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SCIENTIFIC COUNCIL MEETING - JUNE 2019**Russian Research Report for 2018****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 2018, the 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 (Divs.1 CD) of 68°N.

From August to November, four trawlers were engaged in the fishery in the area north of 68°N. The trawlers operated in the area between 68°51'N–70°09'N and 60°56'W–58°56'W at depths of 520–1,130 m. According to preliminary data, the catch of Greenland halibut was 549.5 t (Table 1). There were by-catches of roundnose grenadier (*Coryphaenoides rupestris*) (0.03 t) (Table 2). The catch rate varied from month to month between 11.2 t and 25.6 t and averaged 17.6 t per fishing vessel-day.

In the area south of 68°N as many as four Russian trawlers participated in the fishery. The trawlers operated from July to November in the area between 63°14'N – 64°29'N and 57°57'W – 55°08'W at depths of 1000–1,380 m. The catch rate ranged from 8.3 t to 25.1 t per fishing vessel-day and averaged 18.3 t. Preliminary data show that the catch of Greenland halibut was 1,121.0 t (Table 1). The by-catch was made up by 1.9 t of roughhead grenadier (*Macrourus berglax*) and 1.4 t of roundnose grenadier (Table 2).

The total annual catch of Greenland halibut taken by the Russian vessels off the West Greenland amounted to 1,670.5 t (Table 1).

Other fish species

There was no directed fishery for other fish species.



B. Targeted investigations

Biological data on Greenland halibut from Divs. 1ACD was collected by the crews onboard fishing vessels.

Greenland halibut

In Divs. 1AD Greenland halibut specimens in the catches were 22-102 cm long (the average length was 51.9 cm, the length of 50-56 cm was predominant,) (Table 3).

SUBAREA 3

A. Status of Fisheries

Greenland halibut

In 2018, the domestic fishery for Greenland halibut was conducted from February to September. Four Russian trawlers were engaged in the directed fishery for Greenland halibut. Catch rates for N/S-2 vessels varied from 10.9 t to 24.0 t and averaged 18.7 t per fishing vessel-day. For N/S-1 vessel type the highest catch rate was in April and comprised 15.5 t, averaging about 8.8 t per fishing vessel-day.

The total annual catch of Greenland halibut taken in the directed fishery amounted to 1,555.167 t. Additionally, 0.015 t of Greenland halibut were taken as a by-catch in the redfish fishery.

The total catch of Greenland halibut was 1,555.182 t (Table 1). Roughheaded and roundnosed grenadiers, redfishes, skates, witch flounder (*Glyptocephalus cynoglossus*) and Greenland shark (*Somniosus microcephalus*) occurred in by-catches (Table 4).

Atlantic cod

On the Flemish Cap Bank the Russian directed fishery for Atlantic cod was conducted from January to April, as well as in August, onboard N/S-1 vessels and their average daily catch rate was 18.8 t.

The annual catch of cod taken by Russian fishing vessels in the directed fishery was 575.1 t. In addition, 122.8 t of cod were taken as a by-catch in the fishery for redfish and 7.0 t were taken as a by-catch in the multispecies fishery. The total Russian catch of cod on the Flemish Cap Bank was 704.8 t (Table 1).

Atlantic redfish on the Flemish Cap Bank

The directed fishery for redfish was conducted occasionally in January, February, March and August in the area between 46°22'N - 48°14'N and 46°29'W - 44°13'W at depths of 230 – 620 m, predominantly 290-500 m. The vessels operated using bottom trawls and their catch rate varied from 17.7 to 36.7 t averaging at 23.4 t per fishing vessel-day.

According to preliminary estimates, the total annual catch taken by Russian fishing vessels in the directed fishery for redfish was 591.0 t. Additional 77.1 t of redfishes were taken in the cod and halibut fishery. 122.8 t of atlantic cod (*Gadus morhua*), 4.5 t of skates (*Rajidae spp.*), 2.9 t of

american plaice (*Hippoglossoides platessoides*), 1.4 t of atlantic halibut (*Hippoglossus hippoglossus*) and 0.8 t of witch flounder occurred in the by-catches (Table 5).

