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Russian Report Report for 2003

Part I - Research carried out by AtlantNIRO in NAFO Subarea 4
Part II - Research carried out by PINRO in NAFO Subarea 1, 2 and 3

PART I - Research carried out by AtlantNIRO in NAFO Subarea 4

by

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A. Status of the Fisheries

In 2003 Russian fishery for silver hake *(Merluccius bilinearis)* was carried out in March-April by one vessel of BRTM type southwards of SMGL primarily in Div. 4W. During entire period catches per fishing day seldom exceeded 10 tons and decreased to 6 tons by May. The total catch declined by 82% from 2 500 tons in 2002 to 440 tons in 2003. The reasons of this sharp decrease were evidently the factors irrelevant to this species stock state (see below).

In 2004 hake fishery biomass may increase slightly, since according to the data of the latest Canadian bottom fishes survey in the Scotian Shelf area the year-class 2002 considerable exceeds the average level (DFO, 2003). Most probably the stock will not decrease in 2005 as well due to increase of fish weight of the above said year-class and expected low fishing mortality. According to the revised data by AtlantNIRO, the oceanographic conditions of the mass hake spawning in 2002 also promoted the formation of sufficiently abundant year-class of this species.

B. Special Researches

1. Environmental Researches

a) Hydrographic studies

In 2003 the monitoring of sea-surface temperature and different water masses boundaries location in the Labrador and Gulf Stream currents effective zone has been continued. As before, the mean monthly SST in 13 points selected in NAFO Subdiv. 2J, 3KLMN, 4VWX and adjacent open ocean (data for February 2003 are not available) were used, as well as the mean monthly indices of the Cold shelf water, Slope water and Northern edge of Gulf Stream front boundary location at the surface in the area between 55°W and 70°W. The map of monitoring is presented in the Fig. 1.

In 2003 the predominance of positive anomalies during the second half of the year in all mentioned areas became the main feature of SST in the surface layer. Negative SST anomalies were mainly observed in February-June not at all points. The stable pattern of these anomalies was observed

northwards of the Grand Bank, at the Bank and in the eastern Scotian Shelf. In Table 1 presenting SST anomalies calculated from long-term mean values for 1977-2001, maximum absolute values by points selected are indicated in bold.

Analysis of water masses boundaries location, estimated from long-term monthly mean values for the period from 1962 to 1991-2000, reveals continuation of the trend of southwards shift evidenced by prevailing of negative anomalies indices of all three boundaries (Table 2). In this table the maximum southwards and northwards shifts of the boundaries are indicated in bold.

In the New England Area - 5YZE (66°-70°W) the boundary of the Cold shelf water mass shifted southwards of the long-term level in April-August and October-December. The Slope water boundary was located southwards of the usual level in January-April and in August-December, while the northern edge of the Gulf Stream front boundary in this area was located southwards of the long-tern mean level during the whole year.

In the Scotian Shelf area - 4VWX (59°-66°W) the Cold shelf water mass boundary was located southwards of the long-term mean level in March-April and October-December. In some periods it shifted in 40-60 miles southwards and approached directly the Slope water mass boundary in the open ocean. This condition seemed to affect negatively the hake aggregations formation and availability to the fishery, since catches per effort there were considerable lower than in 2002. The Slope water boundary in this area was shifted southwards of the long-term mean line in May-October and December, while the Gulf Stream front boundary was located southwards of long-term mean line in March-April, June-December and October.

In the St. Laurentian Channel area - 4VS (55°-58°W) the Cold shelf water mass boundary was unstable during a year, while the Slope water boundary was shifted northwards for the most part of the year. The boundary of the Gulf Stream front northern edge was located slightly southwards of the long-term mean position in January-February and May-August, and distinctly shifted northwards in September-December.

C. **Miscellaneous Studies**

The stock-recruitment relation (SRR) was studied in 13 stock units of commercial fishes in NAFO area applying the simplified approach, which did not require the use of theoretical equations by Ricker, Beverton and Holt, etc. The effect of SRR was rather evident in most of them. In all cases the impact of the environment factors was observed though to variable degree. The results obtained allowed to make some conclusions of general nature concerning the ways of the above said stock units management. The probable mechanism of SRR effect in the periods, when the spawning biomass considerable differs from the optimal level, was considered. Within the discussion the opinion was expresses concerning the future development of the precautionary approach strategy.

The detailed description of the researches fulfilled is presented in SCR Doc., submitted to the meeting of the Scientific Council.

References

DFO. 2003. Silver hake on the Scotian Shelf (Div. 4VWX). Science Stock Status Report 2003/052.

TABLE 1. SST (C°) anomalies in the Labrador and Gulf Stream current systems in 2003.

№ of point	Month's											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1. 55°N 55°W	1.5	-	0.8	0.2	**-0.2**	0.4	**1.9**	1.8	1.2	2.2	1.4	0.3
2. 55°N 50°W	0.5	-	0.0	**-0.8**	-0.5	0.1	**2.7**	2.1	2.0	2.5	0.5	0.5
3. 55°N 45°W	1.0	-	1.7	**-1.3**	-0.4	-0.2	1.3	1.4	0.2	1.0	0.8	**2.3**
4. 52°30'N 52°30'W	0.7	-	-0.9	-1.0	**-1.9**	0.2	1.9	2.8	0.3	**3.2**	0.9	0.0
5. 52°30'N 47°30'W	**2.8**	-	0.6	**-2.1**	0.3	0.0	1.4	1.5	0.7	2.5	1.3	0.9
6. 50°N 50°W	1.3	-	-0.8	-0.6	-1.4	**-2.2**	2.0	1.3	**3.6**	2.7	0.1	0.4
7. 50°N 45°W	**1.9**	-	0.4	1.1	1.3	-0.1	0.7	**-1.7**	0.6	0.9	-0.3	1.7
8. 47°30'N 47°30'W	1.8	-	0.1	0.9	0.1	**-1.2**	1.2	0.7	1.4	**2.1**	0.3	1.7
9. 45°N 50°W	0.3	-	-0.9	-0.6	-1.5	**-2.3**	0.7	0.2	0.7	1.5	0.0	1.0
10. 45°N 60°W	0.5	-	-0.3	-0.3	**-0.8**	-0.4	1.0	1.8	1.4	**2.2**	0.9	0.8
11. 42°30'N 62°30'W	0.3	-	-0.7	**-0.8**	0.6	-0.2	**1.7**	1.4	1.4	**1.7**	0.4	0.7
12. 40°N 65°W	-0.2	-	**-1.2**	-0.7	1.7	0.5	**2.6**	1.1	1.4	1.3	0.7	1.8
13. 40°N 60°W	1.9	-	0.4	0.8	**2.4**	1.0	0.8	1.6	0.0	2.0	1.1	0.8

TABLE 2. Anomalies of water masses location indices (tens miles) in the area of 55°-70°W in 2003.

