

Northwest Atlantic



Fisheries Organization

Serial No. N4788

NAFO SCR Doc. 02/159

SCIENTIFIC COUNCIL MEETING, NOVEMBER 2002

Russian Fishery for Northern Shrimp (*Pandalus borealis*) on Flemish Cap Bank, NAFO Division 3M and Grand Bank, Division 3L, in 2001 and January-September 2002

by

S.V. Bakanev

Polar Research Institute of Marine Fisheries and Oceanography (PINRO), 6 Knipovich Street,
183763, Murmansk, Russia

ABSTRACT

The paper gives brief preliminary review of Russian fishery for shrimp on Flemish Cap Bank during January - December 2001 and January-September 2002. Maximum catches per effort were taken in January-May 2001 and February 2002. Length and sex compositions of catch by month in 2001 are reported. Redfish were the most frequent in by-catch, as well as common wolffish. Besides, spotted wolffish, roughhead grenadier and Greenland halibut were taken as by-catch.

INTRODUCTION

Russian fishery for shrimp on Flemish Cap Bank commenced in January 2001 by three vessels and continued until December. In the year 2002, it was started again in January. The number of vessels varied from 1 to 10. Most of the vessels were 54.8m and above with a main engine power being above 1000 h.p. Based on monthly reporting to Russian authorities by Russian vessels the total catch at Flemish Cap in 2001 amounted to 5 687 tons. The total catch on Flemish Cap in 2002 until October amounted to 1 086 tons, where catches in 2002 on Grand Bank amounted to 67 tons in the same periods.

MATERIAL AND METHODS

Catch and effort data from individual fishing vessels as reported via the "Informrybflot" system using radio communication were analysed to show the monthly distribution of catches and fishing effort.

Size composition of shrimp catches in Div. 3M was generated from samples from the commercial fishery from January to March 2001. Shrimps were measured by non-electronic calipers and staged by the methods suggested by Rasmussen (1953) and modified by McCrary (1971).

RESULTS

In 2001 the shrimp fishery started in January. Nominal catch and efforts is given in Table 1. Compared to the same period of 2001, the catch taken in 2002 decreased and constituted 1 086 tons. Distribution of efforts by months and years is presented in Figures 1-2. In 2001 the Russian fishery was conducted mainly along the northeastern, northern and likewise on the western slopes, while in 2002 tows were made along northeastern and on the western slopes.

The mean CPUE in 2002 retained at the level of 2001 (290 kg/h) for the vessels equipped by single trawl, and decreased to 350 kg/h for the vessels with twin trawl (Table 1). The maximum catch rates from Russian vessels on the Flemish Cap were noted in January-May 2001 and February 2002. The highest catch rates were observed in the depth range of 201-300 m.

The mean CPUE in Div. 3L decreased from 580 kg/h in 2001 to 512 kg/h in 2002 for the vessels with double trawl. The maximum catch rates were recorded in areas deeper than 301 m in January 2001.

In 2001 the length of carapace in shrimp from catches varied from 10 to 30mm (Figure 3). In this case, males attained 24 mm. Length of females with sternal spines varied from 15.5 to 25.5mm and from 19 to 30mm - in those without them. No clearly pronounced fluctuations were noted in sex ratio during the years.

The by-catch was about 1-4,5 % in the years 2001 and 2002. During the Russian fishery for shrimp on Flemish Cap Bank the young redfish were most frequent in by-catch. Maximum catch of this species was registered on the bank western slope (2,47 percent by weight) in June and August 2002 (Table 2, Fig. 5). Redfish length was 8-23 cm. Redfish occurred in catches taken during operations in the areas at 280-400m; however, its large quantities were noted at 280-320m. Redfish by-catch decreased with an increase in depth of trawling. Besides redfish, common wolffish, roughhead grenadier and Greenland halibut constantly occurred in by-catch.

