Northwest Atlantic

Fisheries Organization

SCIENTIFIC COUNCIL MEETING – JUNE 2020

PORTUGUESE RESEARCH REPORT FOR 2019

by

J. Vargas, R. Alpoim, E. Santos and A. M. Ávila de Melo

A.   Status of the fisheries

In 2019, the Portuguese provisional nominal catches proceeding from NAFO Regulatory Sub Area 3 reached 22 310 tonnes (Table 1-A). Nominal catches increased continuously from 2000 to 2003, when they peaked at 22 700 tonnes, but declined sharply afterwards (Table I-B); during 2004-2008 catches stabilized between 11 700 and 13 500 tonnes. Since then catches increased been between 15 500 and 16 500 tonnes from 2009 to 2012, and from 16 900 to 19 500 tonnes from 2013 to 2018. In 2019 catches increased again to 22 300 level.

The 2019 fishing effort (Table II) and the catches are provisional (data extracted from NAFO Database STATLANT 21A on 6 May 2020 and provided by the NAFO Secretariat in Aug. 2020). In 2019, 9 trawlers composed the Portuguese fleet that operated in the NAFO area.

In Div. 3M (Flemish Cap), cod and redfish are the most important fisheries and represents, each species, now around 48% of the total catch in this division and around 55% of the Portuguese catches in all Sub Area 3.

Catches of redfish tripled its value from 2013 (571 tonnes) to 2015-2017 (around 1600 tonnes) in Div. 3L. In Div. 3N catches oscillated between 250 and 400 tonnes in 2015-2016, but more than doubled in 2017 (from 412 to 1023 tonnes), representing now the most important fishery in Div. 3N. In 2019 redfish catches in Div. 3L and 3N were 2 700 tonnes. In Div. 3M, from 2015 to 2016, the redfish catches increased around 1 400 tonnes and remains stable at the same level in 2017 (around 3600 tonnes), in 2018 and 2019 catches increase again representing now 48% of the total catches in this division and 26% of the Portuguese catches in all Sub Area 3. In Div. 3O, catches of redfish remained relatively stable in recent years and represents about 90% of the total catches in this division and around 16% of the Portuguese catches in all Sub Area 3. Redfish remains by far the most important species in the Portuguese commercial catches from Sub Area 3, representing in recent years around 55% of the overall catch.

The Greenland halibut catches increased from 2017 to 2019 after a continuous reduction since 2013. Since 2015, this fishery has been developed in the North (mainly in division 3L). Greenland halibut catches in divisions 3N and 3O became residual.

Roughhead grenadier catches, in recent years, are mainly by-catch of the Greenland halibut fishery and have been decreasing year by year and are residual now. The witch flounder catches, that in 2015 decreased to residual values (55 tonnes in all Subarea 3), reached in 2016-2017 an average of 250 tonnes (due the increase of 120 tonnes in both Div. 3M and 3O), but in 2018 and 2019 decreased to residual levels. The yellowtail catches in Div. 3N and 3O reached 280 tonnes in 2017 (13 tonnes in 2016) and decrease again to 31 tonnes in 2018 and 15 tonnes in 2019. Skates catches in Subarea 3 remains stable at the level of 370 tonnes until 2016, but decrease in 2017 to 246 tonnes and in 2018 to only 70 tonnes, in 2019 increased to 117 tonnes. The 3O division catches of silver hake, after almost doubled in 2016 (returning to the values of 2014 - at the level of 400 tonnes),

were in 2017-2018 around 140 tonnes, but decreased to 77 tonnes in 2019. The by-catch of haddock in Div. 3M, that reached 108 tonnes in 2016, are now residual, both in this division and in all Sub Area 3. The catch of white hake in Div. 3O decreased from 109 tonnes in 2016 to 21 tonnes in 2019. The shrimp fishery in Div. 3L, that in 2009 its catches reached 20% of the total catch in this division, declined significantly in 2010. Portugal stopped fishing shrimp in 2013. The catches of other species remained more or less stable in all divisions.

Greenland halibut together with redfish continues to be the bulk of the catch on Div. 3L, catches in this Division represents 17% of the total Portuguese catches. The catch in Div. 3M (mainly cod and redfish) continue in 2019, like in most 6 recent years, to represent around 50% of the total catch. Div. 3M is, at present, the most important ground for the Portuguese NAFO fishery. In 2019, redfish is the most representative species (around 90%) in the total catches of Div. 3N and 3O. Catches in Div. 3N and 3O represents 24% of the total Portuguese catches.

B. Portuguese Annual Sampling Program

1. Catch and effort sampling.

Effort and CPUE data for 2019 Portuguese trawl fishery on the NAFO Regulatory Area were obtained through the revision of skipper logbooks from one trawler, kindly supplied by its owners. 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, but since 2015 the fishing effort values are available only in days. The update for the past years was extracted from Database STATLANT 21B, on May 21, 2017 (Table II).

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 cod, redfish and Greenland halibut. 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 2019 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 standardize 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 increase 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 (+/- 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, after 2004, the Greenland halibut catch rates recovered continuously and, despite the high variability from 2006 to 2019, the catch rates reached, in this period, the highest values observed of the time series (0.828 tonnes/h in 2019).

Div. 3M catch rates, despite noisier, follows the same trend as the ones in Div. 3L.

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 2019, biological sampling was obtained only from one stern trawler 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*) was sampled in Div. 3L, 3M, 3N and 3O (Tab. V). American plaice was sampled in Div. 3M, 3N and 3O. Greenland halibut and roughhead grenadier were sampled in Div. 3L and 3M. Cod was sampled only in Div. 3M and thorny skate were sampled 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 and haddock. Mean weight and mean weight in the catch are derived from the length-weight relationships calculated from the commercial sampling in 2019 and are presented in Table VI. However, for species/stock with a low sampling level in 2019, the length-weight relationships calculated in previous years were used.

2.1. Catch and by-catch composition of the 2019 trawl fishery (130mm codend mesh size).

The regular mesh size in the codend used by the trawlers fishing groundfish was the 130mm and, when the mesh size is not mentioned it, means that the sample refers to the 130mm mesh size. However, in 2019, no sets were made with the 200 mm mesh size in the codend by the monitored vessel.

2.1.1. Cod Div. 3M

Information on length composition of the cod trawl catch in Div. 3M is available from January to September, except for March and August (Table VII, Fig. 2), from 148 m to 651 m depth.

Lengths between 51 cm and 63 cm dominated the catch, with a modal class at 60 cm (mean length and weight of 58.8 cm and 1717 g).

2.1.2. Redfish (*S. mentella*) Div. 3L

Information on length composition of the redfish (*S. mentella)* trawl catches in Div. 3L is available for August and September (Table VIII, Fig. 3), from 283 m to 421 m depth.

Lengths between 27 cm and 32 cm dominated the catch, with a modal class at 30 cm (mean length and weight of 30.8 cm and 398 g).