Sub area	Month's											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Cold shelf water												
5YZE 66°-70°W	**9.0**	6.7	1.2	-2.6	**-5.7**	-4.8	-.9	-3.2	1.0	-4.9	-4.3	-6.8
4VX 59°-65°W	1.6	**3.3**	-1.1	-0.7	-2.6	-2.5	-1.3	**-4.6**	0.5	-2.8	-1.2	-4.0
3PS, 4VS 55°-58°	1.1	1.4	-3.4	-0.5	-1.8	0.0	3.2	**-3.5**	**3.7**	3.1	-1.1	-1.6
Slope water												
5YZE 66°-70°W	-2.8	-1.8	-3.5	-3.6	**3.5**	1.2	1.5	-1.1	-0.7	-0.1	-3.2	-1.7
4VX 59°-65°W	**2.0**	0.3	-0.2	-1.8	**-5.3**	-2.2	-1.8	-1.0	-2.6	-2.8	**2.0**	-1.0
3PS, 4VS 55°-58°	-0.4	0.0	**-1.5**	0.3	**8.3**	4.5	4.4	0.7	2.4	0.0	-0.4	0.5
Gulf Stream												
5YZE 66°-70°W	-1.5	-2.6	-1.0	-3.8	-1.0	**-4.6**	-2.3	-2.0	-0.2	-0.7	-0.8	-1.0
4VX 59°-65°W	0.9	1.4	-1.5	-2.6	0.8	**-4.5**	-0.5	-2.1	0.4	-0.8	**2.8**	0.1
3PS, 4VS 55°-58°W	-2.4	-0.2	0.5	0.2	-2.0	**-4.6**	-1.1	-1.5	2.4	3.2	**5.7**	1.5

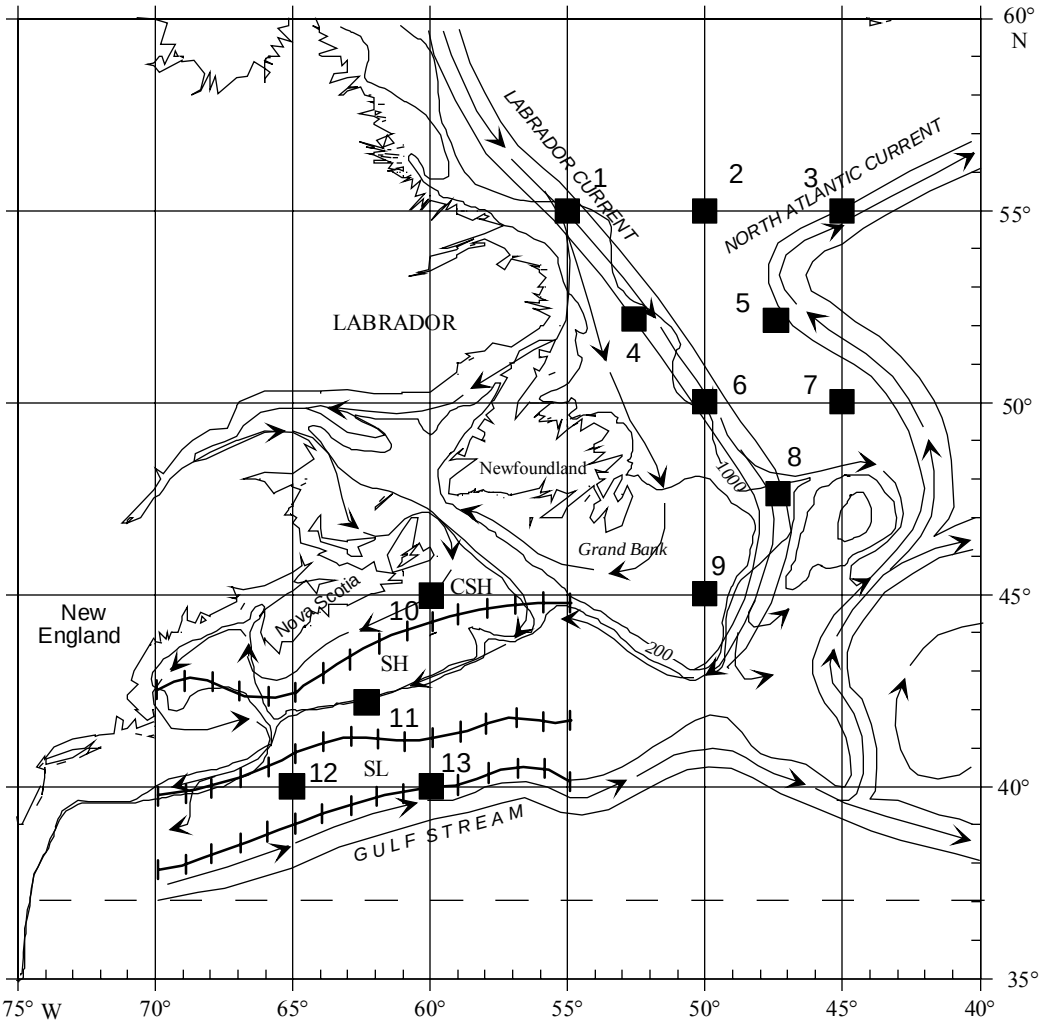

Fig. 1. Map of SST monitoring in the Labrador and Gulf Stream currents zone and dynamics of water masses boundaries at the surface between 55° W and 70°W.

PART II - Research carried out by PINRO in NAFO Subareas 1,2 and 3

by

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I. SUBAREA 1+2

A. Status of the Fisheries

Greenland halibut. According to national quota allocation for two areas the fishery was carried out in the EEZ of West Greenland north and south of 68°N. In the north the fishery for Greenland halibut in the area between 68°47'-69°49'N and 58°59'-59°42'W at a depth of 1000-1200 m in September-October was conducted only by one vessel. Maximum daily catch rate of about 15 metric tons was registered in October. In the area south of 68°N 4 vessels participated in the fishery. Trawl fishing was carried out from August to November in the area between 63°26'-64°30'N and 55°17'-57°59'W in a depth range of 1000 to 1550 m. Catch rate was relatively high throughout the whole period of operation with its maximum attained in September.

Percentage of Greenland halibut in trawl catches varied from 98 to 100% on average. The main by-caught species was roughhead grenadier (about 1%).

According to provisional data, in 2003 at the West Greenland nearly 1587 tons of Greenland halibut were caught (Table 1).

Beaked redfish. Russian fishery for pelagic beaked redfish in Div. 1F, 2J and 2H took place in July-October in a depth range of 250-410 m. The fishery was conducted by 1-14 vessels of STM-, RTMS-, BATM-, and BMRTIB-types. Catch rate was the highest in August when the catch averaged 22.8-36.0 tons per vessel/day. In September catch rate was somewhat lower having constituted 11.9-28.1 tons per vessel/day. Preliminary data indicated that total catch of the pelagic redfish amounted to 12939 tons. About 80% of the total redfish catch fell within Div. 1F.

