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Russian Research Report for 2013

by

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SUBAREAS 1+2**A. Status of Fisheries***Greenland halibut*

The directed trawl fishery for Greenland halibut was conducted in July-December. In accordance with quota allocation for two divisions, the fisheries off West Greenland were carried out to the north (Div. 1A) and to the south (Divs.1 CD) of 68°N.

In the area to the north of 68°N four trawlers were engaged in fishery. The trawlers fished within a comparatively small area between 69°11'N–70°06'N and 60°58'W–59°00'W at the depths of 760–1,115 m. According to the preliminary data, the catch of Greenland halibut was 545.7 t. There was a by-catch of 1.6 t of northern wolffish and 0.3 t of roughhead grenadier (Table 2). The catch rate varied by months from 5.8 t to 15.0 t and averaged 10.6 t per fishing vessel day.

In the area south of 68°N, up to six Russian trawlers participated in the fishery. The trawlers operated from July to December in the area between 63°07'N– 64°29'N and 57°59'W– 54°57'W, at depths of 880–1,520 m. The catch rate per fishing vessel day ranged from 6.2 t to 15.5 t and averaged 10.8 t. According to the preliminary data, the catch of Greenland halibut was 1,222.5 t. The by-catch was comprised of 6.2 t of northern wolffish and 6.6 t of roughhead grenadier (Table 2).

In general, the annual catch of Greenland halibut taken by the Russian fleet off West Greenland amounted to 1,768.2 t (Table 1). Skates, northern wolffish and roughhead grenadier occurred in the by-catch (Table 2).

Other fish species

There was no directed fishery for other fish species.

B. Dedicated Research Studies

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

Greenland halibut

In Div. 1A, the length of Greenland halibut in catches ranged from 32 cm to 82 cm, specimens as long as 48 – 52 cm prevailed. The mean length of males and females was 48.1 cm and 50.3 cm, respectively. Sex ratio of males to females was 1.5:1 (Table 3).

In Div. 1D, halibut as long as 34-102 cm and, primarily, 46-52 cm occurred in the catches. The length of males averaged 49.9 cm, of females – 55.3 cm. The sex ratio was 4.6:1.

The age of halibut from the samples collected in the West Greenland area varied from 4 to 14 (Table 4).

Vulnerable Marine Ecosystems

The data on catches of cold-water corals were presented in the working document to the meeting of the ICES/NAFO Joint Working Group on Deep-water Ecology (WGDEC) in February 2014 (Vinnichenko, Kanishchev, Fomin, 2014).

Marine mammals

According to the results of observations aboard fishing vessels, no marine mammals were found.

Discards in the directed Greenland halibut fishery

During 2013, there were no discards registered.

SUBAREA 3

A. Status of Fisheries

Greenland halibut

Four trawlers were engaged in the directed fishery for Greenland halibut from January to December. The trawlers were fishing in the areas on the continental slope adjacent to the deep-water Flemish Pass (Div. 3L) between 43°06'N – 48°54'N at 700 – 1,500 m depths. Occasionally, the trawlers also fished in Divs. 3M and 3N at 640 - 1,250 m depths. In general, the catch rate per fishing vessel day in the area ranged from 0.6 t to 10.2 t and averaged 7.2 t per fishing vessel day and 0.44 t per hour of hauling.

In general, the annual catch of Greenland halibut taken in the directed fishery amounted to 1,450.9 t. In addition, 18.1 t of Greenland halibut were caught in the multispecies fishery. According to the preliminary data, the total catch of Greenland halibut was 1,469.0 t under the Russian quota of 1,466.0 t (Table 1). The by-catch was comprised of Atlantic halibut, roughhead and roundnose grenadiers, redfishes, American plaice, witch flounder, skates as well as northern wolffish and cod (Table 5).

Cod

The directed fishery for cod on the Flemish Cap Bank was conducted between 46°26' N – 47°28'N and 46°24'W – 44°08'W at depths of 160 – 500 m in January and February. Favourable conditions for fishing operations were reported in January, in the area between 46°26' N – 46°42'N and 46°12' W – 44°36'W, where the average daily catch rate was 32.4 t. The annual catch of cod taken by Russian fishing vessels in the directed fishery was 528.6 t, where 25.9 t of redfishes, 0.7 t of witch flounder, 2.0 t of American

plaice, 0.2 t of skates and 0.8 t of Atlantic halibut were taken as a by-catch. Furthermore, 303.0 t of cod were taken as a by-catch in the redfish fishery and 64.4 t were obtained in the multispecies fishery. The total Russian catch of cod on the Flemish Cap was 896.0 t (Table 1).

Atlantic redfishes on the Flemish Cap

The redfish fishery was conducted from January to July between 46°27'N - 48°15'N and 46°29'W - 43°36'W at depths of 170 – 640 m. The commercial vessels fished with bottom trawls and the catch rate varied from 4.3 to 55.1 t and averaged 21.8 t per fishing vessel day.

In total, the annual catch taken by Russian fishing vessels in the directed redfish fishery, according to the preliminary data, was 1,749.1 t. Atlantic halibut, cod, northern wolffish, witch flounder, American plaice, skates, roundnose grenadier were taken as a by-catch (Table 6).

25.9 t and 2.2 t of redfishes were taken as a by-catch in the cod and Greenland halibut fisheries. In catches, the portion of redfish in multispecies fishery reached 34.9 t (Table 1). The total Russian catch of redfishes in the area was 1812.0 t (Table 1).

