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# Russian Research Report for 2007

by

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## SUBAREAS 1+2

### A. Status of the fisheries

*Greenland halibut*

The directed trawl fishing for Greenland halibut took place in July-November. In accordance with quota allocation to two areas, the fishery off the West Greenland was executed to the north (Div. 1A) and to the south (Divs. 1CD) of 68° N.

In the area north of 68° N, four trawlers (STM and SRTMK type) carried out fishery during 75 fishing days. The fishery covered a relatively small area between 68°49'N - 70°08' N and 58°53'W - 60°56'W at the depth of 750-1300 meters. According to the preliminary data, about 575 t of Greenland halibut was caught. The catch rate varied from month to month between 5.1 t and 12.2 t and on the average amounted to 7.7 tons.

In the area south of 68° N one STM trawler and four SRTMK trawlers performed fishing operations during 81 fishing days. The fishery took place from July to December between 63°26'N- 64°30'N and 55°32'W- 57°57'W on 900 - 1500 m depth. Daily fishing efficiency varied in relation to the vessel type from 5.5 t to 16.8 t during fishing months and on the average amounted to 8.1 tons. According to the preliminary data the catch of Greenland halibut was estimated at 689 t, the by- catch included Atlantic halibut, Northern wolffish, roughhead and roundnose grenadiers.

On the whole 1264 t of Greenland halibut were caught in the area off the West Greenland by Russian fleet (Table 1).

*Pelagic deep- water redfish*

Russian pelagic fishing of deep- water redfish in Divs. 1F, 2HJ was executed at 210- 320 m in July- August. Participating were vessels of STM, RTMS, BMRTPT, and BMRTIB type.

In July the catch rate ranged between 12.5 to 18.0 t per a fishing day.

In August the fishery was unstable, the mean daily catch did not exceed 10.0 tons. At the turn of the month Russian fishery of the deep- water redfish was completed.

According to the preliminary data the catch of the pelagic redfish in Divs. 1F, 2HJ was 3992 tons.

*Other fish species*

There was no directed fishery of other fish species. The by-catch of grenadier, skate and other fish species amounted to about 1 %.

## B. Special research studies

In July 2007 the Russian RV "Smolensk" took part in the International trawl/acoustic survey on redfish in the Irminger Sea and adjacent waters (the Labrador Sea).

Trawl-acoustic estimation of the redfish stocks was made in accordance with recommendations of the Study Group on Redfish Stocks that was held in Murmansk in January 2007.

The acoustic survey was conducted with the use of the 38 kHz Simrad EK500 echo sounder. The echo integration was made down to 900 m depth.

The midwater trawl (design 78,7/416) with a vertical opening of 50-55 m and a horizontal opening of 50 m and 110-120 m (between the doors) was used. The trawl parameters were determined from the screen of the Wesmar's trawl sonar. The towing speed was 3.2-4.0 knots.

In the layer shallower than DSL 6 midwater hauls were made in the depth range 210-275 m. The catches of redfish varied from 7 to 63 kg and on average amounted to 38 kg per 1 hour trawling. In the layer deeper than the DSL 15 midwater hauls were performed between 300 and 900 m depth. The redfish catches ranged from 0 to 11 kg and averaged 3.0 kg per hour trawling.
During the survey the biomass of redfish in the area studied was estimated at 159.4 tons and the abundance at 291.2 million fish.

Biological data on Greenland halibut in Div. 1AD and pelagic deep-water redfish in Divs. 1F, 2HJ were collected by scientists from PINRO staying aboard Russian research vessels as NAFO observers.

*Greenland halibut*

In Div. 1A the halibut length in catches ranged from 30 to 84 cm, fish as long as 46-48 cm prevailed. The average length of males was 49.0 cm, of females 52.6 cm (Table 2). Sex ratio was equal.

In Div. 1D the Greenland halibut 28-100 cm in length was recorded, fish as long as 50-52 cm were prevailed. The mean length of males was 50.5 cm, of females 59.2 cm (Table 2). Sex ratio was approximately 1,9:1.

Most studied fish in Div. 1AD were sexually mature by early October, about 12% of fish were prespawning and spawning.

16 items were recorded in halibut diet. Main food items were squid, shrimp and roughhead grenadier. Feeding was weak. The mean index of stomach fullness equaled to 0.5.

In Div. 1AD the age of halibut varied from 3 to 15 years, predominating were fish aged 6-7 (Table 3).

*Deep-water redfish*

In Div. 1F the length of deep-water redfish in catches ranged from 23 to 46 cm, the mean length was 34. 8 cm (Table 4). Fish 35- 36 cm in length made up the bulk of catches. Males - females ratio was 1,2: 1.

In Div. 2J deep-water redfish 23- 45 cm in length was recorded, the mean length was 35,4 cm. Fish 35- 36 cm in length made up the bulk of catches. Males- females ratio was 1,7: 1.

## SUBAREA 3

### A. Status of the fisheries

*Greenland halibut*

Directed fishing on the Greenland halibut was conducted by 4 trawlers during the year. The most important fishing area was the North- Eastern slope of the Grand bank and adjacent area of the Flemish Cap bank (Divs. 3LMN) between 42- 48°N and 44°- 49° W at 750- 1350 m depth.

Catch rates varied from 4,0 to 17.9 t and averaged 7.8 t per fishing day. The by-catch in these divisions was large enough and averaged 18%, including 10% of grenadiers, 5% of spotted wolfish, 1% of redfishes, 1% of skates and 1% of other fish species (Atlantic halibut, witch flounder, American plaice, cod, sharks).

According to the preliminary data, the catch totaled 1507 tons.

*Redfish*

In June one SRTMK-vessel (M- 1007) conducted directed fishery on redfish on the Flemish Cap between 46°30'N- 47°07'N and 45°32'W- 45°52 W on 250- 450 m depth. Fishing conditions were favorable, catch rates amounted to 16,9 t/day. In July this vessel fished redfish in the area between 46°48'- 46°55'N and 45°35'- 45°45 W at the depth of 250- 275 m with the fishing efficiency of 12.4 t.

In August 2 SRTMK vessels (M-1007 and M- 1008) operated between 44°38'- 47°10' N and 44°00'- 46°01'W at 240- 450 m. The catch rate was higher than in June/July and equaled 18,1 t.

According to the preliminary data, Russian redfish catch on the Flemish Cap bank totaled 780 tons.

In Div. 3O in 2007 Russian vessels operated occasionally. In May one SRTMK vessel was fishing in the area between 42°56'- 43°21'N and 51°06'- 51°38'W at the depth of 300- 450 m during 4 fishing days. The mean daily fishing efficiency was 14,0 t. In June two SRTMK vessels carried out fishery for redfish between 43°05'- 43°22'N and 51°03'- 51°31W at 110- 370 m during 2 fishing days. The fishing efficiency was equal to 6,4 t.

According to the preliminary data Russian redfish catch in Div. 3O amounted to 54 tons.

*Thorny skate*

In 2007 1-2 vessels of SRTMK type participated in the Russian directed trawl fishery on skates in May-June and in August-October on the southern Grand Bank (Divs. 3NO). Vessels operated between 43°12'- 44°20'N, 49°36'- 51°11'W between 40 and 170 m. The highest fishing efficiency was recorded in May-June. In this period the daily catch varied from 6,2 to 20,6 t, and on average amounted 14,6 t. In August- October the catch rate declined to 8,9 tons per fishing day.

According to the preliminary data, the Russian catch of skates in Divs. 3NO made 713 tons.

*Other fish species*

There was no directed fishery for other fish species. The by-catch of other fish species in the directed fisheries ranged from 1 to 10%.

### B. Special research studies

*Greenland halibut (Reinhardtius hippoglossoides)*

There were no special surveys to assess the stock of Greenland halibut. Aboard fishing vessels biological data was collected by observers.

In Div. 3L Greenland halibut 24- 92 cm in length occurred with the average length of 47.4 cm. Fish as long as 44-47 cm predominated (Table 5).

The length of fishes in Div. 3M varied from 24 to 86 cm. The bulk of catches was made up by individuals 44-47 cm in length, which is similar to Div. 3L.

The halibut length Div. 3N varied from 28 to 100 cm, the mean length was 48.4 cm. The bulk of catches was made up by fish 46- 49 cm in length.

As a whole, in Divs. 3LMNO Greenland halibut 28-100cm in length occurred with the mean length of 47.6 cm. The age of fish determined by scale varied from 3 to 19 years (Table 6). Specimens aged 6-7 made up the bulk of catches (59.9%).

*Roughhead grenadier (Macrourus berglax)*

The total length of roughhead grenadier in catches in Div. 3L ranged from 27 to 99 cm, the mean length was 51,6 cm (Table 7). Fish 45-47cm in length made up the bulk of catches.

In Div.3M the fish length distribution varied from 30 to 90cm, the mean length was 50,2 cm; the modal length was 39- 44cm.

In Div. 3N the length varied from 24 to 93 cm. The bulk of catches was made up by individuals 54-56 cm in length.

On the whole in Divs. 3 LMNO roughhead grenadier with 24-99cm length occurred, the mean length was 53,4 cm.

*Acadian redfish (Sebastes fasciatus)*

In Div. 3M the length of Acadian redfish varied from 14 to 35 cm, the mean length was 23,1cm. Fish as long as 22-23cm prevailed (Table 8).

In Div. 3O Acadian redfish 12-38 cm in length was registered, the mean length was 24.9 cm. Fish as long as 24-25 cm prevailed.