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

Information on length composition of the redfish (*S. mentella)* trawl catches in Div. 3M is available from January to August, except for March (Table IX, Fig. 4), from 217 m to 668 m depth.

Lengths between 29 cm and 34 cm dominated the catch, with a modal class at 32 cm (mean length and weight of 31.9 cm and 383 g).

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

Information on length composition of the redfish (*S. mentella)* trawl catches in Div. 3N is available for April and August (Table X, Fig. 5), from 442 m to 665 m depth.

Lengths between 27 cm and 30 cm dominated the catch, with no modal class (mean length and weight of 29.3 cm and 346 g).

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

Information on length composition of the redfish (*S. mentella)* trawl catches in Div. 3O is available from April to August, except for July (Table XI, Fig. 6), from 120 m to 627 m depth.

Lengths between 24 cm and 28 cm dominated the catches, with a mode at 26 cm (mean length and weight of 26.7 cm and 235 g).

2.1.6. American plaice Div. 3M

Information on length composition of the American plaice by-catch in Div. 3M is available only for January (Table XII, Fig. 7), from 556 m to 615 m depth.

Because the small sampling (1 sample, 37 fish measured), we haven't concluded anything about length distribution (mean length and weight of 49.5 cm and 1275 g).

2.1.7. American plaice Div. 3N

Information on length composition of the American plaice by-catch in Div. 3N is available only for April (Table XIII, Fig. 8). It is not possible to indicate the range of depth, due to the lack of depth data in the only available sample.

Because the small sampling (1 sample, 60 fish measured), we haven't concluded anything about length distribution (mean length and weight of 44.4 cm and 740 g).

2.1.8. American plaice Div. 3O

Information on length composition of the American plaice by-catch in Div. 3O is available only for May (Table XIV, Fig. 9), from 382 m to 428 m depth.

Because the small sampling (1 samples, 53 fish measured), we haven't concluded anything about length distribution (mean length and weight of 43.6 cm and 711 g).

2.1.9. Greenland halibut Div. 3L

Information on length composition of the Greenland halibut catches in Div. 3L is available for February, May, August and September (Table XV, Fig. 10), from 1000 m to 1530 m depth.

Lengths between 46 cm and 56 cm dominated the catch, with a modal class at 50 cm (mean length and weight of 53.4 cm and 1279 g).

2.1.10. Greenland halibut Div. 3M

Information on length composition of the Greenland halibut catches in Div. 3M is available only for September (Table XVI, Fig. 11), from 900 m to 1050 m depth.

Because the small sampling (1 samples, 113 fish measured) we don't draw any conclusions about the dominated lengths in the catch (mean length and weight of 55 cm and 1408 g).

2.1.11. Roughhead grenadier Div. 3L

Information on length composition of the roughhead grenadier catches in Div. 3L is available from February to May (except for April) and for August (Table XVII, Fig. 12), from 1204 m to 1530 m depth.

Anal fin lengths at 16 cm and 17 cm, at 19 cm and 20 cm and at 22 cm and 23 dominated the catch, with a modal class at 19 cm (mean length and weight of 21.1 cm and 885 g).

2.1.12. Roughhead grenadier Div. 3M

Information on length composition of the roughhead grenadier catches in Div. 3M is available only for September (Table XVIII, Fig. 13), from 900 m to 1050 m depth.

Because the small sampling (1 samples, 62 fish measured) we don't draw any conclusions about the dominated lengths in the catch (mean length and weight of 17.7 cm and 516 g).

2.1.13. Thorny skate Div. 3O

Information on length composition of the thorny skate by-catch in Div. 3O is available only for May (Table XIX, Fig. 14), from 337 m to 455 m depth.

Because the small sampling (1 samples, 42 fish measured) we don't draw any conclusions about the dominated lengths in the catch (mean length and weight of 62.4 cm and 3315 g).

3. Acknowledgements

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. 2014. "Portuguese research report for 2013" NAFO SCS Doc. 14/010 Ser. No N6301, 52p.

VARGAS, J., ALPOIM, R., Santos, E. and ÁVILA de MELO, A. M. 2019. "Portuguese research report for 2018" NAFO SCS Doc. 19/09 Ser. No N6921, 32p.

TABLE I-A: PORTUGUESE NOMINAL TRAWL CATCHES (mt) IN NAFO AREA, 2019
(STATLANT data provided by the NAFO Secretariat- Aug 2020).

| SPECIES | DIVISION | | | | TOTAL |
	3L	3M	3N	3O	2019
Cod	23	6319	38	62	6442
Redfish	1549	6097	1146	3827	12619
American plaice	19	208	42	82	351
Yellowtail flounder			8	7	15
Witch flounder		49	9	9	67
Greenland halibut	2184	98	2	4	2288
Atlantic halibut	28	78	35	88	229
Roughhead grenadier	32	3			35
Roundnose grenadier	24	1			25
Anarhichas spp.		13			13
Hadocck					
Pollock					
White hake				21	21
Red hake					
Silver Hake				77	77
Capelin					
Skates	27	14	53	23	117
Monkfish					
Squid			6.0	5	11
Shrimp					
Unidentified					
TOTAL	3886	12880	1339	4205	22310

TABLE I - B: PORTUGUESE NOMINAL TRAWL CATCHES (mt) IN NAFO DIV. 3LMNO (data extracted from NAFO Database Statlant 21A on 6 May 2020).

SPECIES / YEAR	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
Cod	4836	5473	5699	4889	5504	4814	2946	2832	1528	1003	434	255	177	105	281
Redfish	10412	10300	9093	8800	9509	9504	8953	9983	10904	9361	7768	7758	9155	8832	6637
American plaice	206	359	322	291	275	407	468	198	160	298	355	443	376	371	517
Yellowtail flounder	31	280	13	35	31	94	267	71	27	71	145		134	188	68
Witch flounder	118	287	206	55	186	128	108	128	71	131	221	124	141	150	591
Greenland halibut	2072	1920	1583	1722	1938	2124	2051	2493	2257	2075	1976	1873	2326	2256	1888
Atlantic halibut	154	296	207	200	133	96	70	46	56	469	23	32	43	20	59
Roughhead grenadier	31	27	41	90	293	88	488	251	83	266	50	34	77	262	381
Roundnose grenadier	9	1	19	13	42	10	39	48	27	198	29	37	54		
Anarhichas spp.	3	2	5	5	4	4	6	18	13	41	25	16	28	32	45
Hadocck	2	15	153	30	181	78	64	13	1	3	1	2		6	23
Pollock						1									4
White hake	28	69	109	133	109	81	19	25	17	24	55	62	102	157	1266
Red hake				2		1	1	69	1		3	2	4	18	13
Silver hake	135	149	392	266	468	30	35								6
Capelin															
Skates	70	246	359	360	452	496	427	435	304	1045	1252	1058	1003	576	1550
Monkfish	3	12	20	10	24	7	4	1	11	3	13	35	34	6	73
Squid	10	12						1	2	29	5	2	17		11
Shrimp							5		15	332					50
Unidentified						110	279	68	11	77	2	1	216	6	15
TOTAL	18120	19448	18221	16901	19149	18073	16230	16680	15488	15426	12357	11734	13887	12985	13478

TABLE I - B: cont.