The total Russian catch of redfishes was 668.1 t (Table 1).

In Div. 30, in the south-western part of the Grand Bank of Newfoundland, the Russian trawlers operated sporadically from January to April at depths of 200-620 m. The average daily catch rate was 35.1 t per fishing vessel-day. The highest catch rate was recorded in March-April with 2.81 t and 3.19 t per fishing hour, respectively. 349.7 t of redfishes were taken by Russian vessels in the directed fishery. 4.45 t of redfish were also taken in multispecies fisheries.

The total Russian catch of redfishes was 354.2 t, whereas the national quota was 6500 t (Table 1). In recent years, the bulk of the catches was made up by American perch. Significant deviations between the actual catches and forecasted catches was caused by the lack of fishing efforts.

In Divs. 3LN the Russian directed fishery for redfish was conducted from January to October by the N/S-1 and N/S-2 vessels at depths between 120 and 510 m. The catch rate of the bottom trawl varied from 9.5 t to 34.0 t, with a daily average of 24.7 t per fishing vessel-day. The highest catch rate for N/S-1 vessels was in April and August (29,3 t and 20,3 t per fishing vessel-day, respectively) and for N/S-2 vessels – in May, September and October (34,0 t, 26,9 t and 30,9 t per fishing vessel-day, respectively) (Table 6.20).

2393.0 t of redfishes were taken by Russian vessels in the directed fishery. Additionally, 15.1 t of redfishes were taken in the fishery for Greenland and Atlantic halibut.

The total Russian catch of redfishes in Divs.3LN amounted to 2,408.1 (Table 1).

Skates

No directed fishery was conducted. Skates were taken as a by-catch in the fishery for yellowtail flounder (*Limanda ferruginea*) (6.3 t), Greenland halibut (2.1 t) and redfish (21.96 t). The total Russian catch of skates in the Divs. 3LMNO for the whole period amounted to 32.39 t (Table 1).

Yellowtail flounder

The Russian directed fishery for yellowtail flounder was conducted briefly in February in Div. 3N between 43°18'N – 43°43'N and 50°32'W – 49°32'W at depths of 60-80 m. The average daily catch rate was 17.8 t. Over the year, Russian fishing vessels caught totally 83.14 t of the species in the directed fishery. 6.3 t of skates, 3.5 t of american plaice, 2.49 t of cod and 0.13 t of Atlantic halibut were taken as by-catches. The total Russian catch of yellowtail flounder amounted to 83.14 t (Table 1).

Other species

There was no directed fishery for other species.

B. Targeted investigations

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

Greenland halibut

In Div. 3L Greenland halibut of 28-92 cm occurred, the average length was 51.8 cm. Specimens of 48-54 cm prevailed (Table 6).

In Div. 3M the length of Greenland halibut varied from 38 cm to 92 cm (predominately, 50-58 cm), with an average of 54.4 cm.

Generally, the length of Greenland halibut in Divs. 3LM varied between 28 and 92 cm, the average length of males and females was 49.0 and 53.4 cm, respectively. The sex ratio (males and females) in the catches was 1:2 (Table 6). The halibut age varied from 2 to 17 years. Most of the specimens taken were 6-9 years old (Table 7).

Acadian redfish (Sebastes fasciatus)

In Div. 3L the length of fish in the catches varied between 19 and 34 cm, the average length of females was 25.3 cm and that of males was 24.9 cm. Specimens of 23-27 cm predominated in the catches (Table 8).

Moreover, three specimens of 11-12 cm length were taken in Div. 3L.

In Div. 3N redfish of 15-35 cm prevailed. The average length of males and females was 24.0 and 26.0 cm, respectively (Table 8).

Deep-water redfish (S. mentella)

The length of deep-water redfish occurred in Div. 3L varied from 23 to 37 cm and averaged 28.4 cm (Table 9). The average length of males and females was 27.3 and 29.7 cm, respectively.

According to the data from 2017, the age of deep-water redfish varied from 6 to 17 years, specimens of 9-11 years were prevalent (Table 10).

Roughhead grenadier

The total length in Div. 3L varied from 31 cm to 82 cm, and the average length was 52.1 cm (Table 11).

