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SCIENTIFIC COUNCIL MEETING – JUNE 2020**Russian Research Report for 2019****By Konstantin Fomin and Maria Pochtar*****Polar Branch of Russian Research Institute of Fisheries and Oceanography (VNIRO)
6 Akademika Knipovicha Street, Murmansk, 183038, Russia*****SUBAREAS 1+2****A. Status of Fisheries*****Greenland halibut (*Reinhardtius hippoglossoides*)***

In 2019, a directed trawl fishery for Greenland halibut was conducted off West Greenland from July to November. In accordance with the quota allocated between the two divisions, the fishery was carried out off West Greenland north (Div. 1A) and south of 68°N (Div. 1 CD).

In the area north of 68°N, four trawlers were engaged in the fishery in July-August and October-November. The trawlers operated in the area between 69°13'N-70°08'N and 60°55'-58°54'W at depths of 770-1255 m. According to preliminary data, the catch of Greenland halibut was 549.8 t (Table 1). Northern wolffish (*Anarchicas denticulatus*) amounting to 0.1 t and roughhead grenadier (*Macrourus berglax*) amounting to 0.1 t occurred in the by-catch (Table 2). The catch rate ranged from 9.4 to 26.0 t per fishing day and averaged 13.5 t per fishing day.

In the area south of 68°N, as many as five trawlers participated in the fishery. The trawlers operated from July to November in the area between 63°44'N-64°29'N and 57°57'W-54°51'W at depths of 900-1260 m. The catch rate per fishing day ranged from 15.6 to 32.0 t and averaged 22.7 t. Preliminary data suggest that the catch of Greenland halibut was as high as 1119.0 t (Table 1). The by-catch was comprised of 0.2 t of roughhead grenadier (*Macrourus berglax*), 0.7 t of northern wolffish (*Anarchicas denticulatus*) and 1.3 t of roundnose grenadier (*Coryphaenoides rupestris*) (Table 2).

The total annual catch of Greenland halibut taken by the Russian vessels off West Greenland amounted to 1668.8 t (Table 1).

Other fish species

There was no directed fishery for other fish species.

B. Targeted investigations

Biological data on Greenland halibut in Div. 1ACD was collected by observers on fishing vessels.



Greenland halibut

In Div. 1AD, Greenland halibut from 19 to 103 cm in length, an average length of 53.4 cm and predominance of individuals of 52-54 cm in length, were fished (Table 3).

SUBAREA 3

A. Status of Fisheries

Greenland halibut

In 2019, the Russian fishery for Greenland halibut was conducted from January to October. Four Russian fishing vessels were engaged in the trawl fishery. Catch rates for N/S-1 vessels varied from 11.3 to 17.7 t and averaged 14.7 t per fishing day. For N/S-2 vessels, the highest catch rate was 23.3 t, averaging about 20.8 t per fishing day.

The total annual catch of Greenland halibut taken in the directed fishery amounted to 1554.517 t. Additionally, 0.17 t of Greenland halibut were taken as a by-catch in the redfish fishery.

The total catch of Greenland halibut was 1554.685 t (Table 1). Roughhead renadier, roundnose grenadier, redfishes (*Sebastes* sp.), skates (*Rajidae*), witch flounder (*Glyptocephalus cynoglossus*), Atlantic halibut (*Hippoglossus hippoglossus*), American plaice (*Hippoglossoides platessoides*) and Greenland shark (*Somniosus microcephalus*) occurred in by-catch (Table 4).

Atlantic cod (Gadus morhua)

The Russian directed fishery for Atlantic cod on the Flemish Cap was conducted from August to October by two vessels and their average daily catch rate was as high as 20.1 t.

The annual catch of Atlantic cod taken by Russian fishing vessels in the directed fishery was 1131.7 t. In addition, 0.5 t of Atlantic cod were taken in the redfish fishery and 0.1 t of cod were captured in the multispecies fishery. The total Russian catch of Atlantic cod on the Flemish Cap was as high as 1132.3 t (Table 1).

Atlantic redfishes on the Flemish Cap

The directed fishery for redfishes was scarcely carried out. In October, three hauls were done by a N/S-1 vessel and the catch was as high as 8.6 t of redfishes. In addition, 1.6 t of redfish were taken as a by-catch in the Atlantic cod fishery. According to preliminary data, the total annual catch of redfishes was as high as 10.2 t. The by-catches were comprised of 0.5 t of Atlantic cod and 0.3 t of Atlantic halibut (Table 5).

In Div. 30, Russian trawlers operated sporadically in a south-western part of the Grand Bank of Newfoundland from April to December at depths of 300-306 m. Russian vessels caught 34.3 t of redfishes in the directed fishery. Greenland halibut, witch flounder, silver hake (*Merluccius bilinearis*), American plaice, Atlantic cod and Atlantic halibut occurred in the by-catch (Table 5).

In addition, 3.6 t of redfishes were taken in the witch flounder fishery and 6 t of redfishes were captured in the multispecies fishery.

The total Russian catch of redfishes was as high as 43.9 t (Table 1). The bulk of catches have been comprised of Acadian redfish (*Sebastes fasciatus*) in recent years.

In Div. 3LN, the Russian directed fishery for redfishes was conducted from January to October by N/S-1 and N/S-2 fishing vessels at depths of 178-540 m. The catch rates of bottom trawl varied from 15.8 t to 28.4 t and averaged 24.1 t per fishing day.

Russian fishing vessels caught 5019.4 t of redfishes in the directed fishery. By-catches were comprised of the following species: witch flounder, skates, Atlantic halibut, white hake (*Urophycis tenuis*), Atlantic cod and American plaice (Table 5). Redfishes were taken as a by-catch in the witch flounder fishery (2.8 t) and in the multispecies fishery (23.8 t).

The Russian catch of redfishes was as high as 5046.0 t (Table 1).

Skates

No directed fishery for skates was conducted. Skates were taken as a by-catch in the fishery for yellowtail flounder (9.8 t), witch flounder (12.3 t), cod (9.3 t), Greenland halibut (0.6 t) and redfishes (6.8 t).

The total Russian catch of skates in the Div. 3LMNO for the entire period amounted to 38.8 t (Table 1).

Yellowtail flounder (Limanda ferruginea)

The Russian directed fishery for yellowtail flounder was of short duration in January in Div. 3N between 43°20'-43°40'N and 50°31'-49°53'W at depths of 58-60 m. The average daily catch rate was 25.5 t. During the year, a total of 81.9 t of yellowtail flounder were taken by Russian fishing vessels in the directed fishery. The by-catch was comprised of 9.8 t of skates, 3.6 t of American plaice, 2.9 t of Atlantic cod and 0.35 t of Atlantic halibut.

The total Russian catch of yellowtail flounder amounted to 81.9 t (Table 1).

Witch flounder

A directed fishery for witch flounder was carried out from January to May between 42°55'-43°25'N and 51°44'-49°44'W at depths of 200-602 m. The daily catch rate was as high as 11.7 t per fishing day. Atlantic cod, skates, American plaice, white hake, Atlantic halibut, redfishes and silver hake occurred in by-catches (Table 6). In total, 206.1 t of witch flounder were taken in the directed fishery in 2019. Witch flounder were captured as a by-catch in fisheries targeting Greenland halibut (1.8 t) and redfishes (64.6 t) and in the multispecies fishery (29.4 t).

The total annual catch of witch flounder was as high as 301.9 t (Table 1).

Other species

There was no directed fishery for other species.

B. Targeted investigations

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

Greenland halibut

In Div. 3L, Greenland halibut from 24 to 118 cm in length averaging 52.5 cm occurred. Individuals from 49 to 54 cm prevailed (Table 7).

The length of Greenland halibut in Div. 3M varied from 33 to 99 cm, predominately 50-57 cm, and averaged 54.8 cm.

In Div. 3N, the length of Greenland halibut in catches ranged from 22 to 92 cm averaging 50.5 cm. Individuals from 40 to 45 cm were predominant.

In Div. 30, Greenland halibut from 25 to 71 cm in length, averaging 51.2 cm, dominated.

In general, the length of Greenland halibut in Div. 3LMNO varied from 22 to 118 cm and the average length of males and females was 48.7 and 54.2 cm respectively. The sex ratio (males and females) in catches was 1:3 (Table 7).

Acadian redfish (Sebastes fasciatus)

In Div. 3L, catches were made up of fish from 15 to 44 cm in length, where the mean length of females was 31.1 cm and that of males was 27.6 cm. Individuals of 27-30 cm in length were predominant in catches (Table 8).

Moreover, an individual of 22 cm in length was captured in Div. 3M.