SPECIES / YEAR	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
Cod	602	488	361	192	325	550	1545	1316	1670	2640	3657	5986	13362	15142	24130	12963
Redfish	9219	6346	5561	5678	6082	2370	1126	2152	3297	8614	9831	6584	12165	17803	19032	19137
American plaice	748	634	636	400	718	361	389	289	170	346	323	453	1183	715	1821	1813
Yellowtail flounder	287	123	350	151	428	87				21			11	5		
Witch flounder	485	436	576	230	509	381	350	238	385	579	291	851	1980	2257	15	10
Greenland halibut	4369	4318	5027	4688	3997	3245	3347	3313	1942	5970	8811	10547	13961	11171	3616	4194
Atlantic halibut	89	47	45	28	51	29	15	9	18	45	50	79	229	96		152
Roughhead grenadier	302	508	613	397	1302	1088	765	787	1377	2224	1996	2004	4053	3211	290	911
Roundnose grenadier																
Anarhichas spp.	112	88	142	61	552	139	184	121	1358	3219	2303	1697	2842	1941		
Hadocck	141	78	22	12	11	5	42		2	10	10	165	82	17		
Pollock	114										13	41	29	424	11	
White hake	4090	1678														8
Red hake	2	1968	273	43	76	19	54	124	230	270	365	467	1010	469	104	
Silver hake																
Capelin														14		
Skates	1942	1362	883	672	2168	1105	908	796	2062	6239	7604	7019	23304	13557	652	1075
Monkfish	165	71										37	7		15	
Squid						1		4							47	
Shrimp		16	420	289	227	203	170		17							
Unidentified	13	322	40	1	115	38	115	23	15	12	245	325	725	779	158	6
TOTAL	22680	18483	14949	12842	16561	9621	9010	9172	12543	30181	35548	36243	75327	67194	49885	40269

TABLE II : PORTUGUESE TRAWL EFFORT IN FISHING DAYS
IN NAFO Div. 3LMNO (data extracted from NAFO.
(Database Statlant 21B on 21 May 2017)

YEAR	3L	3M	3N	3O	Total geral
2000	519	248	297	329	1393
2001	770	477	361	262	1870
2002	607	263	532	490	1892
2003	503	257	783	753	2296
2004	435	400	406	464	1705
2005	492	407	218	359	1476
2006	408	454	106	517	1485
2007	295	359	162	421	1237
2008	307	464	179	213	1163
2009	512	727	237	188	1664
2010	495	643	214	242	1594
2011	432	770	320	233	1755
2012	235	400	337	299	1271
2013	395	681	350	258	1684
2014	454	791	194	361	1800
2015	374	570	162	336	1442
2016 (a)	346	698	132	347	1523
2017 (a)	282	564	213	278	1337
2018 (a)	302	649	222	194	1367
2019 (a)	375	775	159	206	1515

a) not extracted from Database Statlant 21B, provisional

TABLE III: Portuguese trawl fishery cpue's and bycatch by month and division for 2019.

DIVISION	TARGET SPECIES	MONTH	DEPTH RANGE (m) MIN.	MAX.	CPUE (ton/hour)	MAIN BYCATCH SPECIES	%	WITCH FLOUNDER BYCATCH (%)	TOTAL BYCATCH (%)
3M	COD	JAN	365	627	2.417	RED	28.9	0.1	29.5
3M	COD	FEB	360	651	2.091	RED	4.2	0.1	4.7
3M	COD	APR	222	566	1.433	RED	3.2	0.05	4.0
3M	COD	JUL	290	498	1.024	RED	41.5	-	41.7
3M	COD	SEP	143	457	0.394	PLA	2.8	1.0	8.3
3L	RED	APR	333	345	0.096	PLA	4.8	-	4.8
3L	RED	AUG	295	421	0.998	HAL	2.3	0.04	3.0
3L	RED	SEP	232	417	2.027	SKA	1.8	0.03	2.2
3M	RED	JAN	375	707	1.756	COD	1.9	0.4	3.1
3M	RED	FEB	275	673	2.793	COD	2.6	0.4	3.2
3M	RED	JUL	217	641	1.509	COD	6.9	0.01	7.4
3M	RED	AUG	420	548	2.936	HAL	0.1	0.0	0.1
3N	RED	APR	-	-	1.458	PLA	4.7	0.5	5.3
3N	RED	AUG	442	665	0.394	HAL	3.3	-	3.3
3O	RED	APR	252	465	2.378	COD	12.6	1.3	21.5
3O	RED	MAY	145	571	0.813	HAL	4.9	1.0	15.5
3O	RED	JUN	136	627	0.446	HAL	6.6	0.1	13.6
3O	RED	AUG	120	656	1.397	HAL	2.7	-	3.5
3L	GHL	FEB	1000	1530	0.898	RHG	2.0	-	3.7
3L	GHL	MAR	1163	1415	1.162	RHG	1.4	-	2.5
3L	GHL	MAY	824	1480	0.944	RHG	9.6	-	13.4
3L	GHL	AUG	963	1395	0.672	RNG	2.5	-	8.6
3L	GHL	SEP	889	1430	0.528	RNG	3.0	-	9.5
3M	GHL	SEP	900	1125	0.590	RNG	9.7	-	14.7

