

**SCIENTIFIC COUNCIL MEETING – JUNE 2009****PORTUGUESE RESEARCH REPORT FOR 2008**

by

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A. Status of the fisheries

In 2008, the Portuguese nominal catches proceeding from NAFO Regulatory Sub Area 3 have reached 13 007 ton (Table 1-A). Over recent years, nominal catches increased continuously from 2000 to 2003, when they peak at 21 300 ton, but declined sharply afterwards and become stable between 11 500-13 000 ton (Table I-B).

From 2007 to 2008, the total fishing effort shows a little decrease both in fishing days and fishing hours. But in Div. 3O, these values fell by half and in Div. 3M increased around 30%. Like the past year, the decrease in the fishing effort, with the general stability of the catches, suggests a general increment in the catch rate of this fishery during 2008.

Although the value of total catches (Table I-A) remains more or less stable, the catch of redfish in Div. 3M doubled and the total catch of this species increased around 15% in NAFO Sub Area 3. Redfish continues to be by far the most important species in the Portuguese commercial catches from Sub Area 3, representing in recent years more than 50% of the overall catch. Also in Div. 3M, the by-catch of cod raised almost five times and its global catch doubled. The total by-catch of witch flounder also doubled, yellowtail flounder fell by half and American plaice decrease 20%. The catches of all others species remains stables.

The total catches doubled in Div. 3M and represent in 2008 43% of the total catch, that replaced Div. 3O as the most important ground for the Portuguese fishery (now with 31% of the catches). In both Div. 3M and 3O, redfish is the most important fishery with 85% of the total catches in each division.

The Greenland halibut catches remains stable in all divisions, except in the Div. 3M, where the catches increased 100 ton. In Div. 3L, due to the continuously decrease in the catches of roughhead grenadier over recent years, the bulk of the catch is now represented by Greenland halibut and redfish (around 90%, the same level of the bulk Greenland halibut/roughhead grenadier in years before). In Div. 3N the relative weight of these two species has been declining from 76% in 1998 to 35% in 2004-2005, 11% in 2006 and fall to 4% in 2007-2008. In this division, the skates continue to be the most important fishery, with 60-70% of total catch in the last three years (37% in 2005). However, the catches of American plaice and yellowtail flounder show an important increase in the last years, reaching a average of 20% of total catch in Div. 3N (2007-2008).

B. Portuguese Annual Sampling Program

1. Catch and effort sampling.

Effort and CPUE data for 2008 Portuguese trawl fishery on the NAFO Regulatory Area were obtained through the revision of skipper logbook from one trawler, kindly supplied by the owner. On its first trip, the catches of each species was recorded in a day-by-day basis. The daily catches were split in a tow-by-tow basis catches, using the effort as a weighting measure.

All the information (round weight of the catch by species, fishing effort, positions and depths) has been recorded on a tow-by-tow basis. The vessel conversion factors were used to convert its processed landings in catches. Effort data in days and hours were supplied by the Portuguese administration (changes in the administration database make it possible this year). (Table II-A/B).

The daily catch and effort data from the logbook were used to estimate the directed 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. From the data available the majority of the fishing effort was directed towards Greenland halibut and redfish. Data regarding directed effort and catch rates of the Greenland halibut fishery are presented in Table III to IV-B and Fig. 1.

The Greenland halibut CPUE series was updated with the 2008 observed CPUEs. The additive model (Ávila de Melo and Alpoim, 1995), was upgraded in 1998 (Alpoim *et al.*, 1998) and used like in previous years to standardise the observed CPUEs, but excluding the vessel factor because the sampling program in recent years was carried out on vessels that were not sampled before. If the vessel factor is applied these new vessels will increased a lot the noised. Because they are the only vessels sampled in the recent years, we assumed that all vessels belong to the same category what is realistic. From January 1988 till April 1995 each monthly observed CPUE of this series was previously corrected for 130mm mesh size (Ávila de Melo and Alpoim, 1996). In this analysis, any observation corresponding to a month and a trawler with less than 10 hours of directed effort was rejected. The CPUEs are presented in Tables IV and Fig. 1, with the associated standard errors ($\pm$ 2 standard errors in the Figures) and coefficients of variation.

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

1.1.1. Greenland halibut in Div. 3L, 3M, 3N and 3O

In Div. 3L catch rates declined prior to the boom of the deep-water fishery (Table IV-A, Fig. 1). 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 CPUEs fell by half. Between 1991 and 1994 catch rates remained stable at a low level. Since then, catch rates gradually increased, reaching an upper level in 1999-2000. Catch rates declined in 2001 and remained stable at that lower level in 2002 and 2003. In 2004 the catch rates decline again, reaching the lowest value since 1994. However, in 2005 and 2006 the Greenland halibut catch rates in Div. 3L recovered to the 1999-2000 levels and in 2007 reached a value never observed (0.639 ton/h) since the monitory of this fishery, but decreased to 0.427 ton/h in 2008, staying in a high level.

Div. 3M also show an increase from 2004 to 2008 being at the higher level observed in this division.

For all Div.3LMNO combined (Table IV-A, Fig. 1) the observed catch rates series follows the Div. 3L pattern, since this is the division of Sub Area 3 with the highest concentration of Greenland halibut fishing effort.

2. Biological Sampling

In 2008, biological sampling was obtained from one stern trawlers fishing in Div. 3L, 3M, 3N and 3O during all the year. Apart from species under moratoria, a priority to be sampled whenever they appear in the hauls, biological sampling was conducted for the two most abundant species in each haul, following the NAFO sampling recommendations.

Redfish (*S. mentella*) were sampled in Div. 3M, 3N and 3O (Tab. V). Greenland halibut, roughhead grenadier and skates were sampled in Div. 3L and 3M. Cod were sampled in Div. 3M and 3O. Redfish (*S. marinus*) were sampled only in Div. 3M, American plaice only in Div. 3L and white hake only in Div. 3O.

Since 1996, all commercial information is representative of the catch as a whole, although sampling continues to be carried out by sex with the exception of cod, white hake, Atlantic halibut, skates and monkfish. Mean weight and mean weight in the catch are derived from the length-weight relationships calculated from the commercial sampling in 2008 (Table VI). However, due the low level of the sampling during 2008, for 3O cod, 3L American plaice, 3MNO *S. mentella* the length-weight relationships are the same used for 2007 (Vargas *et al*, 2008) and for 3O white hake it was used one from 2004 sampling (Vargas *et al*, 2005).

2.1. Length composition of the 2008 trawl fishery (130mm codend mesh size).

Before taking any conclusion, it should be taken in account that length frequencies for 3O cod, 3N and 3O redfish (*S. mentella*), 3L American plaice, 3O white hake, 3L and 3M skates are derived from only 1 sample or very small samples.

In 2008 it was not possible split the skates by species.

2.1.1. Cod Div. 3M

Information on length composition of the cod by-catch in Div. 3M is available from May to August (Table VII, Fig. 2), from 221 m to 850 m depth.

The bulk of the 3M cod catches were between 27 and 87cm, the length distribution shows three peaks, one around 36 cm, other around 51 cm and another at 66 cm.(mean length and weight of 57 cm and 2114 g).

2.1.2. Cod Div. 3O

Information on length composition of the cod by-catch in Div. 3O is available only for March (Table VIII, Fig. 3), at 440 m depth (only one sample). Lengths between 51 cm and 60 cm dominated the catch, with a modal class at 54 cm (mean length and weight of 60 cm and 2355 g).

2.1.3. Redfish (*S. mentella*) Div. 3M

Information on length composition of the redfish (*S. mentella*) trawl catch in Div. 3M is available for February, March, June and July (Table IX, Fig. 4), from 285 m to 994 m depth.

Lengths between 26 cm and 29 cm dominated the catch, with a clear modal class at 28 cm (mean length and weight of 29 cm and 366 g).

2.1.4. Redfish (*S. mentella*) Div. 3N

Information on length composition of the redfish (*S. mentella*) trawl by-catch in Div. 3N is available only for April (Table X, Fig. 5), from 883 m to 904 m depth (only 40 fishes measured). Lengths between 28 cm and 32 cm dominated the catch, with a clear modal class at 30 cm (mean length and weight of 30 cm and 384 g).

2.1.5. Redfish (*S. mentella*) Div. 3O

Information on length composition of the redfish (*S. mentella*) trawl catch in Div. 3O is available only for March (Table XI, Fig. 6), at 440m depth (only 57 fishes measured). Lengths at 23 cm, 32 cm and 34 cm dominated the catches (mean length and weight of 30 cm and 426 g).