Single specimens of roughhead grenadier occurred in the catches taken in Div. 3M. The zoological length varied between 31 and 70 cm, and the average length was 47.2 cm (Table 11).

Roundnose grenadier

In Div. 3L 9 specimens of roundnose grenadier were taken, their total length varied from 43 to 58 cm. The average length was 52.3 cm (Table 12).

In Div. 3M roundnose grenadier occurred occasionally. The length varied from 31 to 70 cm and averaged 49.9 cm (Table 12).

American plaice

In Div. 3L 3 specimens were taken, their length was 41, 42 and 44 cm, and the average length was 42.7 cm.

Witch flounder

The species occurred in the catches very occasionally.

In Div. 3L the length composition in by-catches in the fishery for redfish was made up by fish of 39-53 cm, the average length was 44.4 cm (Table 13).

Thorny skate

In Div. 3L, the length of thorny skates varied from 39 to 63 cm, the average length was 52.8 cm (Table 18).

In Div. 3M, 3 specimens of thorny skates occurred in the catches taken in the fishery for redfish, their length was 50, 52 and 58 cm, the average length was 53.3 cm (Table 14).

Spinytail skate

In Div. 3L, four specimens were caught, their length varied between 39 and 42 cm.

Arctic skate

In Div. 3L a single specimen of 68 cm was taken.

Northern wolffish

In Div. 3L the length of fish varied from 40 to 118 cm, the average length was 65.0 cm (Table 15).

In Div. 3M four northern wolffish specimens were caught, their length was from 55 to 64 cm, the average length was 59.0 cm (Table 15).

Blue antimora

In Div. 3L the specimens of blue antimora were as long as 25-64 cm, their average length was 39.8 cm (Table 16).

In Div. 3M six specimens of blue antimora were taken, their length varied between 32 and 36 cm, the average length was 34.3 cm (Table 16).

Dogfish shark

In Divs. 3LN the species occurred very occasionally.

In Div. 3L, the length of fish varied from 60 to 64 cm, the average length was 61.8 cm (Table 17).

In Div. 3M, two specimens were caught, their length comprised 63 and 60 cm (Table 17).

Threebeard rockling

In Div. 3L, the length composition was made up by fish of 32-52 cm, the average length was 42.7 cm (Table 18).

Red hake

In Div. 3L, the length of fish varied from 35 to 43 cm, and it averaged 38.2 cm. The average length of males and females was 36.8 cm and 38.6 cm, respectively (Table 19).

Greater eelpout

The fish were caught in a small amount (11 specimens) in Div. 3L. The length varied between 38 and 49 cm, the average length comprised 43.9 cm (Table 20).

Marlin-spike grenadier

In Div. 3L, 17 specimens were taken. The length of fish varied between 24 and 28 cm, the average length of males was 25.4 cm, that of females was 26.2 cm (Table 21).

Atlantic halibut

In Div. 3L, two specimens were taken, their length was 80 and 126 cm, respectively.

In Div. 3N, a single specimen of 72 cm was measured.

VME indicator species

There were several catches of sponges and corals that were recorded during the observers' activities onboard the fishing vessels. In none of those catches the VME weight exceeded the established reference point (Table 22).

Marine mammals

According to the results of observations on the fishing vessels, the marine mammals species observed in the Divs. 3LMN from April to October were as follows: whales (*Cetacea*) including pilot whales (*Globicephala melaena*), sperm whales (*Physeter microcephalus*) and white-beaked dolphins (*Lagenorhynchus albirostris*), in addition to harp seals (*Pagophilus groenlandicus*), as Table 23 shows.

In the West Greenland area (Divs. 1AD), pilot whales and sperm whales were observed, as Table 24 shows.

The total number of marine mammals observed (occurrences) was 37 (Table 25).

No discards were registered in the fisheries for target species.

TABLE 1. Preliminary catches taken by Russian trawlers in NAFO SA 1-3 in 2018.