REFERENCES

- McCRARY, J.A. 1971. Sternal spines as a characteristic for differentiating between females of some Pandalidae. J.Fish.Res.Board.Can., 28:98-100.
- RASMUSSEN, B. 1953. On the geographical variation in growth and sexual development of the deep sea prawn (*Pandalus borealis* Kr.). Fisk.Dir.Skr., ser.Havunders, 10(3):160p.

Table 1. Catch (tons), effort (hours) and catch per effort (kg/hr) from the Russian Shrimp Fishery on Flemish Cap in 3M area

2001								
Month	Single trawl			Twin trawl			Total	
	Catch, t	Hours	CPUE	Catch, t	Hours	CPUE	Catch, t	Hours
January	178.5	511	349.5	196	399	491.2	374.5	910
February	356.9	1211	294.7	206.4	483	427.4	563.3	1694
March	597.5	1829	326.6	274.3	610.4	449.4	871.8	2440
April	624.4	2003	311.8	240.6	483	498.1	865.0	2486
May	392.1	1738	225.6	303.4	518	585.8	695.5	2256
June	158.2	561	281.8	252.7	479.5	526.9	410.9	1041
July	127.6	421	303.2	216.3	566.1	382.1	343.9	987
August	115.5	477	242.2	14.4	84	171.0	129.9	561
September	111.2	447	248.5	165	549	300.5	276.2	996
October	144.7	520	278.2	206.59	511	404.3	348.9	1024
November	158.1	712	222.1	171.33	564	303.8	376.9	1460
December	159.2	492	323.7	161.73	460	351.6	429.9	1275
Total 2001	2004.28	6905.5	290.2	2409.11	5707	422.1	5686.8	17130
2002								
Month	Single trawl			Twin trawl			Total	
	Catch, t	Hours	CPUE	Catch, t	Hours	CPUE	Catch, t	Hours
January	10.0	53.7	186.1	168.2	466.2	360.8	178.2	519.9
February	18.1	45.1	400.0	182.6	361.5	505.2	200.7	406.6
March				194.7	492.4	395.4	194.7	492.4
April								
May								
June				141.4	436.7	323.8	141.4	436.7
July				113.6	451.8	251.4	113.6	451.8
August				82.9	314.6	263.5	82.9	314.6
September				174.6	483.8	360.9	174.6	483.8
October								
November								
December								
Total 2002	28.1	98.8	284.4	1058	3007.0	351.8	1086.1	3105.8

Table 2. By-catch (percent by weight) taken during Russian fishery for shrimp on Flemish Cap Bank (NAFO Div.3M), January-March 2001 and June - September 2002.

Fish species	2001			2002			
	January	February	March	June	July	August	September
Redfish	0,000	0,320	0,950	2,352	2,451	2,466	2,439
Common wolffish	0,000	0,080	0,090	0,003	0,007	0,013	0,015
Greenland halibut	0,070	0,010	0,010	0,002	0,000	0,004	0,000

