



SCIENTIFIC COUNCIL MEETING – JUNE 2011

Russian Research Report for 2010

by

I.A. Skryabin and M.V. Pochtar

Polar Research Institute of Marine Fisheries and Oceanography (PINRO)
6 Knipovich Street, Murmansk, 183038 Russia, e-mail: inter@pinro.ru

SUBAREAS 1+2

A. Status of Fisheries*Greenland halibut*

The directed trawl fishery for Greenland halibut was conducted in August-December. The fishery off West Greenland was carried out north of 68° N (Div. 1A) and south of 68° N (Div. 1CD).

In the area north of 68° N, four Russian trawlers were engaged in the fishery in August-November. The trawlers fished in the area between 68°30' N– 70°00' N and 59°00' W– 60°00' W at depths of 870 – 1250 m. According to preliminary data, the catch was 655 t, including 653.7 t of Greenland halibut (99.9% of the total catch). Northern wolffish and roughhead grenadier occurred sporadically in bycatches. The catch rates averaged 7.9 t per fishing vessel day.

In the area south of 68° N, five Russian trawlers participated in the fishery. The trawlers operated from August to December in the area between 63°30' N– 64°30' N and 55°00' W– 58°00' W at depths of 860 – 1550 m. The catch amounted to 1,223 t, including 1,214 t of Greenland halibut (99.1%), with an insignificant bycatch of northern wolffish and roughhead grenadier. The catch rates per fishing vessel day ranged from 3.5 t to 11.6 t and averaged 6.7 t. According to preliminary data, the annual catch of Greenland halibut taken by the Russian fleet off West Greenland was 1,868.4 t (Table 1).

Other fish species

There was no directed fishery for other fish species.

B. Special Research Studies

Biological data on Greenland halibut from Div.1AD were collected by observers aboard Russian fishing vessels.

Greenland halibut

In Div.1A, the length of Greenland halibut in catches ranged from 20 to 92 cm, specimens as long as 46 – 52 cm prevailed. The mean length of males was 48.5 cm, of females – 51.8 cm (Table 2). Sex ratio was approximately 1:1.

In Div. 1D, the catches were composed of individuals from 32 to 108 cm in length, fish as long as 50 – 52 cm prevailed. The mean length of males was 51.7 cm, of females – 57.2 cm. Sex ratio was 3.1: 1.

In Div. 1A, the age of Greenland halibut varied from 3 to 13 years, fish aged 6-8 years prevailed (Table 3).

Marine mammals

Observations made from fishing vessels in Div.1AD in August-October showed that bottle-nosed whales and sperm whales were occasionally sighted during hauling (Table 4).

Vulnerable Marine Ecosystems

Six species of corals belonging to the orders *Pennatulacea* and *Antipatharia* were found in the catches (Table 5). Their catches in a haul mainly made up 10-90 g. No sponges were recorded in the catches.

SUBAREA 3

A. Status of Fisheries

Greenland halibut

In 2010, Russian vessels fished for Greenland halibut from January to August. Four Russian trawlers were engaged in the fishery. The trawlers were fishing between 43°35' N – 48°55' N and 49°02' W - 43°39' W at 475 – 1350 m depths. The average daily catch rates ranged from 1.1 t in February to 15.4 t in July. The annual catch taken by Russian vessels in the directed fishery for Greenland halibut amounted to 1,551.1 t, including 1,482.3 t of Greenland halibut. In addition, 31.7 t of Greenland halibut were caught when fishing for other species.

According to preliminary data, the total catch of Greenland halibut was 1,514.4 t (Table 1). The bycatch consisted of 37.6 t (2.4%) of roundnose grenadier, 10.2 t (0.7%) of red hake, 7.4 t (0.5%) of roughhead grenadier and 6.9 t (0.4%) of skates. In addition, 31.7 t of Greenland halibut were taken when targeting other species.

Atlantic redfishes

In 2010, the Russian fishery in Div. 3M was conducted occasionally from January to October in the area between 46°26' N - 47°49' N and 46°15' W - 43°38' W, where three Russian trawlers conducted fishing at depths of 160-915 m during 39 vessel days. The daily catch varied from 2 to 37 t and averaged 20.9 t per fishing vessel day. The highest catch rates were recorded in September-October in mean coordinates 46°27' N, 44°05' W at depths of 175 – 580 m.

The annual catch of Atlantic redfishes taken by Russian vessels in the directed fishery was 848.8 t. In addition, 78.2 t of redfishes were caught in the Greenland halibut fishery. Preliminary data indicate that the total Russian catch of Atlantic redfishes amounted to 927 t (Table 1). The bycatch included cod (78.9 t), Greenland halibut (1.1 t), American plaice (8.6 t), witch flounder (19.5 t) and flatfishes

(1.6 t). Moreover, saithe, haddock, skates and hakes occurred sporadically in bycatches.

In Div. 3O, Russian trawlers fished in the southwestern Grand Bank occasionally, from January to October, during 14 days as a whole. The fishery was conducted between 43°04' N – 43°37' N and 51°42' W – 51°08' W at depths of 40 – 470 m. The highest catch rates were recorded in July and October, when they were 36.5 t and 41.2 t per fishing vessel day respectively.

The annual Russian catch of Atlantic redfishes taken in the directed fishery was 464.4 t. In addition, small quantities of redfishes (9.6 t) were caught in the Greenland halibut fishery. The total Russian catch of Atlantic redfishes in Div. 3O reached 474 t (Table 1). Bycatches included American plaice (8.8 t), cod (3.3 t), Atlantic halibut (1 t), skates (2.2 t), witch flounder (2.6 t) and yellowtail flounder (1.5 t) as well as Greenland halibut and roundnose grenadier which occurred sporadically.