Species	Division	Catch, t
Greenland halibut	1A	549,518
	1B	-
	1C	55,201
	1D	1065,772
	1ABCD	1670,491
Greenland halibut	3L	1262,074
	3M	290,114
	3N	2,994
	3LMN	1555,182
American plaice	3L	0,634
	3M	4,415
	3N	23,748
	3O	20,475
	3LMNO	49,272
Yellowtail flounder	3N	83,140
Witch flounder	3L	1,965
	3M	0,835
	3N	28,524
	3O	48,422
	3LMNO	79,746
Roughhead grenadier	3L	6,560
	3M	0,584
	3N	-
	3LMN	7,144
Roughnose grenadier	3L	1,581
	3N	2,400
	3LN	3,981
Redfish spp.	3L	850,533
	3M	668,105
	3N	1557,611
	3O	354,163
	3LMNO	3430,00
Skate	3L	8,708
	3M	5,052
	3N	14,990
	3O	3,638
	3LMNO	32,388
White hake	3N	0.025
	3O	3.851
	3NO	3.876
Atlantic cod	3L	7.617
	3M	704.783
	3N	23.345
	3O	18.195
	3MNO	753.940
Atlantic Halibut	3L	6.259
	3M	3.792
	3N	59.920
	3O	17.365
	3MNO	87.336

TABLE 2. By-catch in the directed fishery for Greenland halibut taken by Russian bottom trawlers in NAFO Divs. 1AD in 2018.

Species	Weight, t
Division 1A	
Roughhead grenadier	0.025
Division 1D	
Roundnose grenadier	1.402
Roughhead grenadier	1.920
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Roundnose grenadier	1.427
Roughhead grenadier	1.920

TABLE 3. Length composition of Greenland halibut (*Reinhardtius hippoglossoides*) (ind.) in the Russian trawl catches in NAFO Div. 1AD in 2018.

Length, cm	1A	1D	1AD
22	1	0	1
24			
26			
28	1	0	1
30	7	0	7
32	18	0	18
34	28	0	28
36	71	1	72
38	116	1	117
40	235	5	240
42	259	17	276
44	328	72	400
46	383	225	608
48	363	492	855
50	426	869	1295
52	449	1168	1617
54	419	1331	1750
56	282	1050	1332
58	167	605	772
60	139	322	461
62	88	197	285
64	37	106	143
66	17	69	86
68	11	41	52
70	11	36	47
72	4	18	22
74	0	12	12
76	0	6	6
78	0	6	6
80	0	7	7
82	0	4	4
84	0	4	4
86	0	1	1
88	0	1	1
90	0	1	1
92	0	3	3
94	0	4	4
96			
98			
100			
102	0	1	1
Total	3860	6675	10535
Mean length, cm	48.8	53.7	51.89

TABLE 4. By-catch in the directed fishery for Greenland halibut taken by Russian bottom trawlers in NAFO Divs. 3LMNO in 2018.

Species	Weight, t
Witch flounder	1.705
Redfish	3.504
Skates	2.100
Roundnose grenadier	3.980
Roughhead grenadier	7.144
Greenland shark	10.500

TABLE 5. By-catch in the directed fishery for redfish taken by Russian bottom trawlers in NAFO Divs. 3LMNO in 2018.

Species	Weight, t
Divs. 3LN	
Witch flounder	21.982
Skates	14.904
Roundnose grenadier	0.001
American plaice	19.890
Atlantic cod	27.670
Atlantic halibut	57.781
Greenland halibut	0.015
White hake	0.025
Div. 3M	
Witch flounder	0.728
Skates	4.467
American plaice	2.897
Atlantic cod	122.760
Atlantic halibut	1.425
Div. 3O	
Witch flounder	31.927
Skates	2.588
White hake	3.356
American plaice	16.506
Atlantic cod	14.912
Atlantic halibut	11.835
Total	
Witch flounder	54.637
Skates	21.959
White hake	3.381
American plaice	39.293
Atlantic cod	165.342
Atlantic halibut	71.041
Greenland halibut	0.015
Roundnose grenadier	0.001

TABLE 6. Length composition of Greenland halibut (*Reinhardtius hippoglossoides*) (ind.) in the Russian trawl catches in NAFO Divs. 3LMN in 2018.