Atlantic redfishes on the Grand Banks

In Div. 3O, Russian trawlers sporadically fished in the south-western Grand Bank of Newfoundland from January to December, during 50 days in total. Bottom trawls were used in the fishery, which was conducted in the area between 43°04'N – 43°25'N and 51°01'W – 51°43'W at the depths of 100–545 m.

The highest catch rates in bottom trawling were recorded in January and June, when the catch rates were 9.3 t and 7.8 t per hour of hauling respectively.

In total, in 2013, Russian fishing vessels caught 1,428.0 t of redfishes in the directed fisheries. Cod, American plaice, witch flounder, white hake, skate, haddock, hake, yellowtail flounder, angler and Atlantic halibut occurred in the by-catch (Table 6). Also, the redfish by-catch was recorded in the fisheries of skates (0.3 t), white hake (0.8 t) and in the multispecies fishery (24.9 t). The total Russian catch of redfishes amounted to 1,454.0 t (Table 1).

In Div. 3LN, the fishery was conducted from January to December between 42°49'N – 47°52'N and 49°57'W – 46°31'W at depths of 170 – 530 m. The catch rates in bottom trawling ranged from 3.2 t to 23.2 t and averaged 13.9 t per fishing vessel day. In total, 1761.4 t of redfishes were taken in the directed fishery. Cod, witch flounder, American plaice, Atlantic halibut, skates, yellowtail flounder, roundnose grenadier and northern wolffish were found in the by-catch (Table 6). 13.7 t and 15.9 t of redfishes were also taken as a by-catch in the Greenland halibut and multispecies fisheries, respectively.

The total Russian catch of redfishes amounted to 1791.0 t (Table 1).

Yellowtail flounder (Limanda ferruginea)

The Russian directed fishery for yellowtail flounder was conducted during a short period of time in January between 43°41'N – 43°52'N and 49°29'W – 49°18'W, where the average daily catch rate was 17.0 t. Also, in December, there was one hauling at 44°40'N and 49°06'W, where 10.1 t of the flounder were caught. In 2013, Russian fishing vessels caught 94.2 t of yellowtail flounder in the directed fishery (Table 1). 8.1 t of American plaice, 2.3 t of cod and 2.1 t of skates were taken as a by-catch. Besides, 9.7 t and 61.7 t were taken in the skate and multispecies fisheries, respectively.

Other fish species

There was no directed fishery for other species. The by-catch of other fish species in the directed fisheries amounted to 1 – 17%.

B. Dedicated Research Studies

No surveys to assess the stocks of target species were carried out. Biological data were collected by NAFO observers on fishing vessels.

Greenland halibut (Reinhardtius hippoglossoides)

In Div. 3L, Greenland halibut from 28 cm to 92 cm in length occurred, with a mean length of 46.4 cm. Individuals as long as 44 – 46 cm prevailed (Table 7).

In Div. 3M, the length of Greenland halibut varied from 32 cm to 94 cm, predominately it was 42-46 cm. The average length was 49.4 cm.

In Div. 3N, Greenland halibut length was equal to 28-96 cm with a mean length of 52.0 cm. The specimens 44-48 cm in length predominated.

In general, the length of Greenland halibut in Div. 3LMNO was 28-96 cm, with a mean length of 46.6 cm.

Acadian redfish (Sebastes fasciatus)

In Div. 3L, the catches were comprised of Acadian redfish from 17 cm to 36 cm in length. The mean length of females was 26.7 cm, whereas that of males was 23.1 cm. Individuals from 20 cm to 22 cm prevailed in the catches (Table 8).

In Div.3M, several redfish individuals as long as 25-29 cm were caught. The average length was 27.9 cm.

In Div. 3N, Acadian redfish from 15 cm to 40 cm in length were found in the catches. Individuals having a length of 21-23 cm made up the bulk of the catches. The mean length of males was 22.2 cm, whereas among females the mean length was 23.4 cm.

In Div. 3O, Acadian redfish as long as 18-30 cm, mainly 21-22 cm, were typical. The mean length of males was 21.3 cm, whereas among females the mean length was 21.9 cm.

Deep-sea redfish (Sebastes mentella)

In Div. 3L, the length of deep-sea redfish varied from 21 to 43 cm, being mainly 30-32 cm. The mean length was 31.1 cm (Table 9).

In Div. 3M, the only male as long as 27 cm was caught.

In Div. 3N, deep-sea redfish were taken as single specimens in the by-catch. Individuals from 31 cm to 35 cm in length, being 32.6 cm, on the average, occurred in the by-catch.

Golden redfish (Sebastes marinus)

In Div. 3M, length of golden redfish ranged from 20 cm to 58 cm and averaged 36.0 cm (Table 10).

In Div. 3L, a single male 44 cm in length was reported.

Roughhead grenadier (Macrourus berglax)

In Div. 3L, the total length of roughhead grenadier in the catches varied from 30 cm to 81 cm, being mainly 42-48 cm. The mean length was 49.5 cm (Table 11).

In Div. 3M, the fish were taken in small numbers, the length varied from 39 cm to 81 cm and, primarily, from 48 to 51 cm, with a mean one of 56.8 cm.

In Div. 3N, roughhead grenadiers were 33-87 cm, mainly 48-51 cm in length. The mean length of roughhead grenadier was 53.8 cm.

In Div. 3O, one fish as long as 51 cm was found.

In general, roughhead grenadier from 30 cm to 87 cm in length occurred in Div. 3LN. The mean length was 51.1 cm.

Roundnose grenadier (Coryphaenoides rupestris)

Small numbers of the fish were caught in Div. 3M, the length of measured roundnose grenadier ranged from 36 cm to 72 cm. The mean length was 53.9 cm (Table 12).