Other fish. No fishery targeted other fish species was carried out. By-catch of roughhead grenadier, skate and wolffishes during the directed fishery for Greenland halibut made up 1%.

B. Special Research Studies

Commercial fisheries data collected by observers in 2003 and available for the stock assessment in 2004 are presented in the Table 2.

Greenland halibut. In Div. 1A, size composition of Greenland halibut in September-October was represented by individuals of 14-100 cm in length. Predominant length of males varied from 44 to 47 cm being 45.3 cm on average, while that of females ranged between 46 and 49 cm with average length of 50.0 cm (Table 3).

In Div. 1D, Greenland halibut of 26-105 cm long with individuals of 48-51 cm in length being predominant were observed in catches from October to November. Average length of males was measured to be 50.7 cm while that of females was 55.9 cm (Table 4).

Age of Greenland halibut in Div. AD varied from 1 to 18 years. Individuals at age 6 dominated Div.1A; individuals aged 7 were predominant in Div.1D (Table 5 and 6).

Beaked redfish. In May-June 2003, Russia, Germany and Iceland carried out international trawl-acoustic survey for the redfish in the Irminger Sea and adjacent waters of the Labrador Sea. Biological information

on the pelagic redfish in the Regulatory Area was collected during the above survey onboard Russian R/V "Smolensk" in the period 2 -12 June. During the survey the redfish biomass in the 0-500 m layer was estimated to be 0.089 million tons using acoustic method and in the 0-900 m layer at 0.8 million tons using trawl method. 12% of the pelagic redfish total biomass estimated using acoustic method in the 0-500 m layer was distributed within the NAFO Regulatory Area. The redfish biomass estimated with the use of the trawl method in the NAFO Regulatory Area in 0-500 m layer accounted for 19% and below 500 m it made up 6% of the total redfish biomass over the whole survey area.

In addition, biological information in Div. 1F and 2J in the period of the fishery was collected by PINRO specialists placed onboard research-and-fishing vessels as NAFO observers.

Length of 62948 individuals was measured; analysis of feeding and maturity was made for 14125 individuals; and 1520 redfish were aged. The redfish length in catches taken in Div.1F varied from 21 to 44 cm with the mean length of 34.0 cm (Table 7). Individuals of 3436 cm in length at age 13-15 dominated the catches (Table 8). Ratio of males and females was 1.4:1. About 12% of individuals were immature. The redfish fed moderately. Zooplankton such as *Calanus* and *Themisto* dominated the redfish diet.

In Div. 2J mean length of the redfish was 34.0 cm. Individuals being 34-36 cm long at age 13-15 were predominant in catches. Ratio of males and females was 1.2:1. Immature individuals amounted to 10%. The redfish fed intensively. The diet was dominated by *Calanus* and *Themisto*.

II. SUBAREA 3

A. Status of the Fisheries

Greenland halibut. Russian quota for Greenland halibut in 2003 in Div. 3LMNO was 3969 tons. During the year, 7 vessels carried out the directed fishery. Greenland halibut occurred as by-catch in the fishery for redfishes, skates and hakes. Russian catch of the Greenland halibut in 2003 made up 3005 tons.

The fleet operated in the areas of continental slope adjacent to the Flemish Pass (Div.3L and adjacent waters of Div. 3M) in a depth range of 600 to 1700 m. The mean catch rate was 220 kg of Greenland halibut per 1-hour tow. 80% of the total Greenland halibut catch was taken in this area. The by-catch comprised grenadiers – 4, skates – 2, hakes –2, redfishes – 1, American plaice –1 and other fish species – 1%.

Periodically, 3 vessels fished in Div. 3NO in the depth range of 300-1280 m. Mean catch rate was 330 kg of Greenland halibut per 1-hour tow. By-catch was considerably larger in these Divisions and included grenadiers – 4, redfishes – 2, skates – 3, hakes –2, witch flounder –2, American plaice –2, wolffishes –1 and other fish species – 1%.

Redfish. In 2003, no directed fishery for redfishes on the Flemish Cap was conducted. Preliminary data showed that total catch taken as by-catch in the Greenland halibut fishery was 119 tons.

The fishery for redfish in Div. 3O was carried out from January to December. Vessels fished in a depth range of 300-600 m. The largest redfish catch was taken by STM-type vessels. Hakes, American plaice and cod were the main by-caught species in the redfish fishery. On the whole for the period of fishery catch rate of STM-type and BMRTPT-type vessels was 20.1 and 22.9 tons, respectively. Provisional estimate of the total redfish catch was 10794 tons.

Skates. Directed fishery for skates in Div. 3NO was carried out from June to December by two vessels of SRTMK-type (1000-2000 kW). The main proportion of the catch (89%) was taken in Div. 3N in a depth range of 50 to 300 m. The main target species was thorny skate (*Amblyraja radiata*). Catch of skates in Div. 3NO totaled 3226 tons. On the whole, catch rate of SRTMK-type vessels in the directed fishery was 21.3 tons per vessel/day.

In Div. 3LM skates occurred only as by-catch in the Greenland halibut fishery and their catch amounted to 52 tons.

Provisional data showed total catch of skates in Div. 3LMNO to be 3278 tons.

White hake. Directed fishery for the white hake in Div. 3O was carried out from June to August. Two vessels of SRTMK-type (1000-2000 kW) fished in a depth range of 150-240 m. For the whole period of fishery catch rate of SRTMK-type vessels constituted 15.4 tons per vessel/day. Provisional catch of the white hake in Div. 3O made up 803 tons.

A. Other fish. No fishery targeted other fish species was carried out. By-catch of other species during directed fisheries was estimated to be within 1-10%.

B. Special Research Studies

In 2003 in the NAFO Regulatory area research on selectivity in relation to Greenland halibut were conducted. The research were done using bottom trawl with a small-mesh cover.

From August to September 2003 the "Remøyfjord" trawler performed works to determine selectivity of trawl bags with mesh size of 163.2 mm in relation to the Greenland halibut in Div. 3L. In October-December 2003 the trawler "Kapitan Naumov" conducted works to determine selectivity of trawl bags with mesh size of 150-155 mm, 160-165 mm and 170-175 mm in relation to the Greenland halibut in Div. 3L. Results from the above works are presented in an individual paper (SCR 04/6). In December 2003 and February 2004, the trawler "Vladimir Gavrilov" performed research on selectivity of trawl bags with mesh size of 99.7 and 105.8 mm in Div. 3O. Results from the above experiments showed the following selectivity parameters of the trawl bags:

- For the trawl bag with mesh size of 99.7 mm $L_{50\%}$=25.5 cm, S.R.=3.8cm,Ks=2.6
- For the trawl bag with mesh size of 105.8 mm $L_{50\%}$=25.6 cm, S.R.=5.1cm,Ks=2.4

Further works on selectivity of trawl bags with larger mesh size in relation to the redfish were discontinued because of technical reasons. More detailed results will be presented later in a separate paper.

Commercial fisheries data collected by observers in 2003 and available for the stock assessment in 2004 are presented in the Table 2.