In Div. 3N, redfish of 15-63 cm in length were fished and individuals of 23-25 cm were predominant. The mean length of males and females was 23.8 and 27.4 cm respectively (Table 8).

In Div. 30, Acadian redfish of 19-37 cm in length occurred. The mean length of males was 24.0 cm while that of females was 26.0 cm (Table 8). The length of 23-25 cm was predominant in Acadian redfish.

Deep-water redfish (S. mentella)

In Div. 3L, deep-water redfish were represented by individuals from 27 to 45 cm in length averaging 35.8 cm (Table 9). The mean length of males and females was 33.6 cm and 36.8 cm respectively.

In Div. 3M, the length of deep-water redfish varied from 15 to 58 cm averaging 40.9 cm for males and 43.6 cm for females (Table 9).

In Div. 3N, deep-water redfish from 17 to 45 cm in length averaging 24.1 cm for males and 28.4 cm for females occurred (Table 9).

In Div. 30, deep-water redfish of 16-35 cm in length averaging 25.6 cm for males and 25.7 cm for females prevailed (Table 9).

In general, the mean length of deep-water redfish in 3LMNO was as high as 25.8 cm, where that of males was 24.4 cm and 28.6 cm for females (Table 9).

Golden redfish (S. marinus)

Golden redfish occurred singly in each division. The length of golden redfish varied from 31 to 69 cm in 3LMNO. The mean length of males was 50.3 cm while that of females was 50.0 cm (Table 10).

Atlantic cod

In Div. 3M, the length of cod varied from 21 to 127 cm averaging 65.6 cm (Table 11).

Roughhead grenadier

In Div. 3L, individuals of 26-84 cm in length averaging 49.7 cm were fished (Table 12).

In Div. 3M, the total length of roughhead grenadier varied from 33 to 63 cm, with a mean length of 46.8 cm (Table 12).

In Div. 3N, roughhead grenadier from 28 to 78 cm in length averaging 49.9 cm prevailed (Table 12).

In Div. 30, roughhead grenadier from 20 to 55 cm in length averaging 40.0 cm occurred (Table 12).

American plaice

In Div. 3L, the length of American plaice varied from 25 to 54 cm and averaged 37.7 cm (Table 13).

In Div. 3M, American plaice from 29 to 62 cm in length averaging 43.9 cm were taken as a by-catch (Table 13).

In Div. 3N, American plaice of 23-72 cm in length averaging 39.5 cm prevailed (Table 13).

In Div. 30, the length of American plaice was within 24-62 cm and averaged 38.4 cm (Table 13).

Witch flounder

In Div. 3L, the length composition in by-catches was represented by fish from 31 to 55 cm, with a mean length of 41.2 cm (Table 14).

In Div. 3M, witch flounder from 36 to 54 cm in length, a mean length of 43.6 cm, were taken as a by-catch (Table 14).

In the 3N witch flounder fishery, individuals of 26-59 cm in length, averaging 42.3 cm, were fished (Table 14).

In Div. 30, witch flounder of 15-56 cm in length averaging 40.8 cm prevailed (Table 14).

Skates

In Div. 3L, skates of 31-87 cm in length, averaging 56.1 cm, occurred in by-catches (Table 15).

The length of skates in Div. 3M varied from 30 to 70 cm averaging 49.2 cm (Table 15).

The by-catch of skates in Div. 3N was comprised of individuals of 31-95 cm in length averaging 64.0 cm (Table 15).

In Div. 30, the length of skates was within 15-92 cm averaging 70.7 cm (Table 15).

White hake

In Div. 3L, two individuals of 49 and 62 cm in length were captured.

The by-catch in Div. 3N was comprised of individuals ranging from 38 to 86 cm in length averaging 55.3 cm (Table 16).

In Div. 30, white hake of 30-107 cm in length averaging 56.4 cm prevailed (Table 16).

Yellowtail flounder

In Div. 3N, individuals from 16 to 47 cm averaging 34.6 cm were taken in the fishery for yellowtail flounder (Table 17).

Northern wolffish

In Div. 3L, the length of northern wolffish varied from 40 to 118 cm averaging 68.6 cm (Table 18).

In Div. 3M, northern wolffish of 50-117 cm in length, averaging 75.0 cm in length, were taken as a by-catch (Table 18).

In Div. 3N, northern wolffish from 38 to 116 cm in length, with an average length of 63.2 cm, prevailed (Table 18).

In Div. 3O, the length of northern wolffish in by-catches varied from 42 to 112 cm averaging 60.6 cm (Table 18).

Atlantic wolffish (Anarhichas lupus)

In Div. 3L, individuals of Atlantic wolffish from 34 to 62 cm in length, averaging 48.9 cm, were taken as a by-catch (Table 19).

In Div. 3M, Atlantic wolffish of 38-77 cm in length, averaging 56.5 cm, prevailed (Table 19).

By-catches of Atlantic wolffish in Div. 3N were comprised of fish of 23-82 cm averaging 59.4 cm (Table 19).

In Div. 3O, two individuals of Atlantic wolffish of 52 and 63 cm in length each averaging 57.5 cm were taken

Spotted wolffish (Anarhichas minor).

In Div. 3L, four individuals of Atlantic wolffish of 45, 62, 80 and 113 cm in length were captured.

In Div. 3M, Atlantic wolffish from 48 to 96 cm in length averaging 78.2 cm were taken as a by-catch (Table 20).

In Div. 3N, Atlantic wolffish of 44-107 cm in length averaging 69.6 cm prevailed (Table 20).

By-catches of Atlantic wolffish in Div. 3O were made up of individuals from 20 to 65 cm in length averaging 45.9 cm (Table 20).

Blue antimora (Antimora rostrate)

The length composition of blue antimora in Div. 3L was represented by individuals from 27 to 65 cm in length averaging 42.7 cm (Table 21).

In Div. 3M, blue antimora from 26 to 58 cm in length, averaging 43.3 cm, were taken as a by-catch (Table 21).

In Div. 3N, blue antimora of 24-32 cm in length averaging 28.3 cm prevailed (Table 21).

Black Dogfish (Centroscyllium fabricii)

In Div. 3L, three individuals of 64, 69 and 79 cm were captured.

In Div. 3N, the length composition was represented by black dogfish of 40-72 cm in length, with an average length of 56.3 cm (Table 22).

In Div. 3O, a single black dogfish of 46 cm in length was recorded.

Threebeard rockling (Gaidropsarus ensis)

In Div. 3L, the length composition of this species was made up of individuals from 27 to 47 cm in length, with an average length of 40.4 cm (Table 23).

In Div. 3M, threebeard rockling of 20-40 cm in length, averaging 29.7 cm, were taken as a by-catch (Table 23).

Red hake (*Urophycis chuss*)

In Div. 3L, the length of red hake varied from 34 to 51 cm and averaged 44.6 cm (Table 24).

In Div. 3M, red hake of 35-51 cm in length, averaging 43.4 cm, prevailed (Table 24).

In Div. 3O, red hake from 21 to 40 cm in length were singly taken as a by-catch. The average length was 31.4 cm (Table 24).

Greater eelpout (*Lycodes esmarkii*)

The length of greater eelpout in Div. 3L varied from 36 to 57 cm and averaged 45.9 cm (Table 25).

In Div. 3N, the length of greater eelpout ranged from 33 to 69 cm and averaged 47.5 cm (Table 25).

In Div. 3O, individuals within 32-60 cm in length, averaging 45.8 cm, were taken as a by-catch (Table 25).

Marlin-spike grenadier (*Nezumia bairdii*)

In Div. 3L, marlin-spike grenadier from 27 to 42 cm in length, an average length of 34.3 cm, were taken as a by-catch (Table 26).

In Div. 3M, marlin-spike grenadier of 21-42 cm in length, with an average length of 32.7 cm, prevailed (Table 26).

In Div. 3N, by-catches of marlin-spike grenadier with a length within 21-42 cm and an average length of 30.3 cm were typical (Table 26).

In Div. 3O, marlin-spike grenadier varied from 20 to 34 cm in length, with an average length of 28.0 cm (Table 26).

Atlantic halibut

In Div. 3L, individuals from 66 to 160 cm in length, averaging 96.8 cm, were taken as a by-catch (Table 27).

In Div. 3M, the length of Atlantic halibut in by-catches was within 75-125 cm and averaged 95.4 cm (Table 27).

In Div. 3N, Atlantic halibut from 50 to 220 cm in length, with an average length of 90.0 cm, were taken as a by-catch (Table 27).

In Div. 3O, Atlantic halibut from 52 to 210 cm in length, an average length of 93.9 cm, prevailed (Table 27).