In Divs. 3L and 3N, single individuals were captured, the length ranged from 48 cm to 66 cm and from 39 cm to 60 cm with the means of 55.0 cm and 50.5 cm, respectively.

American plaice (Hippoglossoides platessoides)

In Div. 3L, American plaice as long as 28-50 cm were taken as a by-catch. The mean length of American plaice was 38.7 cm (Table 13).

In Div. 3M, the length of American plaice varied from 36 to 58 cm with 47.4 cm, on the average.

In Div. 3N, the length of American plaice ranged from 22 cm to 58 cm, being 37.3 cm on average.

Witch flounder (Glyptocephalus cynoglossus)

In Div. 3L, witch flounder ranging from 34 cm to 50 cm in length were taken as a by-catch in the redfish fishery. The mean length of witch flounder was 41.1 cm (Table 14).

In Div. 3M and Div. 3N, witch flounder length varied within 36-52 cm and 38-50 cm with the means of 44.7 cm and 44.3 cm, respectively.

In Div. 3O, the length of witch flounder ranged from 26 cm to 46 cm. The mean length was 37.2 cm. Witch flounder as long as 36-38 cm made up the bulk of the catches.

Cod (Gadus morhua)

On the Flemish Cap Bank, the length of cod varied from 34 cm to 124 cm and the mean length was 59.5 cm (Table 15). Cod as long as 42-48 cm made up the bulk of the catches.

In Div. 3N, cod length varied from 30 cm to 106 cm with the prevalence of fish 52-56 cm in length, the average length was 53.8 cm.

In Div. 3O, 96 individuals of cod, being as long as 32-64 cm and having the mean length of 46.2 cm were captured.

Threebeard rockling (Gaidropsarus ensis)

In Div. 3L, the length of threebeard rockling varied from 27 cm to 48 cm. The mean length was 38.8 cm (Table 16). Individuals as long as 36-39 cm made up the bulk of the catches. Sex ratio of males to females was 1:3.4.

In Divs. 3M and 3N, the fish were caught as single specimens with the average length of 46.0 cm and 41.5 cm, respectively.

Thorny skate (Amblyraja radiata)

In Div. 3L, thorny skates ranging from 60 cm to 84 cm in length occurred in the catches of redfishes (Table 17). The mean length was 71.5 cm.

In Div. 3M, thorny skates were taken as single fish with the average length of 39-60 cm. The mean length was 54.5 cm.

In Div. 3N, also single fish with the average length of 63.3 cm were found in by-catches.

White hake (Urophycis tenuis)

Small numbers of white hake were found in by-catches. In Divs. 3N and 3O, the fish length varied from 39 cm to 75 cm and from 45 cm to 57 cm with the means of 59.2 cm and 49.8 cm, respectively (Table 18).

Black dogfish (Centroscyllium fabricii)

The length of males varied, on the whole, from 48 cm to 66 cm, the mean length was 68.8 cm (Table 19). Among females, the individuals as long as 45-78 cm, being 61.3 cm in length, on the average, occurred.

Northern wolffish (Anarhichas denticulatus)

In Div. 3L, the length of northern wolffish varied from 42 cm to 114 cm, the mean length was 68.8 cm (Table 20). Northern wolffish as long as 51-54 cm made up the bulk of the catches.

In Div. 3M, single northern wolffish as long as 51-108 cm, being 77.4 cm, on the average, were taken in the by-catches.

In Div. 3N, the northern wolffish ranging from 39 cm to 105 cm were sporadically taken. The mean length was 63.7 cm.

Atlantic wolffish (Anarhichas lupus)

In Divs. 3MNO, Atlantic wolffish were captured in small numbers. The length varied from 36 cm to 72 cm, being 52.2 cm on the average (Table 21).

Spotted wolffish (Anarhichas minor)

Spotted wolffish were sporadically captured in Divs. 3MN. The length ranged from 42 cm to 108 cm, being 79.8 cm, on the average (Table 22).

Blue hake (Antimora rostrata)

In Div. 3LMN, blue hakes were as long as 21-57 cm in length, being 41.7 on the average (Table 23). Individuals as long as 33-36 cm made up the bulk of the catches.

Marlin-spine grenadier (Nezumia bairdii)

In Divs. 3LN, the total length of marlin-spine grenadier varied from 27 to 42 cm being 34.9 cm, on the average. Marlin-spine grenadier as long as 33-36 cm made up the bulk of the catches (Table 24).

Atlantic halibut (Hippoglossus hippoglossus)

In Divs. 3LMN, Atlantic halibut were sporadically captured. The length ranged from 64 cm to 120 cm. The mean length was 93.2 cm (Table 25).

Other fish species

In the course of the fishery, small numbers of haddock, hake, angler and other fish species were found in the by-catches.

VME indicator species

The information on the catches of cold-water corals was presented in a working document for the meeting of ICES/NAFO Joint Working Group on Deep-water Ecology (WGDEC) in February 2014 (Vinnichenko, Kanishchev, Fomin, 2014).

Marine mammals

By the observations aboard fishing vessels, white-beaked dolphins, sperm whales, harp and hooded seals were sighted in Divs. 3LMN in January-April (Table 26). In all, there were 31 cases of observations (Table 27).

No discards during fisheries for main fish species were reported.

References

Vinnichenko V.I., Kanishchev A.A. and Fomin K.Yu. Russian catches of cold-water corals and sponges in the North Atlantic based on the data of observations aboard fishing vessels in 2013. Working Document for ICES/NAFO WGDEC 2014. 11 pp.

TABLE 1. Preliminary catches taken by Russian trawlers in NAFO SA 1-3 in 2013.