Greenland halibut. No specific surveys for the Greenland halibut stock assessment were carried out.

Greenland halibut of 14 to 98 cm in length with the mean length of 43.7 cm occurred in catches of fishing vessels in Div. 3LMN (Table 9 and 10). Individuals of 40-42 cm in length at age 5-7 from 1997-1999 year-classes were predominant (Table 11). Immature individuals dominated the catches. By-catch of Greenland halibut of smaller length than allowed (30 cm) made up less than 0.7%.

Roughhead grenadier. Roughhead grenadier is an abundant by-caught species in the fishery of Greenland halibut. Total length of the roughhead grenadier in catches in Div. 3L varied from 12 to 93 cm with mean length constituted 44.0 cm (Table 12). Individuals of 42-45 cm in length made up the largest proportion.

Roughhead grenadier of 33 to 69 cm in length occurred in Div. 3M. Individual length in Div. 3N varied from 24 to 84 cm; mean length was estimated at 49.5cm. Total length of the roughhead grenadier in catches in Div. 3O was observed to be in the range of 30 to 69 cm.

On the whole, catches in Div. 3LMNO were dominated by individuals of 12-93 cm in length; their mean length made up 44.3 cm.

Beaked redfish. Length of the beaked redfish in by-catches during the Greenland halibut fishery in Div. 3L varied from 16 to 47 cm with mean length being 30.1 cm (Table 13). Individuals of 17-29 cm in length made up the major proportion.

In Div. 3M length distribution of the redfish ranged within 8-41 cm. The bulk of the catches comprised individuals being 17-18 cm long.

Length of the redfish in Div. 3N was from 11 to 42 cm with mean length of 30.0 cm. Length frequencies showed bimodal distribution with modal groups of 22-23 cm and 34-35 cm.

Length of the redfish in Div. 3O varied from 11 to 44 cm; mean length was 24.3 cm. Catches were dominated by individuals of 23-24 cm in length.

American plaice. Table 14 gives size characteristics of the American plaice by Divisions.

In Div. 3L length distribution of the American plaice included individuals from 22 to 58 cm in length.

Individual length in Div. 3N in by-catches during the skate fishery ranged from 18 to 74 cm with mean length of 47.7 cm. Catches were dominated by individuals of 52-54 cm in length.

Length distribution of the American plaice in Div. 3O varied from 20 to 74 cm with mean length being 38.4 cm.

Cod. In by-catches during Greenland halibut fishery in Div. 3L cod length varied from 33 to 69 cm; mean length constituted 52.4 cm (Table 16).

On the Flemish Cap cod of 48 to 60 cm in length occurred in catches in small amounts.

The largest cod were found in Div. 3N in catches during directed skate fishery. Their length ranged from 27 to 138 cm with mean length of 66.4 cm. Mature individuals of 42 to 49 cm in length were the bulk of the catches.

In Div. 3O the cod occurred in catches when fishing for white hake. The cod length varied from 24 to 126 cm with mean length of 61.2 cm. Catches were dominated by individuals being 51-55 cm long.

Red hake. Red hake occurred in by-catches during the fishery targeted Greenland halibut. Length of individuals measured fluctuated from 18 to 48 cm; mean length was estimated at 36.5 cm (Table 17). Individuals of 33-36 cm in length prevailed in catches.

In Div. 3M length of the red hake was measured to be within 30-51 cm range.

White hake. In Div 3N length of the white hake varied from 21 to 84 cm with mean length constituted 50.4 cm.

The main catch of this species was taken in Div. 3O. Individual length in this Division fluctuated from 12 to 100 cm with mean length of 45.3 cm (Table 18).

Individuals of 48-51 cm in length represented the major proportion of catches.

Thorny skate. The skate length in Div. 3L varied from 15 to 84 cm with mean length made up 43.1 cm (Table 19).

In Div. 3N individual length ranged between 24 and 93 cm; mean length was 57.0 cm. Individuals being 45-57 cm long made up the major proportion in catches.

The skate length in Div. 3O fluctuated from 33 to 96 cm with mean length of 61.2 cm.

Other fish species. Atlantic halibut, common grenadier, wolffishes, roundnose grenadier, spiny eels (Notacanthidae), sharks, blue antimora and other fish occurred as by-catch during the fishery.

TABLE 1. Preliminary data on catch taken by Russian trawlers in the NAFO SA 1-3 in 2003.

Species	Division	Catch, t
Greenland halibut	1A	254
	1B	5
	1C	247
	1D	1081
	1ABCD	**1587**
	3L	2262
	3M	138
	3N	598
	3O	7
	3LMNO	**3005**
Atlantic halibut	3L	1
	3N	1
	3O	2
	3LNO	**4**
American plaice	3L	27
	3M	7
	3N	162
	3O	157
	3LMNO	**353**
Yellowtail flounder	3N	**184**
Witch flounder	3L	6
	3M	1
	3N	30
	3O	29
	3LMNO	**60**
Grenadier roughhead	3L	71
	3M	16
	3N	29
	3LMN	**116**
Redfish spp.	1F	9365
	2H	325
	2J	3249
	1F2HJ	**12939**
	3L	48
	3M	119
	3N	25
	3O	10794
	3LMNO	**10986**
Skate	3L	47
	3M	5
	3N	2914
	3O	312
	3LMNO	**3278**
Atlantic cod	3L	5
	3N	93
	3O	82
	3LNO	**180**
Haddock	3O	**15**
Wolffish spp.	3L	6
	3N	8
	3O	43
	3LNO	**57**
Red hake	3L	39
	3M	2
	3N	95
	3LMN	**136**
White hake	3O	**803**

TABLE 2. Commercial fisheries data collected in 2003 and available for the stock assessment in 2004 in NAFO Convention Area

Stock	Catch	CPUE	Sex	Length	Age	Individual weight	Maturity
Greenland halibut SA1	+	+	+	+	+	+	+
Pelagic redfish SA 1-3	+	+	+	+	+	+	+
Other finfish SA 1	+		+	+		+	+
Cod 2J3KL	+		+	+			+
Cod 3M	+		+	+			+
Cod 3NO	+		+	+			+
Redfish 3LN	+		+	+			+
Redfish 3M	+		+	+			+
Redfish 3O	+	+	+	+			+
American plaice 3LNO	+		+	+			+
American plaice 3M	+						
Witch flounder 3L	+						
Witch flounder 3M	+						
Witch flounder 3NO	+						
Yellowtail 3LNO	+						
Greenland halibut SA 2+3KLMNO	+	+	+	+	+	+	+
Roughead grenadier SA 2+3	+		+	+			+
Capelin 3NO			+	+	+	+	+
Red hake SA3	+		+	+			+
White hake SA3	+	+	+	+			+
Thorny skate SA3	+	+	+	+			+

TABLE 3. Greenland halibut length composition (no. of individuals) of the Russian trawl catches in the NAFO Div. 1A in 2003.