Length, cm	3L			3M			3LM		
	Females	Males	Total	Females	Males	Total	Females	Males	Total
28	2	4	6				2	4	6
30	4	6	10				4	6	10
32	11	12	23				11	12	23
34	18	16	34				18	16	34
36	65	43	108				65	43	108
38	131	90	221		1	1	131	91	222
40	264	217	481	1	4	5	265	221	486
42	456	336	792	5	11	16	461	347	808
44	637	511	1148	19	25	44	656	536	1192
46	841	693	1534	20	38	58	861	731	1592
48	1159	874	2033	34	57	91	1193	931	2124
50	1355	965	2320	58	69	127	1413	1034	2447
52	1425	1014	2439	106	105	211	1531	1119	2650
54	1499	845	2344	119	96	215	1618	941	2559
56	1487	480	1967	139	83	222	1626	563	2189
58	1466	198	1664	147	17	164	1613	215	1828
60	1145	88	1233	109	2	111	1254	90	1344
62	758	11	769	69	1	70	827	12	839
64	401	1	402	57		57	458	1	459
66	228		228	29		29	257		257
68	139		139	17		17	156		156
70	114		114	8		8	122		122
72	57		57	9		9	66		66
74	31		31	3		3	34		34
76	27		27	2		2	29		29
78	19		19			0	19		19
80	25		25	1		1	26		26
82	22		22	1		1	23		23
84	5		5			0	5		5
86	7		7			0	7		7
88	5		5			0	5		5
90	2		2			0	2		2
92	1		1	1		1	2		2
Total	13806	6404	20210	954	509	1463	14760	6913	21673
Mean length, cm	53.17	48.89	51.8	56.27	50.88	54.4	53.37	49.04	51.99

TABLE 7. Age-length composition of Greenland halibut (*Reinhardtius hippoglossoides*) in the Russian trawl catches in NAFO Divs. 3LMN in 2018.

Length, cm	Age																Total
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
28	2	2															4
30	1	6	1														8
32		9	9	1													19
34			6	4													10
36			6	8	3												17
38			4	11	6												21
40				7	13	3											23
42				1	20	8	1										30
44				3	14	5											22
46					4	26	7										37
48						14	12	4									30
50						6	17	1									24
52						1	20	17	1								39
54							8	24	4								36
56							2	22	13	2							39
58								4	24	5	1						34
60								1	9	11							21
62										13	10	1					24
64										2	6	1					9
66											5	4					9
68												2					2
70												2	3				5
72													2	1			3
74													3	1			4
76														2		1	3
78															1		1
Total	3	17	26	35	60	63	67	73	51	33	22	10	8	4	1	1	474
Mean length, cm	27.7	30.5	33.7	37.6	41.2	45.5	49.9	53.6	56.9	60	62.8	66.3	71.6	74	78	76	49.2
Mean weight, g	153.3	235.6	320.2	431.4	579.7	790.6	1074.5	1356.9	1659.6	2017.1	2356.8	2768.5	3831.3	4360	5510	4500	1207.5

TABLE 8. Length composition (ind.) of *S. fasciatus* in Russian trawl catches in NAFO Div. 3LN in 2018

Length , cm	3L				3N			3LN			
	Femal es	Juv	Males	Total	Femal es	Males	Total	Femal es	Juv	Males	Total
11		2		2					2		2
12		1		1					1		1
13											
14											
15						3	3			3	3
16											
17					1	1	2	1		1	2
18					1	4	5	1		4	5
19	2		1	3	2	14	16	4		15	19
20	7		5	12	13	45	58	20		50	70
21	24		33	57	39	223	262	63		256	319
22	79		117	196	126	710	836	205		827	1032
23	120		233	353	411	1226	1637	531		1459	1990
24	141		295	436	747	1277	2024	888		1572	2460
25	135		293	428	954	998	1952	1089		1291	2380
26	176		253	429	888	653	1541	1064		906	1970
27	149		189	338	676	277	953	825		466	1291
28	83		94	177	472	94	566	555		188	743
29	29		33	62	293	10	303	322		43	365
30	18		7	25	198	2	200	216		9	225
31	10		4	14	81		81	91		4	95
32	6		2	8	55		55	61		2	63
33	5		1	6	22		22	27		1	28
34	3			3	9		9	12			12
35				0	1		1	1			1
Total	987	3	1560	2550	4989	5537	10526	5976	3	7097	13076
Mean length, cm	25.34	11.33	24.9	25.1	25.95	23.99	24.9	25.85	11.33	24.19	24.95

TABLE 9. Length composition (ind.) of *S. mentella* in Russian trawl catches in NAFO Divs. 3L in 2018.