2.1.6. Redfish (*S. marinus*) Div. 3M

Information on length composition of the redfish (*S. marinus*) trawl by-catch in Div. 3M is available from May to August (Table XII, Fig. 7), from 221 m to 304 m depth.

Lengths between 22 cm and 31 cm dominated the catch, with a modal class at 28 cm (mean length and weight of 29 cm and 326g).

2.1.7. American plaice Div. 3L

Information on length composition of the American plaice by-catch in Div. 3L is available only for February (Table XIII, Fig. 8), from 895 m to 899 m depth (only 1 sample). Lengths between 34 cm and 42 cm and at 46 cm dominated the catch (mean length and weight of 40 cm and 654 g).

2.1.8. Greenland halibut Div. 3L

Information on length composition of the Greenland halibut catches in Div. 3L is available for February and March and from May to July (Table XIV, Fig. 9), from 845 m to 1210 m depth

Lengths between 44 cm and 52 cm dominated the catch, with a modal class at 48 cm (mean length and weight of 50 cm and 1146 g).

2.1.9. Greenland halibut Div. 3M

Information on length composition of the Greenland halibut catches in Div. 3M is available from February to August, except for April and June (Table XV, Fig. 10), from 861 m to 2000 m depth.

Lengths between 42 cm and 52 cm dominated the catch, with a clear modal class at 48 cm (mean length and weight of 49 cm and 1133 g).

2.1.10. Roughhead grenadier Div. 3L

Information on length composition of the roughhead grenadier catches in Div. 3L is available from February to August, except for April (Table XVI, Fig. 11), from 852 m to 1300 m depth.

Anal fin lengths between 12 cm and 16 cm dominated the catch, with a mode around 15 cm and 16 cm (mean length and weight of 16.5 cm and 408 g).

2.1.11. Roughhead grenadier Div. 3M

Information on length composition of the roughhead grenadier catches in Div. 3M is available for February, May and July (Table XVII, Fig. 12), from 893 m to 1115 m depth.

Anal fin lengths between 14 cm and 17 cm dominated the catch, with a clear modal class at 16 cm (mean length and weight of 17 cm and 418 g).

2.1.12. White hake Div. 3O

Information on length composition of the white hake catches in Div. 3O is available only for March (Table XVIII, Fig. 13), at 440 m depth (1 sample, 31 fish measured). Mean length at 48cm and mean weight at 1275 g.

2.1.13. Skates Div. 3L

Information on length composition of the skates catches in Div. 3L is available from May to July (Table XIX, Fig. 14), from 843 m to 1200 m depth. Lengths between 50 cm and 64cm dominated the catch, with a modal class at 58 cm (mean length of 61 cm).

2.1.14. Skates Div. 3M

Information on length composition of the skate catches in Div. 3M is available from February, May and July (Table XX, Fig. 15), from 231 m to 1009 m depth (71 fish measured). Lengths at 48 cm and between 56cm and 60 cm dominated the catches (mean length of 58 cm).

3. Acknowledgements

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4. References

- ALPOIM, R., GODINHO, M. L., SANTOS, E. and ÁVILA de MELO, A. M. 1998. "Portuguese research Report for 1998". NAFO SCS Doc. 98/13 Ser. No N3025, 38p.
- ÁVILA de MELO, A. M., ALPOIM, R. 1995. "Portuguese Cod Fisheries in NAFO Divisions 3N and 3O, 1989-93". NAFO Sci. Coun. Studies 23: 65-84.
- ÁVILA de MELO, A. M., ALPOIM, R. 1996. "Greenland halibut deepwater fishery in Divisions 3L and 3N: an analysis of catch rate trends from Portuguese trawlers, 1988 -1995." NAFO SCR Doc. 96/33 Ser. No N2708,16p.
- VARGAS, J., ALPOIM, R., SANTOS, E. and ÁVILA de MELO, A. M. 2005. "Portuguese research Report for 2004". NAFO SCS Doc. 05/06 Ser. No N5086, 54p.
- VARGAS, J., ALPOIM, R., SANTOS, E. and ÁVILA de MELO, A. M., 2008: "Portuguese Research Report for 2007". NAFO SCS Doc. 08/5, Serial N0. 5495, 47p.

TABLE I-A : PORTUGUESE NOMINAL TRAWL CATCHES (mt) IN NAFO AREA, 2008.

SPECIES	DIVISION				TOTAL 2008
	3L	3M	3N	3O	
Cod	2.2	264.3	78.9	132.6	478.0
Redfish	160.6	4773.8	77.9	3467.3	8479.6
American plaice	34.1	14.8	125.9	180.5	355.4
Yellowtail flounder		0.0	123.0	20.7	143.7
Witch flounder	15.9	109.2	7.6	86.4	219.1
Greenland halibut	1541.6	402.3	52.6	11.4	2007.9
Atlantic halibut	4.7	8.5	2.9	8.1	24.1
Roughhead grenadier	59.3	16.1	2.0	0.7	78.1
Roundnose grenadier	23.6	3.7	3.3	0.0	30.7
Anarhichas spp.	4.4	14.8	1.5	5.2	25.8
Hadocck			0.5	0.7	1.2
Pollock					
White hake			2.6	52.4	54.9
Red hake	2.5	0.7	0.04		3.3
Capelin					
Skates	72.6	25.9	874.2	113.2	1085.9
Monkfish			4.1	8.2	12.3
Squid	0.1	4.2		0.4	4.7
Shrimp					
Unidentified	2.0	0.3	0.7		2.9
TOTAL	1923.4	5638.6	1357.8	4087.6	13007.4

TABLE I - B: PORTUGUESE NOMINAL TRAWL CATCHES (mt) IN NAFO DIV. 3LMNO.

SPECIES / YEAR	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
Cod	478	256	177	104	280	677	488	357	193	327	549
Redfish	8480	7317	7802	7337	5969	7710	6344	5324	5743	6081	2368
American plaice	355	440	361	372	512	901	631	633	402	719	357
Yellowtail flounder	144	281	194	188	69	287	122	351	153	426	85
Witch flounder	219	122	137	150	588	501	433	579	228	508	381
Greenland halibut	2008	2018	2327	2256	1881	4611	4319	5026	4769	3995	3242
Atlantic halibut	24	35	30	19	60	89	46	44	29	51	30
Roughhead grenadier (1)	78	33	138	263	380	292	508	610	396	1299	1089
Roundnose grenadier	31	36									
Anarhichas spp.	26	16	30	31	46	106	87	141	61	549	140
Hadocck	1	2	0	6	23	131	78	23	13	10	6
Pollock					4	115					
White hake (2)	55	61	96	156	1265	3919	1969	273	41	77	18
Red hake	3	2	1	18	12	2					
Capelin											
Skates	1086	1094	1003	575	1543	1816	1361	880	666	2168	1105
Monkfish	12	22	25	5	74	156					
Squid	5		18		11						1
Shrimp					50		15	420	289	227	203
Unidentified	3	2	1	3	11	13	43	41	3	117	40
TOTAL	13007	11737	12341	11483	12776	21324	16443	14701	12985	16554	9614

TABLE I - B: cont.

SPECIES / YEAR	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
Cod	1546	1318	1353	2636	3651	5984	13357	15138	24129	12931
Redfish	1125	2152	2590	8609	9828	6581	12163	17810	18870	17072
American plaice	389	298	175	344	347	451	1288	714	1821	1791
Yellowtail flounder						1	10	11	5	
Witch flounder	347	236	375	573	289	849	1982	2254	16	12
Greenland halibut	3343	3308	1814	5967	8805	10539	13961	11170	3614	4194
Atlantic halibut	17	12	18	45	53	81	228	91		
Roughhead grenadier (1)	762	784	1402	2223	1969	2000	4486	3211	290	914
Roundnose grenadier										
Anarhichas spp.	185	122	1401	3219	2302	1696	2843	1940		
Hadocck	39		2	10	10	166	83	17		
Pollock				13	41	28	421	11		
White hake (2)	56	124	230	267	366	466	1009	467		
Red hake										
Capelin								77		
Skates	904	788	2068	6238	7626	7017	23301	13569	663	1097
Monkfish			2		8	37	10	2		
Squid		3								
Shrimp	170									
Unidentified	116	22	14	12	238	325	174	852		
TOTAL	9000	9167	11441	30156	35532	36220	75314	67334	49408	38011

(1) Reported as Roundnose grenadier in years before.

(2) Reported as Red hake in years before.

TABLE II - A : PORTUGUESE TRAWL EFFORT IN FISHING DAYS AND FISHING HOURS IN NAFO AREA IN 2008.