*Deep- water redfish (Sebastes mentella)*

In Div. 3L the length of deep-water redfish in by-catches taken in the Greenland halibut fishery ranged from 25 to 40 cm, the mean length was 33.7cm (Table 9).

In Div. 3M the length distribution fluctuated between 14 and 47cm, the mean length was 26,8 cm. The bulk of catches was made up by fishes 28-29cm in length.

In Div. 3N the length of fish varied from 25 to 45 cm. The bulk of catches was made up by individuals 32-33cm in length.

In Div. 3O the redfish length was 21-42 cm, the mean length was 27.9cm. Fish 25-27 cm predominated in catches.

*Golden redfish (Sebastes marinus)*

In Div. 3M the length of Golden redfish was 15-56 cm, the mean length was 28,3 cm (Table 10).

*American plaice (Hippoglosoides platessoides)*

In Div. 3L the length distribution of American plaice in by-catches in the Greenland halibut fishery was determined by 26- 58 cm fish. The mean length was 40.3 cm (Table 11).

In Div. 3M the length distribution of American plaice in by-catches in the redfish fishery varied from 34 to 56cm, the mean length was 46,3 cm.

In Div. 3M the length of American plaice in by-catches of the skate fishery varied from 18 to 70 cm. The bulk of catches was made up by individuals 40-43cm in length.

In Div. 3O the length of fish varied from 24 to 66 cm.

*Witch flounder (Glyptocephalus cynoglossus)*

In Div. 3L the length distribution of witch flounder from by-catches of the Greenland halibut fishery was characterized by fish 20- 52cm in length, the mean length was 41,3 cm (Table 12).

On the Flemish Cap witch flounder was recorded in by-catches as single specimens.

In Div. 3N the greatest amounts of fish were found in by- catches. The length of fish varied from 28 to 60 cm, the mean length was 41.5 cm. The bulk of catches was made up by fishes 40-43cm in length.

In Div. 3O the length distribution of witch flounder varied from 30 to 62cm, the mean length was 43.4 cm.

*Yellowtail flounder (Limanda ferruginea)*

In Div. 3N the length of yellowtail flounder varied from 20 to 58 cm, the mean length was 37.2 cm (Table 13).

The bulk of catches was made up by fish 34-37cm in length.

In Div. 3O the length distribution of with flounder fluctuated between 22 and 50 cm, the mean length was 37.7 cm.

*Cod (Gadus morhua)*

On the Flemish Cap the length of cod was 36- 102 cm, the mean length was 68,9 cm (Table 14). The bulk of catches was made up by fish 75-80 cm in length.

The length distribution of cod in Div. 3N varied from 36 to 132 cm, the mean length was 81.7 cm. The bulk of catches was made up by fishes 96 -100cm in length.

In Div. 3O the length distribution of fish varied from 33 to 123 cm, the mean length was 62.7 cm.

*Threebeard rockling (Gaidropsarus ensis)*

In Div. 3L the length of threebeard rockling varied from 27 to 48 cm, the mean length was 40.0 cm (Table 15). The bulk of catches was made up by individuals 39-44 cm in length.

In Div. 3N fish as long as 24-51cm occurred with the mean length of 40.5 cm.

*White hake (Urophycis tenuis)*

In Div. 3N the length of white hake was 30-87 cm, the average one 53.0 cm (Table 16).

In Div. 3O fish as long as 27-90cm occurred, the mean length was 62.9 cm.

*Thorny skate (Amblyraja radiata)*

In Div. 3L during the Greenland halibut fishery thorny skate were occurred 33-84 cm in length (Table 17).

In Div. 3M the length of thorny skate varied from 36 to 75cm , the mean length was 56.1 cm.

In Div. 3N the length distribution of this species varied from 24 to 93 cm, the mean length was 62.6 cm. The bulk of catches was made up by fish 60-67cm in length.

In Div. 3O the length of fish varied from 27 to 90cm, the mean length was 63.3 cm. The bulk of catches was made up by skate 63-67cm in length.

*Black dogfish (Centroscyllium fabricii)*

This species was mainly recorded in by-catches in the halibut fishery. In Divs. 3LMNO the length of males varied from 36 to 75cm, the mean length was 59.5 cm (Table 18). Females 33- 81cm in length occurred with the mean length of 59.2 cm. The bulk of catches was made up by sharks 60-64cm in length.

*Northern wolffish (Anarhichas denticulatus)*

In Div. 3L the length of Northern wolffish varied from 42 to 120 cm, the mean length was 70.9 cm (Table 19).

In Div. 3N the length distribution of this species varied from 33 to 120 cm. The bulk of catches was made up by fish 51-55cm in length.

*Blue hake (Antimora rostrata)*

In Divs. 3LMNO the length distribution of blue hake varied from 18 to 69 cm, the mean length was 32.2 cm (Table 20). The bulk of catches was made up by fish 36-40 cm in length.

*Common grenadier (Nezumia bairdii)*

In Divs. 3LMNO the total length of common grenadier varied from 21 to 44 cm, the mean length was 33.5 cm (Table 21).

*Atlantic halibut (Hippoglosus hippoglossus)*

In Div. 3N the length distribution of this species varied from 44 to 187 cm, the mean length was 101.1 cm (Table 220).

In Divs. 3LMO minor amounts of this species occurred in catches.

*Other fish species*

In the fishery period Atlantic and spotted wolffishes, roundnose grenadier, chimeraas, longfinned hake, Notacanthidae and other fish species were occurred in by-catch.

## SUBAREA 4

### A. Status of the Fisheries

In 2007 no fishing activities were carried out in the said subdivision.

### B. Special Researches

1. Environmental researches

1. Hydrographic studies

In 2007 the monitoring of sea-surface temperature (SST) was continued on the shelf of the Northwest Atlantic and adjacent part of the open ocean. For this purpose the base of average monthly values of SST anomalies was used «http://ingridldgo.columbia.edu/SOURCES/.IGOSS/.nmc». The monitoring covered 19 points located in typical parts of the Northwest Atlantic shelf and in offshore areas between 40°-55°N and 45°-70°W (Fig.1). Main feature of hydrological conditions in 2007 consists in dropping of SST by 1.5°-2.5°C on average in the whole area compared with warm 2006. In the northern part of the Labrador Current SST was lower than in 2006 for the most of the year. In the middle part of the current the decrease in temperature began in May 2007 and continued till October, having attained negative anomaly values (Fig. 2, point 4). In the southern part of the current (point 8) SST was significantly lower from January to August as compared with 2006. In the southern part of the current (point 8) SST was markedly lower than in 2006 from January to August. In adjacent part of the Labrador Sea and in a North Atlantic Current branch (points 5, 7) SST was also considerably lower than in 2006. On the Grand Bank SST began to decrease from March 2007, and in the Laurentian Channel that trend was observed to continue from January to August 2007 (Fig. 2, points 9, 14). As compared with 2006, SST dropped there by 2.5°-3.0°C. In 2007, on the Nova Scotian shelf and its periphery, there occurred a transition from positive SST anomalies to negative ones, which had been formed in February and lasted until September. As compared with 2006, a difference of values amounted to 1.8°-2.6°C (Fig. 2, points 9, 14). In 2007, offshore of the shelf in the Slope waters, SST was below the mean annual values during March-September (point 12), while at the Gulf Stream front (point 13) this process began in January and also persisted until September. Fall of temperature extended to the areas of Georges Bank and the Gulf of Maine in New England, where positive anomalies were replaced by negative ones. In autumn (September-October) the process of SST decrease began to slacken in some areas and changed to the reverse. These areas were the Grand Bank shelf, Laurentian Channel, Nova Scotian shelf and Georges Bank, where SST reached the 2006 level or exceeded it. In other areas the SST anomalies kept on below the 2006 level.

At least two processes could influence the SST decrease so large scale in space, significant in magnitude, and stable in time. The first of these is the intensification of the Arctic air mass transport from the north in the winter-spring period, and the second is resulting intensification of the Labrador Current. Both processes become intensified during the periods of positive the North Atlantic Oscillation (NAO) development phase in winter, when the atmospheric pressure drops in the centre of the Iceland minimum. According to Nesterov (Nesterov, 2003), basic processes of positive (NAO) phase formation in winter are: a) strengthening of the Azores maximum in June-July, b) positive SST anomaly in the Gulf Stream in September, c) weakening of latent heat flux from the ocean to atmosphere in November-December in the Gulf Stream area and strengthening of the flux in the area of the Iceland pressure minimum, while the negative NAO phase sets in given the reverse direction of these processes. All the above mentioned conditions were recorded in 2007. Therefore a decrease of SST in the Northwest Atlantic in 2007 may be attributed to NAO transition from the negative phase of its development to positive. Further monitoring will show if the process of NAO index increase and, consequently, low temperature background persist within the next few years.