Species	Division	Catch, t
Greenland halibut	1A	545,7
	1B	0,0
	1C	482,0
	1D	740,5
	1ABCD	1768,2
Greenland halibut	3L	1302,6
	3M	131,4
	3N	35,0
	3O	0,0
	3LMNO	1469,0
American plaice	3L	27,4
	3M	21,7
	3N	176,3
	3O	36,9
	3LMNO	262,4
Yellowtail flounder	3N	166,0
	3O	6,4
	3NO	172,0
Witch flounder	3L	10,1
	3M	66,7
	3N	14,9
	3O	39,0
	3LMNO	131,0
Roughhead grenadier	3L	13,0
	3M	2,1
	3N	1,1
	3LMN	16,2
Roundnose grenadier	3L	13,1
	3M	4,2
	3N	1,0
	3LMN	18,2
Redfish spp.	3L	794,0
	3M	1812,0
	3N	997,0
	3O	1454,0
	3LMNO	5057,0
Skate	3L	12,4
	3M	6,0
	3N	301,3
	3O	79,1
	3LMNO	398,0
Atlantic cod	3L	42,8
	3M	896,0
	3N	91,8
	3O	26,1
	3MNO	1056,7

Species	Division	Catch, t
Wolffish spp.	3L	9,4
	3M	0,9
	3N	0,2
	3LMN	10,5
Wolffish spp.	1A	2,0
	1C	3,0
	1D	3,0
	1ACD	8,0

TABLE 2. By-catch at directed Greenland halibut fishery by Russian bottom trawlers from NAFO Divs. 1AD in 2013.

Species	Weight, t
Div. 1A	
Roughhead grenadier	0,308
Northern wolffish	1,608
Div. 1D	
Roughhead grenadier	6,599
Northern wolffish	6,157
Total	
Roughhead grenadier	6,907
Northern wolffish	7,765

TABLE 3. Greenland halibut (*Reinhardtius hippoglossoides*) length composition (ind.) of the Russian trawl catches in NAFO Div. 1AD in 2013.

Length, cm	1A			1D			1AD		
	Females	Males	Total	Females	Males	Total	Females	Males	Total
32	2	1	3			0	2	1	3
34	5	17	22	1	2	3	6	19	25
36	15	12	27	1	5	6	16	17	33
38	23	32	55	5	27	32	28	59	87
40	40	93	133	40	100	140	80	193	273
42	73	163	236	65	225	290	138	388	526
44	107	208	315	84	615	699	191	823	1014
46	113	242	355	121	990	1111	234	1232	1466
48	150	280	430	138	1303	1441	288	1583	1871
50	152	244	396	152	1261	1413	304	1505	1809
52	169	216	385	157	992	1149	326	1208	1534
54	118	91	209	126	613	739	244	704	948
56	74	50	124	113	345	458	187	395	582
58	42	25	67	92	125	217	134	150	284
60	27	10	37	76	73	149	103	83	186
62	16	9	25	61	41	102	77	50	127
64	11	10	21	41	23	64	52	33	85
66	8	2	10	35	12	47	43	14	57
68	3		3	29	7	36	32	7	39
70	5		5	23	4	27	28	4	32
72	4		4	23	1	24	27	1	28
74	2		2	18	1	19	20	1	21
76	1		1	17	1	18	18	1	19
78	1		1	12		12	13		13
80			0	13		13	13		13
82	1		1	10		10	11		11
84			0	8		8	8		8
86			0	6		6	6		6
88			0	6		6	6		6
90			0	2		2	2		2
92			0	2		2	2		2
94			0	1		1	1		1
96			0	1		1	1		1
98			0	1		1	1		1
100				0			0		
102			0	1		1	1		1
Total	1162	1705	2867	1481	6766	8247	2643	8471	11114
Mean length, cm	50,27	48,05	48,9	55,27	49,91	50,9	53,07	49,54	50,38

TABLE 4. Greenland halibut (*Reinhardtius hippoglossoides*) age-length composition (ind.) of the Russian trawl catches in NAFO Divs. 1AD in 2013.

Length, cm	4	5	6	7	8	9	10	11	12	13	14	Total	Weight, g
32	1											1	220,0
34	1											1	310,0
36		2										2	385,0
38		9										9	451,1
40		5	1									6	548,3
42		2	7	2								11	637,3
44			13	1								14	718,6
46			13	12								25	862,0
48			3	23	3							29	970,0
50			2	22	11							35	1084,9
52				7	26	1						34	1278,8
54					13	2						15	1406,0
56					2	2						4	1495,0
58						6						6	1815,0
60						4	3					7	1831,4
62								1				1	2620,0
64							1	3	1			5	2532,0
66								3	1			4	2615,0
68									3			3	3033,3
70									1	1		2	3475,0
72										4		4	3702,5
74												0	0
76												0	0
78											1	1	4690,0
Total	2	18	39	67	55	15	4	7	6	5	1	219	
Mean weight, g	265,0	491,1	769,2	1004,3	1265,6	1735,3	1857,5	2544,3	3045,0	3684,0	4690,0	219	1227,9
Mean length, cm	33,0	39,4	45,2	49,0	52,5	57,7	61,3	65,0	68,0	71,8	78,0	219	50,8

TABLE 5. By-catch at directed Greenland halibut fishery by Russian bottom trawlers from NAFO Divs. 3LMNO in 2013.

Species	Weight, t
Redfish spp.	15,840
Witch flounder	1,287
American plaice	11,992
Skate spp.	3,824
Northern wolffish	10,145
Routhead grenadier	14,198
Roundnose grenadier	11,310
Atlantic cod	0,833

TABLE 6. By-catch at directed redfish fishery by Russian bottom trawlers from NAFO Divs. 3LMNO in 2013.