On the eastern slopes of the Grand Bank (Div. 3LN), Russian vessels fished from July to October. Four Russian vessels conducted trawl fishing operations between 42°48' N – 48°08' N and 50°07' W – 46°30' W at depths of 170 – 900 m. The catch rates ranged from 12 t to 40 t and averaged 18.5 t per fishing vessel day. The highest catch rates were recorded in September and October when they were 32.2 t and 42.2 t per fishing vessel day respectively.

The annual Russian catch of Atlantic redfishes taken in the directed fishery reached 689.8 t. In addition, 37 t of Atlantic redfishes were caught in the Greenland halibut fishery. According to preliminary data, the total Russian catch of Atlantic redfishes was 726.8 t (Table 1). The bycatch consisted of 7.6 t of cod, 6.3 t of Greenland halibut, 5.8 t of witch flounder, 3 t of American plaice, 1.2 t of skates and 1.3 t of roughhead grenadier as well as yellowtail flounder and sharks which occurred occasionally in bycatches.

Cod

In 2010, the directed fishery for cod on the Flemish Cap (Div. 3M) was reopened after the moratorium. In January-February and April-May, 1-2 vessels conducted fishing operations between 46°29' N – 47°52' N and 46°14' W – 44°26' W at depths of 150 – 520 m. The most favourable fishing conditions were in January in the area between 46°29' N – 47°52' N and 46°14' W – 44°26' W and in April between 47°26' N – 47°40' N and 46°08' W – 45°54' W where the average daily catch rates were 18.4 t and 21.5 t respectively.

During the year, the trawlers engaged in the directed fishery caught 339.3 t, including 278.3 t of cod. Additionally, 94 t of cod were caught when fishing for other fishes, mainly redfishes.

The total Russian catch reached 374.1 t (Table 1). The bycatch was composed of 53.3 t of Atlantic redfishes (15.7%), 3.9 t of roundnose grenadier (1.1%) and in total 3.8 t (less than 1%) of witch flounder, skates and American plaice.

Other fish species

There was no directed fishery for other species. The bycatch of other fish species during directed fisheries amounted to 1 – 15%.

B. Special Research Studies

There were no special surveys to assess the stocks of target species. Biological data were collected by NAFO observers aboard fishing vessels.

Greenland halibut (Reinhardtius hippoglossoides)

In Div. 3L, Greenland halibut from 31 to 93 cm in length occurred, mean length 49.3 cm. Individuals as long as 45 – 51 cm prevailed (Table 6).

In Div. 3L, the age of Greenland halibut varied from 3 to 22 years, fish aged 6-8 years prevailed (Table 7).

In Div. 3M, the length of Greenland halibut varied from 25 to 113 cm, mean length 49.8 cm. Individuals as long as 45-49 cm prevailed (Table 6).

In Div. 3N, the length of Greenland halibut varied from 23 to 89 cm, mainly 47-49 cm, mean length 50.5 cm (Table 6).

In general, the length of Greenland halibut in Div. 3LMN was 23-113 cm, mean length 50.3 cm (Table 6).

Roughhead grenadier (Macrourus berglax)

The zoological length of individuals in the catches from Div. 3L ranged from 25 to 97 cm; the length 43-46 cm prevailed, mean length 49.7 cm (Table 8).

The length of roughhead grenadier in Div. 3N varied from 31 cm to 85 cm, mean length 53 cm. Individuals from 46 to 52 cm in length made up the bulk of catches. Some roughhead grenadiers also occurred in the catches from Div. 3M.

In general, roughhead grenadier as long as 25-97 cm, mean length 50.1 cm, occurred in Div. 3LMN (Table 8).

Roundnose grenadier (Macrourus rupestris)

In Div. 3L, the zoological length of individuals ranged from 25 to 70 cm, mean length 44.2 cm (Table 9).

In Div. 3M, the length ranged from 31 to 58 cm, mean length 42.6 cm (Table 8). In addition, some roundnose grenadier individuals were caught in Div. 3N (Table 8).

American plaice (Hippoglossoides platessoides)

In Div. 3N, the length distribution of American plaice taken in the Greenland halibut fishery was represented by individuals from 28 to 54 cm, mainly 32-34 cm in length, mean length 38.6 cm.

Specimens from 24 to 48cm in length occurred in Div. 3L, mean length 39.5 cm (Table 10).

Threebeard rockling (Gaidropsarus ensis)

In Div. 3L, the length of threebeard rockling varied from 13 to 52 cm, mean length 41.5 cm (Table 11). Individuals as long as 40-43 cm made up the bulk of catches.

Witch flounder (Glyptocephalus cynoglossus)

In Div. 3L, the length distribution of witch flounder in bycatches taken in the Greenland halibut fishery was represented by individuals as long as 22-52 cm, mean length 41.8 cm (Table 12).

In Div. 3N, the length of witch flounder varied from 31 to 52 cm, mean length 42.5 cm. Individuals from 37 to 43 cm in length made up the bulk of catches (Table 12).

Cod (Gadus morhua)

In Div. 3N, individuals from 37 to 88 cm, mainly 43-46 cm in length, represented the length distribution of cod. The mean length was 53.6 cm.

In Div. 3M, cod from 43 to 97 cm in length, mean length 67.1 cm, occurred (Table 13). Some individuals were sporadically caught in Div. 3L (Table 13)

Northern wolffish (Anarhichas denticulatus)

In Div. 3L, the length of Northern wolffish varied from 34 to 127 cm, mean length 67.9 cm (Table 14).