TABLE 1. Preliminary catches taken by Russian trawlers in NAFO SA 1-3 in 2007.

| Species | Division | Catch, t |
|---|---|---|
| **Greenland halibut** | 1A | 562 |
| | 1B | 13 |
| | 1C | 103 |
| | 1D | 586 |
| | **1ABCD** | **1264** |
| **Greenland halibut** | 3L | 785 |
| | 3M | 119 |
| | 3N | 603 |
| | **3LMN** | **1507** |
| **Atlantic halibut** | **3N** | **4** |
| **American plaice** | 3L | 9 |
| | 3N | 79 |
| | 3O | 5 |
| | **3LNO** | **93** |
| **Yellowtail flounder** | 3N | 111 |
| | 3O | 3 |
| | **3NO** | **114** |
| **Witch flounder** | 3L | 2 |
| | 3N | 23 |
| | 3O | 4 |
| | **3LNO** | **29** |
| **Roughhead grenadier** | 3L | 19 |
| | 3M | 20 |
| | 3N | 104 |
| | **3LMN** | **143** |
| **Deep-sea redfish** | 1F | 1589 |
| | 2H | 171 |
| | 2J | 2232 |
| | **1F2HJ** | **3992** |
| **Redfish spp.** | 3L | 5 |
| | 3M | 780 |
| | 3N | 14 |
| | 3O | 54 |
| | **3LMNO** | **853** |
| **Skate** | 3L | 12 |
| | 3M | 7 |
| | 3N | 627 |
| | 3O | 86 |
| | **3LMN** | **732** |
| **Atlantic cod** | 3M | 6 |
| | 3N | 27 |
| | 3O | 13 |
| | **3MNO** | **46** |
| **White hake** | 3N | 1 |
| | 3O | 2 |
| | **3NO** | **3** |
| **Wolffish spp.** | 3L | 2 |
| | 3M | 1 |
| | 3N | 23 |
| | **3LMN** | **26** |

TABLE 2. Greenland halibut length composition (ind.) of the Russian trawl catches in NAFO Divs. 1AD in 2007.

| Length, | 1A | | | 1D | | | Total 1AD | | |
|---|---|---|---|---|---|---|---|---|---|
| cm | Males | Females | Total | Males | Females | Total | Males | Females | Total |
| **28** | | | | | 1 | **1** | | 1 | **1** |
| **30** | 1 | 1 | **2** | 2 | 1 | **3** | 3 | 2 | **5** |
| **32** | | | | 2 | 3 | **5** | 2 | 3 | **5** |
| **34** | 3 | 2 | **5** | 10 | | **10** | 13 | 2 | **15** |
| **36** | 7 | 3 | **10** | 13 | 5 | **18** | 20 | 8 | **28** |
| **38** | 11 | 10 | **21** | 25 | 10 | **35** | 36 | 20 | **56** |
| **40** | 21 | 14 | **35** | 100 | 18 | **118** | 121 | 32 | **153** |
| **42** | 44 | 17 | **61** | 200 | 49 | **249** | 244 | 66 | **310** |
| **44** | 54 | 24 | **78** | 384 | 79 | **463** | 438 | 103 | **541** |
| **46** | 62 | 64 | **126** | 756 | 125 | **881** | 818 | 189 | **1007** |
| **48** | 83 | 65 | **148** | 981 | 183 | **1164** | 1064 | 248 | **1312** |
| **50** | 64 | 52 | **116** | 1111 | 221 | **1332** | 1175 | 273 | **1448** |
| **52** | 51 | 48 | **99** | 891 | 250 | **1141** | 942 | 298 | **1240** |
| **54** | 38 | 56 | **94** | 615 | 249 | **864** | 653 | 305 | **958** |
| **56** | 25 | 42 | **67** | 395 | 261 | **656** | 420 | 303 | **723** |
| **58** | 15 | 44 | **59** | 169 | 263 | **432** | 184 | 307 | **491** |
| **60** | 7 | 13 | **20** | 77 | 276 | **353** | 84 | 289 | **373** |
| **62** | 5 | 14 | **19** | 41 | 243 | **284** | 46 | 257 | **303** |
| **64** | 3 | 13 | **16** | 37 | 196 | **233** | 40 | 209 | **249** |
| **66** | 6 | 10 | **16** | 34 | 154 | **188** | 40 | 164 | **204** |
| **68** | 3 | 11 | **14** | 13 | 125 | **138** | 16 | 136 | **152** |
| **70** | | 2 | **2** | 5 | 95 | **100** | 5 | 97 | **102** |
| **72** | | 2 | **2** | 1 | 79 | **80** | 1 | 81 | **82** |
| **74** | | 5 | **5** | | 67 | **67** | | 72 | **72** |
| **76** | | 1 | **1** | 1 | 52 | **53** | 1 | 53 | **54** |
| **78** | | 1 | **1** | | 42 | **42** | | 43 | **43** |
| **80** | | 1 | **1** | | 26 | **26** | | 27 | **27** |
| **82** | | | | | 20 | **20** | | 20 | **20** |
| **84** | | 1 | **1** | | 20 | **20** | | 21 | **21** |
| **86** | | | | | 14 | **14** | | 14 | **14** |
| **88** | | | | | 7 | **7** | | 7 | **7** |
| **90** | | | | | 9 | **9** | | 9 | **9** |
| **92** | | | | | 4 | **4** | | 4 | **4** |
| **94** | | | | | 3 | **3** | | 3 | **3** |
| **96** | | | | | 2 | **2** | | 2 | **2** |
| **100** | | | | | 1 | **1** | | 1 | **1** |
| **Total** | **503** | **516** | **1019** | **5863** | **3153** | **9016** | **6366** | **3669** | **10035** |
| **Mean length, cm** | **49.0** | **52.6** | **50.8** | **50.5** | **59.2** | **53.6** | **50.4** | **58.3** | **53.3** |

TABLE 3. Greenland halibut age composition of the Russian trawl catches (ind.) in the NAFO Divs. 1AD in 2007.

| Length, | Age, years | | | | | | | | | | | | | Total | Weight, g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| cm | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | |
| **28** | 1 | | | | | | | | | | | | | **1** | **170.0** |
| **30** | 5 | | | | | | | | | | | | | **5** | **223.3** |
| **32** | | 5 | | | | | | | | | | | | **5** | **300.0** |
| **34** | | 15 | | | | | | | | | | | | **15** | **323.8** |
| **36** | | 16 | 12 | | | | | | | | | | | **28** | **393.9** |
| **38** | | 14 | 42 | | | | | | | | | | | **56** | **454.4** |
| **40** | | | 153 | | | | | | | | | | | **153** | **561.3** |
| **42** | | | 199 | 111 | | | | | | | | | | **310** | **608.9** |
| **44** | | | 232 | 309 | | | | | | | | | | **541** | **719.3** |
| **46** | | | | 1007 | | | | | | | | | | **1007** | **811.7** |
| **48** | | | | 1225 | 87 | | | | | | | | | **1312** | **908.7** |
| **50** | | | | | 1448 | | | | | | | | | **1448** | **1090.9** |
| **52** | | | | | 1240 | | | | | | | | | **1240** | **1230.7** |
| **54** | | | | | 890 | | 68 | | | | | | | **958** | **1362.9** |
| **56** | | | | | 145 | 578 | | | | | | | | **723** | **1500.0** |
| **58** | | | | | | 491 | | | | | | | | **491** | **1831.5** |
| **60** | | | | | | | 316 | 57 | | | | | | **373** | **2026.5** |
| **62** | | | | | | | 210 | 70 | 23 | | | | | **303** | **2216.5** |
| **64** | | | | | | | 199 | 50 | | | | | | **249** | **2403.0** |
| **66** | | | | | | | | 204 | | | | | | **204** | **2690.6** |
| **68** | | | | | | | | 124 | 28 | | | | | **152** | **3084.1** |
| **70** | | | | | | | | | 102 | | | | | **102** | **3311.0** |
| **72** | | | | | | | | | 82 | | | | | **82** | **3606.0** |
| **74** | | | | | | | | | 41 | 31 | | | | **72** | **4436.4** |
| **76** | | | | | | | | | | 54 | | | | **54** | **4926.0** |
| **78** | | | | | | | | | | 34 | 9 | | | **43** | **4899.8** |
| **80** | | | | | | | | | | | 27 | | | **27** | **5423.3** |
| **82** | | | | | | | | | | | 20 | | | **20** | **6000.0** |
| **84** | | | | | | | | | | | 21 | | | **21** | **6628.0** |
| **86** | | | | | | | | | | | 14 | | | **14** | **6986.0** |
| **88** | | | | | | | | | | | | 7 | | **7** | **7153.3** |
| **90** | | | | | | | | | | | | 9 | | **9** | **7370.5** |
| **92** | | | | | | | | | | | | 4 | | **4** | **9710.0** |
| **94** | | | | | | | | | | | | | | | **0.0** |
| **96** | | | | | | | | | | | | 1 | 1 | **2** | **11565.0** |
| **Total** | **6** | **50** | **639** | **2651** | **3810** | **1069** | **793** | **505** | **276** | **119** | **91** | **21** | **1** | **10031** | **106927.3** |
| **Mean length. cm** | **30.25** | **35.56** | **40.88** | **46.36** | **52.55** | **57.72** | **61.97** | **66.13** | **71.29** | **76.58** | **83.76** | **90.71** | **96.00** | | |
| **Mean weight. g** | **210.0** | **367.5** | **548.9** | **812.6** | **1228.3** | **1680.6** | **2105.3** | **2774.0** | **3578.5** | **4789.6** | **6274.8** | **8395.9** | **10270.0** | | |

TABLE 4. Redfish length composition (ind.) of the Russian trawl catches in NAFO Divs. 1F, 2J in 2007.

