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Russian Research Report for 2016

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6 Akademika Knipovicha Street, Murmansk, 183038, Russia**SUBAREAS 1+2****A. Status of Fisheries***Greenland halibut (Reinhardtius hippoglossoides)*

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

In the area to the north of 68°N four trawlers were engaged in the fishery in August-October. The trawlers fished within an area between 69°05'N–70°07'N and 60°59'W–58°57'W at depths of 780–1,145 m. As of the provisional data, the yield of Greenland halibut was 549.8 t (Table 1). There was a by-catch of skates (3.0 t) (Table 2). The catch rate varied by months from 9.8 t to 16.2 t and averaged 12.4 t per fishing vessel day.

In the area south of 68°N as many as five Russian trawlers participated in the fishery. The trawlers operated in August-December in the area between 63°28'N– 64°29'N and 57°58'W– 54°56'W at depths of 850–1,415 m. The catch rate ranged from 10.8 t to 17.9 t per fishing vessel day and averaged 13.8 t. As of the provisional data, the yield of Greenland halibut was 1,215.5 t (Table 1). The by-catch was comprised of 0.4 t of roughhead grenadier (*Macrourus berglax*) and 2.0 t of roundnose grenadier (*Coryphaenoides rupestris*) (Table 2).

Since 2011, the catch per unit of effort (CPUE) in the Greenland halibut fishery has been exceeding the average level both in Divs. 1 AB and 1 CD (Fig.1). At the same time, in 2014-2016 the CPUE continued to increase to the north of 68°N (Divs. 1AB) while in Divs. 1CD it decreased in 2016, despite the fact that in 2015 it reached the its maximum level for the observation period.



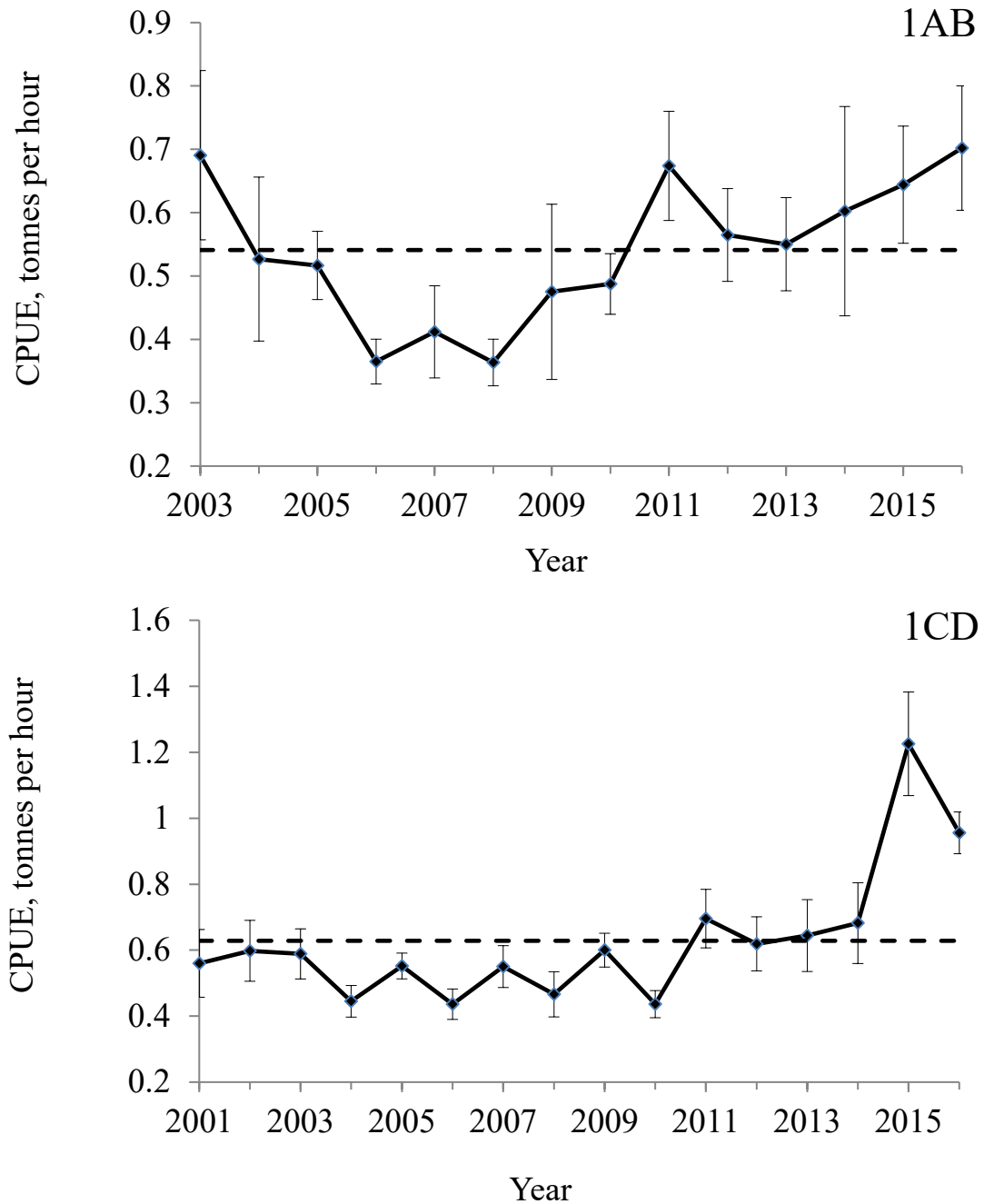


Fig. 1. CPUE dynamics in Greenland halibut fishery by Class 6 tonnage vessels under the NAFO classification, off the West Greenland in September-October 2003-2016 (Divs. 1AB) and August-October 2001-2016 (Divs. 1CD)

The total annual yield of Greenland halibut taken by the Russian fleet off the West Greenland amounted to 1,765.3 t (Table 1).

*Redfish*

Fishery in Division 1F was conducted occasionally, with total effort of 3 hauls and the catch amount reaching 62 t. There was no bycatch.

*Other fish species*

There was no directed fishery for other fish species.

**B. Dedicated Research**

Biological data on Greenland halibut from Divs. 1CD were collected by the observers on board fishing vessels.

*Greenland halibut*

In Divs. 1CD Greenland halibut individuals in the catches were 40-108 cm long (predominantly, 52-58 cm) (Table 3).

**SUBAREA 3****A. Status of Fisheries***Greenland halibut*

Four trawlers were engaged in the directed fishery for Greenland halibut in January-October. The trawlers were fishing in the areas on the continental slope adjacent to the deep-water Flemish Pass (Div. 3L) between 46°14'N – 48°18'N at depths of 640–1,320 m. Occasionally the trawlers also fished in Divs. 3M and 3N at depths of 800–1,260 m. In general, the catch rate ranged from 2.0 t to 25.6 t per fishing vessel day in the area and averaged 15.2 t per fishing vessel day and 0.95 t per hour of trawling.