In Div. 3N, the length distribution ranged from 40 to 127 cm. The mean length was 66.5 cm. Some specimens of Northern wolffish were caught in Div. 3M.

Atlantic wolffish (Anarhichas lupus)

In Div. 3N, the length of Atlantic wolffish varied from 34 to 73 cm, mean length 50.8 cm (Table 15).

Black Dogfish (Centroscyllium fabricii)

Black Dogfish were taken as a bycatch in the Greenland halibut fishery in Div. 3LN. The length varied from 40 to 76 cm, mean length 62.6 cm (Table 16).

Blue hake (Antimora rostrata)

In Div. 3LN, individuals from 19 to 58 cm in length, mean length 41.6, occurred (Table 17).

Yellowtail flounder (Limanda ferruginea)

In Div. 3N, the length varied from 28 to 43 cm, mean length 37.3 cm (Table 18).

Deep-water redfish (Sebastes mentella)

In Div. 3L, individuals as long as 20-43 cm, mainly 33-35 cm in length, were caught. The mean length was 33.3 cm. Sex ratio was approximately 1:1 (Table 19).

In Div. 3N, the length fluctuated between 19 and 42 cm, mean length 27.3 cm (Table 19).

In general, redfish aged 6-22 years composed the catches in Div. 3LN (Table 20).

In Div. 3M, the length varied from 15 to 40 cm, mean length 27 cm. Individuals as long as 24-25 cm and 28-30 cm were predominant (Table 21).

Golden redfish (Sebastes marinus)

In Div. 3LN, the length of golden redfish varied from 34 to 55 cm, mean length 43.3 (Table 21). Golden redfish were sporadically caught in Div. 3M (Table 22).

Acadian redfish (Sebastes fasciatus)

In Div. 3L, Acadian as long as 19-40 cm, mainly 27-30 cm in length, were caught. The mean length was 27.8 cm.

In Div. 3N, the length ranged from 17 to 39 cm, mean length 24.2 cm (table 23).

In general, the length of Acadian redfish in Div. 3LN varied from 17 to 40 cm, mean length 24.3cm. Sex ratio was approximately 1:1 (Table 23).

In Div. 3M, the length distribution was represented by individuals as long as 17-35 cm, mean length 24.4 cm (Table 21).

Marine mammals

Dolphins, bottle-nosed whales and sperm whales were recorded in Div. 3LN during observations conducted aboard fishing vessels in May-August (Table 24).

Vulnerable marine ecosystems

In Div. 3LN, cold-water corals were recorded (Table 25). Their catch in a haul ranged from 4 to 2,190 g, mainly 10-40 g. Eleven coral species of the following orders were reported in the catches: *Alcyonacea*, *Antipatharia* and *Pennatulacea* (Table 25).

Corals of the Order *Pennatulacea* were the most frequently caught ones. No cold-water corals were reported in the catches in other fishing areas. No sponges were recorded in the catches.

Table 1. Preliminary catches taken by Russian trawlers in NAFO SA 1-3 in 2010

Species	Division	Catch, t
Greenland halibut	1A	654,4
	1C	82,4
	1D	1131,6
	1ACD	1868,4
Greenland halibut	3L	1347
	3M	89
	3N	78
	3O	0,4
	3LMNO	1514,4
Atlantic halibut	3L	0,3
	3N	1,4
	3O	0,7
	3LNO	2,4
American plaice	3L	0,1
	3M	21,5
	3N	28,3
	3O	12,7
	3LMNO	62,6
Yellowtail flounder	3N	99,3
	3O	1,5
	1. 3NO	100,8
Witch flounder	3L	1,8
	3M	134,9
	3N	14,6
	3O	13,3
	3LMNO	164,6
Roughhead grenadier	3L	5,4
	3M	2,7
	3N	4,6
	3LMN	12,7
Rougnose grenadier	3L	25,1
	3M	35,7
	3N	6,7
	3LMN	67,5
Deep-sea redfish	1F	218,4
Redfish spp.	3L	58,8
	3M	927,0
	3N	668,0
	3O	474,0
	3LMNO	2127,8
Skate	3L	4,6
	3M	10,3
	3N	79,3
	3O	6,4
	3LMNO	100,6
Atlantic cod	3L	3,1
	3M	374,1
	3N	25,8
	3O	4,7
	2. 3MNO	407,7
Wolffish spp.	3L	0,1
	3M	0,2
	3LM	0,3

Table 2. Length composition of Greenland halibut (ind.) in Russian trawl catches in NAFO Div. 1AD in 2010

Length, cm	1A			1D			Total 1AD		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
20		1	1					1	1
22									
24	2	1	3				2	1	3
26	4	1	5				4	1	5
28	14	5	19				14	5	19
30	11	6	17				11	6	17
32	18	9	27	1		1	19	9	28
34	38	27	65	3	2	5	41	29	70
36	71	43	114	3	1	4	74	44	118
38	149	90	239	17	7	24	166	97	263
40	258	140	398	61	9	70	319	149	468
42	490	265	755	203	38	241	693	303	996
44	679	401	1080	509	87	596	1188	488	1676
46	805	588	1393	1158	215	1373	1963	803	2766
48	853	667	1520	1776	272	2048	2629	939	3568
50	716	645	1361	2140	355	2495	2856	1000	3856
52	682	660	1342	2258	443	2701	2940	1103	4043
54	536	642	1178	1873	443	2316	2409	1085	3494
56	306	538	844	1086	466	1552	1392	1004	2396
58	121	422	543	523	345	868	644	767	1411
60	54	274	328	226	274	500	280	548	828
62	40	168	208	116	171	287	156	339	495
64	25	92	117	65	136	201	90	228	318
66	7	47	54	27	81	108	34	128	162
68	7	37	44	16	62	78	23	99	122
70	5	35	40	14	61	75	19	96	115
72	6	15	21	6	56	62	12	71	83
74		22	22	4	36	40	4	58	62
76	1	5	6		37	37	1	42	43
78		3	3		49	49		52	52
80		2	2		32	32		34	34
82		4	4	1	32	33	1	36	37
84		3	3		14	14		17	17
86		2	2		19	19		21	21
88					17	17		17	17
90		1	1		5	5		6	6
92		2	2		4	4		6	6
94					3	3		3	3
96					2	2		2	2
98					5	5		5	5
100					3	3		3	3
102									
104					2	2		2	2
106									
108					1	1		1	1
Total	5898	5863	11761	12086	3785	15871	17984	9648	27632
Mean length, cm	48,5	51,9	50,2	51,7	57,2	53,0	50,7	54,0	51,8