Length, cm	3L		
	Females	Males	Total
23		1	1
24	1	10	11
25	5	39	44
26	21	124	145
27	37	133	170
28	82	109	191
29	69	74	143
30	58	23	81
31	38	5	43
32	37	4	41
33	27	4	31
34	22	3	25
35	8	1	9
36	2		2
37	1		1
Total	408	530	938
Mean length, cm	29.71	27.35	28.4

TABLE 10. Age-length composition of *S. mentella* in the Russian trawl catches in NAFO Divs. 3LN in 2017.

Length, cm	Age												Total
	6	7	8	9	10	11	12	13	14	15	16	17	
22	3	7	7										17
23		5	12	5									22
24		3	11	14	4								32
25		2	5	13	13								33
26			2	12	11	5							30
27			2	8	14	11	4						39
28				6	13	10	3						32
29					4	14	8	5					31
30					1	9	7	5					22
31					1	3	5	7	1				17
32						1	7	6	2	1			17
33							1	6	5	2			14
34								3	3	3	3		12
35								2	7	4	2	1	16
36									4	5	4	2	15
Total	3	17	39	58	61	53	35	34	22	15	9	3	349
Mean length, cm	22	23	23.7	25.4	26.7	28.5	29.9	31.6	34.1	34.7	35.1	35.7	28.1
Mean weight, g	126.7	145.9	162.8	199.1	229.2	279.6	324.9	384.7	485	509.3	534.4	566.7	283.2

TABLE 11. Length composition of roughhead grenadier (*Macrourus berglax*) (ind.) in the Russian trawl catches in NAFO Divs. 3LM in 2018.

Length, cm	3L	3M	3LM
31	8	1	9
34	3	0	3
37	9	0	9
40	42	5	47
43	63	15	78
43	33	3	36
49	12	3	15
52	12	0	12
55	21	3	24
58	31	0	31
61	20	1	21
64	22	0	22
67	10	1	11
70	15	1	16
73	5	0	5
76	2	0	2
79	3	0	3
82	1	0	1
Total	312	33	345
Mean length, cm	52.1	47.2	51.62

TABLE 12. Length composition of roundnose grenadier (*Coryphaenoides rupestris*) (ind.) in the Russian trawl catches in NAFO Div. 3LM in 2018.

Length, cm	3L	3M	3LM
31		5	5
34		3	3
37			
40		1	1
43	1	2	3
43	1	2	3
49	3	4	7
52	1	2	3
55	0	3	3
58	3	6	9
61	0	1	1
64	0	2	2
67	0	1	1
70	0	1	1
Total	9	33	42
Mean length, cm	52.3	49.9	50.43

TABLE 13. Length composition (ind.) of witch flounder (*Glyptocephalus cynoglossus*) in Russian trawl catches in NAFO Divs. 3L in 2018.

Length, cm	3L
39	3
41	3
43	1
45	5
47	
49	2
51	
53	1
Total	15
Mean length, cm	44.4

TABLE 14. Length composition (ind.) of thorny skate (*Amblyraja radiata*) in Russian trawl catches in NAFO Div. 3LMO in 2018.

Length, cm	3L	3M	3LM
39	1		1
40			
41			
42			
43			
44			
45	1		1
46			
47	2		2
48			
49			
50	1	1	2
51	1		1
52	1	1	2
53	1		1
54			
55	1		1
56			
57	1		1
58		1	1
59	1		1
60	1		1
61	1		1
62			
63	1		1
Total	14	3	17
Mean length, cm	52.8	53.3	52.9

TABLE 15. Length composition (ind.) of blue wolffish (*Anarhichas latifrons*) in Russian trawl catches in NAFO Div. 3LMO in 2018.