The total annual yield of Greenland halibut taken in the directed fishery amounted to 1,395.0 t. Additional 2.3 t of Greenland halibut were taken as a by-catch in the multispecies fishery. As of the preliminary data, the total yield of Greenland halibut was 1,397.3 t under the Russian quota of 1,399.0 t (Table 1). The by-catch was comprised of Atlantic halibut (*Hippoglossus hippoglossus*), roughhead and roundnose grenadiers, redfishes, American plaice (*Hippoglossoides platessoides*), witch flounder (*Glyptocephalus cynoglossus*) and skates (Table 4).

*Atlantic cod*

In February-March, on the Flemish Cap Bank the directed fishery for Atlantic cod was conducted between 46°23' N – 46°34'N and 46°09'W – 45°20'W at depths of 415 – 510 m where the average daily catch rate was 56.8 t. The annual yield of cod taken by Russian fishing vessels in the directed fishery was 851.8 t, with by-catches of redfishes (31.6 t) and American plaice (4.2 t). Additional 41.4 t of cod were taken as a by-catch in the redfish fishery. The total Russian yield of cod on the Flemish Cap Bank was 893.2 t (Table 1).

### *Atlantic redfish on the Flemish Cap Bank*

In 2016, the redfish fishery was conducted occasionally in January and July between 46°21'N - 48°39'N and 46°29'W - 43°53'W at depths of 178 – 685 m (predominantly, 250-650 m). The vessels fished with bottom trawls and the catch rate varied from 0.1 to 28.2 t and averaged 24.2 t per fishing vessel day. The best catch rate was recorded in January and amounted to 28.2 t per fishing vessel day and 2.7 t per hour of trawling.

As of the provisional data, the total annual yield taken by Russian fishing vessels in the directed redfish fishery was 743.2 t. Atlantic halibut (*Hippoglossus hippoglossus*), American plaice (*Hippoglossoides platessoides*), witch flounder (*Glyptocephalus cynoglossus*), Atlantic cod (*Gadus morhua*) and skates (*Skate sp.*) occurred in the by-catches (Table 5). Additional 33.1 t of redfishes were taken in the cod and halibut fishery. As of the data provided by the observer, in 2016, the fraction of redfish in the catches increased compared to that in previous years.

As of the provisional NAFO data, the total Russian yield of redfishes was 776.3 t (Table 1).

In Div. 30 in the south-western part of the Grand Bank of Newfoundland Russian trawlers fished sporadically in February-October at depths of 100-530 m. The average daily catch rate was 28.5 4 t. The best catch rate was recorded in January, March and April and amounted to 3.9 t, 3.2 t and 3.3 t per hour of trawling respectively.

Russian fishing vessels caught 2,017.8 t of redfishes in the directed fisheries. Atlantic halibut (*Hippoglossus hippoglossus*), Atlantic cod (*Gadus morhua*), hake (*Merluccius bilinearis*), American plaice (*Hippoglossoides platessoides*), witch flounder (*Glyptocephalus cynoglossus*), yellowtail flounder (*Limanda ferruginea*), white hake (*Urophycis tenuis*) and skates (*Skates sp.*) occurred in the by-catches (Table 5).

21.3 t of redfish were also taken in multispecies fisheries.

The total Russian yield of redfishes was 2,039.1 t (Table 1).

In recent years, American perch has been making up a substantial part of the catches.

Redfishes did not occur in the by-catches in multispecies fisheries in the relevant area.

In Divs. 3LN the fishery was conducted in January-October. The catch rate of the bottom trawl varied from 7.5 t to 38.0 t, with a daily average of 17.5 per fishing vessel day. The best catch rate was recorded in June, July and August and amounted to 28.4 t, 37.4 t and 38.0 t per fishing vessel day respectively. As of the provisional data, 2,967.1 t of redfishes were taken by Russian vessels in the directed fishery. Atlantic cod (*Gadus morhua*), Greenland halibut (*Reinhardtius hippoglossoides*), witch flounder (*Glyptocephalus cynoglossus*), American plaice (*Hippoglossoides platessoides*), yellowtail flounder (*Limanda ferruginea*), white hake (*Urophycis tenuis*), Atlantic halibut (*Hippoglossus hippoglossus*), skates (*Skates sp.*), roughhead grenadier (*Macrourus berglax*), Atlantic and spotted wolffishes (*Anarhichas lupus*; *Anarchinas minor*) occurred as by-catches (Table 5).

Redfishes of 5.2 t were also taken as a by-catch in Greenland halibut (*Reinhardtius hippoglossoides*) and Atlantic halibut (*Hippoglossus hippoglossus*) fisheries.

In Divs. 3LN the total Russian yield of redfishes amounted to 2,972.3 t (Table 1).

### *Skates*

The directed fishery was conducted occasionally in March-April and August between 42°56'N-43°59'N and 50°42'W-49°14'W (Div. 3N). The average daily catch rate did not exceed 5.5 t. The total annual yield of skates in the directed fishery amounted to 10.8 t. 0.4 t of cod, American plaice and Atlantic halibut were taken as a by-catch. Skates were also taken as a by-catch in yellowtail flounder (1.5 t), Greenland halibut (1.1 t), redfishes (20.2) and multispecies (4.6 t) fisheries. The total Russian yield in the Divs. 3LMNO for the whole period amounted to 40.2 t (Table 1).

### *Yellowtail flounder*

The Russian directed fishery for yellowtail flounder was conducted briefly in January in Div. 3N between 42°51'N – 43°46'N and 50°48'W – 49°24'W. The average daily catch rate was 16.6 t. In 2016, in total Russian fishing vessels caught 60.8 t of the species in the directed fishery. 1.8 t of American plaice, 1.5 t of cod, 1.5 t of skates and 0.4 t of Atlantic halibut were taken as by-catches. Yellowtail flounder of Divs. 3NO also occurred as a by-catch in redfishes (6.3 t) and multispecies (13.4 t) fisheries. The total Russian yield of yellowtail flounder amounted to 80.5 t (Table 1).

### *Other species*

There was no directed fishery for other species. 48.7 t of witch flounder, 9.2 t of white hake and 139.2 t of American plaice were in total taken as by-catches in the directed fishery.

## **B. Dedicated Research**

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 (Reinhardtius hippoglossoides)*

In Div. 3L Greenland halibut of 30-84 cm occurred, with an average of 51.5 cm. Individuals of 48 – 56 cm prevailed (Table 6).

In Div. 3M the length of Greenland halibut varied from 40 cm to 92 cm (predominately, 50-60 cm), with an average of 57.0 cm.

In general, the length of Greenland halibut in Divs. 3LM was 30-92 cm, with an average of 49.1 cm for males and of 53.2 cm for females. The sex ratio in the catches was 1:3 (Table 6). As of the 2016 data, the halibut age varied from 3 to 23 years. Most of the taken individuals were 7-10 years old (Table 7).

### *Acadian redfish (Sebastes fasciatus)*

In Div. 3N the catches consisted of individuals as long as 18-31 cm, with an average of 23.7 cm for females and of 22.1 cm for males. Most individuals were 21-26 cm long (Table 8).

In Div. 3O redfish of 16-31 cm (predominantly, 21-27 cm) prevailed. The average length for males was 23.5 cm and 24.1 cm for females (Table 8).