Table 3. Age-length composition of Greenland halibut in Russian trawl catches in the NAFO Div. 1A in 2010

Length cm	Age, years											Total	Weight,
	3	4	5	6	7	8	9	10	11	12	13		
28	2											2	190
30	3	1										4	227.5
32		4										4	292.5
34		1										1	365
36		1	1									2	365
38			8									8	491.9
40			7	8								15	591
42			2	12								14	670
44			2	11	5							18	762.2
46				12	14							26	913.3
48				10	21	2						33	1022
50				3	11	15	1					30	1176.7
52					7	13	2					22	1327.3
54					3	13	3					19	1480.3
56					1	7	11	2				21	1743.1
58						1	11	2	1			15	1904
60							3	4	1			8	2073.1
62							1	2	1	2		6	2465
64							1		1	0		2	2670
66									1	1		2	2945
68										1		1	3570
70										4		4	3575
72													
74											1	1	4670
Total	5	7	20	56	62	51	33	10	5	8	1	258	
Mean weight, g	208	312.1	563	809.8	1064	1387.5	1816.4	2079	2390	3243.8	4670	258	1239.8
Mean length, mm	296	334.29	400.5	449.46	489.84	530.39	573.33	597	624	677.5	750	258	498.4

Table 4. Occurrence of marine mammals off West Greenland in 2010

Date	CoordinatesN-W	Reported species	Quantity	Remarks
16.09- 12.10	63°44'- 63°53' с.ш. 57°04'- 57°57' з.д.	Sperm whale Bottle-nosed dolphin	1-2 2-4	Observed when hauling

Table 5. Catches of cold-water corals off West Greenland in 2010

Date	Trawling coordinates	Fishing depth, m	Order	Quantity, ind.	Length, cm	Catch, kg
16.09	63°52'N 57°11'W-	1250	Pennatulacea	8	18-37	0,075
	63°52'N 57°54'W	1257	Antipatharia			0,010
17.09	63°51'N 57°08'W-	1170	Pennatulacea	5	15-40	0,035
	63°51'N 57°49'W	1175	Antipatharia			0,030
18.08	63°53'N 57°08'W-	1200	Pennatulacea	25	8-40	0,165
	63°44'N 56°29'W	1220	Antipatharia			0,010
19.09	63°48'N 57°16'W-	1226	Pennatulacea	5	13-35	0,025
	63°46'N 57°57'W	1230	Antipatharia	1	39	0,050
20.09	63°52'N 57°13'W-	1145	Pennatulacea	4	14-29	0,020
	63°52'N 57°55'W	1160	Antipatharia			0,025
21.09	63°50'N 57°52'W-	1180	Pennatulacea	8	40	0,200
	63°50'N 57°12'W	1225				
24.09	63°52'N 57°14'W-	1130	Pennatulacea	14	21-36	0,120
	63°53'N 57°55'W	1170	Antipatharia			0,010
25.09	63°52'N 57°13'W-	1150	Pennatulacea	6	29-42	0,100
	63°52'N 57°55'W	1160	Antipatharia			0,090
26.09	63°52'N 57°50'W-	1235	Pennatulacea	16	25-42	0,200
	63°52'N 57°08'W	1150				
28.09	63°49'N 57°12'W-	1205	Pennatulacea	4	15-30	0,050
	63°49'N 57°15'W	1240	Antipatharia			0,010
29.09	63°52'N 57°51'W-	1145	Pennatulacea	7	15-48	0,060
	63°52'N 57°09'W	1150	Antipatharia			0,010
30.09	63°50'N 57°09'W-	1215	Pennatulacea	17	10-47	0,070
	63°50'N 57°50'W		Antipatharia			
01.10	63°48'N 57°13'W-	1220	Pennatulacea	4	23-38	0,100
	63°48'N 57°55'W	1275				
02.10	63°50'N 57°08'W-	1180	Pennatulacea	2	17-38	0,010
	63°50'N 57°48'W	1190	Antipatharia			0,015
03.10	63°49'N 57°49'W-	1145	Pennatulacea	8	8-45	0,075
	63°52'N 57°04'W	1150	Antipatharia			0,055
05.10	63°52'N 57°12'W-	1130	Pennatulacea	5	19-39	0,027
	63°52'N 57°55'W	1160				
07.10	63°49'N 57°13'W-	1190	Pennatulacea	6	25-45	0,050
	63°59'N 57°55'W	1220	Antipatharia			0,010

Table 6. Length composition of Greenland halibut (ind.) in Russian commercial trawl catches by month in NAFO Div. 3LMN in 2010