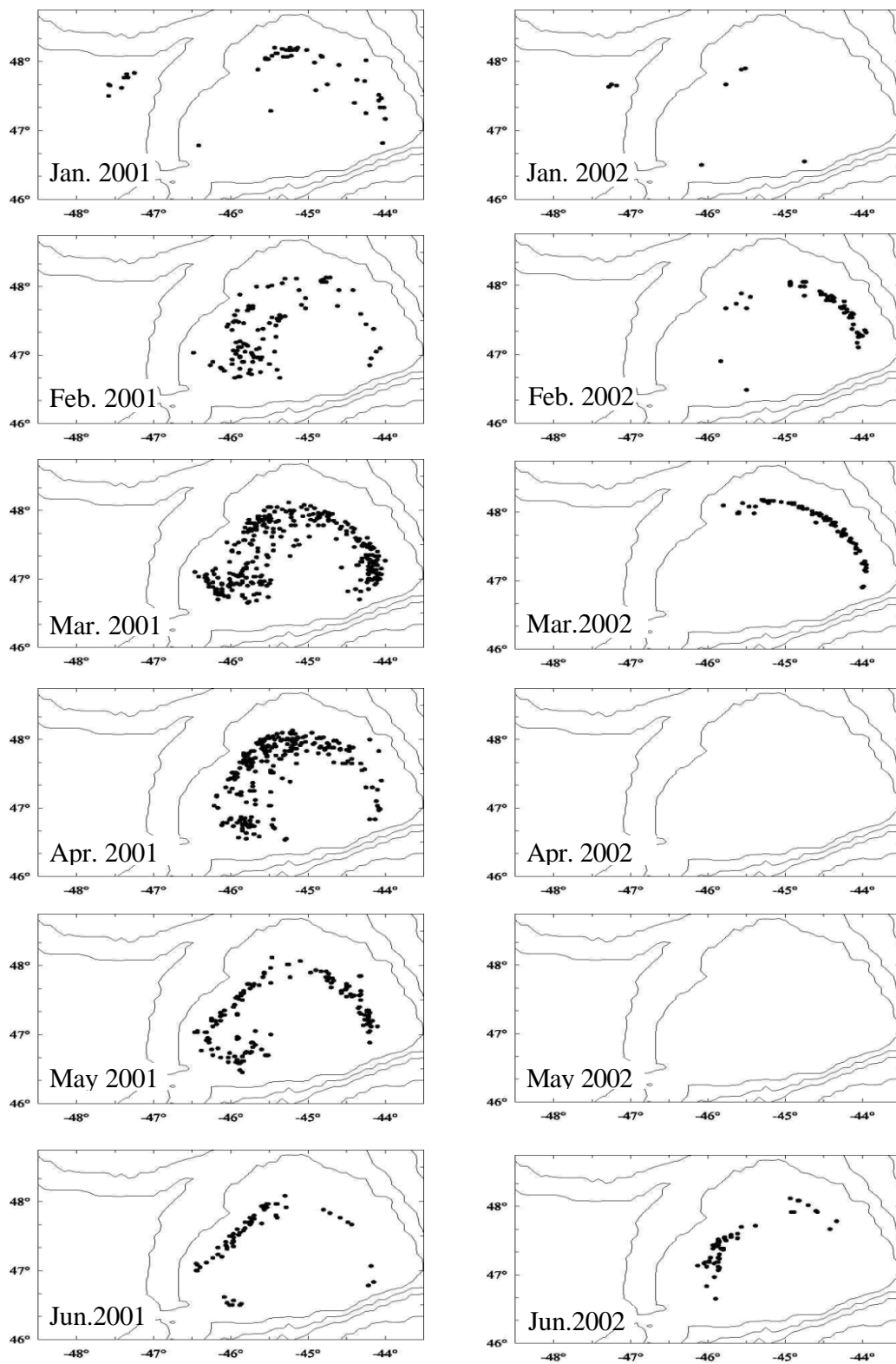


Fig.1. Towing position in the Russian fleet on Flemish Cap by month in 2001-2002.