*Deep-water redfish (Sebastes mentella)*

In Div. 3L the length of deep-water redfish varied from 18 to 43 cm (predominantly, 22-27 cm), with an average of 25.7 cm (Table 9).

The age of the species varied from 5 to 19 years (predominantly, 10-12 years) (Table 10).

In Div. 3M deep-water redfish was taken in small amounts as a by-catch, and the individuals were 26-37 cm long, with an average of 29.4 cm (Table 9).

In Div. 3O, deep-water redfish as long as 16-44 cm (predominantly, 23-28 cm) were caught. The average length for males was 24.9 cm and 27.7 cm for females (Table 9).

*Golden redfish (Sebastes marinus)*

In Divs. 3LMO fish were taken by individuals as a by-catch.

In Div. 3L the length of fish varied from 37 cm to 49 cm, with an average of 41.7 cm (Table 11).

In Div. 3M 7 golden redfish individuals were caught and the length varied from 29 to 42 cm, with an average of 38.0 cm.

In Div. 3O golden redfish of 30-44 cm occurred, with an average of 36.1 cm (Table 11).

*Roughhead grenadier (Macrourus berglax)*

In Div. 3L the total length of roughhead grenadier in the catches varied from 30 cm to 81 cm (predominantly, 48-54 cm), with an average of 53.1 cm (Table 12).

In Div. 3M the size composition was compiled by fish of 48-87 cm, with an average of 67.4 cm (Table 12).

*Roundnose grenadier (Coryphaenoides rupestris)*

In Div. 3L 2 individuals were caught of the total length of 48 cm and 51 cm, with an average of 50.5 cm (Table 13).

In Div. 3M the length of fish varied from 30 cm to 72 cm, with an average of 50.1 cm.

*American plaice (Hippoglossoides platessoides)*

In Div. 3M American plaice was caught by individuals (3 individuals). The length varied from 44 cm to 50 cm, with an average of 47.2 cm (Table 14).

In Div. 3M the size composition was made up by fish of 32-54 cm, with an average of 43.3 cm (Table 14).

*Witch flounder (Glyptocephalus cynoglossus)*

In Divs. 3LO fish were caught by individuals.

In Div. 3L one specimen of 48.5 cm was caught.

In Div. 3O the size composition was made up by fish of 38-54 cm, with an average of 44.1 cm (Table 15).

*Atlantic cod (Gadus morhua)*

In Div. 3L the length varied from 30 cm to 88 cm, with an average equal to 49.1 cm (Table 16).

On the Flemish Cap Bank, in Div. 3M the length varied from 40 cm to 104 cm, with an average of 61.6 cm. Most individuals were 56-62 cm long.

In Div. 3O, 40 cod individuals of 46-104 cm were caught, with an average of 69.7 cm (Table 16).

*Thorny skate (Amblyraja radiata)*

In Div. 3M 5 thorny skates of 46-91 cm occurred in the catches in redfish fishery, with an average of 78.6 cm (Table 17).

In Div. 3O there were occasional catches of skates by individuals. The length varied from 39 cm to 71 cm long, with an average of 47.2 cm (Table 17).

*Arctic skate (Amblyraja hyperborea)*

In Div. 3L fish were caught as a by-catch by individuals.

The length of fish varied from 30 to 72 cm, with an average of 61.7 cm (Table 18).

*White hake (Urophycis tenuis)*

In Divs. 3LO fish were caught by individuals (Table 19).

In Div. 3L one individual of 44.0 cm was caught.

In Div. 3O the length of hake varied from 38 cm to 44 cm, with an average of 41.7 cm (Table 19).

*Northern wolffish (Anarhichas latifrons denticulatus)*

In Div. 3L the length of the species varied from 39 cm to 102 cm, with an average of 64.4 cm (Table 20).

In Divs. 3M and 3O several individuals were caught individually as a by-catch. The length varied from 105 cm to 114 cm and from 81 cm to 87 cm, with an average of 110.5 cm and 85.0 cm respectively (Table 20).

*Atlantic wolffish (Anarhichas lupus)*

In Divs. 3LO Atlantic wolffish were caught by individuals. The length varied from 36 cm to 63 cm, with an average of 52.2 cm (Table 21).

*Spotted wolffish (Anarhichas minor)*

In Div. 3L 2 individuals of 53.0 cm and 91.0 cm were caught.

*Blue antimora (Antimora rostrata)*

In Div. 3L blue antimoras were as long as 24-69 cm, with an average of 41.7 cm (Table 22).

In Div. 3M the fish size varied from 39 cm to 60 cm (predominantly, 48-54 cm), with an average of 52.0 cm (Table 22).

*Marlin-spike grenadier (Nezumia bairdii)*

In Div. 3L the total length of marlin-spike grenadier varied from 32 cm to 40 cm, with an average of 36.1 cm. Most individuals were 34-38 cm long (Table 23).

*Atlantic halibut (Hippoglossus hippoglossus)*

In Divs. 3LO Atlantic halibut were caught by individuals. The length varied from 50 cm to 112 cm, with an average of 81.6 cm (Table 24).

*VME indicator species*

There were several catches of sponges and corals recorded during the observers' activities. In none of those catches the VME mass exceeded the established threshold value (Table 25).

*Marine mammals*

As of the observations from aboard fishing vessels, in March-August there were several species of marine mammals observed in the Divs. 3LMN, namely: whales (*Cetacea*) including bottlenose dolphins (*Hyperoodon ampullatus*), pilot whales (*Globicephala melaena*), fin whales (*Balaenoptera physalus*), sperm whales (*Physeter microcephalus*), white-beaked dolphins (*Lagenorhynchus albirostris*), common dolphins (*Delphinus delphis*), and pinnipeds (*Pinnipedia*), including harp seals (*Phoca groenlandica*) and ringed seals (*Phoca hispida*) (Table 26). The total number of such records (occurrences) is 38 (Table 27).

No discards were observed in the main species fisheries.



Table 1. Preliminary catches taken by Russian trawlers in NAFO SA 1-3 in 2016.

Species	Division	Catch, t
Greenland halibut	1A	549.8
	1C	373.3
	1D	842.2
	<b>1ACD</b>	<b>1765.3</b>
Greenland halibut	3L	1089.3
	3M	303.9
	3N	4.1
	<b>3LMN</b>	<b>1397.3</b>
American plaice	3L	45.7
	3M	15.9
	3N	34.4
	3O	43.2
	<b>3LMNO</b>	<b>139.2</b>
Yellowtail flounder	3N	64.4
	3O	16.1
	<b>3NO</b>	<b>80.5</b>
Witch flounder	3L	6.9
	3M	16.3
	3N	0.7
	3O	24.9
	<b>3LMNO</b>	<b>48.7</b>
Roughhead grenadier	3L	6.3
	3M	5.6
	<b>3LM</b>	<b>11.9</b>
Roundnose grenadier	1C	0.1
	1D	1.9
	<b>1CD</b>	<b>2.0</b>
Roundnose grenadier	3L	2.5
	3M	1.9
	<b>3LM</b>	<b>4.4</b>
Redfish spp.	<b>1F</b>	<b>62.0</b>
Redfish spp.	3L	1886.1
	3M	776.3
	3N	1086.2
	3O	2039.1
	<b>3LMNO</b>	<b>5787.7</b>
Skate	<b>1A</b>	<b>3.0</b>
Skate	3L	13.5
	3M	1.9
	3N	15.8
	3O	9.0
	<b>3LMNO</b>	<b>40.2</b>
White hake	3N	2.2
	3O	7.0
	<b>3NO</b>	<b>9.2</b>
Atlantic cod	3L	64.6
	3M	893.2
	3N	30.4
	3O	27.4
	<b>3LMNO</b>	<b>1015.5</b>
Hake	<b>3O</b>	<b>136.0</b>
Atlantic Halibut	3L	29.8
	3M	4.7
	3N	24.8
	3O	9.5
	<b>3LMNO</b>	<b>68.8</b>

Table 2. Bycatch at directed Greenland halibut fishery by Russian bottom trawlers from NAFO Divs. 1ACD in 2016.