Species	Weight, t
Divs. 3LN	
Cod	50,013
Witch flounder	7,747
American plaice	25,458
Atlantic halibut	22,273
Northern wolffish	0,079
Roundnose grenadier	0,082
Yellowtail flounder	0,062
Skate spp.	11,536
Div. 3M	
Cod	303,023
Witch flounder	2,706
American plaice	13,927
Atlantic halibut	8,617
Northern wolffish	0,269
Roundnose grenadier	0,510
Skate spp.	2,840
Микрорайон 3O	
Cod	25,730
Witch flounder	27,838
American plaice	31,749
White hake	16,913
Atlantic halibut	4,522
Yellowtail flounder	6,363
Skates	18,844
Haddock	0,346
Hake	17,455
Angler	1,904
Total	
Cod	378,766
Red witch flounder	38,291
American plaice	71,134
White hake	16,913
Atlantic halibut	35,412
Yellowtail flounder	6,425
Northern wolffish	0,348
Roundnose grenadier	0,592
Skate spp.	33,22
Haddock	0,346
Hake	17,455
Angler	1,904

TABLE 7. Greenland halibut (*Reinhardtius hippoglossoides*) length composition (ind.) of the Russian trawl catches in NAFO Divs. 3LMN in 2013.

Length, cm	3L			3M			3N			3LMN		
	Females	Males	Total									
28	2	4	6			0		1	1	2	5	7
30	34	24	58			0		1	1	34	25	59
32	129	113	242	2	1	3	2	1	3	133	115	248
34	306	283	589	3	3	6	3	1	4	312	287	599
36	432	332	764	20	9	29	3		3	455	341	796
38	713	515	1228	24	28	52	9	6	15	746	549	1295
40	1290	889	2179	55	44	99	16	12	28	1361	945	2306
42	1717	1114	2831	84	66	150	15	9	24	1816	1189	3005
44	2135	1177	3312	116	55	171	19	9	28	2270	1241	3511
46	2114	1181	3295	112	65	177	16	11	27	2242	1257	3499
48	1815	890	2705	99	36	135	18	14	32	1932	940	2872
50	1476	670	2146	66	37	103	18	4	22	1560	711	2271
52	1058	411	1469	63	29	92	19	6	25	1140	446	1586
54	729	244	973	54	14	68	17	7	24	800	265	1065
56	540	164	704	39	14	53	13		13	592	178	770
58	319	80	399	21	4	25	6	1	7	346	85	431
60	254	36	290	19	5	24	11	1	12	284	42	326
62	169	10	179	15	2	17	7	1	8	191	13	204
64	117	2	119	21		21	15		15	153	2	155
66	76		76	14		14	9		9	99		99
68	45	1	46	19		19	7		7	71	1	72
70	41	2	43	18	1	19	3		3	62	3	65
72	17		17	7		7	6		6	30		30
74	19		19	10		10	5		5	34		34
76	7		7	9		9	4		4	20		20
78	12		12	4		4	3		3	19		19
80	8		8	3		3			0	11		11
82	2		2	2		2	1		1	5		5
84	2		2	1		1	3		3	6		6
86	3		3	3		3			0	6		6
88			0	2		2			0	2		2
90			0	1		1			0	1		1
92	1		1	1		1			0	2		2
94			0	1		1	1		1	2		2
96			0			0	1		1	1		1
Total	15582	8142	23724	908	413	1321	250	85	335	16740	8640	25380
Mean length, cm	47,14	44,93	46,4	50,89	46,06	49,4	54,11	45,84	52,0	47,45	44,99	46,61

TABLE 8. Length composition (ind.) of *S. fasciatus* in Russian trawl catches in NAFO Divs. 3LMNO in 2013.

Length, cm	3L			3M			3N			3O			3LMNO		
	Females	Males	Total												
15			0			0		1	1			0		1	1
16			0			0	2	4	6			0	2	4	6
17		2	2			0	7	13	20			0	7	15	22
18		4	4			0	12	36	48	1	6	7	13	46	59
19	5	2	7			0	73	137	210	16	37	53	94	176	270
20	13	12	25			0	301	553	854	107	152	259	421	717	1138
21	3	31	34			0	701	1115	1816	232	290	522	936	1436	2372
22	15	25	40			0	986	1060	2046	255	205	460	1256	1290	2546
23	8	8	16			0	976	689	1665	148	93	241	1132	790	1922
24	2	11	13			0	725	385	1110	50	25	75	777	421	1198
25	7	6	13	1		1	404	237	641	22	10	32	434	253	687
26	10	12	22			0	230	108	338	12	2	14	252	122	374
27	5	12	17	2		2	152	45	197	3	1	4	162	58	220
28	4	3	7	1	2	3	108	22	130	5		5	118	27	145
29	10	3	13	4		4	89	13	102	1		1	104	16	120
30	15	1	16			0	68	13	81	1		1	84	14	98
31	8		8			0	56	12	68			0	64	12	76
32	12		12			0	28	11	39			0	40	11	51
33	4		4			0	20	8	28			0	24	8	32
34	3	1	4			0	6	6	12			0	9	7	16
35	1	1	2			0	3	3	6			0	4	4	8
36	3		3			0	1	5	6			0	4	5	9
37			0			0	2	5	7			0	2	5	7
38			0			0		3	3			0		3	3
39			0			0	1	2	3			0	1	2	3
40			0			0	1		1			0	1		1
Total	128	134	262	8	2	10	4952	4486	9438	853	821	1674	5941	5443	11384
Mean length, cm	26,65	23,05	24,8	27,88	28,0	27,9	23,36	22,21	22,8	21,91	21,34	21,6	23,22	22,1	22,69

TABLE 9. Length composition (ind.) of *S. mentella* in Russian trawl catches in NAFO Divs. 3LMN in 2013.