Length, cm	M	F	Total
14- 15		1	1
16- 17	2	2	4
18-19			
20- 21	1	1	2
22- 23	6	4	10
24- 25	12	4	16
26- 27	15	9	24
28- 29	26	11	37
30- 31	38	15	53
32- 33	51	27	78
34- 35	80	24	104
36- 37	135	53	188
38- 39	240	88	328
40- 41	424	165	589
42- 43	556	243	799
44- 45	553	332	885
46- 47	465	381	846
48- 49	367	377	744
50- 51	292	343	635
52- 53	202	269	471
54- 55	105	168	273
56- 57	60	128	188
58- 59	38	84	122
60- 61	28	52	80
62- 63	21	40	61
64- 65	31	40	71
66- 67	27	15	42
68- 69	18	16	34
70- 71	12	15	27
72- 73	6	24	30
74- 75	7	13	20
76- 77	1	15	16
78- 79	1	17	18
80- 81	1	10	11
82- 83		16	16
84- 85		12	12
86- 87		9	9
88- 89		8	8
90- 91		13	13
92- 93		4	4
94- 95		7	7
96- 97		3	3
98- 99		4	4
100-101		2	2
TOTAL	3821	3064	6885
Av. length, cm	45.3	50.0	47.4

TABLE 4. Greenland halibut length composition (no. of individuals) of the Russian trawl catches in the NAFO Div. 1D in 2003.

Length, cm	M	F	Total
26- 27	1		1
28- 29	1		1
30- 31	3	1	4
32- 33	2		2
34- 35	8	4	12
36- 37	26	8	34
38- 39	39	14	53
40- 41	97	49	146
42- 43	294	120	414
44- 45	620	258	878
46- 47	961	360	1321
48- 49	1108	417	1525
50- 51	1162	454	1616
52- 53	968	407	1375
54- 55	694	352	1046
56- 57	392	236	628
58- 59	276	228	504
60- 61	186	199	385
62- 63	93	180	273
64- 65	68	165	233
66- 67	58	136	194
68- 69	35	101	136
70- 71	22	86	108
72- 73	7	80	87
74- 75	3	52	55
76- 77	3	28	31
78- 79	1	36	37
80- 81	1	24	25
82- 83	2	28	30
84- 85		24	24
86- 87		20	20
88- 89		9	9
90- 91		19	19
92- 93		9	9
94- 95		8	8
96- 97		4	4
98- 99		4	4
100-101		3	3
102-103			
104-105		1	1
TOTAL	7131	4124	11255
Av. length, cm	50.7	55.9	52.6

TABLE 5. Age composition of Greenland halibut trawl catch (no. of in Div.) in NAFO Div. 1A in 2003.

Length, cm	Age, years																	Total	Weight, g
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
14	1																	1	20.0
16	3	1																4	31.7
18																		0	
20		2																2	65.0
22		8	2															10	82.2
24		2	14															16	107.5
26			24															24	136.9
28			21	7														28	182.5
30			13	40														53	230.0
32			10	68														78	291.9
34				91	13													104	344.4
36				71	118													188	391.3
38					292	36												328	458.3
40					442	147												589	586.3
42					300	499												799	637.5
44					111	774												885	751.9
46						635	212											846	868.8
48						406	338											744	1022.7
50							635											635	1216.3
52							471											471	1308.1
54							273											273	1555.0
56							141	47										188	1705.1
58							15	76	31									122	1903.1
60								36	36	9								80	2239.4
62									54	7								61	2526.1
64									47	24								71	2666.1
66									5	27	5	5						41	2980.0
68										26	4	4						34	3386.3
70											27							27	3834.4
72											23	8						30	4018.1
74											8	10	3					20	4727.5
76											4	12						16	4313.8
78												14	4					18	5803.0
80												4	7					11	6024.2
82													13	3				16	6750.0
84													10	2				12	7057.0
86													2	8				9	8046.7
88													2	6				8	8557.5
90														10	2	2		13	9001.3
92														2	2			4	9627.5
94														4	1		1	7	10914.0
96															2	2		3	11810.0
98																3	1	4	12710.0
100																2		2	13100.0
Total	4	13	84	277	1274	2498	2085	159	172	92	70	56	39	35	7	8	2	6875	
%	0.1	0.2	1.2	4.0	18.5	36.3	30.3	2.3	2.5	1.4	1.0	0.8	0.6	0.5	0.1	0.1	0.1	100	

TABLE 6. Age composition of Greenland halibut trawl catch (no. of in Div.) in NAFO Div. 1D in 2003.

Length,	Age, years																Total	Weight,
cm	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		g
26	1																1	130.0
28	1																1	150.0
30	4																4	200.0
32	1	1															2	225.0
34	1	11															12	482.7
36		11	23														34	339.2
38			53														53	440.0
40		15	131														146	518.5
42			242	173													414	588.3
44			329	549													878	707.5
46				1321													1321	773.3
48				1356	169												1525	938.9
50				269	1347												1616	1030.8
52					1375												1375	1186.7
54					1046												1046	1294.4
56					279	349											628	1460.0
58					112	392											504	1688.9
60						89	237	59									385	1848.8
62						36	182	55									273	2171.3
64						16	140	78									233	2447.7
66							75	119									194	2704.7
68							9	85	43								136	3020.9
70								38	70								108	3268.3
72								12	58	17							87	3925.0
74							5	5	30	15							55	4196.8
76									7	24							31	4190.0
78										20	17						37	5007.7
80										9	16						25	5832.5
82										15	15						30	6500.4
84										5	16	3					24	6509.4
86											18	2					20	7117.2
88											6	3					9	8535.0
90											4	15					19	7880.0
92												9					9	9675.0
94												5	3				8	10000.0
96												2	2				4	10456.0
98												1	3				4	11925.0
100														2	1		3	12066.7
102																	0	
104																1	1	12700.0
Total	8	38	778	3667	4328	882	648	449	208	106	91	40	8	2	1	1	11255	
%	0.1	0.3	6.9	32.6	38.5	7.8	5.8	4.0	1.8	0.9	0.8	0.4	0.1	0.0	0.0	0.0	100	

TABLE 7. Length composition of Redfish (no. of individuals) in catches by Russian travelers in the NAFO Div. 1F, 2J in 2003.