Species	Mass, t
Subarea 1A	
Skates	3.000
Subarea 1C	
Roundnose grenadier	0.147
Roughhead grenadier	0.259
Subarea 1D	
Roundnose grenadier	1.853
Roughhead grenadier	0.147
Total	
Roundnose grenadier	2.000
Roughhead grenadier	0.406
Skates	3.000

Table 3. Greenland halibut (*Reinhardtius hippoglossoides*) length composition (ind.) of the Russian trawl catches in NAFO Div. 1CD in 2016.

Length, cm	1C	1D	1CD
40	1	3	4
42	2	5	7
44	4	7	11
46	9	19	28
48	40	50	90
50	84	145	229
52	143	249	392
54	169	264	433
56	185	218	403
58	152	126	278
60	93	65	158
62	50	47	97
64	16	29	45
66	25	24	49
68	16	19	35
70	13	12	25
72	9	10	19
74	8	12	20
76	6	13	19
78	10	5	15
80	6	7	13
82	8	10	18
84	11	6	17
86	9	9	18
88	10	10	20
90	3	7	10
92	4	6	10
94	6	4	10
96	5	3	8
98	5	3	8
100	2	4	6
102	1	3	4
104		1	1
106		0	0
108		1	1
<b>Total</b>	1105	1396	2501
<b>Mean length, cm</b>	58.5	57.2	58.2

Table 4. Bycatch at directed Greenland halibut fishery by Russian bottom trawlers from NAFO Divs. 3LMNO in 2016.

Species	Mass, t
Witch flounder	10.696
Redfishes	2.803
Skates	1.104
Roundnose grenadier	4.318
Roughhead grenadier	11.914
American plaice	4.824
Atlantic halibut	3.341

Table 5. Bycatch at directed redfish fishery by Russian bottom trawlers from NAFO Divs. 3LMNO in 2016.

Species	Mass, t
Subareas 3LN	
Witch flounder	1.663
Skates	12.024
White hake	2.203
American plaice	54.571
Cod	80.276
Atlantic halibut	50.571
Greenland halibut	1.146
Yellowtail flounder	0.387
Subarea 3M	
Witch flounder	10.72
Skates	1.656
American plaice	10.728
Cod	41.404
Atlantic halibut	3.221
Subarea 3O	
Yellowtail flounder	5.888
Witch flounder	13.241
Skates	6.486
White hake	5.681
Hake	136.021
American plaice	39.429
Cod	25.15
Atlantic halibut	8.775
Total	
Yellowtail flounder	6.275
Witch flounder	25.624
Skates	20.166
White hake	7.884
Hake	136.021
American plaice	104.728
Cod	146.830
Atlantic halibut	62.567
Greenland halibut	1.146

Table 6. Greenland halibut (*Reinhardtius hippoglossoides*) length composition (ind.) of the Russian trawl catches in NAFO Divs. 3LM in 2016.

Length, cm	3L			3M			3LM		
	Females	Males	Total	Females	Males	Total	Females	Males	Total
30		2	2			0		2	2
32	1	4	5			0	1	4	5
34	6	4	10			0	6	4	10
36	31	29	60			0	31	29	60
38	65	72	137			0	65	72	137
40	175	114	289	2	1	3	177	115	292
42	218	236	454	7	2	9	225	238	463
44	446	395	841	17	11	28	463	406	869
46	867	630	1497	42	25	67	909	655	1564
48	1444	964	2408	102	42	144	1546	1006	2552
50	2167	1015	3182	196	70	266	2363	1085	3448
52	2318	726	3044	243	45	288	2561	771	3332
54	2015	336	2351	319	48	367	2334	384	2718
56	1271	124	1395	327	16	343	1598	140	1738
58	821	47	868	207	20	227	1028	67	1095
60	473	6	479	221	2	223	694	8	702
62	261	1	262	170	1	171	431	2	433
64	129		129	136		136	265		265
66	45		45	98		98	143		143
68	22		22	58		58	80		80
70	13		13	50		50	63		63
72	4		4	37		37	41		41
74	2		2	11		11	13		13
76	5		5	5		5	10		10
78	6		6	4		4	10		10
80	2		2	3		3	5		5
82			0	3		3	3		3
84	1		1			0	1		1
86			0	3		3	3		3
88			0	1		1	1		1
90									
92			0	1		1	1		1
<b>Total</b>	12808	4705	17513	2263	283	2546	15071	4988	20059
<b>Mean length, cm</b>	52.4	49.0	51.5	57.7	51.5	57.0	53.2	49.1	52.2

Table 7. Age-length composition of Greenland halibut (*Reinhardtius hippoglossoides*) from the Russian trawl catches in NAFO Divs. 3LM in 2016.