VME indicator species

Occurrences of sponges (Porifera) and corals (Cnidaria) in catches were recorded by the observers operating onboard fishing vessels. In none of the catches the weight of VME indicator species exceeded the established reference points (Table 28).

Marine mammals

Based on observations on fishing vessels from August to October in Div. 3LMNO, cetaceans (Cetacea), namely the short-beaked common dolphins (*Delphinus delphis*), the northern bottlenose whale (*Hyperoodon ampullatus*), the sperm whale (*Physeter macrocephalus*), the white-beaked dolphin (*Lagenorhynchus*

albirostris), the minke whale (*Balaenoptera acutorostrata*), as well as two occurrences of non-identified whales and dolphins were recorded (see Table 29).

The total number of marine mammals recorded (occurrences) was 106 (Table 30).

No discards were recorded in the fisheries for targeted species.

Table 1. Preliminary catches taken by Russian trawlers in NAFO SA 1-3 in 2019.

Species	Division	Catch, t
Greenland halibut	1A	549,8
	1B	-
	1C	298,8
	1D	820,2
	1ABCD	1668,8
Greenland halibut	3L	1345,6
	3M	189,6
	3N	19,4
	3O	0,2
	3LMNO	1554,7
American plaice	3L	0,2
	3M	5,0
	3N	119,4
	3O	8,60
	3LMNO	133,3
Yellowtail flounder	3N	81,9
Witch flounder	3L	1,6
	3N	118,6
	3O	181,6
	3LNO	301,9
Roughhead grenadier	3L	11,7
	3M	1,0
	3N	0,5
	3LMN	13,3
Redfish spp.	3L	298,3
	3M	10,2
	3N	4747,7
	3O	43,8
	3LMNO	5100,1
Skate	3L	0
	3M	9,3
	3N	18,8
	3O	10,7
	3LMNO	38,8
White hake	3N	1.5
	3O	0.3
	3NO	1.8
Atlantic cod	3L	4.8
	3M	1132.3
	3N	137.9
	3O	5.8
	3MNO	1280.8
Atlantic Halibut	3L	8.3
	3M	11.0
	3N	149.2
	3O	23.5
	3MNO	192.0

Table 2. By-catch in a directed fishery for Greenland halibut by Russian bottom trawlers in NAFO Div. 1ACD in 2019.

Species	Weight, t
Division 1A	
Roughhead grenadier	0.115
Northern wolffish	0.131
Division 1CD	
Roundnose grenadier	1.251
Roughhead grenadier	0.198
Northern wolffish	0.747
Total	
Roundnose grenadier	1.251
Roughhead grenadier	0.313
Northern wolffish	0.878

Table3. Length composition of Greenland halibut (*Reinhardtius hippoglossoides*) (ind.) in Russian trawl catches in NAFO Div. 1AD in 2019.

Length, cm	1A	1D	1AD
19	1		1
20			
21			
22	1		1
23	2		2
24			
25	1		1
26	1		1
27	1		1
28			
29	1	1	2
30	1		1
31	2		2
32	2		2
33	6		6
34	15		15
35	30	1	31
36	53	1	54
37	71	2	73
38	96		96
39	125	1	126
40	142	9	151
41	130	12	142
42	168	31	199
43	155	48	203
44	145	81	226
45	129	119	248
46	166	174	340
47	208	276	484
48	210	318	528
49	183	431	614
50	214	590	804
51	214	626	840
52	199	789	988
53	182	882	1064
54	141	871	1012
55	94	776	870
56	74	674	748
57	65	589	654
58	56	489	545

Length, cm	1A	1D	1AD
59	42	433	475
60	36	360	396
61	29	302	331
62	19	257	276
63	14	195	209
64	13	130	143
65	10	121	131
66	6	82	88
67	8	80	88
68	3	60	63
69	4	58	62
70	5	37	42
71	4	37	41
72	1	26	27
73		20	20
74		16	16
75		21	21
76		12	12
77	1	20	21
78		14	14
79		12	12
80		7	7
81		7	7
82		18	18
83		9	9
84		13	13
85		7	7
86		10	10
87		4	4
88		9	9
89		9	9
90		4	4
91		6	6
92		4	4
93		2	2
94		3	3
95		2	2
96			
97			
98			
99			
100			

Length, cm	1A	1D	1AD
101		1	1
102		1	1
103		1	1
Total	3479	10201	13680
Mean length, cm	47.8	55.3	53.38

Table 4. By-catch in a directed fishery for Greenland halibut by Russian bottom trawlers in NAFO Div. 3LMNO in 2019.

Species	Weight, t
Witch flounder	1.765
Atlantic halibut	0.168
Skates	0.600
American plaice	0.455
Roughhead grenadier	13.276
Greenland shark	2.300

Table 5. By-catch in a directed fishery for redfishes by Russian bottom trawlers in NAFO Div. 3LMNO in 2019.

Species	Weight, t
Divisions 3LN	
Witch flounder	53.292
Skates	6.816
White hake	1.453
American plaice	108.583
Atlantic cod	135.833
Atlantic halibut	140.334
Division 3M	
Atlantic cod	0.509
Atlantic halibut	0.321
Division 3O	
Witch flounder	11.341
Greenland halibut	0.168
Silver hake	0.33
American plaice	1.221
Atlantic cod	0.29
Atlantic halibut	1.407
Total	
Witch flounder	64.633
Skates	6.816
White hake	1.453
Silver hake	0.33
American plaice	109.804
Atlantic cod	136.632
Atlantic halibut	142.062
Greenland halibut	0.168

Table 6. By-catch in a directed fishery for witch flounder by Russian bottom trawlers in NAFO Div. 3NO in 2019.

Species	Weight, t
Cod	6.926
Redfishes	6.415
Skates	12.300
American plaice	9.160
Atlantic halibut	25.444
White hake	0.315
Silver hake	1.228

Table 7. Length composition of Greenland halibut (*Reinhardtius hippoglossoides*) (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L			3M			3N			3O			3LMNO		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
22								1	1					1	1
23															
24	1		2										1		2
25		1	1					1	1	1		1	1	2	3
26								4	4					4	4
27	2		2				1	4	5		1	1	3	5	8
28		3	3				1	1	2				1	4	5
29	4	2	6				2	1	3	1		1	7	3	10
30	3	2	5				3		3				6	2	8
31	2	4	6				2	1	3		2	2	4	7	11
32	6	2	8				6	5	11	1	1	2	13	8	21
33	6	3	9	1	1	2	4	8	12	1	1	2	12	13	25
34	11	13	24	1	2	3	4	6	10	2		2	18	21	39
35	26	16	42	2	3	5	6	13	19	2	1	3	36	33	69
36	34	32	66	5	6	11	2	6	8		1	1	41	45	86
37	54	49	103	12	10	22	8	15	23	3		3	77	74	151
38	86	69	155	18	12	30	12	7	19				116	88	204
39	109	92	201	33	20	53	11	8	19				153	120	273
40	173	127	300	21	24	45	20	11	31	1		1	215	162	377
41	196	157	353	28	31	59	12	6	18	1		1	237	194	431
42	295	185	480	57	28	85	29	9	38				381	222	603
43	336	224	560	61	44	105	8	12	20		1	1	405	281	686
44	469	237	706	78	44	122	6	11	17				553	292	845
45	449	265	714	70	45	115	27	3	30				546	313	859
46	531	283	814	75	43	118	17	5	22	2		2	625	331	956
47	662	369	1031	99	57	156	16	9	25	2		2	779	435	1214
48	710	363	1073	101	83	184	16	5	21				827	451	1278
49	754	416	1170	92	43	135	12	4	16				858	463	1321
50	776	421	1197	121	51	172	6	2	8		1	1	903	475	1378
51	711	395	1106	100	57	157	7	5	12			0	818	457	1275
52	779	413	1192	147	38	185	17	1	18	2		2	945	452	1397
53	794	309	1103	125	55	180	20	2	22				939	366	1305
54	804	320	1124	136	51	187	15	2	17	1		1	956	373	1329
55	784	253	1037	138	49	187	20	3	23	1		1	943	305	1248
56	728	187	915	136	33	169	19	1	20	1		1	884	221	1105
57	781	188	969	156	26	182	16		16	2		2	955	214	1169
58	765	109	874	126	17	143	27		27	3	1	4	921	127	1048
59	727	75	802	150	14	164	15		15	3		3	895	89	984
60	687	58	745	154	5	159	34	1	35	4		4	879	64	943
61	570	26	596	118	9	127	25		25	2		2	715	35	750
62	554	8	562	124	1	125	23		23	5		5	706	9	715
63	423	6	429	105	1	106	17		17				545	7	552
64	300	2	302	81		81	7		7	1		1	389	2	391
65	259	1	260	94		94	25		25	2		2	380	1	381
66	174		174	87		87	6		6	3		3	270		270
67	136		136	65		65	7		7				208		208
68	96		96	51		51	4		4	3		3	154		154
69	79		79	56		56	2		2	1		1	138		138
70	67		67	29		29	6		6	1		1	103		103
71	52		52	26		26	2		2	1		1	81		81
72	42		42	25		25	3		3				70		70
73	42		42	12		12	2		2				56		56
74	25		25	16		16	5		5				46		46
75	24		24	10		10	3		3				37		37