Length, cm	Division 1F			Division 2J			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
21	1	-	1	-	-	-	1	-	1
22	-	3	3	1	3	4	1	6	7
23	5	11	16	1	1	2	6	12	18
24	27	26	53	2	3	5	29	29	58
25	84	81	165	14	24	38	98	105	203
26	244	211	455	56	80	136	300	291	591
27	473	376	849	109	128	237	582	504	1086
28	604	541	1145	181	155	336	785	696	1481
29	867	648	1515	270	186	456	1137	834	1971
30	1202	825	2027	384	300	684	1586	1125	2711
31	1834	1046	2880	480	319	799	2314	1365	3679
32	2656	1286	3942	714	358	1072	3370	1644	5014
33	3903	1571	5474	799	424	1223	4702	1995	6697
34	5234	2008	7242	1041	539	1580	6275	2547	8822
35	5025	2951	7976	1127	679	1806	6152	3630	9782
36	3489	3233	6722	896	855	1751	4385	4088	8473
37	1910	2765	4675	522	735	1257	2432	3500	5932
38	1007	1831	2838	284	526	810	1291	2357	3648
39	478	917	1395	119	290	409	597	1207	1804
40	136	374	510	47	125	172	183	499	682
41	41	122	163	16	45	61	57	167	224
42	4	31	35	2	18	20	6	49	55
43	-	4	4	-	1	1	-	5	5
44	1	2	3	-	1	1	1	3	4
Total	**29225**	**20863**	**50088**	**7065**	**5795**	**12860**	**36290**	**26658**	**62948**
Length av., cm	**33,7**	**34,5**	**34,0**	**33,7**	**34,4**	**34,0**	**33,7**	**34,5**	**34,0**

Table 8. Redfish age composition in the NAFO Div. 1F, 2J in 2003

Age, years	Division 1F			Division 2J			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
6	0,1	0,2	0,2	+	0,2	0,1	0,1	0,2	0,1
7	2,7	2,7	2,7	2,5	3,3	2,9	2,7	2,8	2,7
8	1,9	2,3	2,1	2,4	2,5	2,4	2,0	2,4	2,2
9	3,1	4,2	3,7	4,0	4,6	4,3	3,3	4,3	3,7
10	5,7	5,8	5,9	7,0	6,8	7,0	5,9	6,0	5,9
11	11,1	6,9	9,1	12,1	7,4	9,7	11,3	7,0	9,5
12	11,6	6,8	9,6	10,8	6,7	8,9	11,5	6,8	9,5
13	33,6	25,7	29,8	28,9	23,1	25,9	33,0	25,1	29,5
14	16,2	13,1	15,4	16,7	12,5	15,3	16,3	13,0	14,9
15	10,8	20,7	15,3	12,0	20,2	16,1	11,1	20,6	15,1
16	2,8	10,0	5,5	3,2	10,9	6,3	2,9	10,2	6,0
17	0,2	1,2	0,6	0,3	1,5	0,8	0,3	1,3	0,7
18	0,1	0,3	0,1	0,1	0,4	0,3	0,1	0,3	0,2
19	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-
23	-	-	-	0,3	-	0,2	-	-	-
Total	**29225**	**20863**	**50088**	**7065**	**5795**	**12860**	**36290**	**26658**	**62948**
Av. age, years	**12,6**	**13,1**	**12,8**	**12,5**	**13,0**	**12,7**	**12,7**	**13,2**	**12,9**

TABLE 9. Greenland halibut length composition (no. of individuals) of the Russian trawlers catch by months in the NAFO Div. 3L in 2003.

Length,	Division 3L by months											Total
cm	I	III	IV	V	VI	VII	VIII	IX	X	XI	XII	3L
14										1		**1**
16										0		**0**
18										0		**0**
20		1			1					0		**2**
22		2	3		1				1	0		**7**
24		1	6	1	14	3			0	2		**27**
26	2	10	3	6	26	11	3		9	10	1	**81**
28	21	39	20	31	29	48	18	2	39	54	35	**336**
30	37	78	155	106	85	115	39	9	67	143	136	**970**
32	56	159	339	221	172	257	107	14	185	277	319	**2106**
34	60	219	503	372	295	413	183	53	364	613	593	**3668**
36	96	386	666	603	386	655	464	105	608	1072	1049	**6090**
38	125	450	774	839	611	862	789	186	917	1369	1269	**8191**
40	170	609	728	972	707	770	1106	254	1238	1361	1064	**8979**
42	195	588	609	786	601	575	1132	288	1392	1675	910	**8751**
44	198	347	472	544	510	378	1038	290	1327	1460	792	**7356**
46	159	236	307	371	396	236	914	227	1091	1150	584	**5671**
48	99	170	251	291	305	156	793	166	839	899	471	**4440**
50	48	96	191	189	188	106	653	156	813	697	435	**3572**
52	19	40	95	145	135	62	582	81	701	574	283	**2717**
54	5	33	55	82	104	29	342	50	502	424	239	**1865**
56	1	13	45	66	52	18	248	38	277	266	178	**1202**
58	1	8	23	34	52	15	140	15	156	164	118	**726**
60	0	3	8	17	22	7	103	15	107	126	99	**507**
62	1	1	9	12	14	4	68	7	72	68	35	**291**
64		2	3	4	11	2	35	4	45	48	33	**187**
66		1	1	1	4	1	16	4	17	13	19	**77**
68			1	1	2	1	14	5	9	16	18	**67**
70				2	7	0	8	0	9	7	17	**50**
72				0	4	0	9	1	7	3	7	**31**
74				0	2	0	4	0	3	4	2	**15**
76				1	2	0	2	2	0	11	3	**21**
78				1	1	1	4	2	1	2	4	**16**
80					3	0	2	1	1	4	0	**11**
82					2	1	3	0	1	1	0	**8**
84					0	0		0	2	3	0	**5**
86					1	0		0	1	2	0	**4**
88					2	0		2	0	1	1	**6**
90					0	1		0	1	1		**3**
92					1			1		1		**3**
94					1			0				**1**
96								0				**0**
98								1				**1**
Total	**1293**	**3492**	**5267**	**5698**	**4749**	**4727**	**8819**	**1979**	**10802**	**12522**	**8714**	**68062**
Av. length, cm.	**41.8**	**40.9**	**40.6**	**41.6**	**42.4**	**40.0**	**45.4**	**44.8**	**45.1**	**43.9**	**42.7**	**43.1**

TABLE 10. Greenland halibut length composition (no. of individuals) of the Russian trawlers catch by months in the NAFO Div. 3M, 3N and 3LMN combined in 2003.