Length, cm	Age																				Total	Mean weight, g
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	23		
30	1	1																			2	30.5
32			1																		1	32.5
33		2	1																		3	33.5
34			1																		1	34.5
35		1	1																		2	35.5
36			3	3																	6	36.5
37			2	3																	5	37.5
38			2	2	3																7	38.5
39			1	5	2																8	39.5
40			2	7	7																16	40.5
41				5		1															6	41.5
42				5	6	1															12	42.5
43				3	7	6															16	43.5
44				5	9	4															18	44.5
45				4	10	4															18	45.5
46					7	5	3														15	46.5
47					1	10	3														14	47.5
48					5	12	3														20	48.5
49					6	12	12														30	49.5
50						15	9														24	50.5
51						10	12	2													24	51.5
52						12	8	2													22	52.5
53						6	10	7													23	53.5
54						4	11	5	2												22	54.5
55						3	17	9	1												30	55.5
56							8	10	3												21	56.5
57							3	12	4												19	57.5
58							5	6	2	1											14	58.5
59							1	9	8	1											19	59.5
60								4	7	2											13	60.5
61								4	6	2	1										13	61.5
62								2	4	1	1										8	62.5
63								1	4	1											6	63.5
64									3	2	1										6	64.5
65									6	3	4										13	65.5
66										5	4	1									10	66.5
67										5	4										9	67.5
68										2	5	1									8	68.5
69											1	2	1								6	69.5
70											12	4	1								17	70.5
71											3	2	1								6	71.5
72											2	3	4								9	72.5
73												5	1								6	73.5
74												1	1	1	1						4	74.5
75													1	1							2	75.5
76														1							1	76.5
77															3						3	77.5
78														1	2						3	78.5
80															1						1	80.5
81																	1				1	81.5
82																	2				2	82.5
83																	1		1		1	83.5
87																	1	1		1	3	87.5
93																				1	1	93.5
<b>Total</b>	<b>1</b>	<b>4</b>	<b>14</b>	<b>42</b>	<b>63</b>	<b>105</b>	<b>105</b>	<b>73</b>	<b>50</b>	<b>27</b>	<b>38</b>	<b>19</b>	<b>10</b>	<b>4</b>	<b>7</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>570</b>	
<b>Mean length, cm</b>	<b>30</b>	<b>32.8</b>	<b>36.5</b>	<b>40.8</b>	<b>44</b>	<b>49</b>	<b>52.5</b>	<b>56.7</b>	<b>60.3</b>	<b>64.7</b>	<b>68</b>	<b>71</b>	<b>72</b>	<b>75.8</b>	<b>77.3</b>	<b>81.7</b>	<b>85</b>	<b>87</b>	<b>87</b>	<b>93</b>		<b>54.2</b>
<b>Mean weight, g</b>	<b>210</b>	<b>301.3</b>	<b>408.2</b>	<b>562.6</b>	<b>720.3</b>	<b>1023.6</b>	<b>1249.6</b>	<b>1609.9</b>	<b>1954</b>	<b>2423.3</b>	<b>2813.2</b>	<b>3404.7</b>	<b>3626</b>	<b>4080</b>	<b>4677.1</b>	<b>5786.7</b>	<b>6840</b>	<b>7830</b>	<b>7360</b>	<b>10020</b>		<b>1594.1</b>

Table 8. Length composition (ind.) of *S. fasciatus* in Russian trawl catches in NAFO Div. 3NO in 2016

Length, cm	3N			3O			3NO		
	Females	Males	Total	Females	Males	Total	Females	Males	Total
16			0	2	1	3	2	1	3
17			0	8	20	28	8	20	28
18		2	2	39	72	111	39	74	113
19	10	22	32	103	131	234	113	153	266
20	50	116	166	250	270	520	300	386	686
21	127	485	612	379	424	803	506	909	1415
22	324	568	892	532	570	1102	856	1138	1994
23	443	363	806	692	705	1397	1135	1068	2203
24	424	141	565	1007	909	1916	1431	1050	2481
25	306	44	350	1092	799	1891	1398	843	2241
26	131	18	149	837	495	1332	968	513	1481
27	66	7	73	472	253	725	538	260	798
28	37	2	39	217	72	289	254	74	328
29	22		22	68	16	84	90	16	106
30	21		21	15	3	18	36	3	39
31	8		8	2		2	10		10
<b>Total</b>	1969	1768	3737	5715	4740	10455	7684	6508	14192
<b>Mean length, cm</b>	23.74	22.1	22.9	24.1	23.5	23.8	24.0	23.1	23.6

Table 9. Length composition (ind.) of *S. mentella* in Russian trawl catches in NAFO Divs. 3LMO in 2016.

Length, cm	3L			3M			3O			Total		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Females
16							1		1	1		1
17							3	1	4	3	1	4
18		1	1				12	23	35	12	24	36
19		3	3				37	62	99	37	65	102
20	11	24	35				113	157	270	124	181	305
21	55	47	102				218	259	477	273	306	579
22	71	294	365				328	454	782	399	748	1147
23	130	470	600				492	687	1179	622	1157	1779
24	180	485	665				705	929	1634	885	1414	2299
25	241	378	619				1057	1089	2146	1298	1467	2765
26	224	257	481	10	12	22	1106	887	1993	1340	1156	2496
27	183	143	326	9	10	19	1028	568	1596	1220	721	1941
28	157	57	214	10	8	18	876	360	1236	1043	425	1468
29	120	31	151	6	5	11	751	200	951	877	236	1113
30	156	9	165	5	4	9	758	92	850	919	105	1024
31	91	10	101	4	7	11	564	34	598	659	51	710
32	81	14	95	5	3	8	474	16	490	560	33	593
33	51	8	59	3	1	4	383	10	393	437	19	456
34	31	4	35	3	1	4	289	11	300	323	16	339
35	20	11	31	3	2	5	193	16	209	216	29	245
36	13	8	21	2	1	3	127	8	135	142	17	159
37	12	5	17	2	1	3	69	3	72	83	9	92
38	9	4	13			0	39		39	48	4	52
39	7	2	9			0	18		18	25	2	27
40	2		2			0	7		7	9		9
41	1	1	2			0	1		1	2	1	3
42		1	1			0	1		1	1	1	2
43	1		1			0			0	1		1
44			0			0	1		1	1		1
<b>Total</b>	1847	2267	4114	62	55	117	9651	5866	15517	11560	8188	19748
<b>Mean length, cm</b>	27.14	24.5	25.7	29.73	28.98	29.4	27.65	24.85	26.6	27.58	24.78	26.42

Table 10. Age-length composition of *S. mentella* from the Russian trawl catches in NAFO Divs. 3L in 2016.

Length, cm	Age															Total	Mean weight, g
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
180	1															1	87.1
190	3	2														5	94.4
200	5	5														10	108.6
210	1	10	3													14	124.8
220		5	6													11	147.8
230		2	11	2												15	165.6
240		1	10	5												16	198.3
250			3	9	3											15	212.3
260			1	7	10	1										19	239.5
270				3	16	9										28	269.8
280				1	7	21	2									31	309.1
290					2	16	17	1								36	329.1
300						6	15	6								27	378.9
310						1	10	17	7							35	415.6
320							4	12	9	3						28	463.8
330								5	4	8	1					18	502.8
340								1	7	10	5	1				24	567.2
350									3	8	17	11	1			40	612.7
360									1	1	8	18	6			34	663.1
370										1	3	4	5	2		15	712.4
380												2	5	6		13	767.7
390													2	3	3	8	839.1
400														1	1	2	938.7
Total	10	25	34	27	38	54	48	42	31	31	34	36	19	12	4	445	
Mean weight, g	103.8	129.9	174.8	223.3	267.6	316.9	373.1	436.1	502.1	560.1	623.4	656.3	719.5	790.6	864.0		413.8
Mean length, cm	19.6	21.1	23.2	25.3	26.9	28.4	29.9	31.4	32.8	34.0	35.2	35.9	37.1	38.3	39.3		29.1



Table 11. Length composition (ind.) of *S. marinus* in Russian trawl catches in NAFO Divs. 3LMO in 2016.