Length, cm	3L			3M			3N			3O			3LMNO		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
76	18		18	11		11	4		4				33		33
77	14		14	13		13	2		2				29		29
78	11		11	7		7	1		1				19		19
79	10		10	7		7	3		3				20		20
80	6		6	10		10	2		2				18		18
81	3		3	6		6	2		2				11		11
82	10		10	12		12	1		1				23		23
83	3		3	8		8							11		11
84	3		3	5		5	2		2				10		10
85	4		4	6		6							10		10
86	3		3	3		3							6		6
87	1		1	6		6							7		7
88	1		1				1		1				2		2
89	1		1	1		1							2		2
90	2		2				1		1				3		3
91	1		1	1		1	1		1				3		3
92				2		2	1		1				3		3
93	2		2										2		2
94	1		1	2		2							3		3
95															
96				1		1							1		1
97															
98	1		1										1		1
99	1		1	2		2							3		3
100															
101															
102															
103															
104															
105															
106															
107															
108															
109															
110															
111															
112															
113															
114															
115															
116															
117															
118	1		1										1		1
Total	16195	5685	21880	3245	903	4148	579	173	752	53	10	63	20072	6771	26843
Mean length, cm	53.74	48.98	52.5	56.45	48.67	54.8	53.51	40.28	50.5	53.72	37.6	51.2	54.17	48.7	52.79

Table 8. Length composition of *S. fasciatus* (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L			3M			3N				3O			Total			
	Females	Males	Total	Females	Males	Total	Females	Males	Juveniles	Total	Females	Males	Females	Females	Males	Juveniles	Total
15		1	1				1		1	2				1	1	1	3
16		1	1				1		3	13				1	10	3	14
17		2	2				4		8	13				4	10	1	15
18	3	11	14				8		27	35				11	38		49
19	1	12	13				38		96	134	1	2	3	40	110		150
20	5	8	13				124		518	642	6	3	9	135	529		664
21	4	9	13				334		2257	2591	14	37	51	352	2303		2655
22	9	10	19		1	1	904		6350	7255	78	129	207	991	6490		7481
23	19	62	81				2015		8849	10864	216	396	612	2250	9307		11557
24	38	154	192				3318		7547	10865	337	366	703	3693	8067		11760
25	93	312	405				5378		5236	10614	512	218	730	5983	5766		11749
26	113	396	509				6054		2928	8982	425	105	530	6592	3429		10021
27	148	425	573				5972		1954	7926	396	74	470	6516	2453		8969
28	209	376	585				5410		974	6384	247	21	268	5866	1371		7237
29	247	399	646				4156		287	4443	151	5	156	4554	691		5245
30	286	290	576				3429		60	3489	106	1	107	3821	351		4172
31	255	135	390				2196		21	2217	49		49	2500	156		2656
32	220	65	285				1714		5	1719	23		23	1957	70		2027
33	163	57	220				1086		3	1089	12		12	1261	60		1321
34	184	41	225				686		1	687	7		7	877	42		919
35	162	18	180				320		1	321	4		4	486	19		505
36	98	11	109				119			119	1		1	218	11		229
37	86	7	93				65			65	1		1	152	7		159
38	81		81				20			20				101			101
39	29	1	30				9			9				38	1		39
40	20		20				6			6				26			26
41	15		15				3	1		4				18	1		19
42	6		6				3			3				9			9
43	8		8							0				8			8
44	1		1				3			3				4			4
45			0				1			1				1			1
46			0				2			2				2			2
47																	
48																	
49																	
50																	
51																	
52							2			2			2				2
53																	
54																	
55							1			1			1				1
56																	
57							1			1			1				1
58																	
59							1			1			1				1
60																	

61							1		1				1			1	
62																	
63																	
Total	2503	2803	5306		1	1	43384	37133	5	80523	2586	1357	3943	48473	41294	5	89772
Mean																	
length,	31,12	27,62	29,3		22,0	22,0	27,35	23,78	16	25,7	26,03	23,98	25,3	27,47	24,05		25,9
cm																16	



Table 9. Length composition of *S. mentella* (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L			3M			3N			3O			Total			
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Females	Females	Males	Females	
15				1		1							1		1	
16											1	1	2	1	1	2
17								1	1		1	1	2	1	2	3
18					1	1					7	6	13	7	7	14
19								3	9	12	6	5	11	9	14	23
20								11	145	156	5	4	9	16	149	165
21								31	594	625	7	7	14	38	601	639
22								119	1537	1656	7	6	13	126	1543	1669
23								280	1894	2174	10	9	19	290	1903	2193
24								396	1261	1657	6	6	12	402	1267	1669
25				1		1		462	713	1175	9	8	17	472	721	1193
26								357	337	694	5	4	9	362	341	703
27		1	1		2	2		327	200	527	10	9	19	337	212	549
28					2	2		246	112	358	8	7	15	254	121	375
29		2	2					216	42	258	9	9	18	225	53	278
30	1	1	2					185	16	201	6	5	11	192	22	214
31	1	3	4	1		1		191	14	205	7	7	14	200	24	224
32	1	1	2		2	2		168	11	179	5	4	9	174	18	192
33				1		1		134	20	154	3	3	6	138	23	161
34	4		4	1	1	2		109	30	139	5	4	9	119	35	154
35	3	1	4	3	3	6		91	33	124	2	1	3	99	38	137
36	3		3	4	3	7		94	43	137				101	46	147
37	4	1	5	2	2	4		76	52	128				82	55	137
38	3		3	1	3	4		52	63	115				56	66	122
39	2		2	2	4	6		74	57	131				78	61	139
40	1		1	1	10	11		31	51	82				33	61	94
41	2	2	4	5	5	10		16	25	41				23	32	55
42				2	9	11		22	10	32				24	19	43
43		1	1	2	13	15		22	5	27				24	19	43
44				1	4	5		8	1	9				9	5	14
45	2		2	4	6	10		3		3				9	6	15
46				2	4	6								2	4	6
47				4	6	10								4	6	10
48				3	3	6								3	3	6
49				7	1	8								7	1	8
50				5	1	6								5	1	6
51				1		1								1		1
52				3		3								3		3
53				2		2								2		2
54				1		1								1		1
55																
56																
57																
58				1		1								1		1
Total	27	13	40	61	85	146	3724	7276	11000	119	106	225	3931	7480	11411	
Mean length, cm	36,81	33,62	35,8	43,57	40,94	42	28,4	24,12	25,6	25,66	25,61	25,6	28,61	24,35	25,82	

Table 10. Length composition of *S. marinus* (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L			3M			3N			3O			Total		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Females	Females	Males	Females
31				1		1							1		1
32															
33															
34	1		1										1		1
35				1	1	2							1	1	2
36					1	1								1	1
37	1		1	1	1	2							2	1	3
38				3	1	4		2	2				3	3	6
39				4	1	5							4	1	5
40				2	2	4		1	1				2	3	5
41				4	3	7		1	1				4	4	8
42		1	1	1	2	3	1		1				2	3	5
43				4	2	6	1		1				5	2	7
44				2		2	1		1		1	1	3	1	4
45		1	1	2	3	5	1		1				3	4	7
46							2		2				2		2
47															
48		1	1	2	1	3	1	2	3				3	4	7
49				1		1	1		1				2		2
50	1		1				1		1				2		2
51							1	1	2				1	1	2
52					1	1	3		3				3	1	4
53				1		1	1	1	2	1		1	3	1	4
54							1	2	3				1	2	3
55							3		3				3		3
56	1		1				1		1				2		2
57							4		4				4		4
58							5	2	7				5	2	7
59							3	1	4				3	1	4
60							2	5	7				2	5	7
61							1	5	6	1		1	2	5	7
62							4	1	5				4	1	5
63		1	1				1	1	2				1	2	3
64								1	1					1	1
65							1	2	3				1	2	3
66							1		1				1		1
67															
68							2		2				2		2
69								1	1					1	1
Total	4	4	8	29	19	48	43	29	72	2	1	3	78	53	131
Mean length, cm	44,25	49,5	48,5	41,62	41,74	41,7	55,86	56,31	56	57	44	52,7	50	50,34	50,23

Table 11. Length composition of Atlantic cod (*Gadus morhua*) (ind.) in Russian trawl catches in NAFO Div. 3M in 2019.