TABLE 11. MONTHLY TOTAL HOURS LEFT FOR 3L, 3M, 3N, 3O DAYS AND HOURS WORKED IN 3L, 3M, 3N, 3O DAYS											
MONTH	3L		3M		3N		3O		TOTAL		MONTH
	DAYS	HOURS	DAYS	HOURS	DAYS	HOURS	DAYS	HOURS	DAYS	HOURS	
JAN.	15	190			5	64	7	109	27	363	JAN.
FEB.	19	269	5	60	9	109	15	136	48	574	FEB.
MAR.	55	889	19	229	2	10	3	30	79	1158	MAR.
APR.	26	408	24	281	8	39	8	91	66	819	APR.
MAY	53	768	39	359	9	63	10	96	111	1287	MAY
JUN.	29	468	65	740					94	1208	JUN.
JUL.	34	484	119	1438			1	9	154	1931	JUL.
AUG.	22	298	72	725	21	296	14	125	129	1444	AUG.
SEP.	35	533	40	495	10	75	13	156	98	1260	SEP.
OCT.	8	133	26	309	47	713	23	239	104	1395	OCT.
NOV.	11	192	18	214	47	642	70	818	146	1866	NOV.
DEC.			37	298	21	222	49	423	107	943	DEC.
TOTAL	307	4633	464	5149	179	2233	213	2232	1163	14247	TOTAL

TABLE II - B: PORTUGUESE TRAWL EFFORT IN FISHING DAYS AND FISHING HOURS IN NAFO Div. 3LMNO.

YEAR	GEAR				YEAR
	OT		GNS		
	DAYS	HOURS	DAYS	NETS	
2008	1163	14247			2008
2007	1233	14455			2007
2006	1485	19666			2006
2005	1476	15744			2005
2004	1705	18856			2004
2003	2312	25175			2003
2002	1882	19902			2002
2001	1870	24979			2001
2000	1411	14588			2000
1999	1631	19234			1999
1998	1172	16517			1998
1997	1428				1997
1996	1912	27206	166		1996
1995	1425	19083	612	173833	1995
1994	1553	22065	676	166735	1994
1993	2496	32481	731	209536	1993
1992	2670	32662	672	266141	1992
1991	5297	74829	712	302407	1991
1990	5026	72536	714	238732	1990
1989	3850	54833	692	268885	1989

TABLE III: Portuguese trawl fishery cpue's and bycatch by month and division for 2008.

DIVISION	TARGET SPECIES	MONTH	DEPTH RANGE (m)		CPUE (ton/hour)	MAIN BYCATCH		WITCH FLOUNDER		TOTAL
			MIN.	MAX.		SPECIES	%	BYCATCH (%)	BYCATCH (%)	
3M	RED	MAY	231	387	8.363	COD	0.1	0.0	0.1	
3M	RED	JUN	221	850	2.167	COD	6.2	0.0	7.2	
3M	RED	JUL	213	398	1.482	COD	4.4	0.0	5.5	
3M	RED	AUG	230	286	2.508	COD	16.8	0.0	17.6	
3O	RED	MAR	345	473	0.933	WIT	24.5	24.5	67.1	
3L	GHL	FEB	860	1200	0.429	RHG	2.9	0.4	6.1	
3L	GHL	MAR	820	1210	0.457	RHG	1.3	0.3	2.8	
3L	GHL	MAY	828	1180	0.465	RHG	4.2	0.0	5.9	
3L	GHL	JUN	975	1200	0.520	RHG	2.0	0.0	2.1	
3L	GHL	JUL	845	1300	0.454	RHG	4.9	0.0	5.2	
3L	GHL	AUG	881	1013	0.319	RHG	3.1	0.0	3.1	
3M	GHL	FEB	885	1111	0.430	RHG	3.3	0.2	4.1	
3M	GHL	MAR	862	2000	0.531	RHG	0.5	0.0	0.7	
3M	GHL	MAY	872	1071	0.388	RHG	3.3	0.0	4.3	
3M	GHL	JUL	861	1115	0.408	RHG	2.2	0.0	2.2	
3M	GHL	AUG	990	1123	0.307	RHG	2.0	0.0	2.0	
3L	RHG	JUL	852	852	0.034	-	0.0	0.0	0.0	
3O	RHG	MAR	345	473	0.563	RED	32.9	24.5	80.2	

TABLE IV - A: GREENLAND HALIBUT TRAWL CATCH RATES, 1988-2008: mean annual cpue's corrected for the month, division and vessel 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	0.433	0.088	40.5							0.402	0.093	46.1	1988
1989	0.411	0.073	53.6							0.384	0.073	56.7	1989
1990	0.380	0.037	33.9	0.158			0.158			0.323	0.036	41.8	1990
1991	0.226	0.044	43.8				0.120	0.030	43.8	0.174	0.033	53.2	1991
1992	0.158	0.028	55.2				0.256	0.031	42.5	0.224	0.029	61.5	1992
1993	0.116	0.037	45.2				0.171	0.019	37.5	0.192	0.020	39.1	1993
1994	0.112	0.003	3.8				0.112	0.014	30.4	0.136	0.021	44.2	1994
1995	0.130	0.024	51.8	0.159	0.013	18.7	0.135	0.022	42.5	0.141	0.015	47.8	1995
1996	0.190	0.020	38.1	0.181	0.015	25.3	0.164	0.019	30.9	0.173	0.009	29.3	1996
1997	0.198	0.019	31.1	0.243	0.030	34.6	0.115	0.009	10.4	0.189	0.018	42.5	1997
1998	0.269	0.014	19.2	0.237	0.020	29.7	0.209	0.016	25.4	0.245	0.009	24.4	1998
1999	0.287	0.024	26.4	0.339	0.037	32.5	0.259	0.021	23.8	0.291	0.018	33.6	1999
2000	0.269	0.019	19.0	0.280	0.029	23.2	0.294	0.042	28.7	0.276	0.021	30.1	2000
2001	0.211	0.028	35.4	0.207	0.009	11.6	0.198	0.013	15.1	0.205	0.013	28.4	2001
2002	0.230	0.022	31.3	0.216	0.025	37.8	0.262	0.034	25.6	0.227	0.016	36.1	2002
2003	0.218	0.026	38.4	0.208	0.033	45.3	0.206	0.024	28.3	0.215	0.019	42.5	2003
2004	0.119	0.011	28.0	0.101	0.021	61.0	0.134	0.009	19.8	0.131	0.012	49.7	2004
2005	0.293	0.018	8.7	0.272	0.060	31.1				0.274	0.024	17.3	2005
2006	0.442	0.039	21.6	0.243	0.034	24.6				0.353	0.041	34.6	2006
2007	0.639	0.080	30.6	0.385	0.069	35.6				0.521	0.067	40.7	2007
2008	0.427	0.034	19.3	0.420	0.023	11.2				0.406	0.020	15.8	2008

TABLE IV - B: GREENLAND HALIBUT TRAWL CATCH RATES, 1988-2008 mean cpue's by division corrected for the year, month and vessel of each observation.

	CPUE	ST.ERROR	C.V.	
3L	0.270	0.007	35.5	3L
3M	0.234	0.008	32.0	3M
3N	0.194	0.006	31.3	3N
3LMN	0.237	0.005	38.7	3LMN

TABLE V: Intensity of the trawl sampling during 2008, by species, division and month.

