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Results of the Abundance and Biomass Assessment of Greenland Halibut by
the Data from Russian Trawl Survey in the Northern Flemish Pass in 2000

by

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Abstract

The Russian stratified-random survey for Greenland halibut was carried out onboard MI-0703 "Onezhsky" in the northern Flemish Pass in 732-1 280 m depths in spring 2000. Total abundance and biomass of Greenland halibut constituted 36.9 mill. indiv. and 23.9 thou. t, respectively, over the area surveyed. With an increase in depth a proportion of Greenland halibut in catches reduced and catches of red hake, roughhead and roundnose grenadier increased. Length of halibut males varied from 24 to 72 cm and that of females - from 27 to 95 cm; the frequency of occurrence of specimens below 30 cm did not exceed 0.5%. The amount of females in catches was approximately by 1.5 times higher than that of males. Above 99% of the individuals examined were immature.

Introduction

The northern Flemish Pass is the area where the Russian fishing fleet exploits the major proportion of Greenland halibut national quota in NAFO Regulatory Area. Since 1996, no regular research surveys have been carried out by Russia due to a considerable remoteness of this area.

Materials and Methods

The stratified-random survey for abundance and biomass of Greenland halibut was carried out onboard MI-0703 "Onezhsky" (1 895 GRT, main engine power – 2 400 h.p.) in the northern Flemish Pass from 23.04 to 08.05.2000. Compared to 1996, the methods for the survey did not change (Gorchinsky 1996). As in previous surveys, a bottom trawl (31, 2/27 m long, vertical opening – 4.0 m, a distance of trawl wings – 14.3 m) was applied. 1-hour duration hauls were made at the speed being about 3,5 knots. Further, to make calculations, only successful hauls, the total number of which was 41, were considered. The amount and weight of halibut were determined, maturity and stomach fullness analysed and length of fish measured for each haul. In total, 8 strata were investigated within the range of 732-1 280 m depths. The stratified maps and tables (Bishop, 1994) were used in the survey.

Results

Greenland halibut catches were taken in the depths from 732 to 1 280 m in all the strata surveyed. The highest mean catch/1 trawling hr was taken in the stratum 532 in 915-1 097 m depths (1095.9 indiv., 628.6 kg). In spring 2000, the total abundance and biomass of halibut was set at 36.9 mill. indiv. and 23.9 thou. t, respectively. Indices of abundance and biomass of halibut by stratum are given in Table 1.

Compared to the analogous survey undertaken in February 1996, somewhat smaller area was investigated in particular the strata 528, 529 and 744 were not covered by the survey in the year 2000. With allowance for this, the abundance and biomass for the rest of the strata remained at the previous level (Gorchinsky 1996).

With an increase of depth a proportion of halibut in catches reduced from 78.48% in 800-900 m to 46.53% - in the range of 1100-1200m depths and on the whole constituted 69.33% (Table 2). At the same time, the by-catch of roughhead and roundnose grenadier, red hake and some other fish species, which along with halibut were also most frequent in catches, increased.

Length of halibut males varied from 24 to 72 cm and from 27 to 95 cm - for females (Fig.1). Frequency of occurrence of small-size specimens below 30 cm long did not exceed 0.5%. The amount of females in catches was approximately 1.5 times higher than that of males. A proportion of males gradually decreased with an increase in trawling depth. Above 99% of the individuals examined were immature; spawners made up 0.1%.

To derive more representative results from the stock assessment of halibut in the Flemish Pass, it is necessary that the survey should be extended to cover larger area and depth.

References

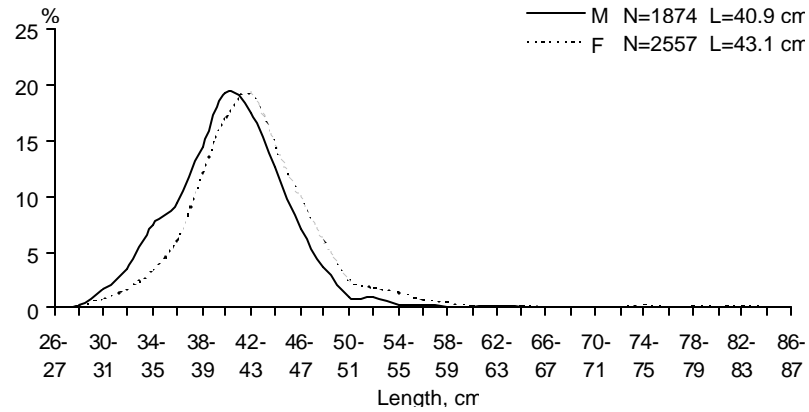
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Table 1. Greenland halibut abundance and biomass indices by strata in Div. 3LM by Russian bottom trawl survey in April-May 2000.

Stratum	Depth, m	Area, sq. miles	Number of hauls	Mean catch per 1 haul		Abundance, (000)	Biomass, t
				Number	Weight, kg		
741	732-914	223	4	674.7	363.8	2843.4	1533.3
745		348	9	628.2	373.9	4131.5	2459.0
532	915-1097	238	6	1095.9	628.6	4929.0	2827.1
742		206	3	644.4	381.0	2508.6	1483.4
746	1098-1280	392	9	852.4	490.5	6314.7	3633.4
530		1134	3	341.8	307.2	7325.9	6583.4
743	747	211	3	531.6	316.7	2119.8	1263.0
747		724	4	493.0	299.1	6745.8	4092.3
Total		3476	41			36918.6	23874.8

Table 2. Species composition of catches (%) by depth in Div. 3LM, April-May 2000.

Species	Depth, m				
	800-899	900-999	1000-1099	1100-1199	800-1199
Greenland halibut	78.48	75.26	66.23	46.53	69.33
Roughhead grenadier	8.41	7.40	12.09	35.73	12.94
Red hake	1.28	1.47	1.39	3.61	1.68
Roundnose grenadier	0.45	1.17	0.85	2.77	1.09
Others	11.38	14.70	19.44	11.36	14.96

**Fig. 1.** Length composition of Greenland halibut in Div. 3LM, April-May, 2000.