Length, cm	3L			3M	3N			Total		
	Males	Females	Total	Males	Males	Females	Total	Males	Females	Total
21		1	1				0		1	1
22	1	2	3				0	1	2	3
23	3	4	7				0	3	4	7
24	9	8	17				0	9	8	17
25	10	11	21				0	10	11	21
26	8	15	23				0	8	15	23
27	20	24	44	1			0	21	25	46
28	30	31	61				0	30	31	61
29	26	51	77				0	26	51	77
30	48	51	99				0	48	51	99
31	62	58	120			1	1	62	59	121
32	41	42	83		1		1	42	42	84
33	25	25	50			1	1	25	26	51
34	27	39	66				0	27	39	66
35	17	23	40		2	1	3	19	24	43
36	20	12	32				0	20	12	32
37	11	16	27				0	11	16	27
38	7	9	16				0	7	9	16
39	3	4	7				0	3	4	7
40	2		2				0	2		2
41	3		3				0	3		3
42		2	2				0		2	2
43	1	1	2				0	1	1	2
Total	374	429	803	1	3	3	6	378	433	811
Mean length, cm	31,2	30,97	31,1	27,0	34,0	33,0	32,6	31,22	30,97	31,09

TABLE 10. Length composition (ind.) of *S. marinus* in Russian trawl catches in NAFO Divs. 3LM in 2013.

Length, cm	3L	3M			Total		
	Males	Males	Females	Total	Males	Females	Total
20			1	1		1	1
21		2	1	3	2	1	3
22			1	1		1	1
23		2		2	2		2
24		2	4	6	2	4	6
25		1	2	3	1	2	3
26		4	10	14	4	10	14
27		5	6	11	5	6	11
28		6	8	14	6	8	14
29		2	6	8	2	6	8
30		6	10	16	6	10	16
31		1	10	11	1	10	11
32		7	9	16	7	9	16
33		8	8	16	8	8	16
34		10	21	31	10	21	31
35		9	15	24	9	15	24
36		10	11	21	10	11	21
37		8	10	18	8	10	18
38		9	7	16	9	7	16
39		9	9	18	9	9	18
40		4	11	15	4	11	15
41		3	10	13	3	10	13
42		7	8	15	7	8	15
43		7	5	12	7	5	12
44	1	11	2	13	12	2	14
45		4	2	6	4	2	6
46		8		8	8		8
47		6		6	6		6
48		3	2	5	3	2	5
49		3		3	3		3
50		4		4	4		4
51			1	1		1	1
52		1		1	1		1
53		2		2	2		2
54							
55							
56							
57		1		1	1		1
58		1		1	1		1
Total	1	166	190	357	167	190	358
Mean length, cm	44,0	37,86	34,42	36,0	37,86	34,47	36,04

TABLE 11. Roughhead grenadier (*Macrourus berglax*) length composition (ind.) of the Russian trawl catches in NAFO Divs. 3LMNO in 2013.

Length, cm	3L	3M	3N	3O	3LMNO
30	1	0	0		1
33	4	0	1		5
36	22	0	4		26
39	39	1	4		44
42	52	4	12		68
45	43	3	8		54
48	43	8	18		69
51	34	4	12	1	51
54	24	2	11		37
57	23	1	10		34
60	26	5	8		39
63	13	1	12		26
66	9	4	2		15
69	4	1	5		10
72	1	0	1		2
75	1	3	1		5
78	1	0	1		2
81	1	2	0		3
84					
87	0	0	1		1
Total	341	39	111	1	492
Mean length, cm	49,5	56,8	53,8	52,0	51,09

TABLE 12. Roundnose grenadier (*Coryphaenoides rupestris*) length composition (ind.) of the Russian trawl catches in NAFO Divs. 3LMN in 2013.

Length, cm	3L	3M	3N	3LMN
36	0	1	0	1
39	0	3	1	4
42	0	2	1	3
45	0	5	2	7
48	1	7	0	8
51	2	7	0	9
54	0	4	2	6
57	0	7	1	8
60	0	4	1	5
63	0	4	0	4
66	1	2	0	3
69	0	0	0	0
72	0	2	0	2
Total	4	48	8	60
Mean length, cm	55,0	53,9	50,5	53,5

TABLE 13. Length composition (ind.) of American plaice (*Hippoglossoides platessoides*) in Russian trawl catches in NAFO Divs. 3LMN in 2013.

Length, cm	3L	3M	3N	3LMN
22	0	0	1	1
24	0	0	1	1
26	0	0	8	8
28	1	0	11	12
30	3	0	19	22
32	6	0	40	46
34	18	0	90	108
36	8	1	83	92
38	14	3	96	113
40	11	2	39	52
42	8	5	30	43
44	4	8	23	35
48	4	2	12	18
48	3	3	7	13
50	3	5	2	10
52	0	4	2	6
54	0	4	0	4
56	0	1	0	1
58	0	2	2	4
Total	83	40	466	589
Mean length, cm	38,7	47,4	37,3	38,18

TABLE 14. Length composition (ind.) of Witch flounder (*Glyptocephalus cynoglossus*) in Russian trawl catches in NAFO Divs. 3LMNO in 2013.