Length cm	Division 3L						Division 3M			Division 3N			Total 3LMN
	IV	V	VI	VII	VIII	Total	VII	VIII	Total	VI	VIII	Total	
22											1	1	1
24			1	2		3					2	2	5
26		3	3	2		8					1	1	9
28		4		2		6							6
30		11	6	7		24							24
32	6	16	9	13	1	45							45
34	26	53	29	37	1	146				3	1	4	150
36	56	123	53	61	5	298	14		14	1	8	9	321
38	142	269	138	265	34	848	42	1	43	10	30	40	931
40	256	496	339	792	128	2011	115		115	10	94	104	2230
42	367	740	607	1285	234	3233	172		172	10	148	158	3563
44	522	1071	963	2007	348	4911	227		227	16	259	275	5413
46	586	1317	955	2059	425	5342	288		288	22	332	354	5984
48	735	1456	1182	2305	418	6096	336		336	38	352	390	6822
50	520	1340	1109	1944	401	5314	340	1	341	31	256	287	5942
52	380	1159	906	1595	374	4414	332	3	335	37	213	250	4999
54	290	952	741	1186	341	3510	285		285	50	243	293	4088
56	247	643	473	677	245	2285	175		175	41	184	225	2685
58	107	415	308	458	220	1508	186		186	32	104	136	1830
60	51	267	208	309	154	989	93		93	23	81	104	1186
62	41	154	117	157	84	553	37	1	38	9	47	56	647
64	18	101	74	95	40	328	29		29	4	32	36	393
66	8	48	30	49	25	160	10		10	6	10	16	186
68	4	31	30	29	14	108	3		3	4	5	9	120
70	1	20	22	23	8	74	9		9	1	4	5	88
72	4	10	6	9	5	34	2		2		3	3	39
74	2	12	7	8	3	32	2		2	4	1	5	39
76		8	6	11		25	1		1	1	1	2	26
78		7	10	10		27				2		2	29
80		5	2	6	1	14							16
82	1	2	4	1		8							8
84		2	2	1		5							5
86			1			1					1	1	1
88			2			2				1		1	3
90											1	1	1
92													
94													
96													
98													
100													
102													
104													
106													
108													
110													
112													
114				1		1							1
Total	4370	10735	8343	15406	3509	42363	2698	6	2704	356	2413	2769	47836
Mean length. cm.	48.3	49.5	49.7	48.9	50.8	49.3	50.5	51.5	50.5	53.2	50.2	50.6	49.5

Table 7. Age composition of Greenland halibut in Russian commercial trawl catches in NAFO Div. 3L in 2010

Age, years	Quantity	%	Average length, mm	Average weight, g.
3	10	0	284.0	176.0
4	136	0.3	326.4	281.9
5	2239	5.3	378.7	442.5
6	10871	25.9	444.2	698.1
7	17471	41.6	503.6	1106.0
8	7475	17.8	560.7	1539.0
9	2354	5.6	606.2	1985.9
10	890	2.1	630.6	2197.5
11	299	0.7	690.5	3198.5
12	200	0.5	718.9	3803.2
13	39	0.1	743.3	4508.3
14	16	0	810.0	6280.0
15	9	0	780.0	5140.0
Total	42008	100	575.1	2412.0

Table 8. Length composition (ind.) of Roughhead grenadier in Russian trawl catches in NAFO Div. 3LMN in 2010

Length, cm	3L	3M	3N	3LMN
25	1			1
28	4			4
31	10		2	12
34	49		1	50
37	181	5	11	197
40	326	6	22	354
43	501	7	34	542
46	439	7	51	497
49	316	4	47	367
52	197	2	45	244
55	130	1	26	157
58	109	4	12	125
61	92	5	15	112
64	92	1	26	119
67	94	1	15	110
70	51	3	11	65
73	31	1	2	34
76	24	1	4	29
79	10		2	12
82	4			4
85	3		1	4
88	2			2
91	1			1
94				1
97	1			
Total	2668	48	327	3043
Mean length, cm	49,7	51,6	53,0	50,1

Table 9. Length composition (ind.) of Rouggnose grenadier in Russian trawl catches in NAFO Div. 3LMN in 2010

Length, cm	3L	3M	3N	3LMN
25	2			2
28	7			7
31	4	2		4
34	7	1		9
37	9	8	1	18
40	8	2		10
43	3	3	2	8
46	12	2	1	15
49	11			11
52	5	1		6
55	5	1		6
58	4	2		6
61	3			
64				
67				
70	1			1
Total	81	22	4	107
Mean length, cm	44,2	42,6	43,3	43,9

Table 10. Length composition (ind.) of American plaice in Russian trawl catches in NAFO Div. 3LN in 2010

Length, cm	3L	3N	3LN
24	1		1
26			
28		4	4
30		20	20
32	2	59	61
34	10	76	86
36	4	44	48
38	10	32	42
40	9	38	47
42	7	40	47
44	8	38	46
46	3	20	23
48	1	17	18
50		5	5
52		6	6
54		3	3
Total	55	402	457
Mean length, cm	39,5	38,6	38,7

Table 11. Length composition (ind.) of Threebeard rockling in Russian trawl catches in NAFO Div. 3L in 2010

Length, cm	3L
13	1
16	
19	
22	
25	
28	3
31	10
34	57
37	107
40	188
43	187
46	65
49	20
52	1
Total	639
Mean length, cm	41,5

Table 12. Length composition (ind.) of Witch flounder in Russian trawl catches in NAFO Div. 3LMN in 2010

Length, cm	3L	3M	3N	3LMN
22	1			1
25	1	4		5
28	1	1		2
31	2		6	8
34	14		9	25
37	27		30	57
40	23		27	50
43	33		36	69
46	27		21	48
49	5		8	13
52	3		7	10
55				
58				
61				
64			1	1
Total	137	5	145	287
Mean length, cm	41,8	26,6	42,5	41,9