| Length, cm | Division 1F | | | Division 2J | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Males** | **Females** | **Total** | **Males** | **Females** | **Total** | **Males** | **Females** | **Total** |
| 23 | 2 | | **2** | | 1 | **1** | 2 | 1 | **3** |
| 24 | 1 | | **1** | | | | 1 | | **1** |
| 25 | | | | 2 | 1 | **3** | 2 | 1 | **3** |
| 26 | 1 | 6 | **7** | 6 | 2 | **8** | 7 | 8 | **15** |
| 27 | 9 | 16 | **25** | 6 | 7 | **13** | 15 | 23 | **38** |
| 28 | 25 | 29 | **54** | 16 | 16 | **32** | 41 | 45 | **86** |
| 29 | 90 | 28 | **118** | 54 | 37 | **91** | 144 | 65 | **209** |
| 30 | 186 | 138 | **324** | 154 | 102 | **256** | 340 | 240 | **580** |
| 31 | 333 | 212 | **545** | 290 | 152 | **442** | 623 | 364 | **987** |
| 32 | 451 | 284 | **735** | 447 | 205 | **652** | 898 | 489 | **1387** |
| 33 | 695 | 385 | **1080** | 929 | 301 | **1230** | 1624 | 686 | **2310** |
| 34 | 930 | 508 | **1438** | 1325 | 372 | **1697** | 2255 | 880 | **3135** |
| 35 | 1263 | 726 | **1989** | 2201 | 689 | **2890** | 3464 | 1415 | **4879** |
| 36 | 871 | 850 | **1721** | 1596 | 902 | **2498** | 2467 | 1752 | **4219** |
| 37 | 555 | 698 | **1253** | 951 | 953 | **1904** | 1506 | 1651 | **3157** |
| 38 | 274 | 544 | **818** | 678 | 887 | **1565** | 952 | 1431 | **2383** |
| 39 | 84 | 223 | **307** | 227 | 428 | **655** | 311 | 651 | **962** |
| 40 | 55 | 137 | **192** | 110 | 218 | **328** | 165 | 355 | **520** |
| 41 | 12 | 27 | **39** | 17 | 56 | **73** | 29 | 83 | **112** |
| 42 | 4 | 6 | **10** | 6 | 11 | **17** | 10 | 17 | **27** |
| 43 | 3 | 4 | **7** | 4 | 5 | **9** | 7 | 9 | **16** |
| 45 | 4 | | **4** | 1 | | **1** | 5 | | **5** |
| 46 | 3 | | **3** | | | | 3 | | **3** |
| **Total** | **5851** | **4821** | **10672** | **9020** | **5345** | **14365** | **14871** | **10166** | **25037** |
| **Mean length, cm** | **34.5** | **35.3** | **34.8** | **35** | **36.1** | **35.4** | **34.8** | **35.7** | **35.2** |

TABLE 5. Greenland halibut length composition (ind.) of the Russian commercial trawler catches by month in NAFO Divs. 3LMNO in 2007.

| Length, | Division 3L | | | | Division 3M | | | | | Division 3N | | | | Division 3O | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| cm | III | IV | V | Total | III | IV | V | VIII | Total | IV | V | VI | Total | V | Total | 3LMNO |
| **24** | | 2 | | **2** | | | | | **2** | | | | | | | **4** |
| **26** | | | | | | | | | | | | | | | | |
| **28** | | | | | | | | | | | 3 | | **3** | | | **3** |
| **30** | 1 | 4 | 4 | **9** | | 1 | | | **1** | 2 | 5 | | **7** | | | **17** |
| **32** | 2 | 13 | 12 | **27** | 1 | | | 2 | **3** | 8 | 25 | 2 | **35** | | | **65** |
| **34** | 14 | 63 | 10 | **87** | 1 | 1 | | 1 | **3** | 42 | 65 | 2 | **109** | | | **199** |
| **36** | 14 | 245 | 40 | **299** | | 23 | 1 | 1 | **25** | 99 | 176 | 10 | **285** | 1 | **1** | **610** |
| **38** | 30 | 352 | 79 | **461** | 1 | 68 | 5 | 6 | **80** | 188 | 355 | 19 | **562** | 1 | **1** | **1104** |
| **40** | 75 | 740 | 150 | **965** | 1 | 170 | 30 | 12 | **213** | 446 | 828 | 42 | **1316** | 1 | **1** | **2495** |
| **42** | 45 | 1031 | 292 | **1368** | 5 | 279 | 49 | 38 | **371** | 599 | 1168 | 76 | **1843** | 9 | **9** | **3591** |
| **44** | 50 | 1165 | 316 | **1531** | 20 | 411 | 77 | 37 | **545** | 748 | 1471 | 103 | **2322** | 14 | **14** | **4412** |
| **46** | 63 | 1288 | 386 | **1737** | 19 | 573 | 84 | 36 | **712** | 855 | 1744 | 123 | **2722** | 22 | **22** | **5193** |
| **48** | 54 | 1114 | 340 | **1508** | 43 | 446 | 67 | 24 | **580** | 620 | 1722 | 152 | **2494** | 47 | **47** | **4629** |
| **50** | 40 | 862 | 278 | **1180** | 29 | 397 | 44 | 25 | **495** | 456 | 1384 | 123 | **1963** | 30 | **30** | **3668** |
| **52** | 23 | 611 | 185 | **819** | 19 | 274 | 25 | 22 | **340** | 298 | 1060 | 81 | **1439** | 16 | **16** | **2614** |
| **54** | 20 | 444 | 120 | **584** | 16 | 194 | 18 | 21 | **249** | 186 | 696 | 55 | **937** | 11 | **11** | **1781** |
| **56** | 15 | 291 | 60 | **366** | 15 | 146 | 10 | 9 | **180** | 105 | 383 | 37 | **525** | 10 | **10** | **1081** |
| **58** | 11 | 200 | 43 | **254** | 12 | 90 | 4 | 9 | **115** | 84 | 261 | 21 | **366** | 5 | **5** | **740** |
| **60** | 5 | 137 | 32 | **174** | 8 | 68 | 4 | 5 | **85** | 75 | 280 | 17 | **372** | 2 | **2** | **633** |
| **62** | 1 | 54 | 26 | **81** | 6 | 36 | 3 | 5 | **50** | 51 | 191 | 18 | **260** | 3 | **3** | **394** |
| **64** | | 38 | 17 | **55** | 3 | 10 | 3 | 4 | **20** | 31 | 148 | 7 | **186** | 1 | **1** | **262** |
| **66** | 1 | 24 | 23 | **48** | 1 | 13 | 4 | 2 | **20** | 28 | 96 | 6 | **130** | 1 | **1** | **199** |
| **68** | | 9 | 16 | **25** | 1 | 7 | 2 | 3 | **13** | 13 | 71 | 4 | **88** | 1 | **1** | **127** |
| **70** | | 12 | 10 | **22** | 1 | 5 | 2 | 1 | **9** | 17 | 75 | 5 | **97** | 1 | **1** | **129** |
| **72** | | 8 | 10 | **18** | | 1 | 1 | 2 | **4** | 7 | 48 | 5 | **60** | | | **82** |
| **74** | 1 | 5 | 5 | **11** | 1 | 2 | 1 | 1 | **5** | 7 | 28 | 2 | **37** | 1 | **1** | **54** |
| **76** | | 5 | 3 | **8** | | 3 | 1 | | **4** | 2 | 21 | 2 | **25** | | | **37** |
| **78** | | | 2 | **2** | | 1 | | | **1** | 2 | 22 | 2 | **26** | | | **29** |
| **80** | | 4 | 6 | **10** | | 3 | 1 | | **4** | | 13 | 3 | **16** | | | **30** |

Continued table 5.

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **82** | | | 1 | **1** | | 1 | | | **1** | 2 | 10 | 1 | **13** | | | **15** |
| **84** | | 2 | 1 | **3** | | | | | | 1 | 5 | | **6** | | | **9** |
| **86** | | | 4 | **4** | | | 1 | | **1** | | 5 | | **5** | | | **10** |
| **88** | | | | | | | | | | | 4 | | **4** | | | **4** |
| **90** | | | 1 | **1** | | | | | | | 5 | | **5** | | | **6** |
| **92** | | 1 | | **1** | | | | | | 2 | 3 | | **5** | | | **6** |
| **94** | | | | | | | | | | | 2 | | **2** | | | **2** |
| **96** | | | | | | | | | | 1 | | | **1** | | | **1** |
| **98** | | | | | | | | | | | 1 | | **1** | | | **1** |
| **100** | | | | | | | | | | | | 1 | **1** | | | **1** |
| **Total** | **465** | **8724** | **2472** | **11661** | **203** | **3223** | **437** | **266** | **4131** | **4975** | **12374** | **919** | **18268** | **177** | **177** | **34237** |
| **Mean length, cm** | **45,8** | **47,2** | **48,2** | **47,4** | **51,4** | **48,7** | **48** | **49,1** | **48,3** | **47,1** | **48,9** | **49,5** | **48,4** | **50,2** | **50,2** | |

TABLE 6. Greenland halibut age composition of the Russian commercial trawler catches in NAFO Divs.3LMNO in 2007.