Length, cm	3L	3M	3N	3O	3LMNO
26	0	0	0	1	1
28	0	0	0	5	5
30	0	0	0	3	3
32	0	0	0	13	13
34	3	0	0	27	30
36	3	1	0	34	38
38	7	3	2	38	50
40	8	4	7	19	38
42	7	8	11	11	37
44	2	12	11	3	28
46	1	3	8	4	16
48	2	6	6	0	14
50	2	5	2	0	9
52	0	1	0	0	1
Total	35	43	47	158	283
Mean length, cm	41,1	44,7	44,3	37,2	39,99

TABLE 15. Length composition (ind.) of Atlantic cod (*Gadus morhua*) in Russian trawl catches in NAFO Div. 3MNO in 2013.

Length, cm	3M	3N	3O	3LMNO
30		1		1
32			1	1
34	12		3	15
36	25		7	32
38	69	6	8	83
40	140	8	5	153
42	200	18	7	225
44	197	27	10	234
46	198	25	22	245
48	174	34	7	215
50	138	34	7	179
52	138	49	6	193
54	157	52	4	213
56	164	59	3	226
58	164	43	1	208
60	170	31	2	203
62	140	15	1	156
64	102	7	2	111
66	81	3		84
68	76	1		77
70	65	3		68
72	55			55
74	37	2		39
76	38	2		40
78	29			29
80	29	2		31
82	42	1		43
84	25			25
86	26	1		27
88	18	1		19
90	28			28
92	29			29
94	32			32
96	29			29
98	20			20
100	22			22
102	24			24
104	19			19
106	11	1		12
108	7			7
110	11			11
112	11			11
114	3			3
116	3			3
118	3			3
120	2			2
122	1			1
124	2			2
Total	2966	426	96	3488
Mean length, cm	59,47	53,77	46,19	58,41

TABLE 16. Length composition (ind.) of Threebeard rockling (*Gaidropsarus ensis*) in Russian trawl catches in NAFO Div. 3LMN in 2013.

Length, cm	3L			3M	3N	3LMN		
	Females	Males	Total	Females	Females	Females	Males	Total
27		2	2				2	2
30	5	4	9			5	4	9
33	12	13	25			12	13	25
36	32	10	42			32	10	42
39	34	6	40	1	1	36	6	42
42	29	2	31	1	1	31	2	33
45	12		12	3		15		15
48	2		2	3		5		5
Total	126	37	163	8	2	136	37	173
Mean length, cm	39,71	35,62	38,8	46,0	41,5	40,11	35,62	39,15

TABLE 17. Length composition (ind.) of Thorny skate (*Amblyraja radiata*) in Russian trawl catches in NAFO Div. 3LMN in 2013.

Length, cm	3L			3M			3N	3LMN		
	Females	Males	Total	Females	Males	Total	Females	Females	Males	Total
39			0	1		1		1		1
42										
45										
48			0	2		2		2		2
51			0	1		1		1		1
54			0	1	1	2		1	1	2
57			0		2	2			2	2
60	1		1	2	1	3		3	1	4
63	1		1			0		1		1
66	3		3			0	1	4		4
69	1		1			0		1		1
72										
75	1		1			0	1	2		2
78	2		2			0		2		2
81										
84		1	1			0			1	1
Total	9	1	10	7	4	11	2	18	5	23
Mean length, cm	70,0	85,0	71,5	52,43	58,0	54,5	71,5	63,33	63,4	63,35

TABLE 18. Length composition (ind.) of White hake (*Urophycis tenuis*) in Russian trawl catches in NAFO Div. 3NO in 2013.

Length, cm	3N	3O	3NO
39	1	0	1
42	0	0	0
45	0	3	3
48	3	5	8
51	2	1	3
54	1	1	2
57	1	1	2
60	2	0	2
63	2	0	2
66	1	0	1
69	3	0	3
72	0	0	0
75	1	0	1
Total	17	11	28
Mean length, cm	59,2	49,8	55,54

TABLE 19. Length composition (ind.) of Black dogfish (*Centroscyllium fabricii*) in Russian trawl catches in NAFO Div. 3LMN in 2013.

Length, cm	3L			3M	3N			3LMN		
	Female s	Male s	Total l	Female s	Female s	Male s	Total l	Female s	Male s	Total l
45			0		1		1	1		1
48			0			1	1		1	1
51	1		1		2		2	3		3
54	1		1		2	1	3	3	1	4
57			0	1	3	5	9	4	5	9
60	3	3	6		1	8	9	4	11	15
63	3	7	10	1	1	5	7	5	12	17
66	2	1	3		2		2	4	1	5
69	1		1		1		1	2		2
72	1		1	1			1	2		2
75			0	2			2	2		2
78	1		1				0	1		1
Total	13	11	24	5	13	20	33	31	31	62
Mean length, cm	64,46	63,45	64,0	69,4	58,69	60,1	60,8	62,84	61,29	62,0 6

TABLE 20. Length composition (ind.) of Northern wolffish (*Anarhichas denticulatus*) in Russian trawl catches in NAFO Div. 3LMN in 2013.

Length, cm	3L	3M	3N	3LMN
39	0	0	1	1
42	4	0	0	4
45	5	0	0	5
48	9	0	0	9
51	16	1	2	19
54	13	1	3	17
57	5	1	0	6
60	3	0	1	4
63	6	1	0	7
66	11	0	1	12
69	4	1	0	5
72	5	0	1	6
75	4	0	0	4
78	7	0	0	7
81	4	1	0	5
84	6	0	1	7
87	2	2	0	4
90	0	1	0	1
93	2	1	0	3
96	5	0	0	5
99	3	0	0	3
102	1	0	0	1
105	2	0	1	3
108	1	1	0	2
111	4	0	0	4
114	1	0	0	1
Total	123	11	11	145
Mean length, cm	68,8	77,4	63,7	69,05

TABLE 21. Length composition (ind.) of Atlantic wolffish (*Anarhichas lupus*) in Russian trawl catches in NAFO Div. 3MNO in 2013.