Length, cm	3M
21	2
22	2
23	1
24	4
25	2
26	1
27	1
28	
29	
30	1
31	
32	4
33	6
34	15
35	14
36	13
37	8
38	9
39	8
40	10
41	35
42	79
43	185
44	227
45	255
46	313
47	384
48	327
49	272
50	278
51	220
52	268
53	282
54	319
55	351
56	412
57	444
58	531
59	516
60	646
61	584
62	588
63	650
64	625
65	601
66	542
67	576
68	596
69	546

Length, cm	3M
70	609
71	583
72	581
73	490
74	432
75	379
76	337
77	300
78	280
79	216
80	241
81	174
82	199
83	124
84	158
85	148
86	129
87	87
88	122
89	89
90	112
91	58
92	88
93	47
94	63
95	63
96	53
97	33
98	47
99	41
100	51
101	33
102	26
103	15
104	14
105	18
106	18
107	11
108	8
109	11
110	25
111	10
112	5
113	3
114	5
115	6
116	4
117	2
118	4
119	
120	3

Length, cm	3M
121	
122	
123	
124	1
125	1
126	
127	1
Total	18311
Mean length, cm	65.6

Table 12. Length composition of roughhead grenadier (*Macrourus berglax*) (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L	3M	3N	3O	3LMNO
20				1	1
21					
22					
23					
24					
25				2	2
26	1				1
27					
28	1		1	1	3
29					
30				1	1
31	9		2		11
32	4		1		5
33	12	2	1		15
34	7	2	2	3	14
35	11		1	3	15
36	15	5	5	8	33
37	13	4	4		21
38	20	2	1	1	24
39	12	8	4	1	25
40	17	7	8	1	33
41	19	6	4	2	31
42	10	2	17		29
43	27	16	12	2	57
44	21	9	14		44
45	24	4	12	4	44
46	15	12	6	1	34
47	22	3	7	1	33
48	25	5	16	5	51
49	23	7	10	2	42
50	16	5	5		26
51	17	4	1		22
52	15	5	4	1	25
53	18	3	5	1	27
54	13	1	6		20
55	12	4	9	1	26
56	8	1	10		19
57	14	2	2		18
58	13	5	2		20
59	7	3	4		14
60	9	6	10		25
61	15	3	8		26
62	9		3		12
63	7	2	2		11
64	5		4		9
65	10		2		12
66	10		2		12
67	4		3		7
68	7		4		11
69	6		2		8

70	8		1		9
71	3				3
72	4		1		5
73	5		2		7
74	5				5
75	2				2
76	1				1
77					
78	2		1		3
79					
80					
81					
82					
83					
84	2				2
Total	555	138	221	42	956
Mean length, cm	49.7	46.8	49.9	40	48.9

Table 13. Length composition American plaice (*Hippoglossoides platessoides*) (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L	3M	3N	3O	3LMNO
23			1		1
24			4	2	6
25	1		3	2	6
26			12	2	14
27	1		23	2	26
28			61	5	66
29	1	2	93	8	104
30	1	1	100	15	117
31	1	2	221	29	253
32	3	3	274	40	320
33	3	7	365	34	409
34	4	4	420	40	468
35	2	14	451	37	504
36	2	14	414	47	477
37	2	18	394	27	441
38	1	23	374	39	437
39	1	20	419	28	468
40	1	37	506	23	567
41	1	45	420	28	494
42	5	34	433	31	503
43	2	58	461	27	548
44	1	30	357	13	401
45		53	319	29	401
46	1	24	218	18	261
47		26	141	14	181
48	2	15	88	6	111
49		17	71	6	94
50	1	20	60	8	89
51		20	35	3	58
52		7	35	4	46
53		13	21	4	38
54	1	9	26	1	37
55		12	23	8	43
56		5	24	1	30
57			19		19
58		4	19		23
59			14	2	16
60		3	15	1	19
61		1	10		11
62		1	15	1	17
63			14		14
64			10		10
65			8		8
66			8		8
67			3		3
68			3		3
69			1		1
70			1		1
71					
72			1		1
Total	38	542	7008	585	8173
Mean length, cm	37.7	43.9	39.5	38.4	39.68

Table 14. Length composition of witch flounder (*Glyptocephalus cynoglossus*) (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L	3M	3N	3O	3LMNO
15				1	1
16					
17				1	1
18				1	1
19					
20					
21					
22				2	2
23				3	3
24				1	1
25				11	11
26			1	3	4
27			1	9	10
28			7	11	18
29			6	18	24
30			15	24	39
31	1		12	10	23
32	1		23	27	51
33	4		30	40	74
34			43	35	78
35	1		65	58	124
36	5	1	161	121	288
37		2	207	212	421
38	1	2	300	210	513
39	5	2	400	318	725
40	7	6	531	380	924
41	3	11	418	295	727
42	6	5	420	290	721
43	1	14	448	239	702
44	3	9	344	153	509
45	4	9	332	142	487
46	1	6	294	155	456
47	1	5	254	107	367
48	1	1	167	63	232
49		4	142	45	191
50	2	1	94	20	117
51	3	1	63	32	99
52			46	27	73
53			21	5	26
54		2	16	7	25
55	1		6	4	11
56			2	1	3
57			1		1
58			1		1
59			1		1
Total	51	81	4872	3081	8085
Mean length, cm	41.2	43.6	42.3	40.8	41.72

Table 15. Length composition of skates (Rajidae) (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L	3M	3N	3O	3LMNO
15				1	1
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30		1			1
31	1	1	1		3
32					
34					
33			1		1
35			1		1
36	3	1	1		5
37			3	1	4
38	1	2	1		4
39	4	4			8
40	1		2		3
41		2	3		5
42	1	2			3
43		1	6		7
44	1	4	4		9
45	1	3	2		6
46	2	14	4		20
47		11	7		18
48	1	10	4		15
49		9	4		13
50		14	6	1	21
51	1	8	8		17
52		1	10	1	12
53	1	3	8		12
54	1	11	3		15
55	2	7	8		17
56	1	2	12		15
57	2	2	10	1	15
58	2	1	12	2	17
59	1	2	11	1	15
60	1	2	7		10
61	1		11	1	13
62	1	1	11		13
63	1		17	1	19
64	1		13	2	16

65			11	3	14
66	1	1	11	2	15
67	3		10	3	16
68			13	3	16
69			11	1	12
70		1	11	1	13
71	1		8		9
72	1		11	5	17
73			11	2	13
74			12	4	16
75			14	3	17
76	2		16	9	27
77			12	9	21
78			5	3	8
79			10	3	13
80			7		7
81	1		3		4
82			2	3	5
83			2	1	3
84			2		2
85	1		2		3
86	1		3		4
87	1		1		2
88					
89					
90			1		1
91					
92			1	1	2
93					
94					
95			1		1
Total	44	121	382	68	615
Mean length, cm	56.1	49.2	64	70.7	61.28

Table 16. Length composition of white hake (*Urophycis tenuis*) (ind.) in Russian trawl catches in NAFO Div. 3LNO in 2019.

Length, cm	3L	3N	3O	3LNO
30			1	1
31			3	3
32			1	1
33			1	1
34			2	2
35			2	2
36			3	3
37			2	2
38		1	7	8
39			11	11
40			6	6
41		1	17	18
42		7	49	56
43		5	28	33
44		1	27	28
45		8	33	41
46		10	44	54
47		15	45	60
48		10	48	58
49	1	8	33	42
50		10	45	55
51		6	34	40
52		12	56	68
53		11	35	46
54		14	35	49
55		7	28	35
56		7	34	41
57		7	53	60
58		7	53	60
59		8	38	46
60		5	35	40
61		5	25	30
62	1	7	50	58
63		6	30	36
64		7	26	33
65		3	20	23
66		3	19	22
67		4	32	36
68		1	21	22
69		3	12	15
70		3	14	17
71		3	3	6
72		3	10	13
73		1	11	12
74		1	14	15
75		1	12	13
76		1	7	8
77		1	6	7
78		1	4	5
79				

80		1	3	4
81			4	4
82		1	2	3
83			4	4
84			3	3
85			2	2
86		1	5	6
87			4	4
88				
89			3	3
90			1	1
91			3	3
92			2	2
93			1	1
94			3	3
95			1	1
96			1	1
97				
98			4	4
99			1	1
100			1	1
101			1	1
102			1	1
103				
104			1	1
105				
106				
107			1	1
Total	2	217	1177	1396
Mean length, cm	55.5	55.3	56.4	56.2

Table 17. Length composition of yellowtail flounder (*Glyptocephalus cynoglossus*) (ind.) in Russian trawl catches in NAFO Div. 3N in 2019.