Table 13. Length composition (ind.) of Atlantic cod in Russian trawl catches in NAFO Div. 3LMN in 2010

Length, cm	3L	3M	3N	3LMN
28	1			1
31				
34				
37	1		5	6
40			15	15
43	3	1	33	37
46	1	1	30	32
49	1	2	26	29
52	1		9	10
55		4	4	8
58		3	7	10
61		2	3	5
64		2	5	7
67		1	7	8
70		2	6	8
73		2	3	5
76			8	8
79		3	5	8
82		3	2	5
85			2	2
88		1	1	2
91				
94				
97		1		1
Total	8	28	171	207
Mean length, cm	43,6	67,1	53,6	55,0

Table 14. Length composition (ind.) of Northern wolffish in Russian trawl catches
in NAFO Div. 3LMN in 2010

Length, cm	3L	3M	3N	3LMN
34	1			1
37		5		5
40	6		1	7
43	6		2	8
46	15	4	5	24
49	28	1	1	30
52	50	1	7	58
55	51	3	8	62
58	62		4	66
61	49		5	54
64	22	1	3	26
67	24	1	2	27
70	24		2	26
73	32		1	33
76	22		1	23
79	8		1	9
82	12			12
85	10		2	12
88	6		2	8
91	11		2	13
94	7		1	8
97	10		1	11
100	8			8
103	4			4
106	8		2	10
109	3		1	4
112	3			3
115	5			5
118				
121	4			4
124	2			2
127	1		1	2
Total	494	16	55	565
Mean length, cm	67,9	48,9	66,6	67,2

Table 15. Length composition (ind.) of Atlantic wolffish in Russian trawl catches in NAFO Div. 3LN in 2010

Length, cm	3L	3N	3LN
34		1	1
37		1	1
40	1	7	8
43		12	12
46		23	23
49		22	22
52		18	18
55		14	14
58		5	5
61		4	4
64			
67		3	3
70		1	1
73		1	1
Total	1	112	113
Mean length, cm	41,0	50,8	50,8

Table 16. Length composition (ind.) of Black dogfish in Russian trawl catches in NAFO Div. 3LMN in 2010

Length, cm	3L	3M	3N	3LMN
40			1	1
43				
46	1		1	2
49	2			2
52	6		1	7
55	7			7
58	12		2	14
61	11		4	15
64	27		2	29
67	13			13
70	7			7
73		1	1	1
76	2	1	1	3
Total	88	2	13	101
Mean length, cm	62,9	75,5	60,6	62,6

Table 17. Length composition (ind.) of Blue hake in Russian trawl catches in NAFO Div. 3LN in 2010

Length, cm	3L	3N	3LN
19	2		2
22	4		4
25	4		4
28	7		7
31	14		14
34	7	1	8
37	14	1	15
40	18	3	21
43	14	1	15
46	25		25
49	18		18
52	8		8
55	7	1	8
58	1		1
Total	143	7	150
Mean length, cm	41,7	42,3	41,8

Table 18. Length composition (ind.) of Yellowtail flounder in Russian trawl catches in NAFO Div. 3N in 2010

Length, cm	3N
28	1
31	5
34	11
37	11
40	7
43	4
Total	39
Mean length, cm	37,3

Table 19. Length composition (ind.) of deep-sea redfish (*S. mentella*) in Russian trawl catches in NAFO Div. 3LN in 2010

Length, cm	Division 3L			Division 3N			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
19			0	8	3	11	8	3	11
20	1		1	23	23	46	24	23	47
21			0	33	36	69	33	36	69
22			0	45	31	76	45	31	76
23		1	1	59	37	96	59	38	97
24	2	3	5	70	33	103	72	36	108
25	7	6	13	53	50	103	60	56	116
26	13	11	24	43	58	101	56	69	125
27	21	23	44	25	58	83	46	81	127
28	42	28	70	16	72	88	58	100	158
29	55	45	100	8	70	78	63	115	178
30	98	68	166	8	68	76	106	136	242
31	141	89	230	15	46	61	156	135	291
32	148	122	270	8	42	50	156	164	320
33	174	134	308	11	31	42	185	165	350
34	128	121	249	16	29	45	144	150	294
35	157	149	306	9	32	41	166	181	347
36	103	113	216	3	23	26	106	136	242
37	87	94	181	2	9	11	89	103	192
38	38	77	115	4	13	17	42	90	132
39	22	20	42	4	5	9	26	25	51
40	12	14	26		4	4	12	18	30
41	8	6	14	2		2	10	6	16
42	2	2	4	1		1	3	2	5
43	2		2			0	2		2
Total	1261	1126	2387	466	773	1239	1727	1899	3626
Mean length, cm	33,1	33,6	33,3	25,6	28,4	27,3	31,1	31,5	31,3

Table 20. Age-length composition of deep-sea redfish (*S. mentella*) in Russian trawl catches in NAFO Div. 3LN in 2010