Length, cm	3L			3M			3O			3LMO		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
29					1	1					1	1
30							1		1	1		1
31												
32							1		1	1		1
33												
34					1	1		1	1		2	2
35												
36												
37	1	1	2	1		1		2	2	2	3	5
38		2	2								2	2
39		4	4				1		1	1	4	5
40		2	2	1		1				1	2	3
41	1	3	4							1	3	4
42				3		3				3		3
43	1	1	2							1	1	2
44	2		2				1		1	3		3
45	1		1							1		1
46	2		2							2		2
47												
48	1		1							1		1
49	1		1							1		1
<b>Total</b>	10	13	23	5	2	7	4	3	7	19	18	37
<b>Mean length, cm</b>	44.3	39.6	41.7	40.6	31.5	38.0	36.3	36.0	36.1	41.6	38.1	39.9

Table 12. Roughhead grenadier (*Macrourus berglax*) length composition (ind.) of the Russian trawl catches in NAFO Divs. 3LM in 2016.

Length, cm	3L	3M	3LM
30	1	0	1
33			
36	2	0	2
39	4	0	4
42	8	0	8
45	17	0	17
48	28	5	33
51	24	3	27
54	20	3	23
57	12	0	12
60	10	5	15
63	9	6	15
66	9	7	16
69	1	6	7
72			
75			
78	0	6	6
81	1	5	6
84	0	3	3
87	0	1	1
<b>Total</b>	146	50	196
<b>Mean length, cm</b>	53.1	67.4	56.7

Table 13. Roundnose grenadier (*Coryphaenoides rupestris*) length composition (ind.) of the Russian trawl catches in NAFO Div. 3LM in 2016.

Length, cm	3L	3M	3LM
30	0	1	1
33	0	1	1
36	0	5	5
39	0	1	1
42	0	9	9
45	0	4	4
48	1	1	2
51	1	10	11
54	0	11	11
57	0	9	9
60	0	1	1
63			
66	0	1	1
69			
72	0	1	1
<b>Total</b>	2	55	57
<b>Mean length, cm</b>	50.5	50.1	50.2

Table 14. Length composition (ind.) of American plaice (*Hippoglossoides platessoides*) in Russian trawl catches in NAFO Divs. 3MO in 2016.

<b>Length, cm</b>	<b>3M</b>	<b>3O</b>	<b>3MO</b>
32		2	2
34		7	7
36		9	9
38		6	6
40		7	7
42		11	11
44	1	8	9
46	1	3	4
48		12	12
50	1	6	7
52		3	3
54		3	3
<b>Total</b>	3	77	80
<b>Mean length, cm</b>	47.2	43.3	43.25

Table 15. Length composition (ind.) of Witch flounder (*Glyptocephalus cynoglossus*) in Russian trawl catches in NAFO Divs. 3LO in 2016.

<b>Length, cm</b>	<b>3L</b>	<b>3O</b>	<b>3LO</b>
38		5	5
40		4	4
42		21	21
44		10	10
46		3	3
48	1	5	6
50		2	2
52		2	2
54		1	1
<b>Total</b>	1	53	54
<b>Mean length, cm</b>	48.5	44.1	44.13

Table 16. Length composition (ind.) of Atlantic cod (*Gadus morhua*) in Russian trawl catches in NAFO Div. 3LMO in 2016.

<b>Length, cm</b>	<b>3L</b>	<b>3M</b>	<b>3O</b>	<b>3LMO</b>
<b>30</b>	<b>1</b>			<b>1</b>
<b>32</b>	<b>3</b>			<b>3</b>
<b>34</b>	<b>9</b>			<b>9</b>
<b>36</b>	<b>7</b>			<b>7</b>
<b>38</b>	<b>4</b>			<b>4</b>
<b>40</b>	<b>11</b>	<b>1</b>		<b>12</b>
<b>42</b>	<b>3</b>	<b>5</b>		<b>8</b>
<b>44</b>	<b>7</b>	<b>4</b>		<b>11</b>
<b>46</b>	<b>9</b>	<b>4</b>	<b>1</b>	<b>14</b>
<b>48</b>	<b>2</b>	<b>8</b>	<b>1</b>	<b>11</b>
<b>50</b>	<b>8</b>	<b>22</b>		<b>30</b>
<b>52</b>	<b>5</b>	<b>24</b>	<b>1</b>	<b>30</b>
<b>54</b>	<b>5</b>	<b>24</b>		<b>29</b>
<b>56</b>	<b>2</b>	<b>27</b>	<b>1</b>	<b>30</b>
<b>58</b>	<b>3</b>	<b>26</b>	<b>5</b>	<b>34</b>
<b>60</b>	<b>1</b>	<b>23</b>		<b>24</b>
<b>62</b>	<b>4</b>	<b>30</b>	<b>5</b>	<b>39</b>
<b>64</b>	<b>3</b>	<b>22</b>	<b>7</b>	<b>32</b>
<b>66</b>	<b>1</b>	<b>22</b>	<b>2</b>	<b>25</b>
<b>68</b>		<b>17</b>		<b>17</b>
<b>70</b>	<b>2</b>	<b>9</b>	<b>5</b>	<b>16</b>
<b>72</b>	<b>1</b>	<b>11</b>		<b>12</b>
<b>74</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>6</b>
<b>76</b>		<b>2</b>	<b>2</b>	<b>4</b>
<b>78</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>5</b>
<b>80</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>5</b>
<b>82</b>		<b>3</b>		<b>3</b>
<b>84</b>		<b>1</b>		<b>1</b>
<b>86</b>			<b>1</b>	<b>1</b>
<b>88</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>5</b>
<b>90</b>		<b>4</b>	<b>3</b>	<b>7</b>
<b>92</b>				
<b>94</b>		<b>3</b>		<b>3</b>
<b>96</b>				
<b>98</b>		<b>1</b>		<b>1</b>
<b>100</b>		<b>2</b>		<b>2</b>
<b>102</b>		<b>1</b>	<b>1</b>	<b>2</b>
<b>104</b>		<b>1</b>	<b>1</b>	<b>2</b>
<b>Total</b>	<b>97</b>	<b>308</b>	<b>40</b>	<b>445</b>
<b>Mean length, cm</b>	<b>49.1</b>	<b>61.6</b>	<b>69.7</b>	<b>59.6</b>

Table 17. Length composition (ind.) of Thorny skate (*Amblyraja radiata*) in Russian trawl catches in NAFO Div. 3MO in 2016.

Length, cm	3M	3O	3MO
39	0	4	4
40	0	3	3
41	0	6	6
42	0	5	5
43	0	3	3
44	0	4	4
45	0	7	7
46	1	7	8
47	0	4	4
48	0	2	2
49	0	1	1
50	0	7	7
51	0	1	1
52	0	3	3
53	0	2	2
54	0	1	1
55	0	1	1
56	0	5	5
57	0	3	3
58			
59	0	1	1
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71	0	1	1
72			
73			
74			
75			
76			
77			
78			
79			
80	1	0	1
81			
82			
83			
84			
85			
86	1	0	1
87			
88			
89			
90	1	0	1
91	1	0	1
<b>Total</b>	<b>5</b>	<b>71</b>	<b>76</b>
<b>Mean length, cm</b>	<b>78.6</b>	<b>47.2</b>	<b>49.2</b>

Table 18. Length composition (ind.) of Arctic skate (*Amblyraja hyperborea*) in Russian trawl catches in NAFO Div. 3L in 2016.