Length, cm	3N
16	1
17	
18	3
19	2
20	3
21	2
22	
23	2
24	3
25	5
26	14
27	19
28	31
29	30
30	36
31	64
32	138
33	149
34	150
35	129
36	102
37	108
38	67
39	58
40	39
41	34
42	24
43	24
44	13
45	9
46	4
47	1
Total	1264
Mean length, cm	34.6

Table 18. Length composition of northern wolffish (*Anarhichas denticulatus*) (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L	3M	3N	3O	3LMO
38			1		1
39					
40	2				2
41	1		1		2
42			1	1	2
43			1		1
44			4	1	5
45	1		1		2
46	2		3		5
47	0		2	1	3
48	2		4	3	9
49	4		4	1	9
50	2	1	3		6
51	1	1	5	1	8
52			3		3
53	1		7		8
54	2	1	3	1	7
55		1	5		6
56	2		2	3	7
57	4	1	4		9
58	1	2	2		5
59		2	4		6
60	2	1	2	2	7
61	4		2		6
62	2	1	2	2	7
63	2		1	2	5
64		1	1	1	3
65	1		5	1	7
66	2	3	2		7
67	2	1	2	1	6
68		1	3		4
69		1	3		4
70	1	1	1		3
71	2		2		4
72		2	1		3
73					
74	3	2	1	1	7
75			1	1	2
76	3		3		6
77	3	1			4
78	4	1	1		6
79		2	1		3
80	3	1			4
81	1		1		2
82	4	4	1		9
83	2	2	1		5
84	1	3	1		5
85		1	2		3
86		1	1		2
87	1				1
88			1	1	2
89	1		1		2

90	1	4	1		6
91	1				1
92	1	1	1		3
93			2		2
94					
95		1	1		2
96					
97	1				1
98	1	1	1		3
99					
100					
101	1				1
102					
103					
104			1		1
105			1		1
106					
107					
108					
109					
110					
111					
112				1	1
113			1		1
114	1				1
115					
116			1		1
117		1			1
118	1				1
Total	77	47	113	25	262
Mean length, cm	68,6	75	63,2	60,6	66,66

Table 19. Length composition of Atlantic wolffish (*Anarhichas lupus*) (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L	3M	3N	3O	3LMO
23			1		1
34	1				1
35					
36					
37					
38		1			1
39	1				1
40					
41		1			1
42	1	1			2
43	1	1			2
44	3		1		4
45			1		1
46	1		2		3
47		1			1
48		1	1		2
49		1	4		5
50		7	6		13
51		3	1		4
52	1	5	5	1	12
53		5	2		7
54		4	7		11
55	1	5	7		13
56		2	12		14
57			2		2
58		2	8		10
59	1	1	5		7
60	1	8	3		12
61	1		6		7
62	1	2	7		10
63		4	3	1	8
64		1	2		3
65		1	5		6
66		2	4		6
67		2	3		5
68		2	2		4
69		1	1		2
70		2			2
71			3		3
72			1		1
73					
74					
75			2		2
76			2		2
77		1			1
78			2		2
79					
80			2		2
81			1		1
82			1		1
Total	14	67	115	2	198
Mean length, cm	48,9	56,5	59,4	57,5	57,67

Table 20. Length composition of spotted wolffish (*Anarhichas minor*) (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L	3M	3N	3O	3LMO
20				1	1
25				1	1
31				1	1
44			1		1
45	1				1
46					
47					
48		1			1
49					
50			2	1	3
51			1		1
52					
53		1			1
54			2		2
55					
56		1		1	2
57					
58		4			4
59		1	2	1	4
60		1	1		2
61		1	1	1	3
62	1		1		2
63			2		2
64					
65			1	1	2
66		2			2
67		1			1
68			1		1
69			1		1
70		2	1		3
71					
72		3			3
73					
74					
75		1			1
76		3			3
77					
78					
79					
80	1	2	1		4
81					
82		1			1
83		1			1
84		2	1		3
85		1			1
86		1			1
87		2			2
88		3			3
89		1			1
90		6			6
91			1		1

92		2			2
93		1			1
94		2			2
95		2			2
96		1	1		2
98					
99					
100					
101					
102					
103					
104					
105			2		2
106					
107			1		1
108					
109					
110					
111					
112					
113	1				1
Total	4	50	24	8	86
Mean length, cm	75	78,2	69,6	45,9	72,63

Table 21. Length composition of blue antimora (*Antimora rostrata*) (ind.) in Russian trawl catches in NAFO Div. 3LMN in 2019.

Length, cm	3L	3M	3N	3LMN
24			1	1
25			2	2
26		1		1
27	1			1
28	1		1	2
29	1	1	4	6
30			1	1
31	4		1	5
32	3		1	4
33	5			5
34	4	4		8
35	5	3		8
36	9	2		11
37	13			13
38	9			9
39	7	3		10
40	10	8		18
41	7	4		11
42	6	3		9
43	7	1		8
44	9			9
45	6	3		9
46	6			6
47	7	3		10
48	6	3		9
49	4	4		8
50	10	1		11
51	3	2		5
52	3	2		5
53	4	3		7
54	2			2
55	2			2
56	1	2		3
57	1			1
58	3	1		4
59	3			3
60				
61				
62				
63				
64				
65	1			1
Total	163	54	11	228
Mean length, cm	42,7	43,3	28,3	42,16

Table 22. Length composition of black dogfish (*Centroscyllium fabricii*) (ind.) in Russian trawl catches in NAFO Div. 3LNO in 2019.

Length, cm	3L	3N	3O	3LNO
40		1		1
41				
42		1		1
43				
44		1		1
45		1		1
46		5	1	6
47				
48				
49		2		2
50				
51				
52				
53				
54		2		2
55				
56		1		1
57		1		1
58				
59		1		1
60		3		3
61				
62		2		2
63		2		2
64	1	0		1
65		2		2
66		1		1
67				
68		1		1
69	1			1
70				
71		1		1
72		2		2
79	1			1
Total	3	30	1	34
Mean length, cm	70,7	56,3	46	57,24

Table 23. Length composition of threebeard rockling (*Gaidropsarus ensis*) (ind.) in Russian trawl catches in NAFO Div. 3LM in 2019.

Length, cm	3L	3M	3LM
20		1	1
26		2	2
27	1	3	4
28	1	1	2
29		1	1
30	1	2	3
31	1		1
32	2	1	3
33	1		1
34			
35	1		1
36	2	1	3
37			
38	4	1	5
39	3		3
40	5	1	6
41			
42	7		7
43	9		9
44	4		4
45	3		3
46	5		5
47	1		1
Total	51	14	65
Mean length, cm	40,4	29,7	38,1

Table 24. Length composition of red hake (*Urophycis chuss*) (ind.) in Russian trawl catches in NAFO Div. 3LMO in 2019.

Length, cm	3L	3M	3O	3LMO
21			1	1
22				
23				
24				
25				
26				
27				
28				
29				
30			1	1
31			1	1
32				
33				
34	1			1
35	1	1	1	3
36		1		1
37	2	4		6
38	2	7		9
39	7	5		12
40	6		1	7
41	8	9		17
42	22	8		30
43	26	6		32
44	30	6		36
45	30	8		38
46	25	8		33
47	21	8		29
48	23	7		30
49	8	4		12
50	3			3
51	4	2		6
Total	219	84	5	308
Mean length, cm	44,6	43,4	31,4	44,0

Table 25. Length composition of greater eelpout (*Lycodes esmarkii*) (ind.) in Russian trawl catches in NAFO Div. 3LNO in 2019.