TABLE IV - A: GREENLAND HALIBUT TRAWL CATCH RATES, 1988-2019: 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	0.453	0.095	42.2							0.393	0.095	48.1	1988
1989	0.415	0.073	52.7							0.360	0.073	60.7	1989
1990	0.365	0.038	36.4	0.143			0.173			0.301	0.036	44.4	1990
1991	0.222	0.042	41.9				0.127	0.031	42.2	0.185	0.034	52.3	1991
1992	0.148	0.028	60.6				0.258	0.032	42.8	0.247	0.036	70.6	1992
1993	0.173	0.002	1.4				0.172	0.021	41.8	0.251	0.024	36.1	1993
1994	0.111	0.003	3.8				0.111	0.017	36.9	0.184	0.034	51.8	1994
1995	0.126	0.020	44.2	0.132	0.025	42.6	0.123	0.024	50.9	0.155	0.022	64.4	1995
1996	0.175	0.022	45.1	0.199	0.023	34.4	0.172	0.019	29.6	0.175	0.015	46.6	1996
1997	0.195	0.019	31.8	0.238	0.028	32.8	0.130	0.009	9.2	0.186	0.019	46.6	1997
1998	0.271	0.016	22.3	0.230	0.023	34.6	0.210	0.019	30.4	0.262	0.013	31.3	1998
1999	0.299	0.019	19.8	0.344	0.040	35.3	0.261	0.020	23.0	0.315	0.020	34.5	1999
2000	0.261	0.026	25.9	0.275	0.028	23.1	0.303	0.043	28.2	0.278	0.029	41.8	2000
2001	0.211	0.031	39.1	0.207	0.015	19.2	0.193	0.017	20.1	0.215	0.020	40.9	2001
2002	0.232	0.018	25.5	0.228	0.028	40.9	0.269	0.032	23.6	0.229	0.020	45.5	2002
2003	0.213	0.036	53.0	0.209	0.031	41.9	0.205	0.021	24.6	0.218	0.024	54.2	2003
2004	0.122	0.014	34.8	0.099	0.022	66.2	0.142	0.010	19.5	0.145	0.017	64.5	2004
2005	0.245	0.003	1.7	0.319	0.096	42.4				0.240	0.033	27.9	2005
2006	0.457	0.053	28.4	0.236	0.027	19.9				0.344	0.040	35.1	2006
2007	0.640	0.086	32.9	0.400	0.078	39.0				0.510	0.063	39.3	2007
2008	0.426	0.030	17.5	0.435	0.017	7.8				0.390	0.020	16.0	2008
2009	0.717	0.103	43.0	0.636	0.051	22.9				0.651	0.054	34.9	2009
2010	0.427	0.035	26.1	0.384	0.012	5.3	0.474			0.398	0.030	28.6	2010
2011	0.785	0.085	26.8	0.621	0.085	30.8				0.682	0.061	30.1	2011
2012	0.397	0.051	18.6	0.323						0.343	0.039	20.0	2012
2013	0.473	0.047	24.8	0.289	0.017	12.4	0.387	0.040	14.9	0.396	0.032	29.1	2013
2014	0.461	0.068	40.7	0.256	0.034	24.0	0.416	0.205	88.8	0.413	0.064	57.7	2014
2015	0.598	0.059	32.7	0.641	0.133	48.7				0.579	0.058	40.5	2015
2016	0.831	0.180	72.7	0.815						0.781	0.164	73.7	2016
2017	0.585	0.096	42.9	0.557	0.106	40.6				0.542	0.072	44.9	2017
2018	0.530	0.055	33.7	0.395	0.099	54.2				0.455	0.050	43.2	2018
2019	0.828	0.095	28.1	0.645						0.748	0.081	28.9	2019

TABLE IV - B: GREENLAND HALIBUT TRAWL CATCH RATES, 1988-2019 mean cpue's by division corrected for the year, month and vessel of each observation.

	CPUE	ST.ERROR	C.V.	
3L	0.381	0.011	44.2	3L
3M	0.316	0.009	34.4	3M
3N	0.209	0.008	38.4	3N
3LMNO	0.323	0.006	44.4	3LMNO

TABLE V: Intensity of the trawl sampling during 2019, by species, division and month.

SPECIES	DIV.	MONTH	Nº OF SAMPLES	Nº FISH MEASURED	SAMPLING WEIGHT(Kg)	OTOLITHS Nº	OTOLITHS LENGTH RANGE (cm)
COD	3M	JAN	1	74	138	-	-
COD	3M	FEB	15	1351	2444	100	48-76
COD	3M	APR	21	2135	3718	145	49-75
COD	3M	MAY	5	499	864	53	41-65
COD	3M	JUN	2	190	305	31	48-65
COD	3M	JUL	4	228	412	-	-
COD	3M	SEP	3	310	513	-	-
REDFISH (*S. mentella*)	3L	AUG	8	740	286	105	24-35
REDFISH (*S. mentella*)	3L	SEP	6	548	219	99	24-38
REDFISH (*S. mentella*)	3M	JAN	18	1828	742	74	26-36
REDFISH (*S. mentella*)	3M	FEB	9	1082	421	143	28-38
REDFISH (*S. mentella*)	3M	APR	6	418	196	24	28-35
REDFISH (*S. mentella*)	3M	MAY	1	55	27	-	-
REDFISH (*S. mentella*)	3M	JUN	1	64	31	-	-
REDFISH (*S. mentella*)	3M	JUL	17	1525	568	-	-
REDFISH (*S. mentella*)	3M	AUG	1	71	29	-	-
REDFISH (*S. mentella*)	3N	APR	1	106	41	-	-
REDFISH (*S. mentella*)	3N	AUG	1	89	26	-	-
REDFISH (*S. mentella*)	3O	APR	2	222	50	158	22-33
REDFISH (*S. mentella*)	3O	MAY	19	1894	477	-	-
REDFISH (*S. mentella*)	3O	JUN	8	825	202	-	-
REDFISH (*S. mentella*)	3O	AUG	12	1165	283	-	-
AMERICAN PLAICE	3M	JAN	1	37	47	-	-
AMERICAN PLAICE	3N	APR	1	60	48	-	-
AMERICAN PLAICE	3O	MAY	1	53	38	-	-
GREENLAND HALIBUT	3L	FEB	2	230	297	-	-
GREENLAND HALIBUT	3L	MAR	2	154	198	-	-
GREENLAND HALIBUT	3L	MAY	6	592	754	46	41-64
GREENLAND HALIBUT	3L	AUG	7	711	975	65	45-68
GREENLAND HALIBUT	3L	SEP	4	380	504	36	46-68
GREENLAND HALIBUT	3M	SEP	1	113	150	-	-
ROUGHHEAD GRENADIER	3L	FEB	1	56	28	-	-
ROUGHHEAD GRENADIER	3L	MAR	1	43	21	-	-
ROUGHHEAD GRENADIER	3L	MAY	6	359	374	-	-
ROUGHHEAD GRENADIER	3L	AUG	2	154	88	-	-
ROUGHHEAD GRENADIER	3M	SEP	1	62	33	-	-
THORNY SKATE	3O	MAY	1	42	131	-	-

TABLE VI: Length-weight relationship by species, stock and sex in 2019.