Length, cm	Age, years																	Total	Weight, g
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		
23	2	1																3	153,3
24		4	3	1														8	169,4
25		5	6	2														13	187,7
26		1	7	5														13	216,2
27		1	1	6	3	1												12	281,9
28		1		7	8	2												18	283,9
29			1	1	10	7	1											20	307,0
30				1	9	7	5											22	344,3
31						9	7	7										23	388,7
32						2	11	5	2									20	401,3
33							3	9	7	3								22	469,8
34								5	12	5	1							23	505,0
35									9	5	9							23	572,6
36									1	8	9	4						22	629,3
37									1	3	6	9	2	1				22	688,3
38											3	5	3	2				13	718,1
39												2	5	1	3	1		12	765,4
40													4	1	3	1		9	854,4
41															2	3	1	6	961,7
42																1		1	890,0
Total	2	13	18	23	30	28	27	26	32	24	28	20	14	5	8	6	1	305	
Mean weight, g	157,5	189,6	204,2	252,6	299,3	347,5	394,3	439,8	503,8	576,3	639,1	711,4	783,6	710,0	848,1	877,5	1085,0		468,7
Mean length, cm	23,0	25,0	25,6	27,0	28,8	30,0	31,4	32,6	34,3	35,1	36,0	36,8	38,8	38,4	39,9	40,7	41,0		32,4

Table 21. Length composition (ind.) of *S. mentella*, *S. fasciatus* and *S. marinus* in Russian trawl catches in NAFO Div. 3M in 2010

Length, cm	<i>S. mentella</i>			<i>S. fasciatus</i>			<i>S. marinus</i>			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
15		1	1							1		1
16												
17				1		1				1		1
18												
19	4	3	7	3		3				7	3	10
20	27	23	50	9	11	20	1		1	37	34	71
21	39	35	74	13	18	31				52	53	105
22	55	51	106	18	20	38	1		1	74	71	145
23	69	51	120	23	23	46	2		2	94	74	168
24	85	70	155	18	27	45	2		2	105	97	202
25	68	83	151	18	31	49		3	3	86	117	203
26	44	70	114	10	19	29	2	1	3	56	90	146
27	48	71	119	9	16	25	3	1	4	60	88	148
28	66	76	142	3	14	17	4	1	5	73	91	164
29	80	64	144	3	11	14	2	2	4	85	77	162
30	69	69	138		5	5	2	1	3	71	75	146
31	32	75	107	3	6	9	1	2	3	36	83	119
32	11	81	92		1	1	4	3	7	15	85	100
33	10	43	53	1	1	2	3	4	7	14	48	62
34	1	39	40		1	1	5	2	7	6	42	48
35	3	19	22		1	1		4	4	3	23	26
36		12	12					4	4		16	16
37		4	4					1	1		5	5
38		4	4					1	1		6	6
39		3	3					4	4		7	7
40		1	1					1	1		2	2
41								1	1		1	1
42												
43												
44								2	2		2	2
45												
46								1	1		1	1
Total	711	948	1659	132	205	337	32	39	71	875	1192	2067
Mean length, cm	26,0	27,8	27,0	23,7	24,9	24,4	29,0	34,2	31,8	25,7	27,5	26,7

Table 22. Length composition (ind.) of *S. marinus* in Russian trawl catches in NAFO Div. 3LN in 2010

Length, cm	Division 3L			Division 3N			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
34					1	1		1	1
35					1	1		1	1
36				1		1	1		1
37				4		4	4		4
38	1		1			0	1		1
39		1	1	2	2	4	2	3	5
40				6	1	7	6	1	7
41				5	3	8	5	3	8
42	1		1	2	1	3	3	1	4
43				4	2	6	4	2	6
44				3	2	5	3	2	5
45	1		1	1	5	6	2	5	7
46									
47					1	1		1	1
48				1	4	5	1	4	5
49					3	3		3	3
50					5	5		5	5
51					1	1		1	1
52									
53									
54					1	1		1	1
55		1	1			0		1	1
Total	3	2	5	29	33	62	32	35	67
Mean length, cm	41,7	47,0	43,8	41,0	45,2	43,2	41,0	45,3	43,3

Table 23. Length composition (ind.) of *S. fasciatus* in Russian trawl catches
in NAFO Div. 3LN in 2010

Length, cm	Division 3L			Division 3N			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
17				1		1	1		1
18				24	10	34	24	10	34
19	1	1	2	329	119	448	330	120	450
20	7	3	10	734	438	1172	741	441	1182
21	6	13	19	826	836	1662	832	849	1681
22	11	10	21	440	719	1159	451	729	1180
23	11	12	23	451	469	920	462	481	943
24	16	4	20	630	298	928	646	302	948
25	23	5	28	752	371	1123	775	376	1151
26	17	7	24	585	388	973	602	395	997
27	19	22	41	349	385	734	368	407	775
28	9	34	43	210	400	610	219	434	653
29	7	33	40	90	357	447	97	390	487
30	3	38	41	31	316	347	34	354	388
31		28	28	8	213	221	8	241	249
32	1	20	21	3	161	164	4	181	185
33	2	17	19	1	91	92	3	108	111
34		11	11	1	48	49	1	59	60
35		8	8		42	42		50	50
36		3	3		18	18		21	21
37		4	4		8	8		12	12
38		5	5		5	5		10	10
39		2	2	1	3	4	1	5	6
40		1	1			0		1	1
Total	133	281	414	5466	5695	11161	5599	5976	11575
Mean length, cm	25,1	29,1	27,8	23,3	25,0	24,2	23,3	25,2	24,3

Table 24. Occurrence of marine mammals in the NAFO Regulatory Area in 2010

Date	Coordinates N-W	Reported species	Quantity	Remarks
25-30.05	46°20'- 47°54' c.ш.	Sperm whale	1	Observed when hauling the trawl
	46°35'- 47°12' з.д.	Bottle-nosed dolphin	1	
31.05-08.06	47°57'- 48°08' c.ш.	Sperm whale	3-5	Observed when hauling the trawl
	46°40'- 47°36' з.д.	Dolphin	2-5	
17-19.06	46°20'- 47°44' c.ш. 46°36'- 47°10' з.д.	Sperm whale	2	Observed when hauling the trawl
		Bottle-nosed dolphin	2	
		Dolphin	1-2	
20.06-14.07	48°06'- 48°12' c.ш. 46°36'- 47°41' з.д.	Sperm whale	2-7	Observed when hauling the trawl
		Dolphin	2	
29.06	48°09'c.ш.- 47°40' з.д.	Bottle-nosed dolphin	6	Moved eastward
24.07-01.08	48°06'c.ш.- 47°41' з.д.	Sperm whale	2-6	Observed when hauling the trawl
		Bottle-nosed dolphin	1	
		Dolphin	1	
06.08	42°52'c.ш.- 49°52' з.д.	Dolphin	5	Moved eastward
27.08	43°36'c.ш.- 49°10' з.д.	Dolphins	6	Moved northward