Length, cm	3L	3N	3O	3LNO
32			1	1
33		1	1	2
34			1	1
35			1	1
36	1	1		2
37		2		2
38	2			2
39		2		2
40		1		1
41		1		1
42		1		1
43		1	1	2
44	4	1		5
45	1			1
46	1			1
47		1		1
48				
49	2	2	1	5
50	1			1
51				
52	2			2
53		1		1
54				
55		2	1	3
56		1		1
57	1	1		2
58			1	1
59			1	1
60		1	1	2
61				
62				
63				
64		1		1
69		1		1
Total	15	22	10	47
Mean length, cm	45,9	47,5	45,8	46,6

Table 26. Length composition of marlin-spike grenadier (*Nezumia bairdii*) (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L	3M	3N	3O	3LMNO
20				2	2
21		1	2		3
22			2	1	3
23		1	7	1	9
24			7	1	8
25		1	17	1	19
26		2	17	3	22
27	1		20	1	22
28		1	22	3	26
29	1	2	32	4	39
30	1	1	32	4	38
31		2	28	3	33
32	3	4	20	2	29
33	5	3	24		32
34	2	4	19	2	27
35	3	6	15		24
36	1	3	11		15
37	1	2	12		15
38	1	3	5		9
39	3		2		5
40					
41					
42	1	1	1		3
Total	23	37	295	28	383
Mean length, cm	34,3	32,7	30,3	28,0	30,6

Table 27. Length composition of Atlantic halibut (*Hippoglossus hippoglossus*) (ind.) in Russian trawl catches in NAFO Div. 3LMNO in 2019.

Length, cm	3L	3M	3N	3O	3LMNO
50			1		1
51					
52				1	1
53			1	2	3
54			1		1
55			2	2	4
56					
57					
58			2		2
59			1	1	2
60			3	1	4
61			2		2
62			2	1	3
63			9	4	13
64			16	2	18
65			24	4	28
66	1		8	1	10
67			13	2	15
68	3		16	2	21
69			18	7	25
70			26	5	31
71			24	4	28
72	1		26	3	30
73	1		33	4	38
74	1		16	3	20
75		4	49	7	60
76	1	1	25	4	31
77		4	41	2	47
78	1	1	37	3	42
79	0	3	28	4	35
80	1	1	35	8	45
81			25	3	28
82			34	9	43
83	1		37	7	45
84		3	27	4	34
85	2	1	22	8	33
86	1		33	8	42
87	1		24	1	26
88		3	30	2	35
89	2		19	1	22
90	1	5	35	5	46
91	2	1	22	3	28
92		2	33	4	39
93	3		20	1	24
94	2		14	1	17
95		4	32	3	39
96			27	1	28
97	1	2	25	2	30
98			20	4	24

Length, cm	3L	3M	3N	3O	3LMNO
99			13	1	14
100		5	14	4	23
101	1	1	16	4	22
102	1		12		13
103	2		11		13
104			10	1	11
105		10	12	2	24
106			9		9
107	1	2	9		12
108			12	1	13
109			10	1	11
110	1	1	11	1	14
111			11	3	14
112		2	8	1	11
113			4		4
114			7		7
115	1		5	3	9
116			4	1	5
117	1		9		10
118	1		7		8
119			3		3
120		1	2	2	5
121			8	2	10
122		2	1		3
123	1		2		3
124			4		4
125	1	3	8	8	20
126			4		4
127			3	1	4
128			3		3
129			1	2	3
130			4	2	6
131			2	2	4
132			2		2
133			1	1	2
134					
135	1		2		3
136			1		1
137			1		1
138					
139			1		1
140			2		2
141			2	1	3
142					
143	1				1
144			2	1	3
145	1		2	3	6
146					
147			1	2	3
148			1		1
149			2		2

Length, cm	3L	3M	3N	3O	3LMNO
150					
151			4		4
152			2	1	3
153					
154					
155			1		1
156			2	1	3
157				1	1
158			1	1	2
159					
160	1		2		3
161			1		1
162					
163					
164					
165			3		3
166			2		2
167			1		1
168					
169					
170				1	1
171					
172					
173			1		1
174					
175				1	1
176			2		2
177					
178			1		1
179					
180					
181					
182					
183					
184					
185					
186				1	1
187					
188			1	1	2
189					
190			1		1
191					
192					
193					
194					
195			1	1	2
196					
197			1		1
198					
199					
200			1		1

Length, cm	3L	3M	3N	3O	3LMNO
201					
202			2	1	3
203					
204					
205					
206					
207					
208					
209					
210				1	1
211					
212					
213					
214					
215					
216					
217					
218					
219					
220			1		1
Total	41	62	1228	205	1536
Mean length, cm	96.8	95.4	90	93.9	90.91

Table 28. Occurrences of VME indicator species in the NAFO Regulatory Area in 2019.

Tow coordinates				Depth fished, m	Species	Number, ind.	Length, cm	Condition	Weigh, kg
Start		Finish							
N	W	N	W						
43	49.72	42.97	49.73	293-305	<i>Polymastia spp.</i>	1	4		<1
					<i>Cladocroce spp.</i>	2	10-20		<1
43	49.73	42.95	49.73	340-343	<i>Tedania sp.</i>	1	8		<1
					<i>Polymastia spp.</i>	2	4-5		<1
					<i>Geodia spp.</i>	1	3		<1
					<i>Drifa glomerata</i>	2	3-4		<1
43	49.7	42.97	49.73	329-356	<i>Cladocroce spp.</i>	1	15		<1
42.92	49.85	42.85	49.88	279-330	<i>Drifa glomerata</i>	1	15		<1
					<i>Duva florida</i>	1	7		<1
					<i>Tedania sp.</i>	1	6		<1
43	49.7	43.03	49.77	324-346	<i>Polymastia spp.</i>	1	6		<1
					<i>Duva florida</i>	1	15		<1
					<i>Drifa glomerata</i>	4	7-15		<1
42.83	49.9	42.85	49.9	325-328	<i>Duva florida</i>	1	8		<1
					<i>Drifa glomerata</i>	1	18		<1
42.82	49.93	42.93	49.83	316-326	<i>Mycale sp.</i>	1	8		<1
					<i>Polymastia spp.</i>	2	4-5		<1
					<i>Vazella spp.</i>	1	10		<1
					<i>Geodia spp.</i>	1	4		<1
					<i>Spongionella spp.</i>	1	7		<1
					<i>Drifa glomerata</i>	4	6-10		<1
42.85	49.88	42.82	49.77	310-334	<i>Vazella spp.</i>	2	5-7		<1
					<i>Eucratea loricata</i>	1	10		<1
					<i>Haliclona spp.</i>	2	10		<1
42.8	49.05	n/a	n/a	373	<i>Drifa glomerata</i>	1	4		<1
42.87	49.85	42.85	49.88	360-361	<i>Drifa glomerata</i>	1	10		<1
					<i>Duva florida</i>	1	7		<1
42.87	49.85	42.82	49.95	340-348	<i>Polymastia spp.</i>	1	4		<1
					<i>Geodia spp.</i>	1	5		<1
42.9	49.85	42.82	49.93	305-395	<i>Phakellia spp.</i>	1	25		<1
42.82	49.93	42.88	49.98	372-374	<i>Drifa glomerata</i>	1	9		<1
43.78	49.02	43.83	49.05	320-365	<i>Duva florida</i>	2	8-10		<1
42.83	49.9	42.82	49.93	375-385	<i>Drifa glomerata</i>	2	10-15		<1
					<i>Polymastia spp.</i>	1	4		<1
45.42	48.45	45.58	48.2	860-914	<i>Anthoptilum sp.</i>	2	20-25		<1
45.63	48.05	45.8	47.78	941-982	<i>Anthoptilum sp.</i>	3	15-25		<1
					<i>Duva florida</i>	3	7-13		<1
					<i>Drifa glomerata</i>	3	7-18		<1
					<i>Chonelasma spp.</i>	1	8		<1
43.11	51.11	43.33	51.65	430-514	<i>Anthoptilum grandiflorum</i>	2	30-33		0.13
43.42	49.3	43.37	49.3	380-390	<i>Duva florida</i>	1	9		0.055
42.92	49.84	42.81	49.97	325-375	<i>Stauropathes spp.</i>	2	8-10		0.009
					<i>Duva florida</i>	4	4-5		0.084
43.32	49.32	43.31	49.34	390-405	<i>Axinellidae</i>	1	19		0.16
43.12	51.09	43.3	51.53	255-390	<i>Anthoptilum grandiflorum</i>	1	51		0.075
					<i>Halipterus finmarchica</i>	1	57		0.035