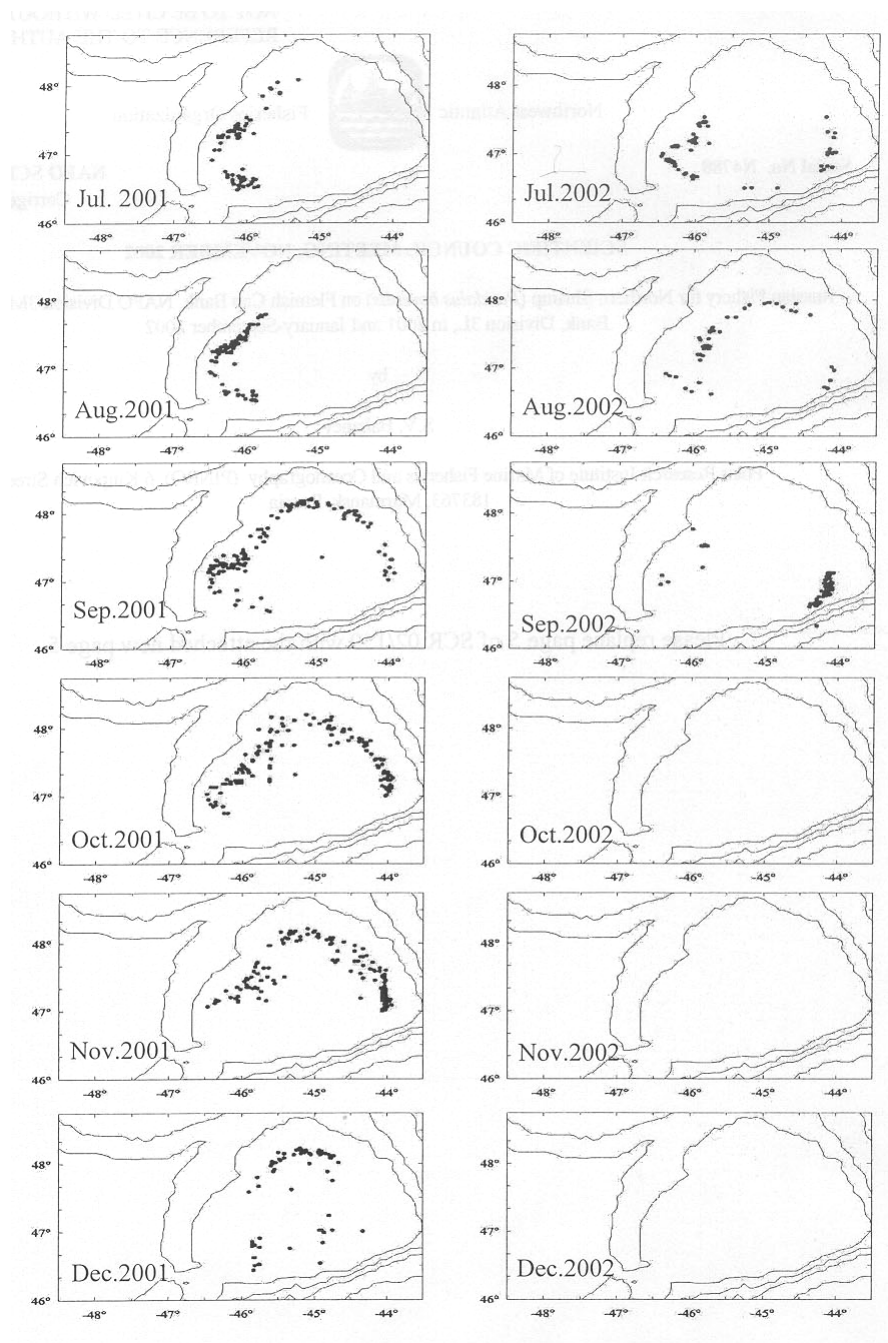


Fig. 2. Towing position in the Russian fleet on Flemish Cap by month in 2001-2002.