Length, cm	3M	3N	3O	3MNO
36		1		1
39				
42				
45		5		5
48		6	1	7
51		2		2
54		3	2	5
57	1	2		3
60	1	1		2
63				
66				
69				
72		1		1
Total	2	21	3	26
Mean length, cm	59,5	52,1	53,0	52,23

TABLE 22. Length composition (ind.) of Spotted wolffish (*Anarhichas minor*) in Russian trawl catches in NAFO Div. 3MN in 2013.

Length, cm	3M	3N	3MN
42		1	1
45	1		1
48			
51			
54		1	1
57			
60			
63			
66		1	1
69			
72		1	1
75			
78	1		1
81		2	2
84	1		1
87		3	3
90	1		1
93			
96		1	1
99			
102		1	1
105			
108	1		1
Total	5	11	16
Mean length, cm	82,0	79,8	79,75

Table 23. Length composition (ind.) of Blue hake (*Antimora rostrata*) in Russian trawl catches in NAFO Divs. 3LMN in 2013.

Length, cm	3L	3M	3N	3LMN
21	1		0	1
24				
27	2		1	3
30	4		0	4
33	7		5	12
36	1		8	9
39	2	1	4	7
42	0	2	7	9
45	0	3	7	10
48	0	6	3	9
51	1	1	1	3
54	0	3	1	4
57	2	1	0	3
Total	20	17	37	74
Mean length, cm	36,3	49,0	43,8	41,74

TABLE 24. Length composition (ind.) of *Nezumia (Nezumia bairdii)* in Russian trawl catches in NAFO Div. 3LN in 2013.

Length, cm	3L	3N	3LN
27	5		5
30	12		12
33	28	2	30
36	21	2	23
39	7	1	8
42	2		2
Total	75	5	80
Mean length, cm	34,8	36,4	34,86

TABLE 25. Atlantic Halibut (*Hippoglossus hippoglossus*) length composition (ind.) of the Russian trawl catches in NAFO Divs. 3LMN in 2013.

Length, cm	3L	3M	3N	3LMN
64	0	0	1	1
66				
68	1	0	0	1
70				
72	1	0	0	1
74				
76				
78				
80				
82				
84				
86				
88	1	0	0	1
90				
92				
94	0	0	1	1
96	0	1	0	1
98				
100				
102	0	0	1	1
104	0	0	2	2
106				
108	0	1	0	1
110				
112				
114				
116				
118				
120	0	0	1	1
Total	3	2	6	11
Mean length, cm	76,5	102,5	98,5	93,23

TABLE 26. Occurrence of marine mammals in the NAFO Regulatory Area in 2013.

Date	Position	Species	Number	Notes
27.01.13	48°06' N - 47°35' W	sperm whale	2	trawl catch
21.02.13	48°07' - 47°09' W	sperm whale	1-3	all day after vessel
22.02.13	48°07' N - 47°08' W	sperm whale	2	trawl catch
10.03.13	48°07' N - 47°06' W	sperm whale white-beaked dolphins	2 6-8	trawl catch
11.03.13	48°06' N - 47°20' W	sperm whale white-beaked dolphins	3 8-10	trawl catch
11.03.13	48°07' N - 47°09' W	sperm whale white-beaked dolphins	1 20-25	in drift
12.03.13	48°07' N - 47°25' W	sperm whale	1	with trawl, across
13.03.13	48°07' N - 47°06' W	sperm whale	3	trawl catch, catch procession
13.03.13	48°07' N - 47°28' W	white-beaked dolphins	≥ 40	different age pod from scattered groups
14.03.13	48°07' N - 47°35' W	sperm whale	1-3	trawl catch, catch procession
14.03.13	48°07' N - 47°07' W	sperm whale white-beaked dolphins	4 8-10	trawl catch
15.03.13	48°07' N - 47°06' W	sperm whale white-beaked dolphins	2 6-7	trawl catch
19.03.13	48°38' N - 45°41' W	sperm whale	1	trawl catch
20.03.13	48°06' N - 47°01' W	sperm whale	2	
20.03.13	48°07' N - 47°14' W	white-beaked dolphins	4	when passing "Novaya Zemlya"
21.03.13	48°08' N - 47°39' W	sperm whale	4	
23.03.13	48°07' N - 47°08' W	sperm whale	4	all day after vessel
26.03.13	48°07' N - 47°08' W	sperm whale	2-5	all day after vessel
27.03.13	48°06' N - 47°06' W	sperm whale harp seal	3 5-6	trawl catch
04.04.13	48°07' N - 47°05' W	sperm whale	3-4	trawl catch
11.04.13	48°08' N - 47°21' W	harp seal	5-7	
16.04.13	48°08' N - 47°37' W	sperm whale harp seal hooded seal	3 1 1	hooded and harp seals
16.04.13	48°08' N - 47°04' W	sperm whale	5-6	
17.04.13	48°07' N - 47°06' W	sperm whale harp seal hooded seal	2 3-4 3	hooded and harp seals Tr 262

TABLE 27. Marine mammals total numbers in the NAFO Regulatory Area in 2013.

Species	Number *	Occurrence number	% from total number
Sperm whale	53	18	29.6
White-beaked dolphins	104	7	58.1
Harp seal	18	4	10.1
Hooded seal	4	2	2.2
Total:	179	31	100

Note: Estimated with regard for the mean by the range when there is no exact number in Table 26.