SPECIES	DIV.	MONTH	N° OF SAMPLES	N° FISH MEASURED	SAMPLING WEIGHT(Kg)	OTOLITHS	
						N°	LENGTH RANGE (cm)
COD	3M	MAY	1	34	55	-	-
COD	3M	JUN	30	883	1754	-	-
COD	3M	JUL	20	777	1531	-	-
COD	3M	AUG	2	110	480	-	-
COD	3O	MAR	1	41	76	39	44-87
REDFISH (S. mentella)	3M	FEB	1	16	10	16	28-39
REDFISH (S. mentella)	3M	MAR	1	53	26	46	21-44
REDFISH (S. mentella)	3M	JUN	11	988	297	-	-
REDFISH (S. mentella)	3M	JUL	1	75	18	-	-
REDFISH (S. mentella)	3N	APR	1	40	19	38	22-35
REDFISH (S. mentella)	3O	MAR	1	57	30	57	22-47
REDFISH (S. marinus)	3M	MAY	5	482	131	-	-
REDFISH (S. marinus)	3M	JUN	13	1284	400	-	-
REDFISH (S. marinus)	3M	JUL	12	990	320	-	-
REDFISH (S. marinus)	3M	AUG	1	75	23	-	-
AMERICAN PLAICE	3L	FEB	1	50	39	50	28-57
GREENLAND HALIBUT	3L	FEB	10	598	662	471	31-86
GREENLAND HALIBUT	3L	MAR	13	806	816	613	28-71
GREENLAND HALIBUT	3L	MAY	7	694	697	-	-
GREENLAND HALIBUT	3L	JUN	7	700	712	-	-
GREENLAND HALIBUT	3L	JUL	13	1069	1257	-	-
GREENLAND HALIBUT	3M	FEB	4	220	237	205	37-64
GREENLAND HALIBUT	3M	MAR	15	858	860	834	28-69
GREENLAND HALIBUT	3M	MAY	3	275	309	-	-
GREENLAND HALIBUT	3M	JUL	5	405	552	-	-
GREENLAND HALIBUT	3M	AUG	1	81	90	-	-
ROUGHHEAD GRENADIER	3L	FEB	2	114	68	114	9.5-33.5
ROUGHHEAD GRENADIER	3L	MAR	2	111	83	111	12.5-29
ROUGHHEAD GRENADIER	3L	MAY	2	191	110	-	-
ROUGHHEAD GRENADIER	3L	JUN	1	100	55	-	-
ROUGHHEAD GRENADIER	3L	JUL	14	980	340	-	-
ROUGHHEAD GRENADIER	3L	AUG	1	71	23	-	-
ROUGHHEAD GRENADIER	3M	FEB	1	54	30	43	12-24
ROUGHHEAD GRENADIER	3M	MAY	1	100	53	-	-
ROUGHHEAD GRENADIER	3M	JUL	3	225	73	-	-
WHITE HAKE	3O	MAR	1	31	22	31	38-58
SKATE	3L	MAY	2	82	193	-	-
SKATE	3L	JUN	2	45	81	-	-
SKATE	3L	JUL	3	69	169	-	-
SKATE	3M	FEB	1	18	29	-	-
SKATE	3M	MAY	1	39	84	-	-
SKATE	3M	JUL	1	14	30	-	-

TABLE VI: Length-weight relationship by species, stock and sex in 2008.

Species	Stock	Sex	a	b	n	r^2	Length interval (cm)
COD	3M	T	0.0040	3.2078	1352	0.985	20-108
COD	3NO	T	0.0012	3.4404	40	0.934	44-87
GHL	2J3KLMNO	F	0.0037	3.2131	1020	0.988	32-76
GHL	2J3KLMNO	M	0.0045	3.1623	533	0.978	32-76
GHL	2J3KLMNO	T	0.0258	2.7492	4028	0.942	28-86
PLA	3LNO	T	0.0102	3.0165	50	0.931	28-57
SKA	3LMNO	T	0.0293	2.6475	101	0.874	28-106
RHG	3LMNO	F	0.0798	2.9924	833	0.991	10.5-31
RHG	3LMNO	M	0.0532	3.1460	438	0.983	11-28.5
RHG	3LMNO	T	0.2065	2.7024	1549	0.909	9.5-33.5
REB	3LN	T	0.0351	2.7888	40	0.675	22-35
REB	3M	F	0.1471	2.2278	296	0.961	20-47
REB	3M	M	0.0866	2.3918	175	0.947	19-41
REB	3M	T	0.0407	2.6452	540	0.924	19-47
REB	3O	T	0.0340	2.7879	57	0.936	22-47
REG	3M	F	0.0088	3.1046	879	0.989	19-45
REG	3M	M	0.0089	3.0994	471	0.983	19-40
REG	3M	T	0.0085	3.1160	1350	0.990	19-45
HKW	3LMNO	T	0.0004	3.6941	31	0.869	38-58

TABLE VII: COD, DIV. 3M, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	MAY	JUN	JUL	AUG	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
18			3.2			2.9	0.4	18
21			4.0			3.6	0.6	21
24			2.6			2.3	0.4	24
27			20.6			18.6	2.8	27
30		16.7	67.2		16.6	60.7	23.3	30
33		57.5	92.9		57.3	83.9	61.4	33
36	58.8	82.6	98.7		82.5	89.2	83.5	36
39		37.4	60.6	12.6	37.3	55.9	40.1	39
42		50.3	5.4		50.1	4.9	43.2	42
45	29.4	48.7	20.7		48.7	18.7	44.1	45
48	147.1	82.4	71.6	57.9	82.7	70.2	80.8	48
51		63.5	100.5	75.6	63.3	98.1	68.6	51
54	29.4	71.4	58.1	77.9	71.3	60.0	69.5	54
57		41.2	20.9	87.7	41.0	27.3	38.9	57
60	117.6	70.6	80.4	90.0	70.8	81.3	72.4	60
63	205.9	46.3	39.0	7.5	46.9	36.0	45.3	63
66	147.1	115.4	63.6	40.1	115.5	61.3	107.3	66
69	58.8	57.7	47.5	104.9	57.7	53.0	57.0	69
72		51.1	37.3	102.0	50.9	43.5	49.8	72
75	58.8	25.8	25.7	62.5	26.0	29.2	26.5	75
78		37.4	18.1	47.6	37.2	21.0	34.8	78
81	29.4	17.7	18.4	35.0	17.8	20.0	18.1	81
84	58.8	16.6	14.4	44.7	16.7	17.3	16.8	84
87	29.4	9.0	10.7	59.6	9.1	15.4	10.1	87
90	29.4	0.1	2.6	14.9	0.2	3.8	0.8	90
93			6.1	27.5		8.2	1.2	93
96		0.4	4.5	29.8	0.4	7.0	1.4	96
99			1.6	14.9		2.9	0.4	99
102			1.6	7.5		2.2	0.3	102
105								105
108			1.6			1.5	0.2	108
111		0.03			0.03		0.03	111
TOTAL	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	1	30	20	2	31	22	53	
SAMPLING WEIGHT(kg)	55	1754	1531	480	1809	2011	3820	
No. F.MEASURED	34	883	777	110	917	887	1804	
MEAN LENGTH(cm)	64.3	57.0	53.4	70.1	57.0	55.1	56.7	
MEAN WEIGHT (g)	2918	2113	1920	3852	2116	2107	2114	
DEPTH RANGE (m)	234/244	221/850	227/398	275/286	221/850	227/398	221/850	

TABLE VIII : COD, DIV. 3O, 2008: length composition (0/000) of the 130mm trawl catches

LENGTH GROUP	MAR = YEAR	LENGTH GROUP
42	24.4	42
45	97.6	45
48	48.8	48
51	122.0	51
54	146.3	54
57	122.0	57
60	122.0	60
63	73.2	63
66	97.6	66
69	48.8	69
72	48.8	72
75		75
78		78
81	24.4	81
84		84
87	24.4	87
TOTAL	1000	
No. SAMPLES	1	
SAMPLING WEIGHT(kg)	76	
No. F.MEASURED	41	
MEAN LENGTH(cm)	59.7	
MEAN WEIGHT (g)	2355	
DEPTH RANGE (m)	440/440	

TABLE IX: REDFISH (*S. mentella*), DIV. 3M, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	FEB	MAR	JUN	JUL	1st Q.	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
19			1.3			1.3		0.8	19
20			3.3			3.3		2.1	20
21		18.9	3.8		14.5	3.8		2.5	21
22			33.9	26.7		33.9	26.7	31.3	22
23			38.0			38.0		24.5	23
24		37.7	72.1	53.3	29.0	72.1	53.3	65.4	24
25		56.6	47.0	26.7	43.5	47.0	26.7	39.8	25
26		75.5	106.1	186.7	58.0	106.1	186.7	134.7	26
27		132.1	123.9	240.0	101.4	123.9	240.0	165.1	27
28	187.5	169.8	176.9	213.3	173.9	176.9	213.3	189.8	28
29		37.7	91.3	120.0	29.0	91.3	120.0	101.5	29
30	187.5	56.6	56.9	53.3	87.0	56.9	53.3	55.6	30
31		75.5	33.5	40.0	58.0	33.5	40.0	35.8	31
32	62.5	37.7	34.3		43.5	34.3		22.2	32
33		94.3	33.5	13.3	72.5	33.5	13.3	26.4	33
34	125.0	37.7	19.7	13.3	58.0	19.7	13.3	17.4	34
35	125.0	37.7	7.3		58.0	7.3		4.7	35
36	125.0		23.2	13.3	29.0	23.2	13.3	19.7	36
37	125.0		13.8		29.0	13.8		8.9	37
38	62.5	18.9	21.0		29.0	21.0		13.6	38
39		18.9	7.9		14.5	7.9		5.1	39
40		37.7	18.4		29.0	18.4		11.9	40
41			8.7			8.7		5.6	41
42			8.2			8.2		5.3	42
43		18.9	6.9		14.5	6.9		4.5	43
44		37.7	3.5		29.0	3.5		2.3	44
45			0.7			0.7		0.4	45
46			2.6			2.6		1.7	46
47			0.9			0.9		0.6	47
48			1.3			1.3		0.8	48
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	1	1	11	1	2	11	1	14	
SAMPLING WEIGHT(kg)	10	26	297	18	37	297	18	352	
No. F.MEASURED	16	53	988	75	69	988	75	1132	
MEAN LENGTH(cm)	33.5	31.0	29.4	28.0	31.6	29.4	28.0	28.9	
MEAN WEIGHT (g)			391	319		391	319	366	
DEPTH RANGE (m)	965/994	285/331	305/401	340/398	285/994	305/401	340/398	285/994	