<b>Length, cm</b>	<b>3L</b>
30	1
33	
36	
39	
42	
45	
48	
51	
54	
57	1
60	2
63	
66	3
69	1
72	1
<b>Total</b>	<b>9</b>
<b>Mean length, cm</b>	<b>61.7</b>

Table 19. Length composition (ind.) of White hake (*Urophycis tenuis*) in Russian trawl catches in NAFO Div. 3LO in 2016.

<b>Length, cm</b>	<b>3L</b>	<b>30</b>	<b>3LO</b>
38		1	1
39			
40		1	1
41		1	1
42			
43		1	1
44	1	1	2
<b>Total</b>	<b>1</b>	<b>5</b>	<b>6</b>
<b>Mean length, cm</b>	<b>44.0</b>	<b>41.7</b>	<b>41.7</b>

Table 20. Length composition (ind.) of Blue wolffish (*Anarhichas latifrons*) in Russian trawl catches in NAFO Div. 3LMO in 2016.

<b>Length, cm</b>	<b>3L</b>	<b>3M</b>	<b>3O</b>	<b>3LMO</b>
39	1			1
42				
45	1			1
48	4			4
51	7			7
54	12			12
57	13			13
60	7			7
63	5			5
66	15			15
69	15			15
72	5			5
75	1			1
78	2			2
81	3		1	4
84	1			1
87	0		1	1
90				
93	1			1
96	1			1
99	1			1
102	1			1
105	0	1		1
108				
111				
114	0	1		1
<b>Total</b>	96	2	2	100
<b>Mean length, cm</b>	64.4	110.5	85.0	65.8

Table 21. Length composition (ind.) of Atlantic wolffish (*Anarhichas lupus*) in Russian trawl catches in NAFO Div. 3LO in 2016.

<b>Length, cm</b>	<b>3L</b>	<b>3O</b>	<b>3LO</b>
36	1		1
39	1		1
42	1		1
45			
48	4		4
51	2	1	3
54	2		2
57	1		1
60	2	1	3
63	0	1	1
<b>Total</b>	14	3	17
<b>Mean length, cm</b>	50.7	59.0	52.2

Table 22. Length composition (ind.) of Blue antimora (*Antimora rostrata*) in Russian trawl catches in NAFO Div. 3LM in 2016.

Length, cm	3L	3M	3LM
<b>24</b>	1	0	1
<b>27</b>			
<b>30</b>	2	0	2
<b>33</b>	4	0	4
<b>36</b>	4	0	4
<b>39</b>	1	1	2
<b>42</b>	1	1	2
<b>45</b>	1	3	4
<b>48</b>	1	6	7
<b>51</b>	0	8	8
<b>54</b>	0	6	6
<b>57</b>	0	2	2
<b>60</b>	0	3	3
<b>63</b>	1	0	1
<b>66</b>	1	0	1
<b>69</b>	1	0	1
<b>Total</b>	18	30	48
<b>Mean length, cm</b>	41.7	52.0	48.1

Table 23. Length composition (ind.) of *Nezumia* (*Nezumia bairdii*) in Russian trawl catches in NAFO Div. 3L in 2016.

Length, cm	3L
<b>32</b>	3
<b>34</b>	13
<b>36</b>	6
<b>38</b>	10
<b>40</b>	1
<b>Total</b>	33
<b>Mean length, cm</b>	36.1



Table 24. Atlantic Halibut (*Hippoglossus hippoglossus*) length composition (ind.) of the Russian trawl catches in NAFO Divs. 3LO in 2016.

<b>Length, cm</b>	<b>3L</b>	<b>3O</b>	<b>3LMO</b>
50	0	1	1
52			
54	0	1	1
56	0	2	2
58			
60			
62			
64	2	0	2
66			
68			
70	0	2	2
72	0	1	1
74	0	2	2
76	0	1	1
78	0	1	1
80	1	1	2
82			
84	1	5	6
86	0	3	3
88			
90	1	2	3
92	0	1	1
94	0	4	4
96	1	1	2
98	1	0	1
100			
102			
104			
106			
108			
110			
112	1	0	1
<b>Total</b>	<b>8</b>	<b>28</b>	<b>36</b>
<b>Mean length, cm</b>	<b>86.5</b>	<b>80.2</b>	<b>81.6</b>

Table 25. Occurrences of VME indicator species in the NAFO Regulatory Area in 2016.

Date	Trawling positions				Name		Quantity, ind-s.	Length, cm	Catch, g
	Shooting		Hauling		Common	Latin			
	N	W	N	W					
22.03	48°50'	45°06'	48°40'	45°30'	Sea anemone	<i>Actinaria</i>	3		240
26.03	48°10'	47°13'	48°10'	47°43'	Sponge	<i>Duva florida</i>	1		80
29.03	48°08'	47°02'	48°16'	46°32'	Sea pen	<i>Anthoptilum</i> sp.	1	40	20
					Sea anemone	<i>Actinaria</i>	6		1620
30.03	48°18'	46°35'	48°11'	46°55'	Sea anemone	<i>Actinaria</i>	4		360
06.04	48°08'	47°12'	48°08'	47°39'	Sea anemone	<i>Actinaria</i>	3		440
13.04	48°52'	45°07'	48°42'	45°39'	Sea pen	<i>Anthoptilum</i> sp.	1	40	20
20.05	48°07'	47°00'	48°16'	46°31'	Sea pen	<i>Anthoptilum</i> spp.	1-2	15-25	54
20.05	48°07'	47°00'	48°16'	46°31'	Sea anemone	<i>Actinaria</i>	2	9-11	120
21.05	48°17'	46°32'	47°55'	46°45'	Sea pen	<i>Anthoptilum</i> spp.	1-3	17-21	49
23.05	48°07'	46°53'	48°06'	47°21'	Starfish	<i>Hippasteria phrygiana</i>	1	24	146
23.05	48°07'	46°53'	48°06'	47°21'	Sea anemone	<i>Actinaria</i>	3	8-10	208
27.05	48°08'	47°09'	48°08'	47°36'	Coral	<i>Lophelia pertusa</i>	1	2	11
01.06	48°06'	47°39'	48°06'	47°07'	Fucus	<i>Fucus</i> spp.	1	2.5	6
09.06	48°08'	47°37'	48°07'	47°06'	Sea pen	<i>Anthoptilum</i> spp.	1-2	19-24	77
27.06	47°28'	47°17'	47°33'	47°15'	Sponge	<i>Polymastia</i> spp.	1	7	59
28.06	46°18'	47°25'	46°12'	47°30'	Fucus	<i>Fucus</i> spp.	1	12	33

Table 26. Marine mammals in the NAFO Regulatory Area recorded in 2016.