Species	Stock	Sex	a	b	n	r2	Length interval (cm)	Ref.
COD	3M	T	0.0250	2.7294	935	0.994	40-79	
GHL	2J3KLMNO	F	0.0040	3.1766	293	0.989	43-72	
GHL	2J3KLMNO	M	0.0114	2.8985	160	0.993	38-56	
GHL	2J3KLMNO	T	0.0037	3.1919	453	0.995	38-72	
PLA	3M	F	0.0026	3.3460	23	0.979	42-61	
PLA	3M	M	0.0152	2.8885	12	0.975	38-50	
PLA	3M	T	0.0058	3.1401	35	0.986	38-61	
REB	3LN	F	0.0329	2.7394	187	0.995	25-38	
REB	3LN	M	0.0347	2.7162	119	0.973	24-35	
REB	3LN	T	0.0305	2.7598	306	0.991	24-38	
REB	3M	F	0.0361	2.6718	289	0.984	26-39	
REB	3M	M	0.0732	2.4712	198	0.946	24-36	
REB	3M	T	0.0703	2.4832	487	0.975	24-39	
REB	3O	F	0.0957	2.3760	246	0.995	20-33	
REB	3O	M	0.0947	2.3660	116	0.984	21-32	
REB	3O	T	0.0846	2.4105	362	0.995	20-33	
length-weight relationships calculated in previous years								
PLA	3LNO	F	0.0252	2.7014	20	0.845	35-47	SCS 19/09
PLA	3LNO	M	0.0182	2.7847	8	0.805	37-43	SCS 19/09
PLA	3LNO	T	0.0055	3.1219	216	0.980	33-62	SCS 19/09
RHG	3LMNO	F	0.1732	2.7670	231	0.993	8-41.5	SCS 14/10
RHG	3LMNO	M	0.1286	2.8564	197	0.986	7.5-38	SCS 14/10
RHG	3LMNO	T	0.1504	2.8055	428	0.990	7.5-41.5	SCS 14/10
RJR	3LMNO	F	0.0117	2.9927	55	0.925	38-80	SCS 14/10
RJR	3LMNO	M	0.0292	2.7749	87	0.924	40-84	SCS 14/10
RJR	3LMNO	T	0.0030	3.2963	485	0.987	25-84	SCS 14/10

TABLE VII: COD, DIV. 3M, 2019: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	JAN	FEB	APR	MAY	JUN	JUL	SEP	1st Q.	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
36			0.4						0.3		0.2	36
39	13.5	0.6	10.4	17.2	28.3			2.2	13.2		8.6	39
42	13.5	4.4	25.3	29.6	30.0			5.5	26.5		17.7	42
45	54.1	31.6	40.6	62.3	19.7	60.3	15.9	34.4	43.5	47.8	40.4	45
48	94.6	62.7	49.5	90.6	137.6	73.8	64.3	66.6	64.5	71.1	65.6	48
51	27.0	113.8	101.4	101.2	130.8	26.3	88.9	103.2	103.6	43.9	100.8	51
54	175.7	172.2	126.2	186.8	176.3	66.3	137.7	172.6	142.4	86.3	150.8	54
57	175.7	214.1	159.5	150.5	178.8	144.7	140.0	209.4	159.1	143.4	176.6	57
60	202.7	201.3	186.6	129.0	101.8	201.2	237.8	201.5	168.4	211.5	182.3	60
63	94.6	109.2	139.1	102.7	106.1	106.7	117.9	107.4	129.1	109.8	120.4	63
66	67.6	46.2	97.9	54.0	37.6	127.4	68.0	48.8	84.4	110.7	72.7	66
69	40.5	27.1	27.0	39.2	15.4	113.7	94.3	28.7	28.6	108.3	32.2	69
72	27.0	11.9	17.9	19.2	26.5	42.3	35.2	13.7	18.8	40.3	17.9	72
75		4.5	7.6	13.5	4.3	20.4		3.9	8.6	14.7	7.2	75
78		0.6	9.9	4.2	6.8			0.5	8.5		5.2	78
81			0.7			8.5			0.5	6.1	0.6	81
84												84
87												87
90												90
93	13.5							1.7			0.6	93
96						8.5				6.1	0.3	96
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	1	15	21	5	2	4	3	16	28	7	51	
SAMPLING WEIGHT(kg)	138	2444	3718	864	305	412	513	2583	4887	925	8394	
No. F.MEASURED	74	1351	2135	499	190	228	310	1425	2824	538	4787	
MEAN LENGTH(cm)	59.0	58.6	59.2	57.6	56.8	62.0	60.5	58.6	58.7	61.6	58.8	
MEAN WEIGHT (g)	1785	1709	1785	1663	1600	2041	1873	1718	1746	1994	1747	
DEPTH RANGE (m)	457/503	364/651	224/514	240/365	166/429	254/400	148/455	364/651	166/514	148/455	148/651	

TABLE VIII: REDFISH (*S. mentella*), DIV. 3L, 2019: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	AUG	SEP	3rd Q. =YEAR	LENGTH GROUP
24	19.6	10.6	14.7	24
25	46.6	32.3	38.7	25
26	64.2	45.9	54.2	26
27	114.2	72.6	91.4	27
28	91.6	104.3	98.6	28
29	103.6	143.8	125.7	29
30	132.3	153.6	144.0	30
31	110.6	110.8	110.7	31
32	101.5	83.1	91.4	32
33	65.9	85.1	76.4	33
34	43.7	51.1	47.7	34
35	47.9	46.0	46.8	35
36	21.6	31.5	27.0	36
37	14.7	18.0	16.5	37
38	13.4	7.8	10.3	38
39	8.6	3.5	5.8	39
TOTAL	1000	1000	1000	
No. SAMPLES	8	6	14	
SAMPLING WEIGHT(kg)	286	219	505	
No. F.MEASURED	740	548	1288	
MEAN LENGTH(cm)	30.6	30.9	30.8	
MEAN WEIGHT (g)	394	402	398	
DEPTH RANGE (m)	295/421	283/417	283/421	

TABLE IX: REDFISH (*S. mentella*), DIV. 3M, 2019: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	JAN	FEB	APR	MAY	JUN	JUL	AUG	1st Q.	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
24			22.8		31.3	3.0			20.0	2.7	1.2	24
25	1.0	4.4	10.7		15.6	1.5		2.2	9.5	1.4	2.0	25
26	15.1	9.0	39.6	18.2		6.0		12.9	32.0	5.4	10.3	26
27	30.4	17.0	58.8		31.3	24.6	28.2	25.6	46.5	25.0	25.6	27
28	38.8	46.0	99.2	36.4	31.3	41.4	70.4	41.4	82.1	44.5	43.0	28
29	96.7	71.9	131.5	18.2	46.9	99.1	56.3	87.8	104.6	94.6	90.6	29
30	162.4	166.7	153.4	54.5	93.8	158.0	169.0	163.9	131.3	159.2	161.8	30
31	184.8	210.6	150.4	36.4	109.4	188.5	98.6	194.0	127.8	179.1	187.7	31
32	177.2	209.5	157.3	54.5	93.8	176.4	169.0	188.7	134.2	175.6	183.2	32
33	159.4	141.1	97.8	127.3	125.0	123.3	126.8	152.9	105.3	123.7	141.4	33
34	73.5	74.9	37.1	181.8	78.1	89.3	169.0	74.0	64.6	97.7	82.7	34
35	29.0	33.9	19.2	145.5	156.3	42.6	56.3	30.8	53.7	44.0	36.0	35
36	20.9	12.1	18.0	109.1	46.9	18.8	14.1	17.7	35.6	18.3	18.2	36
37	9.1	2.4	1.5	54.5	46.9	15.0	14.1	6.7	14.7	14.9	9.9	37
38	1.8	0.6	2.9	90.9		11.4	14.1	1.4	16.7	11.7	5.4	38
39				18.2	15.6	1.0			4.5	0.9	0.4	39
40				18.2	31.3		14.1		6.2	1.5	0.6	40
41				18.2					2.9		0.03	41
42					46.9				4.9		0.1	42
43				18.2					2.9		0.03	43
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	18	9	6	1	1	17	1	27	8	18	53	
SAMPLING WEIGHT(kg)	742	421	196	27	31	568	29	1163	254	597	2015	
No. F.MEASURED	1828	1082	418	55	64	1525	71	2910	537	1596	5043	
MEAN LENGTH(cm)	31.8	31.8	30.8	34.9	33.4	32.0	32.4	31.8	31.7	32.0	31.9	
MEAN WEIGHT (g)	380	380	351	486	441	386	401	380	382	388	383	
DEPTH RANGE (m)	431/663	427/668	249/514	250/275	429/429	217/624	520/548	427/668	249/514	217/624	217/668	