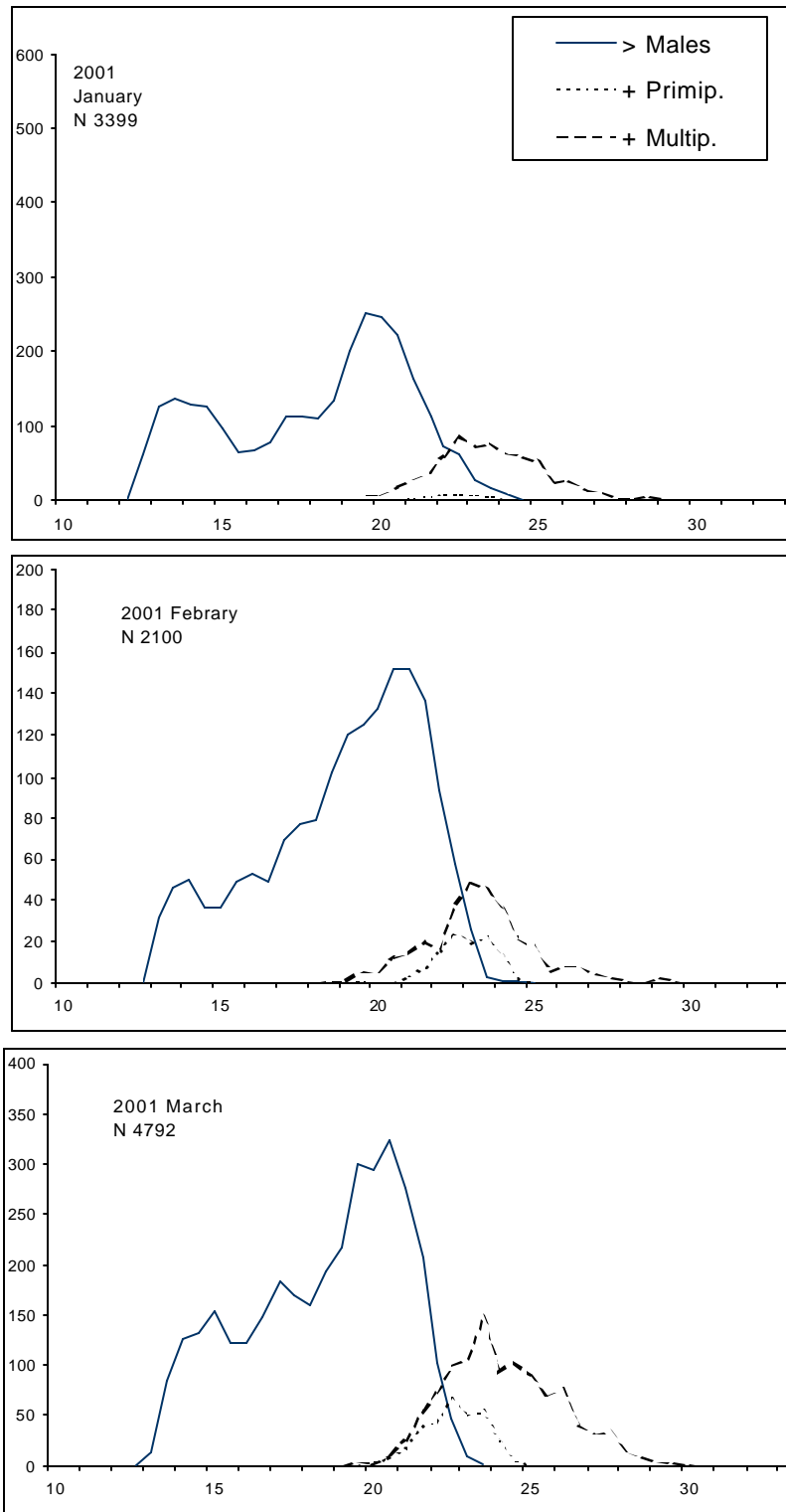


Fig.3. The length frequency distribution from Russian catches of shrimp at Flemish Cap by month in 2001.