Length, cm	3L	3M	3LM
40	2		2
43	1		1
46	2		2
49	10		10
52	7		7
55	6	2	8
58	8	1	9
61	4	0	4
64	8	1	9
67	8	0	8
70	4	0	4
73	4	0	4
76	6	0	6
79	3	0	3
82	2	0	2
85	1	0	1
88			
91			
94	1		1
97	1		1
100	1		1
103	1		1
106			
109			
112			
115			
118	1		1
Total	81	4	85
Mean length, cm	65.0	59.0	64.7

TABLE 16. Length composition (ind.) of blue antimora (*Antimora rostrata*) in Russian trawl catches in NAFO Div. 3LM in 2018.

Length, cm	3L	3M	3LM
25	3		3
26	2		2
27			
28	1		1
29	1		1
30	7		7
31	4		4
32	7	1	8
33	8	0	8
34	5	2	7
35	12	2	14
36	4	1	5
37	5		5
38	3		3
39	6		6
40	2		2
41	6		6
42	4		4
43	2		2
44	2		2
45	2		2
46	3		3
47	2		2
48	5		5
49			
50			
51			
52	3		3
53	1		1
54	2		2
55	3		3
56	1		1
57	1		1
58	1		1
59	2		2
60	2		2
61	1		1
62			
63	1		1
64	1		1
Total	115	6	121
Mean length, cm	39.8	34.3	39.6

TABLE 17. Length composition (ind.) of black dogfish (*Centroscyllium fabricii*) in Russian trawl catches in NAFO Div. 3LM in 2018.

Length, cm	3L	3M	3LM
60	2		2
61	1		1
62	3		3
63	1	1	2
64	1		1
65			
66			
67			
68			
69		1	1
Total	8	2	
Mean length, cm	61.8	66.0	62.6

TABLE 18. Length composition (ind.) of threebeard rockling (*Gaidropsarus vulgaris*) in Russian trawl catches in NAFO Div. 3L in 2018.

Length, cm	3L
32	1
33	
34	
35	3
36	2
37	4
38	3
39	2
40	6
41	5
42	9
43	11
44	12
45	11
46	5
47	4
48	5
49	2
50	
51	
52	1
Total	86
Mean length, cm	42.7

TABLE 19. Length composition (ind.) of red hake (*Urophycis chuss*) in Russian trawl catches in NAFO Div. 3L in 2018.

Length, cm	3L		
	Females	Males	Total
35	2	4	6
37	17	7	24
39	9		9
41	1		1
43	3		3
Total	32	11	43
Mean length, cm	38.63	36.77	38.15

TABLE 20. Length composition (ind.) of greaer eelpout (*Lycodes esmarkii*) in Russian trawl catches in NAFO Div. 3L in 2018.

Length, cm	3L
38	1
39	
40	1
41	
42	1
43	1
44	1
45	3
46	2
47	
48	
49	1
Total	11
Mean length, cm	43.9

TABLE 21. Length composition (ind.) of marlin-spike grenadier (*Nezumia bairdii*) in Russian trawl catches in NAFO Div. 3L in 2018.

Length, cm	3L		
	Females	Males	Total
24	1		1
25	2	5	7
26	3	3	6
27			
28	3		3
Total	9	8	17
Mean length, cm	26.2	25.4	25.8

TABLE 22. Occurrences of VME indicator species in the NAFO Regulatory Area in 2018.