Length,	Division 3M by month					Total	Division 3N by month					Total	Total
cm	V	VI	VIII	IX	XII	3M	VI	VII	VIII	X	XI	3N	3LMN
14													**1**
16													**0**
18													**0**
20													**2**
22							4		1			**5**	**12**
24							10		2	3	1	**16**	**43**
26		3				**3**	18	3	6	7	5	**39**	**123**
28		7				**7**	18	4	4	11	8	**45**	**388**
30		23		1		**24**	53	21	9	13	28	**124**	**1118**
32	1	39		5		**45**	82	59	26	34	83	**284**	**2435**
34	1	46	1	17		**65**	111	94	35	76	86	**402**	**4135**
36	4	64	3	51		**122**	160	164	60	94	147	**625**	**6837**
38	8	108	10	72	1	**199**	223	283	108	120	199	**933**	**9323**
40	18	110	22	143	14	**307**	272	333	147	168	284	**1204**	**10490**
42	11	56	12	179	41	**299**	298	415	157	307	344	**1521**	**10571**
44	7	43	20	202	31	**303**	277	422	162	265	418	**1544**	**9203**
46	13	38	18	157	40	**266**	228	431	175	192	480	**1506**	**7443**
48	15	21	15	122	50	**223**	191	332	141	145	408	**1217**	**5880**
50	6	17	15	123	58	**219**	179	254	114	113	370	**1030**	**4821**
52	7	18	16	77	36	**154**	150	220	96	98	304	**868**	**3739**
54	5	5	12	53	35	**110**	106	149	62	63	281	**661**	**2636**
56	3	5	5	44	27	**84**	72	92	42	33	181	**420**	**1706**
58	1	1	9	33	15	**59**	55	67	30	22	130	**304**	**1089**
60		1	1	16	8	**26**	25	38	20	18	74	**175**	**708**
62			4	6	3	**13**	20	26	15	18	30	**109**	**413**
64			0	0	3	**3**	6	21	11	7	30	**75**	**265**
66			0	2	0	**2**	13	17	8	6	12	**56**	**135**
68			1	1	1	**3**	7	8	3	3	8	**29**	**99**
70			2	3	3	**8**	4	12	3	1	5	**25**	**83**
72			1	0	1	**2**	1	9	1	1	3	**15**	**48**
74				0	1	**1**	4	3	1	3	3	**14**	**30**
76				1	1	**2**	3	3	4	2	5	**17**	**40**
78				0	0	**0**	3	4	2	1	0	**10**	**26**
80				2	1	**3**	2	2	3	3	2	**12**	**26**
82					3	**3**	1	3	2	4	1	**11**	**22**
84					0	**0**	2	10	2	1	2	**17**	**22**
86					0	**0**	1	3	2	1	2	**9**	**13**
88					1	**1**	1	1	2	0	2	**6**	**13**
90					1	**1**	1	0	1	1	2	**5**	**9**
92								0		1		**1**	**4**
94								1				**1**	**2**
96													**0**
98													**1**
Total	**100**	**605**	**167**	**1310**	**375**	**2557**	**2601**	**3504**	**1457**	**1835**	**3938**	**13335**	**83954**
Av. length, cm.	**45.3**	**40.2**	**48.1**	**46.2**	**50.7**	**45.5**	**44.6**	**46.1**	**46.4**	**45.0**	**47.3**	**46.0**	**43.7**

TABLE 11. Age composition of Greenland halibut catches by the NAFO Div. 3LMN in 2003.

Age	Division							
	3 L		3 M		3 N		3 LMN	
	n	%	n	%	n	%	n	%
2	7	0.01	-	-	3	0.02	10	0.01
3	594	0.87	14	0.55	120	0.90	728	0.87
4	5748	8.44	119	4.65	687	5.15	6555	7.81
5	18638	27.38	473	18.50	2226	16.69	21336	25.41
6	20842	30.62	766	29.96	3745	28.08	25353	30.20
7	16008	23.52	805	31.48	4283	32.12	21096	25.13
8	4161	6.11	256	10.01	1389	10.42	5805	6.92
9	1054	1.55	69	2.70	398	2.98	1520	1.81
10	557	0.82	27	1.06	213	1.60	797	0.95
11	268	0.39	11	0.43	122	0.91	401	0.48
12	113	0.17	9	0.35	67	0.50	189	0.23
13	36	0.05	4	0.16	31	0.23	70	0.08
14	16	0.02	2	0.08	20	0.15	38	0.05
15	10	0.01	1	0.04	17	0.13	28	0.03
16	7	0.01	1	0.04	11	0.08	19	0.02
17	4	0.01		0.00	3	0.02	7	0.01
18	-	-			-	-	-	0.00
19	1	0.00			1	0.01	1	0.00
Total	**68061**	**100**	**2557**	**100**	**13335**	**100**	**83953**	**100**

TABLE 12. Length composition (no. of individuals) of Roughhead grenadier in Russian trawlers catches by NAFO Div. 3LMNO in 2003.

Length, cm	3L	3M	3N	3O	3LMNO
12	2				**2**
15	2				**2**
18	17				**17**
21	70		2		**72**
24	92		5		**97**
27	171		7		**178**
30	273		7	1	**281**
33	482	2	10	14	**508**
36	730	7	29	29	**795**
39	1196	7	43	38	**1284**
42	1500	15	79	80	**1674**
45	1308	14	56	86	**1464**
48	845	9	33	33	**920**
51	422	2	21	23	**468**
54	267	2	12	14	**295**
57	168	3	15	7	**193**
60	116	1	16	4	**137**
63	82	2	11	2	**97**
66	53	2	19	1	**75**
69	48	2	18	2	**70**
72	42		15		**57**
75	37		10		**47**
78	27		4		**31**
81	17		3		**20**
84	9				**9**
87	2				**2**
90	1				**1**
93	1				**1**
Total	**7980**	**68**	**415**	**334**	**8797**
Av. length, cm.	**44.0**	**46.9**	**49.5**	**45.1**	**44.3**

TABLE 13. Length composition (no. of individuals) of Redfish in Russian trawlers catches by NAFO Div. 3LMN in 2003.

Length, cm	3L	3M	3N	3LMN
8		1		**1**
9		1		**1**
10		0		**0**
11		2	3	**5**
12		17	3	**20**
13		47	2	**49**
14		27	5	**32**
15		22	7	**29**
16		56	8	**64**
17	1	100	13	**114**
18	1	82	21	**104**
19	6	58	53	**117**
20	15	12	80	**107**
21	10	18	136	**164**
22	38	9	199	**246**
23	58	10	187	**255**
24	121	2	133	**256**
25	218	1	108	**327**
26	363	2	67	**432**
27	557	1	67	**625**
28	588	2	38	**628**
29	556	2	45	**603**
30	483	2	58	**543**
31	366	1	74	**441**
32	360	1	152	**513**
33	314	1	269	**584**
34	290	3	365	**658**
35	228	2	367	**597**
36	193	1	229	**423**
37	142	1	139	**282**
38	87	0	94	**181**
39	44	1	38	**83**
40	24	0	4	**28**
41	7	1	4	**12**
42	6		2	**8**
43	4			**4**
44	10			**10**
45	4			**4**
46	0			**0**
47	2			**2**
Total	**5096**	**486**	**2970**	**8552**
Av. length, cm.	**30.1**	**17.5**	**29.9**	**32.34**

TABLE 14. Redfish length composition (no. of individuals) of the Russian trawlers catch by months in the NAFO Div. 3O in 2003.