TABLE X: REDFISH (*S. mentella*), DIV. 3N, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	APR =YEAR	LENGTH GROUP
22	25.0	22
23	50.0	23
24		24
25	50.0	25
26	50.0	26
27	25.0	27
28	125.0	28
29	150.0	29
30	225.0	30
31	125.0	31
32	125.0	32
33	25.0	33
34		34
35	25.0	35
TOTAL	1000	
No. SAMPLES	1	
SAMPLING WEIGHT(kg)	19	
No. F.MEASURED	40	
MEAN LENGTH(cm)	29.6	
MEAN WEIGHT (g)	384	
DEPTH RANGE (m)	883/904	

TABLE XI: REDFISH (*S. mentella*), DIV. 3O, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	MAR =YEAR	LENGTH GROUP
22	70.2	22
23	175.4	23
24		24
25	35.1	25
26	17.5	26
27	35.1	27
28	70.2	28
29	70.2	29
30	70.2	30
31	70.2	31
32	105.3	32
33		33
34	122.8	34
35	17.5	35
36	35.1	36
37		37
38	35.1	38
39	35.1	39
40	17.5	40
41		41
42		42
43		43
44		44
45		45
46		46
47	17.5	47
TOTAL	1000	
No. SAMPLES	1	
SAMPLING WEIGHT(kg)	30	
No. F.MEASURED	57	
MEAN LENGTH(cm)	30.3	
MEAN WEIGHT (g)	426	
DEPTH RANGE (m)	440/440	

TABLE XII: REDFISH (*S. marinus*), DIV. 3M, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	MAY	JUN	JUL	AUG	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
12		0.9			0.7		0.5	12
13								13
14								14
15								15
16		0.9			0.7		0.5	16
17								17
18	2.6	1.7			1.9		1.2	18
19	19.5	2.0	5.9		5.2	5.6	5.3	19
20	45.9	11.5	6.6	13.3	17.7	6.9	14.0	20
21	47.1	11.9	8.2		18.2	7.7	14.6	21
22	116.9	28.6	48.5	93.3	44.5	50.9	46.7	22
23	137.4	51.1	34.0	13.3	66.6	32.9	55.0	23
24	120.8	76.9	53.9	26.7	84.8	52.5	73.7	24
25	70.2	58.9	52.6	26.7	60.9	51.2	57.6	25
26	50.5	111.8	112.2	120.0	100.8	112.6	104.9	26
27	35.9	89.9	91.2	80.0	80.2	90.6	83.8	27
28	77.8	124.4	154.5	133.3	116.0	153.4	128.9	28
29	67.2	83.6	136.4	80.0	80.6	133.4	98.8	29
30	64.1	68.7	107.4	133.3	67.9	108.8	82.0	30
31	44.6	45.1	71.8	93.3	45.0	73.0	54.6	31
32	13.2	26.6	31.0	66.7	24.2	32.9	27.2	32
33	31.0	21.4	40.6	26.7	23.1	39.8	28.9	33
34	14.0	22.2	13.1		20.7	12.4	17.9	34
35	11.5	23.8	13.2	40.0	21.6	14.6	19.2	35
36	14.1	33.4	8.4		29.9	8.0	22.4	36
37	6.7	22.1	3.2		19.3	3.0	13.7	37
38	1.6	24.6	4.0	26.7	20.5	5.3	15.2	38
39	1.0	6.6	1.5		5.6	1.5	4.2	39
40		13.3	0.7	13.3	10.9	1.4	7.6	40
41	1.6	2.7			2.5		1.6	41
42	1.6	9.8			8.3		5.4	42
43	1.6	3.7	0.4	13.3	3.3	1.1	2.5	43
44	1.6	4.0			3.6		2.4	44
45		3.8	0.7		3.1	0.7	2.3	45
46		6.4			5.2		3.4	46
47		2.1			1.7		1.1	47
48		4.0			3.3		2.2	48
49								49
50		1.2			1.0		0.6	50
51								51
52								52
53								53
54		0.6			0.5		0.3	54
TOTAL	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	5	13	12	1	18	13	31	
SAMPLING WEIGHT(kg)	131	400	320	23	531	343	874	
No. F.MEASURED	482	1284	990	75	1766	1065	2831	
MEAN LENGTH(cm)	26.4	29.5	28.4	29.2	28.9	28.5	28.8	
MEAN WEIGHT (g)	248	359	300	334	339	302	326	
DEPTH RANGE (m)	234/277	221/304	227/280	280/286	221/304	227/286	221/304	

TABLE XIII: AMERICAN PLAICE, DIV. 3L, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	FEB = YEAR	LENGTH GROUP
28	60.0	28
30	20.0	30
32	40.0	32
34	100.0	34
36	100.0	36
38	160.0	38
40	160.0	40
42	120.0	42
44	60.0	44
46	140.0	46
48		48
50		50
52		52
54	20.0	54
56	20.0	56
TOTAL	1000	
No. SAMPLES	1	
SAMPLING WEIGHT(kg)	39	
No. F.MEASURED	50	
MEAN LENGTH(cm)	40.4	
MEAN WEIGHT (g)	654	
DEPTH RANGE (m)	895/899	

TABLE XIV: GREENLAND HALIBUT, DIV. 3L, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	FEB	MAR	MAY	JUN	JUL	1st Q.	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
28		1.1				0.7			0.3	28
30	3.8		1.7			1.3	0.8		0.8	30
32					2.9			2.9	0.7	32
34	0.8	1.5		2.9	3.5	1.3	1.5	3.5	1.9	34
36	4.4	1.6	1.1	1.4	2.6	2.6	1.3	2.6	2.1	36
38	17.4	13.0	11.0	14.7	19.6	14.4	12.8	19.6	15.2	38
40	69.7	41.5	30.9	21.6	29.3	50.9	26.2	29.3	37.7	40
42	116.0	95.5	70.8	56.9	43.1	102.3	63.8	43.1	75.6	42
44	131.5	115.8	123.0	105.1	57.7	121.0	113.9	57.7	103.3	44
46	196.2	147.2	153.1	145.4	87.1	163.5	149.2	87.1	140.3	46
48	168.0	190.7	156.7	181.0	209.8	183.2	169.0	209.8	185.1	48
50	123.1	147.4	190.8	160.1	201.2	139.3	175.3	201.2	165.9	50
52	75.3	92.6	109.2	124.4	120.7	86.8	116.9	120.7	104.7	52
54	30.3	51.0	64.6	98.8	69.3	44.1	81.9	69.3	62.4	54
56	29.4	34.5	44.8	38.6	36.7	32.8	41.6	36.7	36.6	56
58	18.6	33.0	19.2	15.1	32.1	28.2	17.1	32.1	25.6	58
60	0.5	12.5	8.3	11.2	19.7	8.5	9.8	19.7	11.6	60
62	6.0	8.6	7.8	8.2	15.8	7.7	8.0	15.8	9.8	62
64	0.8	5.6	3.6	7.1	3.3	4.0	5.4	3.3	4.3	64
66	3.0	5.3	0.9	3.6	26.7	4.6	2.3	26.7	9.2	66
68	1.1		2.6	1.9	5.5	0.4	2.2	5.5	2.2	68
70	2.7	1.6		1.9	9.9	2.0	1.0	9.9	3.6	70
72					0.6			0.6	0.1	72
74					1.5			1.5	0.4	74
76	0.8				1.5	0.3		1.5	0.5	76
78										78
80										80
82										82
84										84
86	0.8					0.3			0.1	86
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	10	13	7	7	13	23	14	13	50	
SAMPLING WEIGHT(kg)	662	816	697	712	1257	1478	1410	1257	4144	
No. F.MEASURED	598	806	694	700	1069	1404	1394	1069	3867	
MEAN LENGTH(cm)	48.0	49.2	49.5	49.9	51.1	48.8	49.7	51.1	49.7	
MEAN WEIGHT (g)	1110	1191	1060	1096	1202	1164	1078	1202	1146	
DEPTH RANGE (m)	909/1169	869/1210	882/1180	980/1200	845/1117	869/1210	882/1200	845/1117	845/1210	