| Age, years | 3 L | | 3 M | | 3 N | | 3O | | 3 LMNO | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| **3** | 19 | 0.2 | 3 | 0.1 | 23 | 0.2 | | | **45** | **0.1** |
| **4** | 319 | 2.5 | 42 | 0.9 | 353 | 1.9 | 1 | 0.3 | **715** | **2** |
| **5** | 2230 | 17.6 | 627 | 13.5 | 2943 | 15.9 | 13 | 7.3 | **5813** | **16.2** |
| **6** | 3867 | 30.6 | 1408 | 30.2 | 5480 | 29.7 | 44 | 24.8 | **10799** | **30** |
| **7** | 3691 | 29.2 | 1478 | 31.7 | 5522 | 29.9 | 71 | 40.4 | **10762** | **29.9** |
| **8** | 1423 | 11.2 | 612 | 13.1 | 2097 | 11.4 | 27 | 15.2 | **4159** | **11.6** |
| **9** | 594 | 4.7 | 276 | 5.9 | 928 | 5 | 12 | 6.6 | **1810** | **5** |
| **10** | 245 | 1.9 | 115 | 2.5 | 468 | 2.5 | 4 | 2.5 | **832** | **2.3** |
| **11** | 113 | 0.9 | 47 | 1.0 | 265 | 1.4 | 2 | 1.4 | **427** | **1.2** |
| **12** | 71 | 0.6 | 26 | 0.6 | 166 | 0.9 | 2 | 0.9 | **265** | **0.8** |
| **13** | 38 | 0.3 | 12 | 0.3 | 95 | 0.5 | 1 | 0.5 | **146** | **0.4** |
| **14** | 28 | 0.2 | 9 | 0.2 | 75 | 0.4 | | 0.1 | **112** | **0.3** |
| **15** | 8 | 0.1 | 2 | | 26 | 0.2 | | | **36** | **0.1** |
| **16** | 3 | 0.0 | | | 10 | 0.1 | | | **13** | **0.1** |
| **17** | | | | | 2 | 0.0 | | | **2** | **0.0** |
| **18** | | | | | | | | | | |
| **19** | | | | | 1 | 0.0 | | | **1** | **0.0** |
| **Total** | **12649** | **100** | **4657** | **100** | **18454** | **100** | **177** | **100** | **35937** | **100** |

TABLE 7. Length composition (ind.) of Roughhead grenadier in Russian trawler catches in NAFO Divs. 3LMNO in 2007.

| Length, cm | 3L | 3M | 3N | 3O | 3LMNO |
|---|---|---|---|---|---|
| **24** | | | 2 | | **2** |
| **27** | 1 | | 5 | | **6** |
| **30** | 10 | 7 | 11 | | **28** |
| **33** | 25 | 15 | 38 | | **78** |
| **36** | 38 | 33 | 77 | | **148** |
| **39** | 49 | 73 | 154 | | **276** |
| **42** | 33 | 72 | 146 | | **251** |
| **45** | 53 | 61 | 128 | | **242** |
| **48** | 29 | 58 | 182 | | **269** |
| **51** | 34 | 48 | 156 | 1 | **239** |
| **54** | 41 | 40 | 224 | | **305** |
| **57** | 18 | 22 | 183 | | **223** |
| **60** | 33 | 25 | 186 | | **244** |
| **63** | 24 | 15 | 139 | | **178** |
| **66** | 16 | 12 | 92 | | **120** |
| **69** | 22 | 12 | 91 | | **125** |
| **72** | 8 | 13 | 65 | | **86** |
| **75** | 8 | 8 | 32 | | **48** |
| **78** | 5 | 7 | 35 | | **47** |
| **81** | 7 | 4 | 9 | | **20** |
| **84** | 2 | 2 | 4 | | **8** |
| **87** | | 2 | 4 | | **6** |
| **90** | 1 | 2 | 1 | | **4** |
| **93** | | | 1 | | **1** |
| **96** | 1 | | | | **1** |
| **99** | 1 | | | | **1** |
| **Total** | **459** | **531** | **1965** | **1** | **2956** |
| **Mean length, cm** | **51.6** | **50.2** | **54.6** | **52.0** | **53.4** |

TABLE 8. Length composition (ind.) of Acadian redfish (*S. fasciatus)* in Russian trawler catches in NAFO Divs. 3LNMO in 2007.

| Length. cm | 3L | 3M | 3N | 3O | 3LMNO |
|---|---|---|---|---|---|
| **12** | | | | 1 | **1** |
| **13** | | | | | **0** |
| **14** | | 2 | | 3 | **5** |
| **15** | | 9 | | 2 | **11** |
| **16** | | 16 | | 6 | **22** |
| **17** | | 25 | | 10 | **35** |
| **18** | | 57 | | 10 | **67** |
| **19** | | 84 | | 10 | **94** |
| **20** | | 105 | | 29 | **134** |
| **21** | | 128 | | 35 | **163** |
| **22** | | 131 | | 70 | **201** |
| **23** | | 138 | | 125 | **263** |
| **24** | | 128 | | 171 | **299** |
| **25** | 4 | 116 | | 189 | **309** |
| **26** | 2 | 98 | | 166 | **266** |
| **27** | 1 | 64 | | 116 | **181** |
| **28** | 2 | 39 | 1 | 64 | **106** |
| **29** | | 35 | 1 | 39 | **75** |
| **30** | 1 | 21 | 3 | 31 | **56** |
| **31** | | 19 | 6 | 11 | **36** |
| **32** | 1 | 12 | 2 | 6 | **21** |
| **33** | | 7 | 5 | 2 | **14** |
| **34** | | 1 | | 2 | **3** |
| **35** | | 3 | 2 | 3 | **8** |
| **36** | | | | 1 | **1** |
| **37** | | | 2 | 1 | **3** |
| **38** | | | | 2 | **2** |
| **39** | | | 1 | | **1** |
| **Total** | **11** | **1238** | **23** | **1105** | **2377** |
| **Mean length, cm** | **27.0** | **23.1** | **32.4** | **24.9** | **24.1** |

TABLE 9.Length composition (ind.) of deep-sea redfish (S. mentella) in Russian trawler catches in NAFO Divs. 3LMNO in 2007.

| Length, cm | 3L | 3M | 3N | 3O | 3LMNO |
|---|---|---|---|---|---|
| **14** | | 1 | | | **1** |
| **15** | | 10 | | | **10** |
| **16** | | 32 | | | **32** |
| **17** | | 72 | | | **72** |
| **18** | | 157 | | | **157** |
| **19** | | 207 | | | **207** |
| **20** | | 330 | | | **330** |
| **21** | | 337 | | 8 | **345** |
| **22** | | 348 | | 20 | **368** |
| **23** | | 337 | | 38 | **375** |
| **24** | | 401 | | 75 | **476** |
| **25** | 1 | 506 | 3 | 134 | **644** |
| **26** | | 545 | 8 | 124 | **677** |
| **27** | 1 | 663 | 6 | 132 | **802** |
| **28** | | 798 | 16 | 104 | **918** |
| **29** | 3 | 772 | 11 | 86 | **872** |
| **30** | 1 | 676 | 42 | 66 | **785** |
| **31** | 7 | 446 | 37 | 58 | **548** |
| **32** | 21 | 299 | 55 | 32 | **407** |
| **33** | 19 | 194 | 50 | 26 | **289** |
| **34** | 8 | 165 | 34 | 25 | **232** |
| **35** | 23 | 102 | 56 | 20 | **201** |
| **36** | 8 | 69 | 39 | 8 | **124** |
| **37** | 8 | 35 | 33 | 11 | **87** |
| **38** | 3 | 31 | 23 | 6 | **63** |
| **39** | | 33 | 13 | 4 | **50** |
| **40** | 1 | 17 | 11 | 1 | **30** |
| **41** | | 8 | 5 | 6 | **19** |
| **42** | | 5 | | 2 | **7** |
| **43** | | 1 | 1 | | **2** |
| **44** | | 3 | 1 | | **4** |
| **45** | | | 1 | | **1** |
| **46** | | | | | **0** |
| **47** | | 1 | | | **1** |
| **Total** | **104** | **7601** | **445** | **986** | **9136** |
| **Mean length, cm** | **33.7** | **26.8** | **33.5** | **27.9** | **27.3** |

TABLE 10. Golden redfish (*S. marinus*) length composition (ind.) of the Russian trawler catches in NAFO Divs. 3MO in 2007.

| Length, cm | 3M | 3O | 3MO |
|---|---|---|---|
| **15** | 3 | | **3** |
| **16** | 4 | | **4** |
| **17** | 19 | | **19** |
| **18** | 29 | | **29** |
| **19** | 55 | | **55** |
| **20** | 77 | | **77** |
| **21** | 117 | | **117** |
| **22** | 106 | | **106** |
| **23** | 122 | | **122** |
| **24** | 140 | | **140** |
| **25** | 199 | | **199** |
| **26** | 274 | | **274** |
| **27** | 270 | | **270** |
| **28** | 331 | | **331** |
| **29** | 302 | | **302** |
| **30** | 354 | | **354** |
| **31** | 185 | | **185** |
| **32** | 139 | | **139** |
| **33** | 82 | | **82** |
| **34** | 51 | | **51** |
| **35** | 51 | | **51** |
| **36** | 29 | | **29** |
| **37** | 43 | | **43** |
| **38** | 29 | | **29** |
| **39** | 25 | 1 | **26** |
| **40** | 23 | | **23** |
| **41** | 22 | | **22** |
| **42** | 17 | | **17** |
| **43** | 31 | | **31** |
| **44** | 12 | 1 | **13** |
| **45** | 10 | | **10** |
| **46** | 4 | | **4** |
| **47** | 15 | | **15** |
| **48** | 10 | | **10** |
| **49** | 1 | 1 | **2** |
| **50** | 4 | | **4** |
| **51** | 3 | | **3** |
| **52** | 2 | | **2** |
| **55** | 1 | 1 | **2** |
| **56** | 1 | | **1** |
| **58** | | 1 | **1** |
| **Total** | **3192** | **5** | **3197** |
| **Mean length, cm** | **28.3** | **49.0** | **28.4** |