Table 25. Catches of cold-water corals in the NAFO Regulatory Area in 2010

Date	Trawling coordinates	Fishing depth, m	Order	Quantity, ind.	Length, cm	Catch, kg
26.05	46°41'N 46°35'W-	1020	Pennatulacea	1	25	0,005
	46°20'N 46°41'W	1110	Antipatharia	2		0,004
27.05	46°24'N 46°44'W-	1080	Pennatulacea	13	11-36	0,065
	46°40'N 46°45'W	1150				
28.05	47°54'N 46°40'W-	1000	Pennatulacea	27	7-94	0,101
		1010	Antipatharia	1		0,005
			Alcyonacea			0,420
29.05	47°24'N 47°08'W-	800	Pennatulacea	41	3-42	0,240
			Antipatharia			0,005
			Alcyonacea	7		0,040
30.05	47°11'N 47°12'W-	730	Pennatulacea	2	32-38	0,030
		760	Antipatharia			0,001
			Alcyonacea	31		0,265
02.06	47°57'N 46°44'W-	860	Pennatulacea	16	3-43	0,080
	47°39'N 46°55'W	900	Antipatharia			0,010
06.06	46°46'N 46°45'W-	1030	Pennatulacea	37	13-45	0,255
	46°28'N 46°42'W	1110	Antipatharia			0,010
08.06	48°06'N 47°09'W-	780	Radicipies	1		0,001
	48°06'N 47°07'W					
16.06	45°48'N 47°49'W-	830	Pennatulacea	1	26	0,015
	45°38'N 48°04'W	940				
17.06	46°22'N 46°41'W-	1000	Pennatulacea	5	20-29	0,040
	46°41'N 46°36'W	1070	Antipatharia			0,013
18.06	46°43'N 46°46'W-	1100	Pennatulacea	15	6-49	0,065
	46°23'N 48°43'W	1160	Antipatharia			0,040
			Pennatulacea	37		0,200
19.06	47°30'N 47°04'W-	800	Antipatharia			0,010
	47°44'N 46°52'W	840	Alcyonacea	6		0,045
			Radicipies	1		0,001
23.06	48°08'N 47°40'W-	780	Antipatharia			0,010

	48°06'N 47°41'W	950				
27.06	48°12'N 46°56'W-	1015	Antipatharia			0,020
	48°08'N 47°23'W	1050				
30.06	48°10'N 47°15'W-	1110	Alcyonacea	1		0.015
	48°10'N 47°43'W	1200				
05.07	47°56'N 46°42'W-	920	Pennatulacea	42	4-56	0,170
	47°41'N 46°52'W	940	Radicipes	1		0,001
09.07	48°06'N 47°10'W-	795	Antipatharia			0,020
	48°08'N 47°37'W	835				
12.07	48°06'N 47°11'W-	800	Pennatulacea	3	17-20	0,140
	48°08'N 47°38'W		Antipatharia			0,008
23.07	47°01'N 47°12'W-	745	Pennatulacea	3	14-15	0,035
	47°23'N 47°08'W	780	Antipatharia			0,005
			Alcyonacea	57		1,230
24.07	48°08'N 47°36'W-	800	Alcyonacea			0,005
	48°07'N 47°07'W	805	Antipatharia			0,005
25.07	48°08'N 47°37'W-	800	Pennatulacea	2		0,030
	48°07'N 47°08'W	830				
26.07	48°08'N 47°38'W-	780	Pennatulacea	1		0,015
	48°06'N 47°07'W	800	Antipatharia			0,005
27.07	48°06'N 47°09'W-	730	Pennatulacea	1	6	0,001
	48°08'N 47°37'W	800				
28.07	48°07'N 47°38'W-	790	Pennatulacea	2	20	0,030
	48°07'N 47°08'W	810				
29.07	48°08'N 47°37'W-	740	Antipatharia			0,010
	48°06'N 47°08'W	805				
30.07	48°08'N 47°37'W-	790	Antipatharia			0,010
	48°07'N 47°07'W	830				
			Radicipes	1	25	0,001
01.08	47°30'N 47°03'W-	850	Antipatharia			0,020
	47°10'N 47°09'W	870	Alcyonacea			2.190
			Pennatulacea	19	3-40	0.205
04.08	42°58'N 49°44'W-	340	Alcyonacea	1	11	0,035
	43°01'N 49°41'W	350				
07.08	42°55'N 49°50'W-	325	Alcyonacea			0,080
	42°50'N 49°56'W	335				
08.08	42°49'N 49°56'W-	460	Alcyonacea			0,045
	42°56'N 49°50'W	470				
13.08	42°50'N 49°57'W-	280	Alcyonacea			0,015
	42°56'N 49°51'W					
14.08	42°55'N 49°50'W-	300	Pennatulacea	1	37	0,005
	42°49'N 49°59'W	340				
26.08	42°57'N 49°47'W-	280	Alcyonacea			0,010
	43°02'N 49°43'W	300				