TABLE XVI: ROUGHHEAD GRENADIER, DIV. 3L, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	FEB	MAR	MAY	JUN	JUL	AUG	1st Q.	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
8			4.4					2.9		0.7	8
9	3.1		4.4				2.0	2.9		1.0	9
10					4.5				4.4	2.5	10
11	3.1			10.0	25.5	56.3	2.0	3.4	26.4	16.5	11
12	6.1	17.0	23.7	50.0	145.8	225.4	9.9	32.6	148.0	95.3	12
13	32.4		21.0	10.0	193.9	183.1	21.2	17.3	193.6	120.5	13
14	135.2	34.1	63.0	80.0	153.4	126.8	100.1	68.7	152.7	123.4	14
15	348.1	70.1	165.3	80.0	147.3	98.6	251.7	136.5	146.0	163.7	15
16	223.9	88.1	223.1	180.0	121.6	183.1	176.8	208.5	123.3	153.0	16
17	50.9	98.6	156.7	160.0	60.0	14.1	67.4	157.8	58.8	83.2	17
18	71.7	217.1	82.3	120.0	41.6	42.3	122.1	95.0	41.6	69.1	18
19	27.0	133.6	56.9	120.0	15.0		63.9	78.2	14.6	38.6	19
20	27.0	83.5	46.4	70.0	16.4	14.1	46.6	54.4	16.3	30.8	20
21	9.2	74.0	47.2	30.0	18.9	14.1	31.7	41.4	18.8	26.4	21
22	14.7	65.4	16.6	10.0	28.5	28.2	32.3	14.4	28.5	25.9	22
23	3.1	9.5	10.5	10.0	7.7		5.3	10.3	7.5	7.7	23
24	6.1	37.0	22.7	10.0	5.0		16.8	18.4	4.9	10.2	24
25	6.1	27.5	18.3	10.0	5.7		13.5	15.5	5.6	9.4	25
26	14.7	26.5	22.7	20.0	6.6		18.8	21.8	6.4	12.3	26
27	3.1			20.0			2.0	6.8		1.9	27
28		9.5	14.9	10.0	1.7		3.3	13.2	1.6	4.6	28
29		8.5					3.0			0.6	29
30											30
31					0.8	14.1			1.1	0.7	31
32											32
33	14.7						9.6			1.8	33
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	2	2	2	1	14	1	4	3	15	22	
SAMPLING WEIGHT(	68	83	110	55	340	23	151	164	363	679	
No. F.MEASURED	114	111	191	100	980	71	225	291	1051	1567	
MEAN LENGTH(cm)	16.8	19.4	17.8	18.0	15.5	15.0	17.7	17.9	15.5	16.5	
MEAN WEIGHT (g)	462	666	498	514	330	308	533	504	330	408	
DEPTH RANGE (m)	934/968	915/1146	972/1180	975/1148	852/1300	881/1013	915/1146	972/1180	852/1300	852/1300	

TABLE XVII: ROUGHHEAD GRENADIER, DIV. 3M, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	FEB	MAY	JUL	1st Q.	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
9		20.0			20.0		4.5	9
10								10
11			16.7			16.7	6.4	11
12	37.0	110.0	121.9	37.0	110.0	121.9	85.8	12
13		10.0	186.7	0.0	10.0	186.7	73.5	13
14	74.1	50.0	190.1	74.1	50.0	190.1	113.0	14
15	185.2	110.0	101.7	185.2	110.0	101.7	136.5	15
16	314.8	190.0	180.1	314.8	190.0	180.1	235.4	16
17	129.6	190.0	38.0	129.6	190.0	38.0	108.2	17
18	111.1	70.0	63.0	111.1	70.0	63.0	83.5	18
19	74.1	50.0	19.3	74.1	50.0	19.3	47.8	19
20	18.5	40.0	25.1	18.5	40.0	25.1	25.9	20
21		30.0	23.2	0.0	30.0	23.2	15.6	21
22	37.0	20.0	22.5	37.0	20.0	22.5	27.7	22
23		20.0	8.4		20.0	8.4	7.7	23
24	18.5	20.0		18.5	20.0		11.8	24
25		10.0	3.2		10.0	3.2	3.5	25
26		10.0			10.0		2.2	26
27		10.0			10.0		2.2	27
28		20.0			20.0		4.5	28
29		20.0			20.0		4.5	29
TOTAL	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	1	1	3	1	1	3	5	
SAMPLING WEIGHT(kg)	30	53	73	30	53	73	156	
No. F.MEASURED	54	100	225	54	100	225	379	
MEAN LENGTH(cm)	17.0	17.7	15.5	17.0	17.7	15.5	16.6	
MEAN WEIGHT (g)	456	508	325	456	508	325	418	
DEPTH RANGE (m)	900/1029	938/1030	893/1115	900/1029	938/1030	893/1115	893/1115	

TABLE XVIII: WHITE HAKE, DIV. 3O, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	MAR LENGTH =YEAR GROUP
38	96.8 38
39	64.5 39
40	40
41	41
42	64.5 42
43	64.5 43
44	96.8 44
45	32.3 45
46	46
47	32.3 47
48	64.5 48
49	64.5 49
50	129.0 50
51	32.3 51
52	96.8 52
53	32.3 53
54	32.3 54
55	32.3 55
56	56
57	32.3 57
58	32.3 58
TOTAL	1000
No. SAMPLES	1
SAMPLING WEIGHT(kg)	22
No. F.MEASURED	31
MEAN LENGTH(cm)	47.7
MEAN WEIGHT (g)	1275
DEPTH RANGE (m)	440/440

TABLE XIX: SKATES, DIV. 3L, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	MAY	JUN	JUL	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
28			14.5		14.5	1.7	28
30							30
32							32
34							34
36		22.2		2.0		1.7	36
38							38
40							40
42	21.2	88.9		27.2		23.9	42
44	10.6	111.1		19.5		17.1	44
46	28.1	88.9	29.0	33.5	29.0	32.9	46
48	35.2	88.9	14.5	40.0	14.5	36.9	48
50	70.2	88.9	29.0	71.9	29.0	66.8	50
52	70.5	66.7	43.5	70.1	43.5	67.0	52
54	73.9	22.2	29.0	69.4	29.0	64.5	54
56	144.4	22.2	43.5	133.6	43.5	122.9	56
58	154.8	22.2	58.0	143.1	58.0	132.9	58
60	95.1	44.4	87.0	90.6	87.0	90.2	60
62	59.9	44.4	29.0	58.5	29.0	55.0	62
64	67.0		58.0	61.1	58.0	60.7	64
66	21.2	22.2	29.0	21.3	29.0	22.2	66
68	49.3	22.2	72.5	46.9	72.5	49.9	68
70	21.2		43.5	19.3	43.5	22.2	70
72		22.2	14.5	2.0	14.5	3.5	72
74	14.0	22.2	72.5	14.8	72.5	21.7	74
76	14.0	44.4	43.5	16.7	43.5	19.9	76
78	10.6	22.2	29.0	11.6	29.0	13.7	78
80			14.5		14.5	1.7	80
82			43.5		43.5	5.2	82
84	14.0	22.2	58.0	14.8	58.0	19.9	84
86			29.0		29.0	3.5	86
88	10.6	22.2	29.0	11.6	29.0	13.7	88
90							90
92			43.5		43.5	5.2	92
94		22.2		2.0		1.7	94
96			14.5		14.5	1.7	96
98		22.2		2.0		1.7	98
100		22.2		2.0		1.7	100
102			14.5		14.5	1.7	102
104		22.2	14.5	2.0	14.5	3.5	104
106							106
108							108
110							110
112	14.0			12.8		11.3	112
TOTAL	1000	1000	1000	1000	1000	1000	
No. SAMPLES	2	2	3	4	3	7	
SAMPLING WEIGHT(kg)	193	81	169	274	169	443	
No. F.MEASURED	82	45	69	127	69	196	
MEAN LENGTH(cm)	60.1	59.8	70.1	60.1	70.1	61.3	
MEAN WEIGHT (g)	1610	1780	2474	1625	2474	1727	
DEPTH RANGE (m)	843/930	980/1200	878/925	843/1200	878/925	843/1200	