TABLE 11. Length composition (ind.) of American plaice in Russian trawler catches in NAFO Divs. 3LMNO in 2007.

| Length, cm | 3L | 3M | 3N | 3O | 3LMNO |
|---|---|---|---|---|---|
| **18** | | | 1 | | **1** |
| **20** | | | 1 | | **1** |
| **22** | | | 2 | | **2** |
| **24** | | | 10 | 1 | **11** |
| **26** | 1 | | 11 | 2 | **14** |
| **28** | 2 | | 21 | 2 | **25** |
| **30** | 13 | | 66 | 7 | **86** |
| **32** | 14 | | 135 | 5 | **154** |
| **34** | 41 | 2 | 186 | 4 | **233** |
| **36** | 67 | 4 | 238 | 7 | **316** |
| **38** | 62 | 5 | 224 | 9 | **300** |
| **40** | 37 | 2 | 256 | 9 | **304** |
| **42** | 27 | 4 | 295 | 13 | **339** |
| **44** | 21 | 5 | 241 | 16 | **283** |
| **46** | 16 | 7 | 186 | 21 | **230** |
| **48** | 21 | 4 | 124 | 11 | **160** |
| **50** | 24 | 4 | 81 | 4 | **113** |
| **52** | 12 | 5 | 93 | 5 | **115** |
| **54** | 2 | 7 | 89 | 4 | **102** |
| **56** | 1 | 2 | 82 | 6 | **91** |
| **58** | 1 | | 76 | 7 | **84** |
| **60** | | | 56 | 5 | **61** |
| **62** | | | 51 | 5 | **56** |
| **64** | | | 32 | 2 | **34** |
| **66** | | | 26 | 1 | **27** |
| **68** | | | 8 | | **8** |
| **70** | | | 7 | | **7** |
| **Total** | **362** | **51** | **2598** | **146** | **3157** |
| **Mean length, cm** | **40.3** | **46.3** | **43.9** | **45.4** | **43.6** |

TABLE 12. Length composition (ind.) of Witch flounder in Russian trawler catches in NAFO Divs. 3LMNO in 2007.

| Length, cm | 3L | 3M | 3N | 3O | 3LMNO |
|---|---|---|---|---|---|
| **20** | 1 | | | | **1** |
| **28** | | | 7 | | **7** |
| **30** | | 1 | 12 | 1 | **14** |
| **32** | 2 | 1 | 36 | 5 | **44** |
| **34** | 7 | | 80 | 8 | **95** |
| **36** | 12 | 3 | 106 | 15 | **136** |
| **38** | 10 | 3 | 141 | 15 | **169** |
| **40** | 22 | 4 | 194 | 21 | **241** |
| **42** | 18 | 4 | 192 | 43 | **257** |
| **44** | 17 | 4 | 125 | 26 | **172** |
| **46** | 10 | 5 | 97 | 28 | **140** |
| **48** | 5 | | 52 | 24 | **81** |
| **50** | 2 | 1 | 33 | 9 | **45** |
| **52** | 1 | 1 | 24 | 7 | **33** |
| **54** | | 1 | 8 | | **9** |
| **56** | | | 6 | 1 | **7** |
| **58** | | | 3 | | **3** |
| **60** | | | 1 | 1 | **2** |
| **62** | | | | 1 | **1** |
| **Total** | **107** | **28** | **1117** | **205** | **1457** |
| **Mean length, cm.** | **41.3** | **42.4** | **41.5** | **43.4** | **41.8** |

TABLE 13. Length composition (ind.) of Yellowtail flounder in Russian trawler catches in NAFO Divs. 3NO in 2007.

| Length, cm | 3N | 3O | 3NO |
|---|---|---|---|
| **20** | 2 | | **2** |
| **22** | 5 | 1 | **6** |
| **24** | 26 | 2 | **28** |
| **26** | 44 | 2 | **46** |
| **28** | 80 | 4 | **84** |
| **30** | 216 | 4 | **220** |
| **32** | 489 | 9 | **498** |
| **34** | 602 | 19 | **621** |
| **36** | 504 | 21 | **525** |
| **38** | 359 | 15 | **374** |
| **40** | 325 | 12 | **337** |
| **42** | 304 | 10 | **314** |
| **44** | 183 | 6 | **189** |
| **46** | 135 | 5 | **140** |
| **48** | 77 | 3 | **80** |
| **50** | 41 | 4 | **45** |
| **52** | 16 | | **16** |
| **54** | 1 | | **1** |
| **56** | 1 | | **1** |
| **58** | 2 | | **2** |
| **Total** | **3412** | **117** | **3529** |
| **Mean length, cm** | **37.2** | **37.7** | **37.3** |

TABLE 14. Length composition (ind.) of Atlantic cod in Russian trawler catches in NAFO Divs. 3LMNO in 2007.

| Length, cm | 3L | 3M | 3N | 3O | 3LMNO |
|---|---|---|---|---|---|
| **33** | | | | 1 | **1** |
| **36** | | 1 | 3 | 4 | **8** |
| **39** | | 6 | 5 | 5 | **16** |
| **42** | | 7 | 10 | 16 | **33** |
| **45** | | 17 | 28 | 24 | **69** |
| **48** | | 9 | 22 | 18 | **49** |
| **51** | | 18 | 30 | 24 | **72** |
| **54** | | 47 | 20 | 24 | **91** |
| **57** | | 56 | 19 | 19 | **94** |
| **60** | | 56 | 13 | 11 | **80** |
| **63** | | 25 | 16 | 10 | **51** |
| **66** | | 27 | 13 | 9 | **49** |
| **69** | | 51 | 14 | 3 | **68** |
| **72** | | 50 | 20 | 6 | **76** |
| **75** | | 66 | 12 | 7 | **85** |
| **78** | | 67 | 19 | 11 | **97** |
| **81** | | 21 | 25 | 6 | **52** |
| **84** | 1 | 21 | 25 | 6 | **53** |
| **87** | | 16 | 23 | 4 | **43** |
| **90** | | 12 | 30 | 6 | **48** |
| **93** | | 13 | 35 | 5 | **53** |
| **96** | | 6 | 46 | 6 | **58** |
| **99** | | 1 | 41 | 4 | **46** |
| **102** | | 1 | 29 | 2 | **32** |
| **105** | | | 16 | 2 | **18** |
| **108** | | | 20 | 2 | **22** |
| **111** | | | 12 | | **12** |
| **114** | | | 7 | | **7** |
| **117** | | | 5 | | **5** |
| **120** | | | 1 | | **1** |
| **123** | | | 5 | 1 | **6** |
| **126** | | | 7 | | **7** |
| **129** | | | 2 | | **2** |
| **132** | | | 2 | | **2** |
| **Total** | **1** | **594** | **575** | **236** | **1406** |
| **Mean length, cm** | **85.0** | **68.9** | **81.7** | **62.7** | **73.1** |

TABLE 15. Length composition (ind.) of Threebeard rockling in Russian trawler catches in NAFO Divs. 3LMN in 2007.

| Length, cm | 3L | 3M | 3N | 3LMN |
|---|---|---|---|---|
| **24** | | | 1 | **1** |
| **27** | 3 | | | **3** |
| **30** | 9 | 2 | 8 | **19** |
| **33** | 31 | 5 | 26 | **62** |
| **36** | 36 | 5 | 39 | **80** |
| **39** | 55 | 20 | 43 | **118** |
| **42** | 63 | 21 | 32 | **116** |
| **45** | 34 | 7 | 36 | **77** |
| **48** | 1 | 4 | 15 | **20** |
| **51** | | | 1 | **1** |
| **Total** | **232** | **64** | **201** | **497** |
| **Mean length,cm** | **40.0** | **41.2** | **40.5** | **40.3** |

TABLE 16. Length composition (ind.) of White hake in Russian trawler catches in NAFO Divs. 3NO in 2007.

| Length, | 3N | | | 3O | | | Total 3NO | | |
|---|---|---|---|---|---|---|---|---|---|
| cm | Males | Females | Total | Males | Females | Total | Males | Females | Total |
| **27** | | | | | 1 | **1** | | 1 | **1** |
| **30** | | 5 | **5** | | 2 | **2** | | 7 | **7** |
| **33** | 2 | 11 | **13** | | | | 2 | 11 | **13** |
| **36** | | 7 | **7** | | | | | 7 | **7** |
| **39** | | | | 2 | 1 | **3** | 2 | 1 | **3** |
| **42** | 1 | 1 | **2** | 2 | | **2** | 3 | 1 | **4** |
| **45** | 1 | | **1** | 1 | 1 | **2** | 2 | 1 | **3** |
| **48** | 2 | | **2** | 8 | 1 | **9** | 10 | 1 | **11** |
| **51** | 2 | 4 | **6** | 8 | 4 | **12** | 10 | 8 | **18** |
| **54** | 2 | 2 | **4** | 9 | 2 | **11** | 11 | 4 | **15** |
| **57** | 3 | 6 | **9** | 11 | 8 | **19** | 14 | 14 | **28** |
| **60** | 6 | 6 | **12** | 12 | 11 | **23** | 18 | 17 | **35** |
| **63** | 4 | 5 | **9** | 10 | 19 | **29** | 14 | 24 | **38** |
| **66** | 1 | 3 | **4** | 2 | 14 | **16** | 3 | 17 | **20** |
| **69** | 1 | 2 | **3** | 5 | 7 | **12** | 6 | 9 | **15** |
| **72** | 1 | 2 | **3** | 2 | 3 | **5** | 3 | 5 | **8** |
| **75** | | | | | 5 | **5** | | 5 | **5** |
| **78** | | 1 | **1** | 2 | 7 | **9** | 2 | 8 | **10** |
| **81** | | | | | 6 | **6** | | 6 | **6** |
| **84** | | | | 1 | 4 | **5** | 1 | 4 | **5** |
| **87** | | 2 | **2** | | | | | 2 | **2** |
| **90** | | | | | 2 | **2** | | 2 | **2** |
| **Total** | **26** | **57** | **83** | **75** | **98** | **173** | **101** | **155** | **256** |
| **Mean length, cm** | **56.7** | **51.3** | **53.0** | **58.6** | **66.2** | **62.9** | **58.2** | **60.7** | **59.7** |