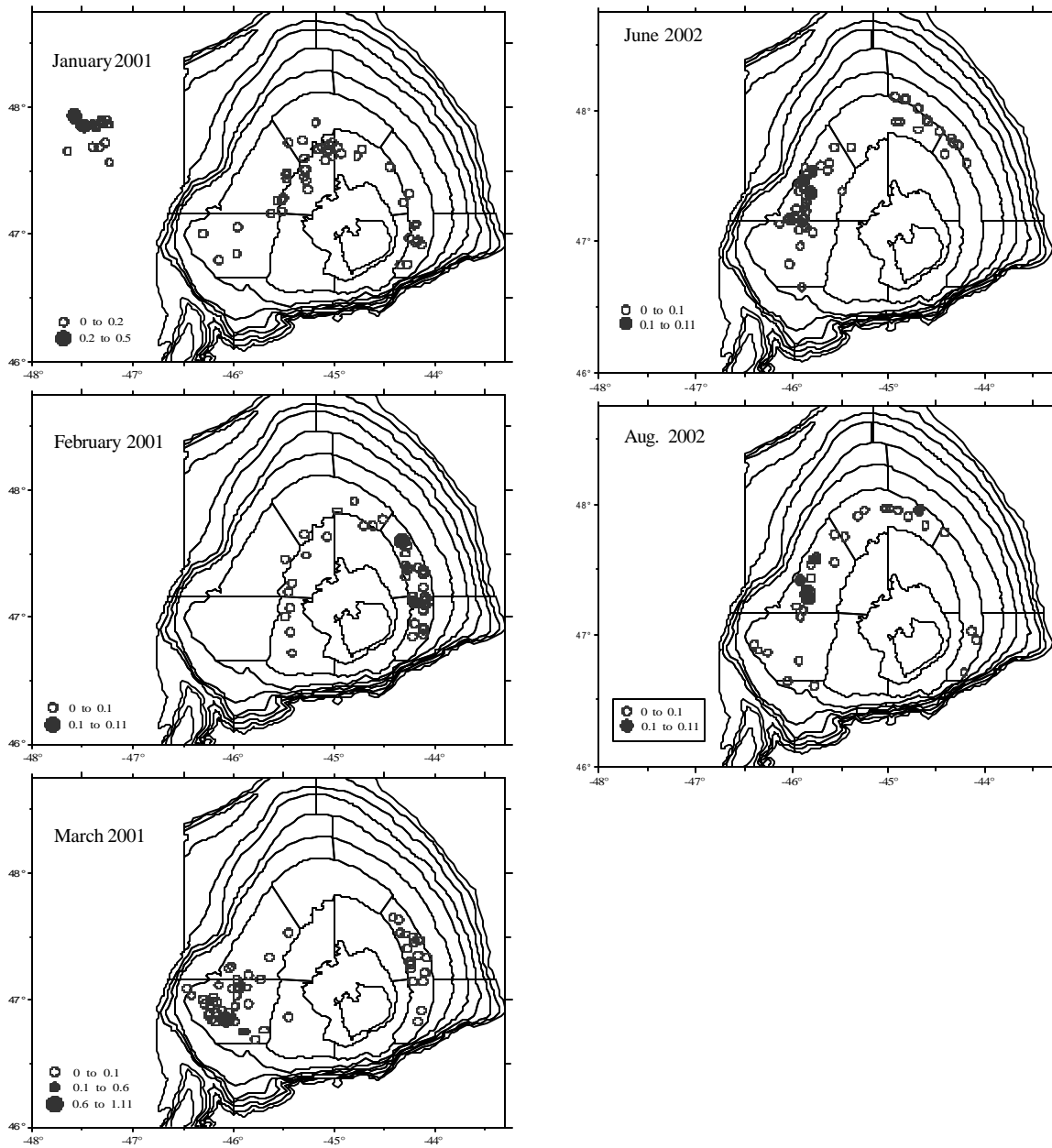


Fig.4. By-catch *Greenland halibut* (percent by weight) taken during Russian fishery for shrimp on Flemish Cap Bank (NAFO Div.3M), January-March 2001 and June - September 2002