Trawl coordinats				Trawl depth, m	Species name	Number	Length, cm	Weight, kg
start		finish						
N	W	N	W					
48°52'9	45°03'6	48°40'0	45°35'8	1260-1140	<i>Duva florida</i>	2	3-5	10
48°52'9	45°03'6	48°40'0	45°35'8	1260-1140	<i>Funiculina quadrangularis</i>	2	5-10	10
48°19'8	46°26'3	48°31'8	45°57'5	980-1080	<i>Duva florida</i>	3	3-5	15
48°19'8	46°26'3	48°31'8	45°57'5	980-1080	<i>Anthoptilum</i> spp.	2	10	15
48°20'4	46°23'0	48°12'4	46°52'5	960-1020	<i>Acanella</i> sp.	1	5	5
48°20'4	46°23'0	48°12'4	46°52'5	960-1020	<i>Geodia</i> spp.	2	10-12	840
48°18'0	46°29'7	48°09'7	46°59'8	950-970	<i>Funiculina quadrangularis</i>	7	3-5	18
48°18'0	46°29'7	48°09'7	46°59'8	950-970	<i>Geodia</i> spp.	3	8-12	690
48°18'0	46°29'7	48°09'7	46°59'8	950-970	<i>Vasella pourtalesi</i>	4	10-15	300
48°08'2	47°10'2	48°08'5	47°42'7	950-1000	<i>Funiculina quadrangularis</i>	4-10	5-10	15
48°08'8	47°40'6	48°08'8	47°08'1	1020-1000	<i>Funiculina quadrangularis</i>	5	3-10	10
48°09'2	47°28'3	48°09'2	47°07'0	1120-1070	<i>Anthoptilum</i> spp.	4-7	5-10	15
48°09'8	47°12'7	48°09'8	47°41'6	1150-1250	<i>Anthoptilum</i> spp.	4-7	5-10	15
48°10'2	47°37'4	48°10'2	47°05'0	1200-1250	<i>Anthoptilum</i> spp.	4-7	5-10	15
48°09'0	47°12'0	48°09'2	47°40'8	1030-1180	<i>Acanella</i> sp.	1	7	10
48°09'2	47°10'9	48°09'2	47°40'0	1050-1180	<i>Anthoptilum</i> spp.	4-6	5-10	15
48°09'2	47°10'9	48°09'2	47°40'0	1050-1180	<i>Funiculina quadrangularis</i>	4-8	5-10	20

TABLE 23. Marine mammals occurrence in the NAFO Regulatory Area in 2018.

Date	Latitude	Longitude	Species	Number	Notes
21.04-09.05	44°00'-48°00'N	47°00'-50°00'W	Sperm whale	2-3 ($\Sigma \approx 15$)	Trawl hauling
21.04-09.05	44°00'-48°00'N	47°00'-50°00'W	Harp seal	2-4 ($\Sigma \approx 20$)	Trawl hauling
23.04	48°08'7N	047°08'1W	White-beaked dolphin	6	Trawl hauling
23.04	48°09'0N	047°42'7W	White-beaked dolphin	10	Trawl hauling
24.04-10.07	46°00'-48°30'N	47°00'-47°30'W	Sperm whale	2-5($\Sigma \approx 15$)	Trawl hauling
20.09-31.10	46°00'-48°30'N	47°00'-47°30'W	Sperm whale	2-5($\Sigma \approx 10$)	Trawl hauling

TABLE 24. Marine mammals in the West Greenland Area recorded in 2018.

Date	Latitude	Longitude	Species	Number	Notes
29.07	63°47'N	56°32'W	Sperm whale	1	Trawl hauling
30.07	63°49'N	57°54'W	Pilot whale	4	Trawl hauling
3.08	63°51'N	56°52'W	Sperm whale	1	Trawl setting
5.08	63°50'N	57°27'W	Sperm whale	1	Parallel course
10.08	63°53'N	57°05'W	Sperm whale	1	300 m aftside
11.08	63°55'N	57°47'W	Sperm whale	1	Parallel course
12.08	63°52'N	57°54'W	Sperm whale	1	Trawl hauling
15.08	63°52'N	56°56'W	Sperm whale	2	Trawl hauling
15.08	63°52'N	56°56'W	Pilot whale	3	Trawl hauling
16.08	63°52'N	57°01'W	Sperm whale	1	Trawl hauling
16.08	63°49'N	56°40'W	Sperm whale	1	Trawl towing
18.08	69°50'N	60°10'W	Sperm whale	1	Trawl hauling
23.08	69°54'N	60°18'W	Sperm whale	1	Trawl hauling

TABLE 25. Total number of marine mammals in the NAFO Regulatory and West Greenland Areas in 2018.

Species	Number	Frequency of occurrence	%
			of the total number
White-beaked dolphin	16	2	17.8
Harp seal	20	8	22.2
Pilot whale	7	2	7.8
Sperm whale	47	25	52.2
Total	90	37	100