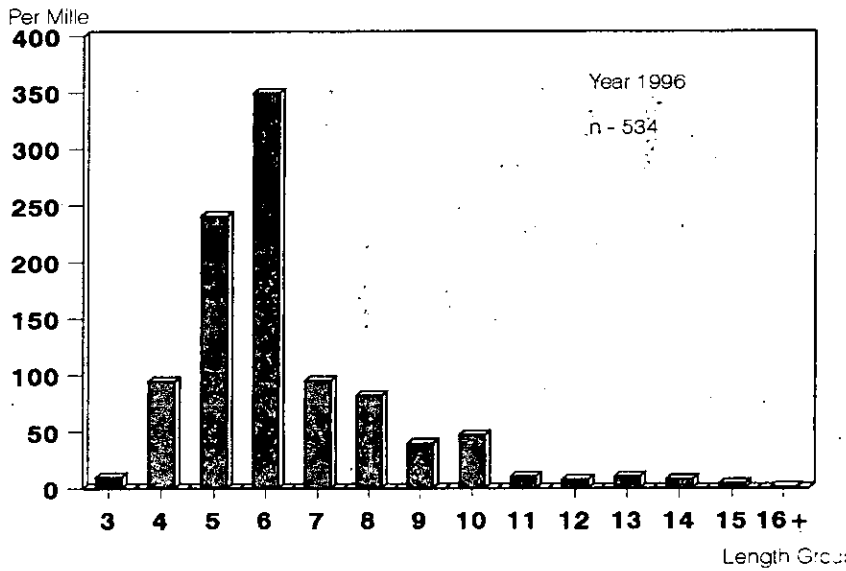


Fig.23 - Annual age composition of American plaice, in Division 3M, trawl fishery in 1996.

APPENDIX

COD, divisions 3N and 3O

$$\log w = -5.2106 + 3.0879 \log l$$ (Hodder, 1964)

COD, division 3M

$$w = 0.008951 * l^{3.0041}$$ (Vazquez, 1996)

REDFISH, divisions 3L, 3M, 3N and 3O

males $w = 0.01659 * l^{2.9548}$

females $w = 0.01372 * l^{3.0210}$ (Power and Atkinson, 1990)

AMERICAN PLAICE, divisions 3N and 3O

$$\text{Log } w = -5.080 + 3.041 \log l$$ (Pitt, 1978)

AMERICAN PLAICE, divisions 3M

$$w = 0.004765 * l^{3.1978}$$ (Vazquez, 1996)

GREENLAND HALIBUT, divisions 3L, 3M, 3N and 3O

$$w = 0.002184 * l^{3.3454}$$ (Bowering and Stansbury, 1984)