Tow coordinates				Depth fished, m	Species	Number, ind.	Length, cm	Condition	Weigh, kg
Start		Finish							
N	W	N	W						
43.18	51.34	43.14	51.15	325-385	<i>Anthoptilum grandiflorum</i>	4	30-48		0.186
					<i>Halipterus finmarchica</i>	11	11-21		0.274
					<i>Pennatula</i>	8	9-11		0.084
43.25	51.45	43.16	51.29	336-440	<i>Anthoptilum grandiflorum</i>	3	13-50		0.117
					<i>Halipterus finmarchica</i>	2	35-47		0.058
					<i>Pennatula</i>	2	8-10		0.017
43.4	51.69	43.15	51.21	400-445	<i>Anthoptilum grandiflorum</i>	1	38		0.06
					<i>Halipterus finmarchica</i>	1	42		0.031
					<i>Pennatula</i>	4	8-12		0.04
46.31	46.75	46.85	46.83	1180-1195	<i>Anthoptilum grandiflorum</i>	12	12-40		0.19
					<i>Halipterus finmarchica</i>	2	40-45		0.072
46.82	46.78	46.66	46.77	1130-1175	<i>Duva florida</i>	1	14		0.072
					<i>Anthoptilum grandiflorum</i>	17	10-42		0.258
46.28	46.75	46.73	46.77	1105-1195	<i>Anthoptilum grandiflorum</i>	2	38-47		0.138
					<i>Pennatula</i>	2	10		0.018
46.29	46.76	46.8	46.78	1175-1224	<i>Anthoptilum grandiflorum</i>	28	9-36		0.258
46.73	46.77	46.34	46.76	1110-1190	<i>Anthoptilum grandiflorum</i>	16	10-32		0.242
47.76	46.72	48.12	46.59	990-1026	<i>Halipterus finmarchica</i>	5	28-75		0.247
					<i>Pennatula</i>	57	9-12		0.746
48.55	45.9	48.25	46.47	910-1070	<i>Anthoptilum grandiflorum</i>	3	32-47		0.205
					<i>Pennatula</i>	6	9-10		0.052
48.62	45.69	48.32	46.32	990-1105	<i>Anthoptilum grandiflorum</i>	3	35-38		0.156
46.32	47.33	46.55	47.31	315-370	<i>Geodia spp.</i>	6	4-6		0.16
42.91	49.84	42.82	50.21	330-370	<i>Duva florida</i>	4	5-8		0.148
					<i>Euplectella spp.</i>	3	15-25		0.43
42.79	50.04	42.78	50.25	385-405	<i>Duva florida</i>	6	7-13		0.324
					<i>Anthoptilum grandiflorum</i>	2	28-32		0.131
					<i>Polymastia spp.</i>	4	4-6		0.082
					<i>Rhizaxinella sp.</i>	2	6		0.028
42.93	49.86	42.82	50.28	270-385	<i>Duva florida</i>	5	9-13		0.292
					<i>Euplectella spp.</i>	1	18		0.168
42.85	50.34	42.86	50.39	205-210	<i>Duva florida</i>	2	10		0.129
43.32	49.32	43.4	49.31	380-395	<i>Duva florida</i>	2	8		0.101

Tow coordinates				Depth fished, m	Species	Number, ind.	Length, cm	Condition	Weigh, kg
Start		Finish							
N	W	N	W						
					<i>Axinellidae</i>	1	6		0.039
44.26	48.97	44.07	48.97	375-410	<i>Duva florida</i>	2	4-5		0.049
43.32	49.31	43.4	49.3	370-385	<i>Axinellidae</i>	1	20		0.152
47.36	44.56	47.405	44.785	195	<i>Axinella sp.</i>	1	20		0.089
47.22	44.82	47.20	45.17	170	<i>Axinella sp.</i>	1	21		0.028
					<i>Stryphnus fortis</i>	1	12		0.09
					<i>Polymastia spp.</i>	1	7		0.035
46.81	46.99	45.02	45.15	160	<i>Hormathia digitata</i>	2	3-5		0.074
					<i>Axinella sp.</i>	1	14		0.022
					<i>Stryphnus fortis</i>	1	7		0.086
47.01	45.17	46.82	45.03	170	<i>Craniella cranium</i>	1	5		0.019
46.76	45.04	47.01	45.15	180	<i>Hormathia digitata</i>	2	2-4		0.028
					<i>Axinella sp.</i>	1	11		0.014
					<i>Polymastia spp.</i>	1	5		0.042
					<i>Vazella pourtalesii</i>	1	9		0.093
					<i>Forcepia sp.</i>	1	16		0.023
					<i>Thenea muricata</i>	1	6		0.062
46.84	45.1	47.04	45.22	180	<i>Vazella pourtalesii</i>	2	13-16		0.197
					<i>Axinella sp.</i>	1	20		0.032
					<i>Forcepia sp.</i>	1	19		0.042
47.13	44.95	47.03	45.12	160	<i>Weberella bursa</i>	1	14		0.17
47.40	44.36	47.36	44.29	260	<i>Hormathia digitata</i>	1	7		0.085
					<i>Axinella sp.</i>	1	36		0.383
46.13	47.2	46.13	47.7	980	<i>Duva florida</i>	4	5-8		0.03
48.63	45.67	48.42	46.18	1145	<i>Anthoptilum spp.</i>	3	4-6		0.2
48.18	46.95	48.28	46.62	960	<i>Duva florida</i>	5	5-8		0.03
48.13	47.62	48.13	47.13	930	<i>Anthoptilum spp.</i>	3	4-6		0.1
48.32	46.52	48.15	47.05	1050	<i>Duva florida</i>	5	5-6		0.03
48.3	46.47	48.45	46.05	924-1021	<i>Phakellia spp.</i>	2	3-5		0.025
					<i>Polymastia spp.</i>	2	4-5		0.046
					<i>Anthoptilum spp.</i>	1	13		0.018
48.3	46.45	48.47	46.02	927-1034	<i>Polymastia spp.</i>	3	3-6		0.038
					<i>Duva florida</i>	2	9-12		0.069
48.13	47.13	48.13	47.58	977-1012	<i>Geodia spp.</i>	2	3-4		0.055
					<i>Anthoptilum spp.</i>	1	11		0.012
42.9	49.88	42.87	49.97	231-234	<i>Geodia spp.</i>	3	5-6		0.121
					<i>Anthoptilum spp.</i>	1	17		0.023
					<i>Polymastia spp.</i>	1	4		0.031
42.87	50.5	42.88	50.37	200-220	<i>Duva florida</i>	5	5-8		0.06
					<i>Polymastia spp.</i>	3	3-4		0.084
					<i>Geodia spp.</i>	1	5		0.032
42.87	50.3	42.85	50.35	215-220	<i>Duva florida</i>	2	7-11		0.112

Tow coordinates				Depth fished, m	Species	Number, ind.	Length, cm	Condition	Weigh, kg
Start		Finish							
N	W	N	W						
					<i>Geodia spp.</i>	1	5		0.037
43.8	49.07	43.78	49.07	235-240	<i>Polymastia spp.</i>	3	4-6		0.047
					<i>Phakellia spp.</i>	1	7		0.015
48.13	47.62	48.13	47.1	1046-1070	<i>Lophelia pertusa</i>	1	3		0.016
					<i>Geodia spp.</i>	3	4-5		0.078
					<i>Polymastia spp.</i>	4	3-4		0.044

Table 29. Marine mammals in the NAFO Regulatory Area recorded in 2019.

Date	Latitude	Longitude	Species	Number	Remarks
25.08	48°42'N	43°38'W	Short-beaked common dolphin	3	on port side, 100 m
29.08	46°26'N	46°10'W	White-beaked dolphin	8	on port side, 400-500 m
29.08	45°39'N	47°27'W	Short-beaked common dolphin	6	near the broad side and ahead of the vessel
01.09	43°13'N	51°23'W	Short-beaked common dolphin	4	swam around the trawl when it was hauled in
01.09	43°34'N	50°36'W	Short-beaked common dolphin	9	approached the fishing vessel
02.09	44°40'N	48°55'W	Dolphin	5	ahead of the vessel, jumped out of the water
06.08	54°54'N	39°44'W	Short-beaked common dolphin	15	transit 320°
08.08	47°36'N	45°01'W	Minke whale	1	when setting-retrieving a longline
24.08	58°05'N	35°35'W	Whale	1	in transit
30.08	58°56'N	32°43'W	White-beaked dolphin	20	in transit
21.09	56°52'N	35°20'W	Northern bottlenose whale	17	transit 270°
29.09	53°34'N	39°14'W	Sperm whale	5	in transit
01.10	47°32'N	44°46'W	Northern bottlenose whale	5	when setting a longline
02.10	47°28'N	44°44'W	Minke whale	3	when setting-retrieving a longline
08.10	47°28'N	44°45'W	Sperm whale	4	astern when setting a longline

Table 30. Total number of marine mammals in the NAFO Regulatory Area in 2019.

Species	Number	Number of occurrences	% of the total number
White-beaked dolphin	28	2	26.4
Northern bottlenose whale	22	2	20.8
Minke whale	4	2	3.8
Sperm whale	9	2	8.5
Short-beaked common dolphin	37	5	34.9
Whale	1	1	0.9
Dolphin	5	1	4.7
Total	106	15	100