TABLE X: REDFISH (*S. mentella*), DIV. 3N, 2019: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	APR =2nd Q.	AUG =3rd Q.	YEAR	LENGTH GROUP
23	18.9		12.8	23
24				24
25	75.5	33.7	62.1	25
26	94.3		64.2	26
27	150.9	101.1	135.0	27
28	188.7	146.1	175.1	28
29	150.9	213.5	170.9	29
30	160.4	224.7	180.9	30
31	56.6	123.6	78.0	31
32	56.6	101.1	70.8	32
33	28.3	33.7	30.0	33
34				34
35	9.4	11.2	10.0	35
36	9.4	11.2	10.0	36
TOTAL	1000	1000	1000	
No. SAMPLES	1	1	2	
SAMPLING WEIGHT(kg)	41	26	67	
No. F.MEASURED	106	89	195	
MEAN LENGTH(cm)	29.0	30.1	29.3	
MEAN WEIGHT (g)	335	368	346	
DEPTH RANGE (m)	-/-	442/665	442/665	

TABLE XI: REDFISH (*S. mentella*), DIV. 3O, 2019: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	APR	MAY	JUN	AUG	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
19		0.7		0.4	0.4	0.4	0.4	19
20		3.0		4.4	1.9	4.4	2.8	20
21		11.9	6.2	34.3	9.0	34.3	18.5	21
22	54.5	31.1	36.9	54.3	35.4	54.3	42.5	22
23	54.5	57.3	70.1	78.9	60.3	78.9	67.3	23
24	91.4	99.4	107.0	126.8	100.4	126.8	110.3	24
25	116.6	140.7	165.6	161.2	144.4	161.2	150.6	25
26	163.5	175.8	192.2	167.0	178.6	167.0	174.3	26
27	161.7	170.5	133.1	134.6	159.6	134.6	150.3	27
28	130.3	121.2	103.0	100.1	117.5	100.1	111.0	28
29	84.9	64.1	68.3	66.5	67.7	66.5	67.3	29
30	57.7	47.9	48.2	33.3	49.1	33.3	43.2	30
31	41.3	43.9	22.3	25.0	37.9	25.0	33.1	31
32	31.3	25.3	31.6	11.0	27.7	11.0	21.5	32
33	4.1	6.2	12.1	2.1	7.5	2.1	5.5	33
34	8.2	1.0	1.5		2.0		1.3	34
35			2.0		0.5		0.3	35
TOTAL	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	2	19	8	12	29	12	41	
SAMPLING WEIGHT(kg)	50	477	202	283	729	283	1012	
No. F.MEASURED	222	1894	825	1165	2941	1165	4106	
MEAN LENGTH(cm)	27.2	27.0	26.9	26.3	27.0	26.3	26.7	
MEAN WEIGHT (g)	245	241	238	226	240	226	235	
DEPTH RANGE (m)	339/458	206/561	219/627	120/520	206/627	120/520	120/627	

TABLE XII: AMERICAN PLAICE, DIV. 3M, 2019:
length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	JAN =YEAR	LENGTH GROUP
38	54.1	38
40	54.1	40
42	135.1	42
44	81.1	44
46	81.1	46
48	27.0	48
50	189.2	50
52	135.1	52
54	108.1	54
56	81.1	56
58	27.0	58
60	27.0	60
TOTAL	1000	

No. SAMPLES	1
SAMPLING WEIGHT(kg)	47
No. F.MEASURED	37
MEAN LENGTH(cm)	49.5
MEAN WEIGHT (g)	1275
DEPTH RANGE (m)	556/615

TABLE XIII: AMERICAN PLAICE, DIV. 3N, 2019:
length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	APR =YEAR	LENGTH GROUP
34	16.7	34
36	66.7	36
38	166.7	38
40	183.3	40
42	133.3	42
44	100.0	44
46	100.0	46
48	66.7	48
50	66.7	50
52		52
54	33.3	54
56	33.3	56
58		58
60	33.3	60
TOTAL	1000	

No. SAMPLES	1
SAMPLING WEIGHT(kg)	48
No. F.MEASURED	60
MEAN LENGTH(cm)	44.4
MEAN WEIGHT (g)	740
DEPTH RANGE (m)	-/-

TABLE XIV: AMERICAN PLAICE, DIV. 3O, 2019:
length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	MAY =YEAR	LENGTH GROUP
34	94.3	34
36	207.5	36
38	56.6	38
40	94.3	40
42	132.1	42
44	150.9	44
46	56.6	46
48	37.7	48
50		50
52	18.9	52
54	37.7	54
56	113.2	56
TOTAL	1000	