TABLE 17. Length composition (ind.) of Thorny skate in Russian trawler catches in NAFO Divs. 3LMO in 2007.

| Length, cm | 3L | 3M | 3N | 3O | 3LMNO |
|---|---|---|---|---|---|
| **24** | | | 1 | | **1** |
| **27** | | | 5 | 1 | **6** |
| **30** | | | 16 | 2 | **18** |
| **33** | 2 | | 29 | 4 | **35** |
| **36** | 2 | 3 | 73 | 6 | **84** |
| **39** | 1 | 1 | 182 | 21 | **205** |
| **42** | 7 | 15 | 351 | 39 | **412** |
| **45** | 7 | 11 | 473 | 43 | **534** |
| **48** | 9 | 20 | 691 | 60 | **780** |
| **51** | 15 | 8 | 886 | 118 | **1027** |
| **54** | 18 | 6 | 1295 | 165 | **1484** |
| **57** | 18 | 24 | 1455 | 219 | **1716** |
| **60** | 26 | 21 | 1703 | 290 | **2040** |
| **63** | 38 | 28 | 1834 | 333 | **2233** |
| **66** | 24 | 6 | 1775 | 343 | **2148** |
| **69** | 9 | 4 | 1437 | 287 | **1737** |
| **72** | 8 | 2 | 1114 | 136 | **1260** |
| **75** | 7 | 2 | 704 | 84 | **797** |
| **78** | 6 | | 535 | 59 | **600** |
| **81** | 2 | | 282 | 34 | **318** |
| **84** | 1 | | 125 | 12 | **138** |
| **87** | | | 37 | 3 | **40** |
| **90** | | | 9 | 1 | **10** |
| **93** | | | 1 | | **1** |
| **Total** | **200** | **151** | **15013** | **2260** | **17624** |
| **Mean length, cm** | **60.8** | **56.1** | **62.6** | **63.3** | **62.6** |

TABLE 18. Length composition (ind.) of Black dogfish in Russian trawler catches in NAFO Divs. 3LMNO in 2007.

| Length, cm | Males | Females | Total |
|---|---|---|---|
| **33** | | 1 | **1** |
| **36** | 1 | 1 | **2** |
| **39** | 6 | 9 | **15** |
| **42** | 13 | 23 | **36** |
| **45** | 16 | 33 | **49** |
| **48** | 24 | 31 | **55** |
| **51** | 31 | 33 | **64** |
| **54** | 41 | 43 | **84** |
| **57** | 53 | 48 | **101** |
| **60** | 126 | 72 | **198** |
| **63** | 105 | 62 | **167** |
| **66** | 53 | 28 | **81** |
| **69** | 16 | 48 | **64** |
| **72** | 2 | 26 | **28** |
| **75** | 3 | 10 | **13** |
| **78** | | 6 | **6** |
| **81** | | 1 | **1** |
| **Total** | **490** | **475** | **965** |
| **Mean length, cm** | **59.5** | **59.2** | **59.4** |

TABLE 19. Length composition (ind) of Northern wolffish (*Anarchichas denticulatus*) in Russian trawler catches in NAFO Divs. 3LMNO in 2007

| Length, cm | 3L | 3M | 3N | 3O | 3LMNO |
|---|---|---|---|---|---|
| **33** | | | 1 | | **1** |
| **39** | | 2 | | | **2** |
| **42** | 3 | | 3 | | **6** |
| **45** | 1 | | 8 | | **9** |
| **48** | 3 | | 11 | | **14** |
| **51** | 8 | 5 | 20 | 1 | **34** |
| **54** | 10 | 1 | 20 | 1 | **32** |
| **57** | 15 | 6 | 12 | 3 | **36** |
| **60** | 8 | 5 | 16 | 1 | **30** |
| **63** | 6 | 3 | 17 | | **26** |
| **66** | 8 | 5 | 5 | 1 | **19** |
| **69** | 12 | 6 | 7 | | **25** |
| **72** | 20 | 1 | 5 | | **26** |
| **75** | 9 | 2 | 10 | | **21** |
| **78** | 7 | 2 | 8 | | **17** |
| **81** | 3 | 1 | 1 | | **5** |
| **84** | 4 | 3 | 9 | | **16** |
| **87** | 5 | | 6 | | **11** |
| **90** | 5 | 4 | 7 | | **16** |
| **93** | 4 | 2 | 4 | | **10** |
| **96** | 1 | | 1 | | **2** |
| **99** | 1 | | 10 | | **11** |
| **102** | | | 2 | | **2** |
| **105** | 2 | | 2 | | **4** |
| **108** | 4 | | 4 | | **8** |
| **111** | | | 3 | | **3** |
| **114** | | | 5 | | **5** |
| **117** | | | 3 | | **3** |
| **120** | 1 | | 3 | | **4** |
| **Total** | **140** | **48** | **203** | **7** | **398** |
| **Mean length, cm** | **70.9** | **68.1** | **71.5** | **58.4** | **70.7** |

TABLE 20. Length composition (ind.) of Blue hake (*Antimora rostrata*) in Russian trawler catches in NAFO Divs. 3LMN in 2007.

| Length, cm | 3L | 3M | 3N | 3LMN |
|---|---|---|---|---|
| **18** | 2 | | | **2** |
| **21** | | | 4 | **4** |
| **24** | | | 4 | **4** |
| **27** | 1 | | 7 | **8** |
| **30** | 14 | 3 | 32 | **49** |
| **33** | 31 | 10 | 51 | **92** |
| **36** | 59 | 31 | 73 | **163** |
| **39** | 61 | 27 | 45 | **133** |
| **42** | 35 | 30 | 14 | **79** |
| **45** | 23 | 20 | 19 | **62** |
| **48** | 21 | 13 | 15 | **49** |
| **51** | 17 | 15 | 13 | **45** |
| **54** | 20 | 16 | 10 | **46** |
| **57** | 11 | 6 | 5 | **22** |
| **60** | 15 | 1 | 2 | **18** |
| **63** | 8 | | | **8** |
| **66** | 9 | | | **9** |
| **69** | 1 | | | **1** |
| **Total** | **328** | **172** | **294** | **794** |
| **Mean length, cm** | **44.2** | **44.0** | **39.0** | **42.2** |

TABLE 21. Length composition (ind.) of Common grenadier (*Nezumia bairdii*) in Russian trawler catches in NAFO Divs. 3LMNO in 2007.

| Length, cm | 3L | 3M | 3N | 3O | 3LMNO |
|---|---|---|---|---|---|
| **21** | | 1 | 1 | | **2** |
| **24** | 18 | 3 | 9 | | **30** |
| **27** | 41 | 4 | 66 | | **111** |
| **30** | 105 | 20 | 175 | 2 | **302** |
| **33** | 103 | 18 | 209 | | **330** |
| **36** | 74 | 14 | 174 | | **262** |
| **39** | 9 | 4 | 60 | | **73** |
| **42** | | | 3 | | **3** |
| **Total** | **350** | **64** | **697** | **2** | **1113** |
| **Mean length, cm** | **32.7** | **33.1** | **33.8** | **31.0** | **33.5** |

TABLE 22. Length composition (ind.) of Atlantic halibut (*Hippoglossus hippoglossus*) in Russian trawler catches in NAFO Divs. 3LMNO in 2007.