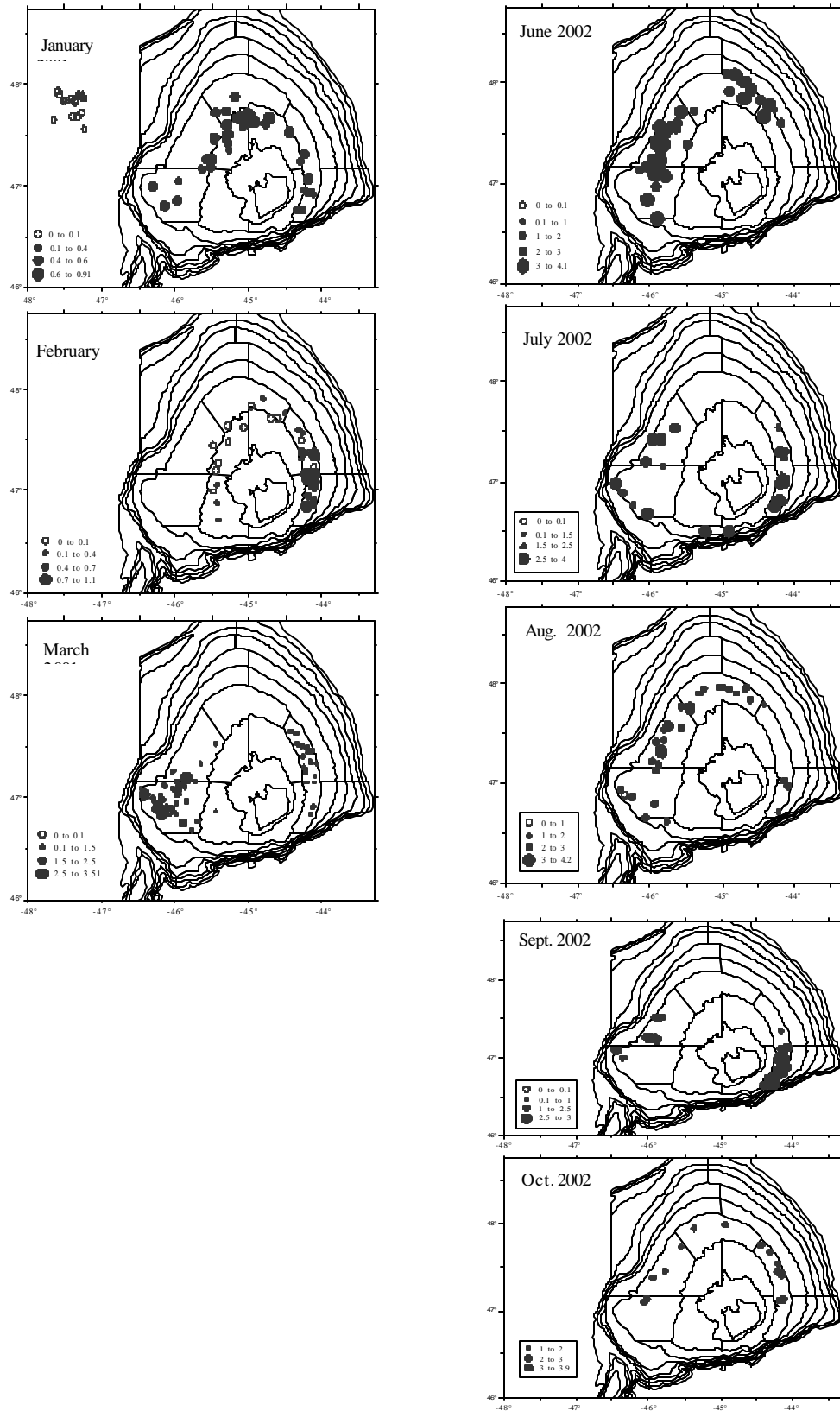


Fig.5. By-catch *Redfish* (percent by weight) taken during Russian fishery for shrimp on Flemish Cap Bank (NAFO Div.3M), January-March 2001 and June - October 2002