No. SAMPLES	1
SAMPLING WEIGHT(kg)	38
No. F.MEASURED	53
MEAN LENGTH(cm)	43.6
MEAN WEIGHT (g)	711
DEPTH RANGE (m)	382/428

TABLE XV: GREENLAND HALIBUT, DIV. 3L, 2019: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	FEB	MAR	MAY	AUG	SEP	1st Q.	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
36					7.4			3.0	1.3	36
38		4.2	10.2	14.6	8.5	2.7	10.2	12.1	9.6	38
40	27.6	22.1	27.5	18.4	19.5	24.0	27.5	18.8	23.0	40
42	22.0	29.3	38.2	40.8	44.7	26.8	38.2	42.3	37.9	42
44	57.5	48.5	55.8	52.9	45.4	51.6	55.8	49.9	52.3	44
46	118.9	98.1	77.7	75.3	104.3	105.3	77.7	87.0	87.1	46
48	116.5	140.6	112.6	102.2	122.8	132.2	112.6	110.5	115.4	48
50	89.0	83.7	150.8	148.4	116.6	85.5	150.8	135.6	131.5	50
52	133.1	107.7	168.3	99.6	88.2	116.5	168.3	95.0	125.6	52
54	138.6	123.8	69.3	101.5	62.1	128.9	69.3	85.7	88.1	54
56	98.4	105.8	79.6	90.9	114.0	103.3	79.6	100.2	93.3	56
58	59.8	97.5	75.8	75.3	55.8	84.4	75.8	67.4	73.7	58
60	29.9	46.6	35.3	51.8	70.5	40.8	35.3	59.3	47.1	60
62	54.3	60.4	28.1	45.5	51.0	58.3	28.1	47.7	42.7	62
64	4.7	9.6	32.5	34.4	26.0	7.9	32.5	31.0	27.1	64
66	25.2	4.2	16.0	16.2	12.7	11.5	16.0	14.8	14.6	66
68	18.1		8.0	11.5	28.9	6.3	8.0	18.5	12.4	68
70	6.3	17.9	14.2	19.8	11.3	13.9	14.2	16.4	15.1	70
72				1.2	10.3			4.8	2.2	72
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	2	2	6	7	4	4	6	11	21	
SAMPLING WEIGHT(kg)	297	198	754	975	504	495	754	1479	2728	
No. F.MEASURED	230	154	592	711	380	384	592	1091	2067	
MEAN LENGTH(cm)	53.3	53.4	53.0	53.7	53.7	53.4	53.0	53.7	53.4	
MEAN WEIGHT (g)	1265	1272	1244	1304	1320	1270	1244	1310	1279	
DEPTH RANGE (m)	1000/1530	1253/1415	1204/1480	1240/1390	1179/1363	1000/1530	1204/1480	1179/1390	1000/1530	

TABLE XVI: GREENLAND HALIBUT, DIV. 3M, 2019:
length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	SEP =YEAR	LENGTH GROUP
36	8.8	36
38	26.5	38
40		40
42	17.7	42
44	35.4	44
46	79.6	46
48	70.8	48
50	88.5	50
52	132.7	52
54	88.5	54
56	106.2	56
58	123.9	58
60	53.1	60
62	70.8	62
64	35.4	64
66	17.7	66
68	17.7	68
70	26.5	70
TOTAL	1000	

No. SAMPLES	1
SAMPLING WEIGHT(kg)	150
No. F.MEASURED	113
MEAN LENGTH(cm)	55.0
MEAN WEIGHT (g)	1408
DEPTH RANGE (m)	900/1050

TABLE XVII: ROUGHHEAD GRENADIER, DIV. 3L, 2019: length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	FEB	MAR	MAY	AUG	1st Q.	2nd Q.	3rd Q.	YEAR	LENGTH GROUP
12			24.1	12.1		24.1	12.1	18.5	12
13	35.7		11.2	66.6	15.3	11.2	66.6	26.7	13
14	53.6	23.3	29.2	88.6	36.2	29.2	88.6	46.1	14
15		23.3	38.9	91.0	13.3	38.9	91.0	50.7	15
16	17.9	23.3	58.7	138.0	20.9	58.7	138.0	76.8	16
17	53.6	23.3	69.4	91.2	36.2	69.4	91.2	72.2	17
18	107.1	46.5	54.3	56.7	72.4	54.3	56.7	56.7	18
19	71.4	116.3	95.2	125.7	97.1	95.2	125.7	103.7	19
20	53.6	93.0	89.9	123.1	76.2	89.9	123.1	97.7	20
21	89.3	69.8	30.4	44.4	78.1	30.4	44.4	38.7	21
22	71.4	69.8	85.6	71.4	70.5	85.6	71.4	80.3	22
23	53.6	116.3	87.4	27.0	89.5	87.4	27.0	71.1	23
24	107.1	23.3	59.7	12.3	59.1	59.7	12.3	46.7	24
25	35.7	69.8	63.4	32.1	55.2	63.4	32.1	54.1	25
26	71.4	93.0	71.6	19.8	83.8	71.6	19.8	58.6	26
27	35.7	93.0	41.7		68.5	41.7		32.9	27
28	53.6	23.3	5.1		36.2	5.1		6.7	28
29	89.3	23.3	16.6		51.5	16.6		15.3	29
30		23.3	20.7		13.3	20.7		14.4	30
31		46.5	22.3		26.6	22.3		16.6	31
32			8.9			8.9		5.6	32
33			15.8			15.8		10.0	33
TOTAL	1000	1000	1000	1000	1000	1000	1000	1000	
No. SAMPLES	1	1	6	2	2	6	2	10	
SAMPLING WEIGHT(kg)	28	21	374	88	49	374	88	511	
No. F.MEASURED	56	43	359	154	99	359	154	612	
MEAN LENGTH(cm)	22.3	23.2	21.9	18.5	22.8	21.9	18.5	21.1	
MEAN WEIGHT (g)	1019	1119	983	591	1076	983	591	885	
DEPTH RANGE (m)	1370/1530	1253/1392	1204/1480	1263/1370	1253/1530	1204/1480	1263/1370	1204/1530	

TABLE XVIII: ROUGHHEAD GRENADIER, DIV. 3M, 2019:
length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	SEP =YEAR	LENGTH GROUP
12	32.3	12
13	32.3	13
14	129.0	14
15	80.6	15
16	193.5	16
17	129.0	17
18	80.6	18
19	64.5	19
20	129.0	20
21	64.5	21
22	16.1	22
23	32.3	23
24	16.1	24
TOTAL	1000	

No. SAMPLES	1
SAMPLING WEIGHT(kg)	33
No. F.MEASURED	62
MEAN LENGTH(cm)	17.7
MEAN WEIGHT (g)	516
DEPTH RANGE (m)	900/1050

TABLE XIX: THORNY SKATE, DIV. 3O, 2019:
length composition (0/000) of the 130mm trawl catches.

LENGTH GROUP	MAY =YEAR	LENGTH GROUP
26	47.6	26
28		28
30		30
32		32
34		34
36	47.6	36
38	23.8	38
40	23.8	40
42	23.8	42
44		44
46	95.2	46
48	47.6	48
50	47.6	50
52		52
54		54
56		56
58		58
60	71.4	60
62	23.8	62
64	47.6	64
66		66
68	47.6	68
70		70
72	71.4	72
74	119.0	74
76	71.4	76
78	23.8	78
80	47.6	80
82	47.6	82
84	47.6	84
86	23.8	86
TOTAL	1000	