TABLE XX: SKATES, DIV. 3M, 2008: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	FEB	MAY	JUL	1st Q.	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
34		25.6			25.6		14.1	34
36		25.6	71.4		25.6	71.4	28.2	36
38								38
40								40
42	166.7	25.6		166.7	25.6		56.3	42
44	55.6	51.3		55.6	51.3		42.3	44
46	55.6			55.6			14.1	46
48	333.3	51.3	71.4	333.3	51.3	71.4	126.8	48
50	55.6	25.6		55.6	25.6		28.2	50
52		76.9	142.9		76.9	142.9	70.4	52
54	55.6	25.6		55.6	25.6		28.2	54
56		179.5	71.4		179.5	71.4	112.7	56
58		153.8	214.3		153.8	214.3	126.8	58
60	55.6	128.2	142.9	55.6	128.2	142.9	112.7	60
62		102.6			102.6		56.3	62
64			71.4			71.4	14.1	64
66								66
68	55.6	76.9		55.6	76.9		56.3	68
70								70
72	55.6			55.6			14.1	72
74								74
76								76
78		25.6			25.6		14.1	78
80								80
82	55.6			55.6			14.1	82
84			142.9			142.9	28.2	84
86		25.6			25.6		14.1	86
88								88
90								90
92			71.4			71.4	14.1	92
94								94
96								96
98								98
100								100
102								102
104								104
106	55.6			55.6			14.1	106
TOTAL	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	1	1	1	1	1	1	3	
SAMPLING WEIGHT(kg)	29	84	30	29	84	30	143	
No. F.MEASURED	18	39	14	18	39	14	71	
MEAN LENGTH(cm)	56.3	57.7	62.6	56.3	57.7	62.6	58.3	
MEAN WEIGHT (g)	1525	1433	1880	1525	1433	1880	1544	
DEPTH RANGE (m)	942/1009	893/969	231/238	942/1009	893/969	231/238	231/1009	

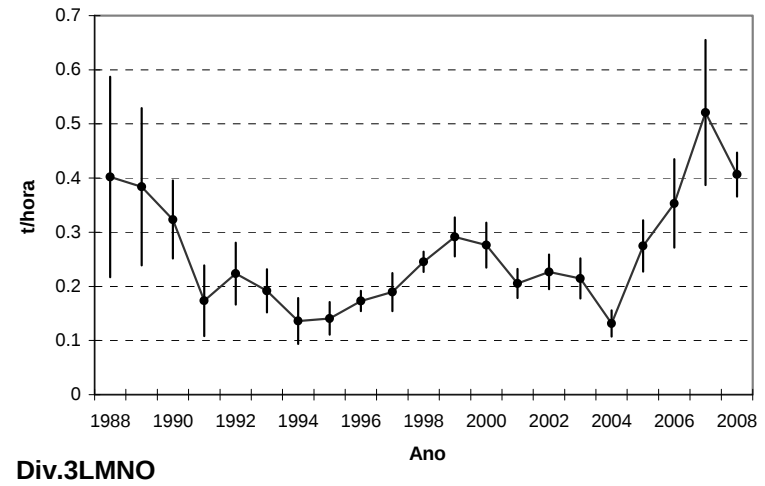
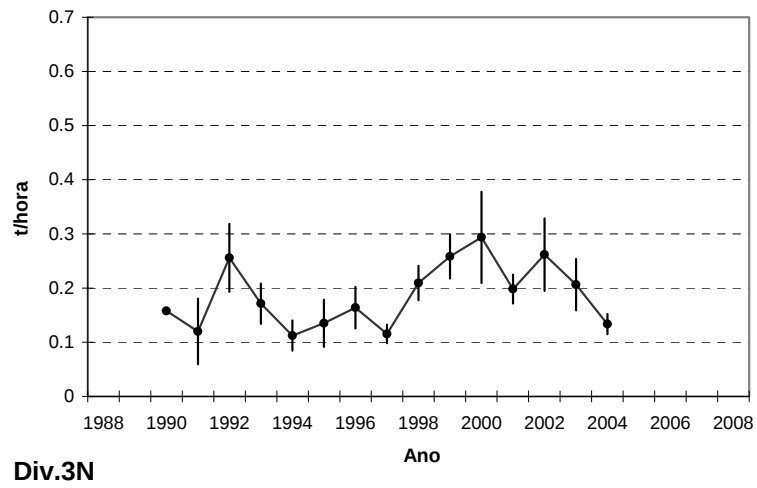
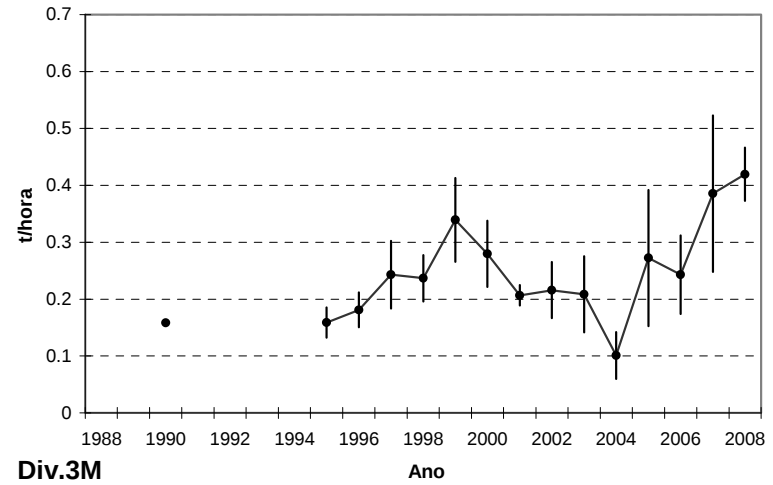
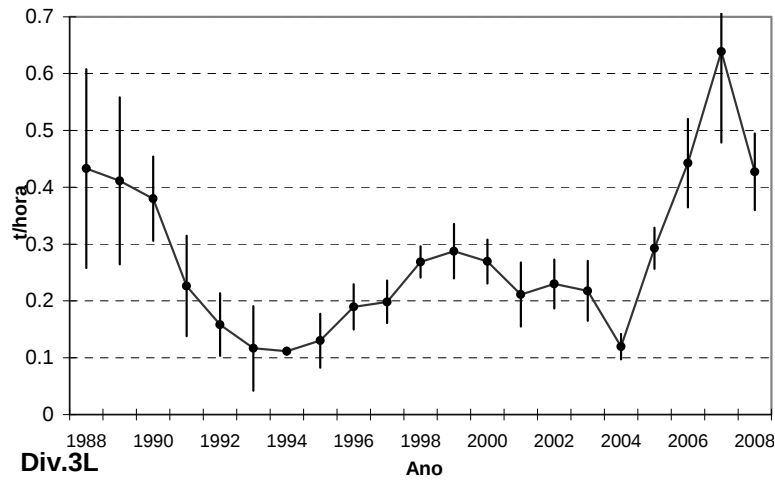


Fig. 1: Greenland halibut trawl catch rates by division, 1988 - 2008.

Fig. 2 - Annual length composition of Cod on Division 3M 130mm trawl fishery in 2008.

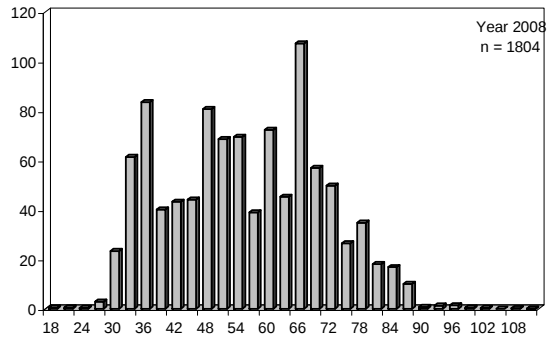


Fig. 3 - Annual length composition of Cod on Division 3O 130mm trawl fishery in 2008.

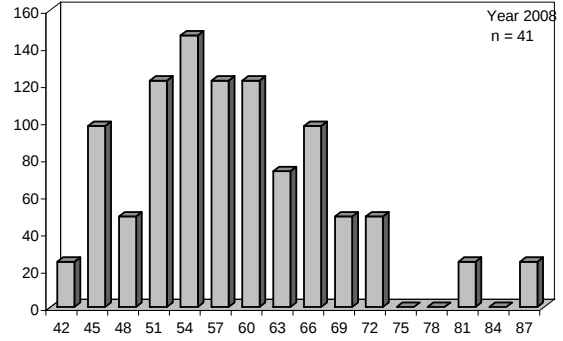


Fig. 4 - Annual length composition of Redfish (*S. mentella*) on Division 3M 130mm trawl fishery in 2008.