Length, cm	Month									Total
	IV	V	VI	VII	VIII	IX	X	XI	XII	3O
11			2	1						**3**
12			7	3	9					**19**
13			6		10					**16**
14			8	1	7					**16**
15			10	28	21	1	0	1	2	**63**
16	2	11	25	74	58	2	3	8	8	**191**
17	8	36	48	90	125	19	7	13	26	**372**
18	41	78	149	148	199	32	18	38	52	**755**
19	74	176	337	331	351	144	61	89	145	**1708**
20	197	267	581	580	698	443	194	218	250	**3428**
21	300	502	862	891	924	1017	434	401	374	**5705**
22	412	601	1270	987	1007	1324	781	703	545	**7630**
23	509	637	1112	1017	878	1261	1014	1060	806	**8294**
24	563	966	893	679	594	852	1096	1268	814	**7725**
25	570	650	424	383	377	505	882	1012	640	**5443**
26	471	752	173	201	233	363	728	1009	542	**4472**
27	463	697	105	176	163	247	634	1267	868	**4620**
28	450	655	31	157	105	138	507	1007	522	**3572**
29	289	332	13	58	62	74	402	675	300	**2205**
30	176	214	0	26	21	45	318	495	184	**1479**
31	174	223	0	21	7	24	189	291	96	**1025**
32	125	150	0	29	7	13	163	210	83	**780**
33	80	89	0	4	5	5	152	141	63	**539**
34	59	117	0	3	2	8	111	79	29	**408**
35	51	49	0	0	0	10	72	41	11	**234**
36	42	29	0	0	2	2	45	20	10	**150**
37	20	10	0	1	0	1	30	14	3	**79**
38	8	4	0	0	1	0	14	10	3	**40**
39	3	2					14	12		**31**
40	11	1					5	4		**21**
41	3	1					3	3		**10**
42	6	1						2		**9**
43	1	1						1		**3**
44								1		**1**
Total	**5108**	**7251**	**6056**	**5889**	**5866**	**6530**	**7877**	**10093**	**6376**	**61046**
Av. length, cm.	**25.7**	**25.3**	**22.2**	**22.4**	**22.2**	**23.1**	**25.6**	**25.9**	**25.0**	**24.3**

TABLE 15. Length composition (no. of individuals) of American plaice in Russian trawlers catches by NAFO Div. 3LNO in 2003.

Length, cm	3L	3N	3O	3LNO
18		2		**2**
20	5	1	1	**7**
22	19	12	1	**32**
24	52	18	8	**78**
26	91	22	46	**159**
28	129	59	154	**342**
30	161	95	168	**424**
32	246	150	120	**516**
34	244	177	42	**463**
36	243	141	31	**415**
38	211	174	23	**408**
40	168	115	32	**315**
42	127	170	65	**362**
44	70	218	65	**353**
46	30	285	41	**356**
48	11	304	56	**371**
50	11	246	49	**306**
52	3	292	32	**327**
54	1	325	24	**350**
56		248	26	**274**
58	1	242	15	**258**
60		131	12	**143**
62		95	7	**102**
64		48	3	**51**
66		33	3	**36**
68		26	1	**27**
70		10	1	**11**
72		2	0	**2**
74		1	1	**2**
Total	**1823**	**3642**	**1027**	**6492**
Av. length, cm.	**35.3**	**47.7**	**38.4**	**42.7**

TABLE 16. Length composition (no. of individuals) of Atlantic cod in Russian trawlers catches by NAFO Div. 3LMNO in 2003.

Length, cm	3L	3M	3N	3O	3LMNO
24				3	**3**
27			5	7	**12**
30			11	20	**31**
33	1		6	21	**28**
36			13	21	**34**
39	1		16	23	**40**
42	1		34	32	**67**
45			77	73	**150**
48		2	126	123	**251**
51	5	1	177	170	**353**
54	3		273	220	**496**
57		1	371	290	**662**
60	2	1	325	319	**647**
63			337	291	**628**
66			262	239	**501**
69	1		221	130	**352**
72			137	102	**239**
75			89	71	**160**
78			67	47	**114**
81			45	18	**63**
84			45	22	**67**
87			47	21	**68**
90			24	13	**37**
93			28	8	**36**
96			37	8	**45**
99			32	1	**33**
102			42	5	**47**
105			31	3	**34**
108			27	1	**28**
111			27	1	**28**
114			19	3	**22**
117			14	2	**16**
120			8	1	**9**
123			2		**2**
126			2	1	**3**
129			2		**2**
138			2		**2**
Total	**14**	**5**	**2981**	**2310**	**5310**
Av. length, cm.	**52.4**	**53.8**	**66.4**	**61.2**	**64.1**

TABLE 17. Length composition (no. of individuals) of Red hake in Russian trawlers catches by NAFO Div. 3LMNO in 2003.

Length,cm	3L	3M	3N	3O	3LMNO
12				2	**2**
15					**0**
18	6				**6**
21	11				**11**
24	37			1	**37**
27	169				**170**
30	468	1			**469**
33	1141	6			**1147**
36	1589	13			**1602**
39	927	12			**939**
42	406	9	1		**416**
45	95	4			**99**
48	10	3			**13**
51		2			**2**
Total	**4859**	**50**	**1**	**3**	**4913**
Av. length,cm.	**36.5**	**40.4**	**43.0**	**17.0**	**36.6**

TABLE 18. Length composition (no. of individuals) of White hake in Russian trawlers catches by NAFO Div. 3LNO in 2003.

Length, cm	3L	3N	3O	3LNO
12			8	**8**
15			52	**52**
18			184	**184**
21		6	198	**204**
24		7	272	**279**
27		8	359	**367**
30		7	544	**551**
33		2	350	**352**
36		1	151	**152**
39		4	47	**51**
42		14	178	**192**
45		55	589	**644**
48		102	980	**1082**
51	1	77	926	**1004**
54		37	690	**727**
57		38	465	**503**
60		10	237	**247**
63		6	150	**156**
66		2	90	**92**
69		8	34	**42**
72		2	49	**51**
75		2	26	**28**
78	1	3	19	**23**
81		2	17	**19**
84		1	7	**8**
87			10	**10**
90			2	**2**
93			1	**1**
96			0	**0**
99			1	**1**
Total	**2**	**394**	**6636**	**7032**
Av. length,cm.	**65.5**	**50.4**	**45.3**	**45.6**

TABLE 19. Length composition (no. of individuals) of Thorny skate in Russian trawlers catches by NAFO Div. 3LNO in 2003.

Length, cm	3L	3N	3O	3LNO
15	1			**1**
18				**0**
21				**0**
24	1	2		**3**
27	3	10		**13**
30	25	6		**31**
33	72	28	1	**101**
36	146	132	4	**282**
39	190	458	11	**659**
42	172	1301	12	**1485**
45	123	2014	12	**2149**
48	58	2342	18	**2418**
51	40	2235	27	**2302**
54	31	2062	26	**2119**
57	17	2348	16	**2381**
60	16	1819	31	**1866**
63	6	1934	14	**1954**
66	5	1661	22	**1688**
69	10	1393	29	**1432**
72		924	18	**942**
75		397	15	**412**
78		181	10	**191**
81		80	11	**91**
84	1	21	1	**23**
87		5	2	**7**
90		3	1	**4**
93		1		**1**
96			2	**2**
Total	**917**	**21357**	**283**	**22557**
Av. length, cm.	**43.1**	**57.0**	**61.2**	**56.1**