|	
No. SAMPLES	1
SAMPLING WEIGHT(kg)	131
No. F.MEASURED	42
MEAN LENGTH(cm)	62.4
MEAN WEIGHT (g)	3315
DEPTH RANGE (m)	337/455
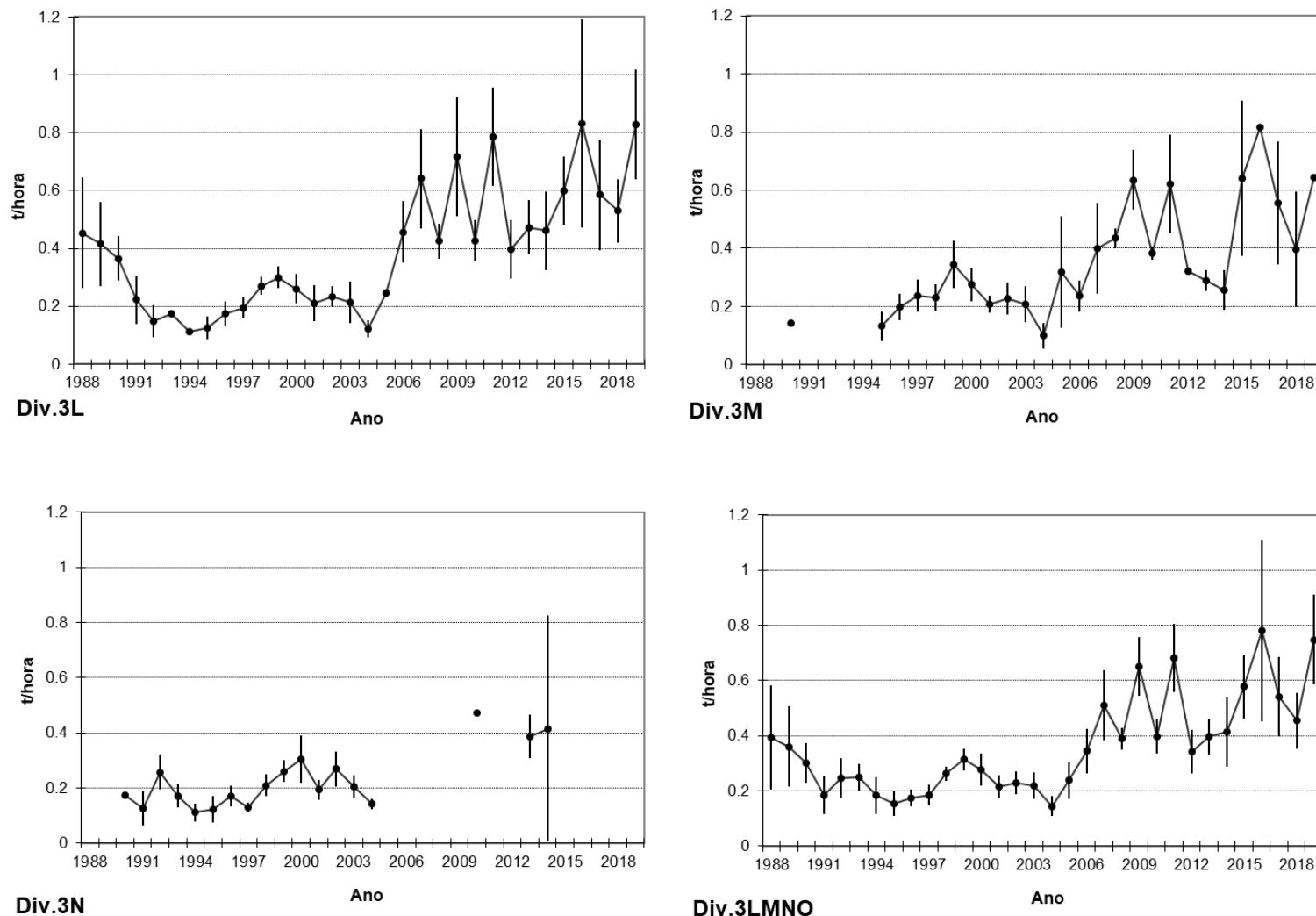
Fig. 1: Greenland halibut trawl catch rates by division, 1988 - 2019.

Fig. 2 - Annual length composition of Cod on Division 3M 130mm trawl fishery in 2019

Fig. 3 - Annual length composition of redfish (*Sebastes mentella*) on Division 3L130mm trawl fishery in 2019

Fig. 4 - Annual length composition of redfish (*Sebastes mentella*) on Division 3M 130mm trawl fishery in 2019

Fig. 5 - Annual length composition of redfish (*Sebastes mentella*) on Division 3N 130mm trawl fishery in 2019

Fig. 6 - Annual length composition of redfish (*Sebastes mentella*) on Division 3O 130mm trawl fishery in 2019

Fig. 7- Annual length composition of American plaice on Division 3M 130mm trawl fishery in 2019

Fig. 8- Annual length composition of American plaice on Division 3N 130mm trawl fishery in 2019

Fig. 9- Annual length composition of American plaice on Division 3O 130mm trawl fishery in 2019

Fig. 10 - Annual length composition of Greenland halibut on Division 3L 130mm trawl fishery in 2019

Year 2019
n = 2067
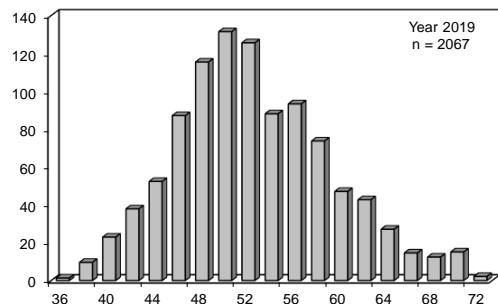
Fig. 11 - Annual length composition of Greenland halibut on Division 3M 130mm trawl fishery in 2019

Year 2019
n = 113
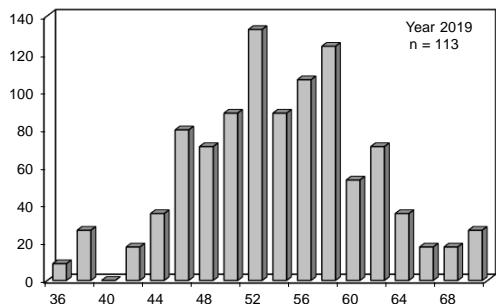
Fig. 12- Annual length composition of roughhead grenadier on Division 3L 130mm trawl fishery in 2019

Year 2019
n = 612
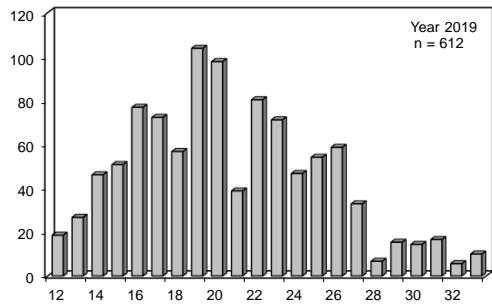
Fig. 13- Annual length composition of roughhead grenadier on Division 3M 130mm trawl fishery in 2019

Year 2019
n = 62
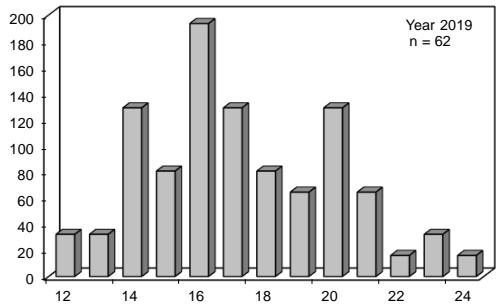
Fig. 14- Annual length composition of thorny skate (*Amblyraia radiata)* on Division 3O 130mm trawl fishery in 2019

Year 2019
n = 42