Date	Latitude	Longitude	Species	Quantity	Notes
29.03	48°08' N	46°32' W	sperm whale	2	Escorting behavior and hauling
31.03	48°08' N	47°12' W	sperm whale	1	Escorting behavior and hauling
01.04	47°08' N	47°38' W	sperm whale	1	Escorting behavior and hauling
02.04	47°10' N	47°39' W	sperm whale	1	Hauling
03.04	47°09' N	47°01' W	sperm whale harp seal	1 5	Escorting behavior and hauling
05.04	48°11' N	46°58' W	sperm whale	1	Hauling
06.04	48°08' N	47°38' W	sperm whale	1	Escorting behavior and hauling
06.04	48°08' N	47°12' W	sperm whale	1	Hauling
09.04	48°40' N	45°31' W	sperm whale	1	Escorting behavior and hauling
07.04	43°16' N	51°27' W	whale?	1	When trawling
07.04	43°25' N	51°44' W	white-beaked dolphin	20	When trawling
10.04	48°50' N	45°06' W	sperm whale	1	Hauling
11.04	48°40' N	45°09' W	sperm whale	1	Escorting behavior
12.04	48°52' N	45°03' W	sperm whale	1	Escorting behavior and hauling
13.04	48°52' N	45°07' W	sperm whale	1	Escorting behavior and hauling
14.04	48°40' N	45°34' W	sperm whale	1	Escorting behavior and hauling
15.04	48°41' N	45°34' W	sperm whale	3	Hauling
16.04	48° 38' N	45° 38' W	sperm whale	1	Hauling
25.04	43° 11' N	51° 23' W	sperm whale	6	When trawling
26.04	43° 24' N	51° 44' W	sperm whale	8	When trawling
09.05	48° 08' N	47° 07' W	sperm whale	1	Haulback
10.05	48° 08' N	47° 39' W	sperm whale	2	Haulback

10.05	48° 07' N	47° 09' W	sperm whale	2	Haulback
11.05	48° 07' N	47° 34' W	sperm whale	1	Haulback
13.05	48° 07' N	47° 36' W	sperm whale	3	Haulback
14.05	48° 08' N	47° 37' W	sperm whale	3	Haulback
14.05	48° 07' N	47° 08' W	sperm whale	1	Haulback
15.05	48° 08' N	47° 10' W	sperm whale	2	Haulback
15.05	48° 07' N	47° 35' W	sperm whale	1	Haulback
16.05	48° 08' N	47° 40' W	sperm whale	3	Haulback
17.05	48° 07' N	47° 05' W	sperm whale	1	Haulback
19.05	48° 07' N	47° 43' W	sperm whale	3	Haulback
20.05	48° 06' N	47° 05' W	sperm whale	2	Haulback
20.05	48° 16' N	46° 31' W	sperm whale	1	Haulback
20.05	48° 10' N	47° 17' W	sperm whale	1-3	Escorting behavior when trawling
21.05	48°16' N	46°31' W	sperm whale	3-5	Haulback
21.05	48°16' N	46°31' W	white-sided dolphin	1-2	Haulback
21.05	47°55' N	46°45' W	sperm whale	3	Haulback
22.05	48°05' N	47°05' W	sperm whale	1	Haulback
22.05	48°07' N	47°38' W	sperm whale	1	Haulback
23.05	48°08' N	46°38' W	sperm whale	3	Haulback
23.05	48°06' N	47°21' W	sperm whale	2	Haulback
24.05	48°08' N	47°36' W	sperm whale	1	Haulback
24.05	48°06' N	47°22' W	sperm whale	1	Escorting behavior when trawling
25.05	48°08' N	47°19' W	sperm whale	1	Escorting behavior when trawling
25.05	48°08' N	47°40' W	sperm whale	2	Haulback

26.05	48°08' N	47°12' W	sperm whale	1	Haulback
26.05	48°08' N	47°39' W	sperm whale	3	Haulback
27.05	48°08' N	47°36' W	sperm whale	4	Haulback
27.05	48°08' N	47°07' W	sperm whale	3	Haulback
28.05	48°09' N	47°06' W	sperm whale	8	Haulback
28.05	48°16' N	46°34' W	sperm whale	3	Haulback
29.05	48°18' N	46°30' W	sperm whale	2-4	Haulback
29.05	48°10' N	46°59' W	sperm whale	2	Haulback
30.05	48°08' N	47°36' W	sperm whale	2	Haulback
30.05	48°08' N	47°13' W	white-sided dolphin	10	Approaching from the front
30.05	48°09' N	47°03' W	sperm whale	4	Haulback
30.05	48°08' N	47°34' W	sperm whale	2	Haulback
31.05	48°16' N	46°33' W	sperm whale	1	Haulback
01.06	48°08' N	47°08' W	sperm whale	2	Haulback
01.06	48°06' N	47°34' W	sperm whale	3	Haulback
02.06	48°08' N	47°38' W	sperm whale	3	Haulback
02.06	48°07' N	47°08' W	sperm whale	3	Haulback
03.06	48°08' N	47°39' W	sperm whale	2	Haulback
03.06	48°08' N	47°04' W	sperm whale	2	Haulback
04.06	48°07' N	47°36' W	sperm whale	2	Haulback
04.06	48°08' N	47°07' W	sperm whale	4	Haulback
04.06	48°05' N	47°34' W	sperm whale	3	Haulback
05.06	48°07' N	47°31' W	sperm whale	2	Haulback
05.06	48°09' N	47°37' W	sperm whale	2	Haulback

06.06	48°07' N	47°36' W	sperm whale	2	Haulback
06.06	48°08' N	47°07' W	sperm whale	3	Haulback
06.06	48°07' N	47°25' W	sperm whale	1	Escorting behavior during the transit
06.06	48°07' N	47°34' W	sperm whale	1	Haulback
07.06	48°07' N	47°35' W	sperm whale	2	Haulback
07.06	48°08' N	47°06' W	sperm whale	4	Haulback
07.06	48°15' N	46°39' W	sperm whale	1	Haulback
08.06	48°08' N	46°36' W	sperm whale	1	Haulback
08.06	48°07' N	47°08' W	sperm whale	2	Haulback
09.06	48°07' N	47°06' W	sperm whale	5	Haulback
09.06	48°07' N	47°28' W	sperm whale	3	Escorting behavior when trawling
09.06	48°08' N	47°35' W	sperm whale	5	Haulback
10.06	48°08' N	47°07' W	sperm whale	5	Haulback
10.06	48°08' N	47°07' W	pilot whale	5-7	Haulback
11.06	47°59' N	47°19' W	sperm whale	1	Escorting behavior during the transit
20.06	48°09' N	47°11' W	white-sided dolphin	5	Approaching from the front
20.06	48°09' N	47°36' W	sperm whale	1	Haulback
23.06	48°09' N	47°11' W	sperm whale	1	Haulback
24.06	48°09' N	47°06' W	sperm whale	1	Haulback
24.06	48°09' N	47°41' W	sperm whale	2	Haulback
25.06	48°09' N	47°11' W	sperm whale	2	Haulback

Table 27. Marine mammals total numbers in the NAFO Regulatory Area in 2016.

Species	Quantity*	Occurrences	Part of the total amount, %
white-sided dolphin	17	3	7.1
harp seal	5	1	2.1
sperm whale	188	85	79.0
pilot whale	7	1	3.0
whale	1	1	0.4
white-beaked dolphin	20	1	8.4
Total	238	92	100.0

Note: it is determined considering the average range value when there is no specific quantity stated in Table 26.