| Length, cm | 3L | 3M | 3N | 3O | LMNO |
|---|---|---|---|---|---|
| **44** | | | 1 | | **1** |
| **50** | | 1 | | | **1** |
| **52** | | | 1 | | **1** |
| **56** | | | 1 | | **1** |
| **58** | | | 2 | 1 | **3** |
| **60** | | | 1 | | **1** |
| **62** | | | 2 | | **2** |
| **64** | | 1 | 2 | | **3** |
| **68** | | 2 | 1 | | **3** |
| **70** | | 1 | 2 | 1 | **4** |
| **72** | | | 1 | | **1** |
| **74** | | 2 | 4 | 1 | **7** |
| **76** | | 2 | 2 | | **4** |
| **78** | 1 | 2 | 3 | | **6** |
| **80** | | | 2 | 1 | **3** |
| **82** | | | 1 | | **1** |
| **84** | | | 2 | | **2** |
| **86** | 1 | 2 | | 1 | **4** |
| **88** | | | 3 | | **3** |
| **90** | | 1 | 3 | | **4** |
| **94** | | | 2 | | **2** |
| **96** | | | | 1 | **1** |
| **98** | | | 1 | | **1** |
| **100** | | | 1 | 1 | **2** |
| **102** | | | 3 | | **3** |
| **104** | | | 4 | | **4** |
| **106** | | 1 | | | **1** |
| **108** | 1 | 1 | | | **2** |
| **110** | | | 1 | | **1** |
| **112** | | | 1 | | **1** |
| **114** | | 2 | 2 | | **4** |
| **116** | | | 1 | 1 | **2** |
| **118** | | | 3 | 1 | **4** |
| **120** | | | 3 | | **3** |
| **124** | | 1 | 3 | 1 | **5** |
| **126** | 1 | | | | **1** |
| **128** | | | 1 | | **1** |
| **130** | | 1 | 2 | | **3** |
| **134** | 1 | 1 | 1 | 1 | **4** |
| **140** | | | 1 | | **1** |
| **144** | | | 1 | | **1** |
| **146** | 1 | 1 | 1 | | **3** |
| **150** | | | 2 | | **2** |
| **154** | | | 1 | | **1** |
| **158** | | | 1 | | **1** |
| **160** | | 2 | | | **2** |
| **164** | | | 1 | | **1** |
| **168** | | | 1 | | **1** |
| **176** | | | 1 | | **1** |
| **186** | | | 1 | | **1** |
| **Total** | **6** | **24** | **74** | **11** | **115** |
| **Mean length, cm.** | **113.5** | **97.8** | **101.9** | **96.5** | **101.1** |

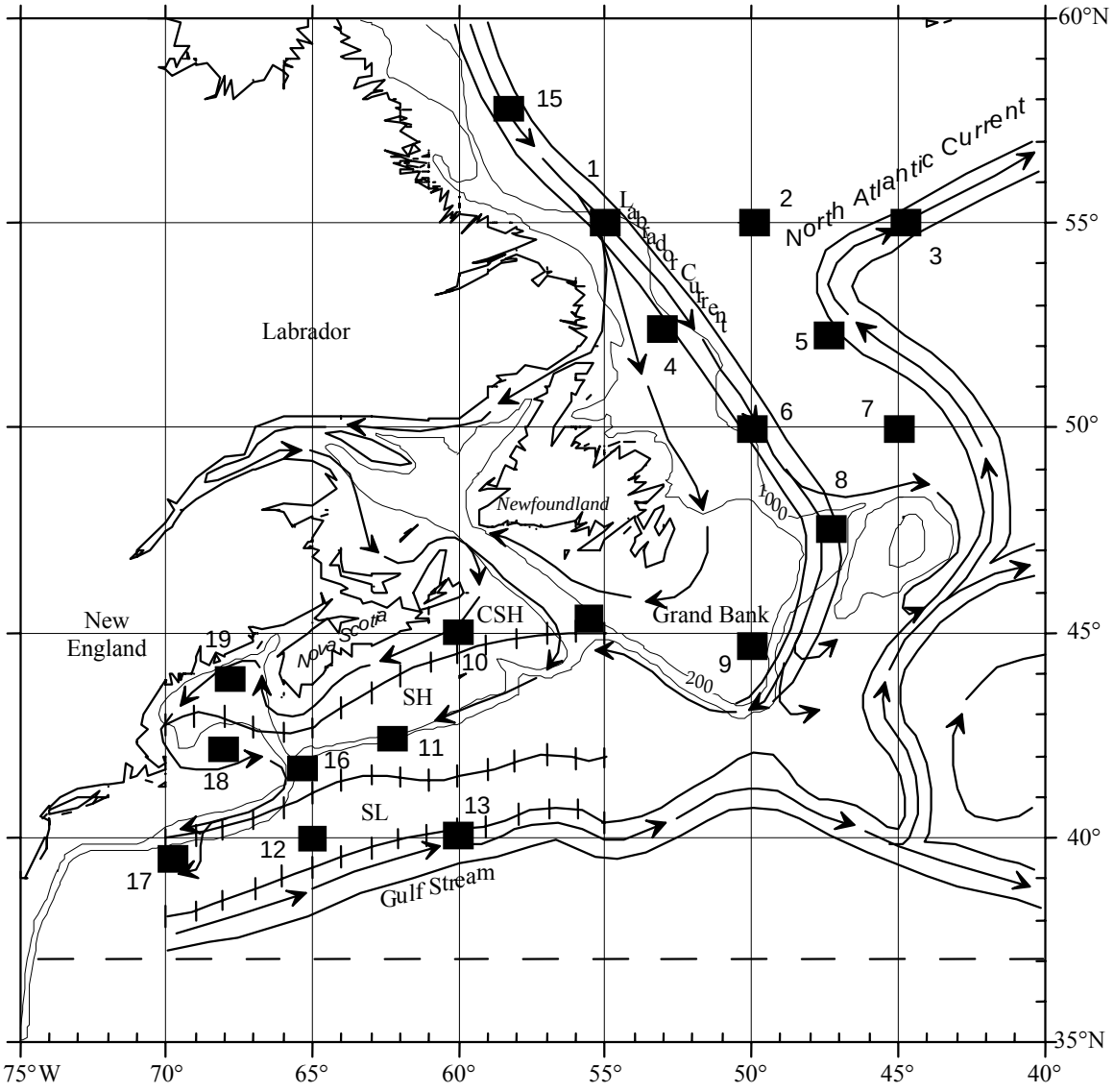


Fig. 1. Diagram of SST monitoring in the Northwest Atlantic.

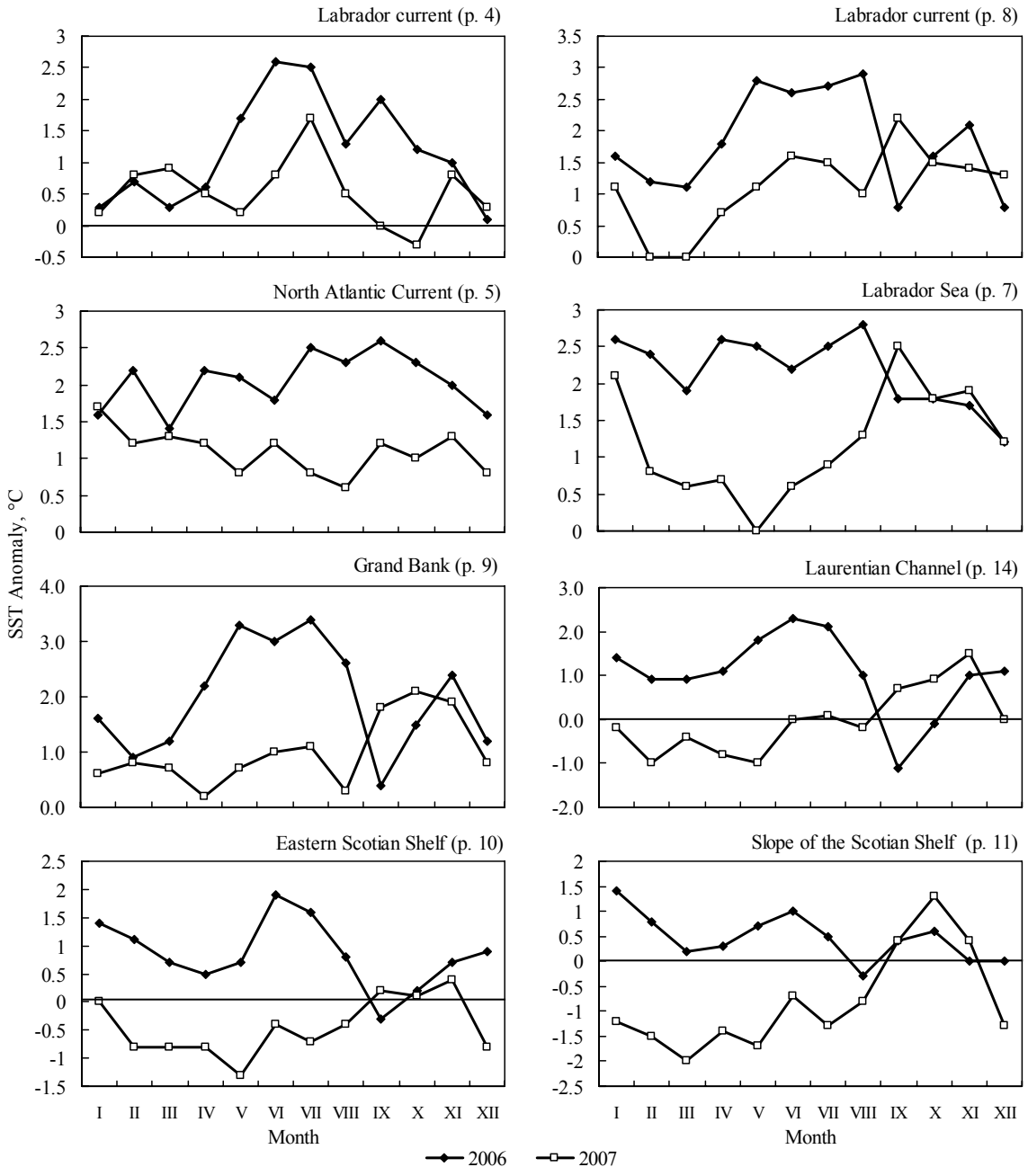


Fig. 2. SST anomalies in the areas of the Northwest Atlantic in 2006 and 2007.