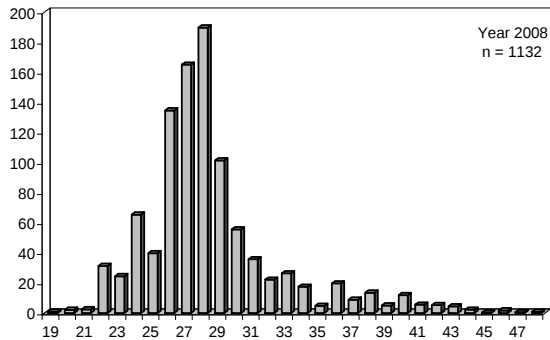


Fig. 5 - Annual length composition of Redfish (*S. mentella*) on Division 3N 130mm trawl fishery in 2008.

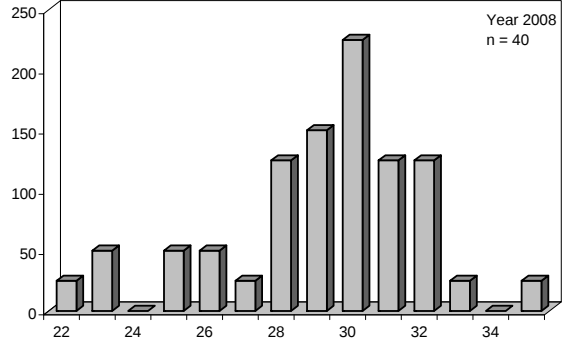


Fig. 6 - Annual length composition of Redfish (*S. mentella*) on Division 3O 130mm trawl fishery in 2008.

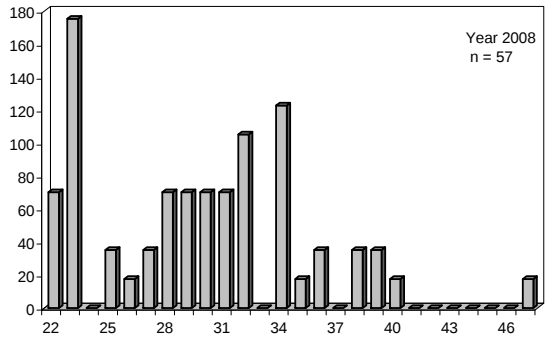


Fig. 7 - Annual length composition of Redfish (*S. marinus*) on Division 3M 130mm trawl fishery in 2008.

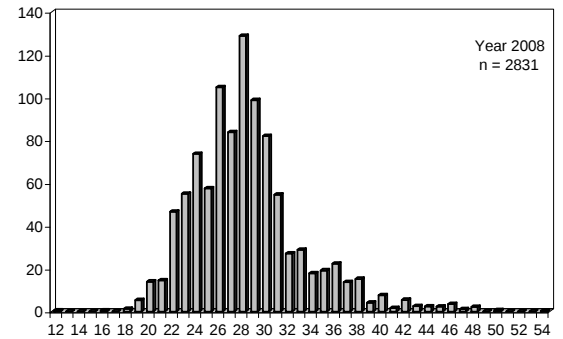


Fig. 8 - Annual length composition of American plaice on Division 3L 130mm trawl fishery in 2008.

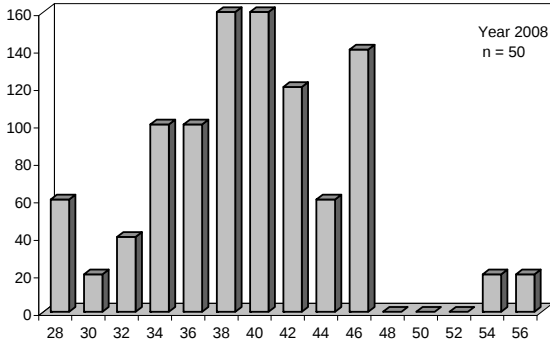


Fig. 9 - Annual length composition of Greenland halibut on Division 3L 130mm trawl fishery in 2008.

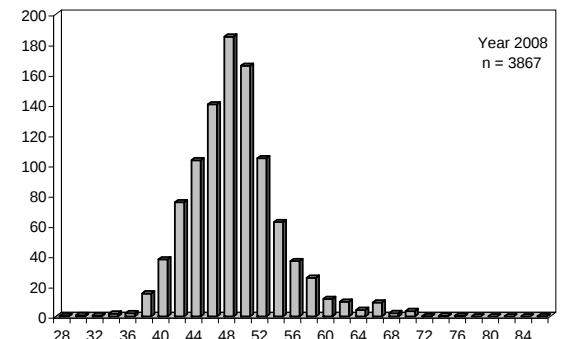


Fig. 10 - Annual length composition of Greenland halibut on Division 3M 130mm trawl fishery in 2008.

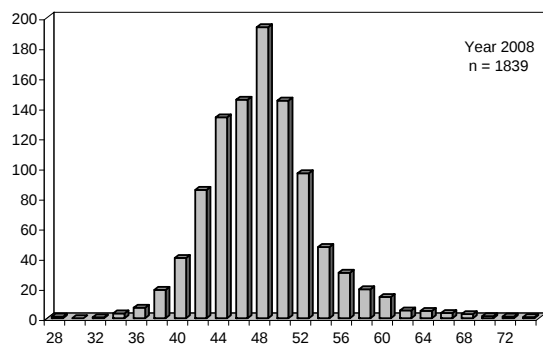


Fig. 11 - Annual length composition of Roughhead grenadier on Division 3L 130mm trawl fishery in 2008.

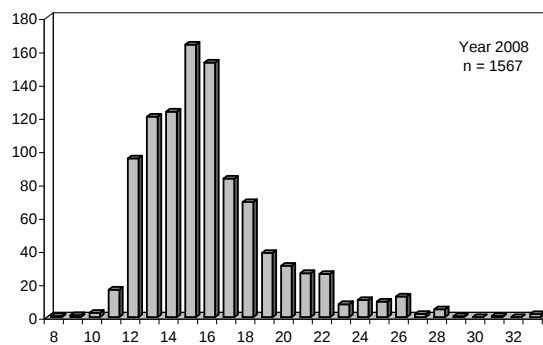


Fig. 12 - Annual length composition of Roughhead grenadier on Division 3M 130mm trawl fishery in 2008.

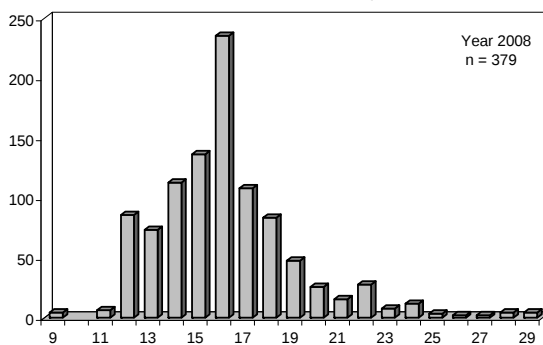


Fig. 13 - Annual length composition of White hake on Division 3O 130mm trawl fishery in 2008.

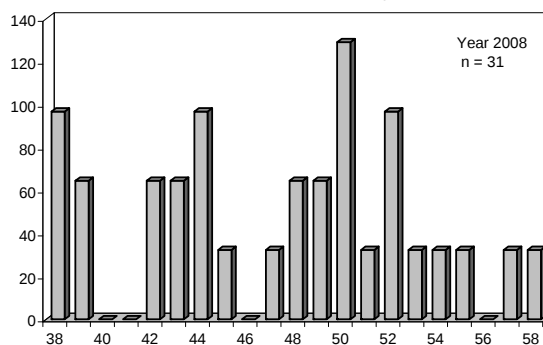


Fig. 14 - Annual length composition of Skates on Division 3L 130mm trawl fishery in 2008.

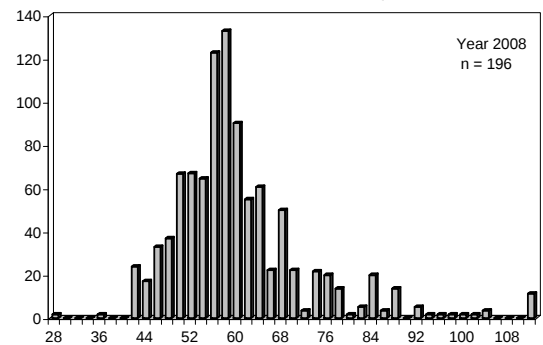


Fig. 15 - Annual length composition of Skates on Division 3M 130mm trawl fishery in 2008.