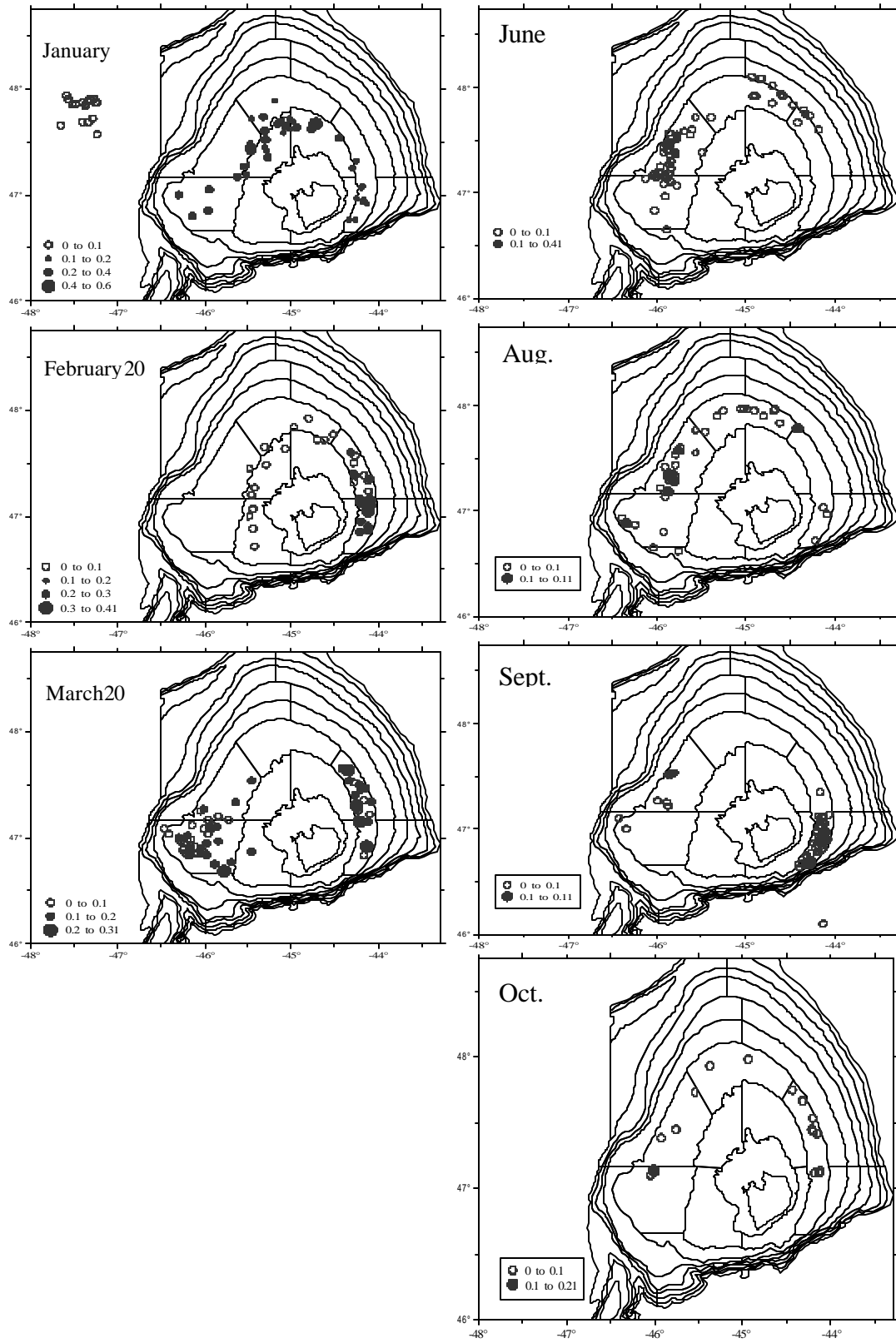


Fig.6. By-catch *Common wolffish* (percent by weight) taken during Russian fishery for shrimp on Flemish Cap Bank (NAFO Div.3M), January-March 2001 and June - October 2002.