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Russian Shrimp Fishery in the eastern Barents Sea in 2013

by

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Abstract

This paper overviews results of fishery investigations into northern shrimp in June 2013. Investigations were conducted onboard a Russian fishing vessel in the eastern Barents Sea on the Novaya Zemlya Bank and in adjacent waters. Catches of shrimp varied from 150 kg to 2.7 tons per 4-hour tow.

Introduction

In January-August 2013 Russian, Norwegian and Faroese vessels fished shrimp in the eastern Barents Sea around Central Trough and Novaya Zemlya Bank. Seven vessels participated in the shrimp fishery, including 2 Russian vessels. In June 2013, Russian vessels fished shrimp generally on the western slope of the Novaya Zemlya Bank, whereas Norwegian and Faroese vessels operated in the Novaya Zemlya Trough. The observer onboard the vessel conducted biological analysis of shrimp every day. Material on length distribution and sex structure of the northern shrimp in the eastern Barents Sea in June 2013 was collected.

Material and methods

Bottom shrimp trawl Vonin-2700 was used with a sorting grid «Sort-X» having a bar spacing of 19 mm. During the investigations 122 hauls were conducted at depths ranging from 230 to 435 m. Towing time varied from 3 to 6 hours and the catch was calculated to a standard 4-hour tow. In total, 6,244 shrimps from 33 hauls were analyses.

A sample of one kilogram of shrimp was used for biological analysis, which included the following operations: carapace length measuring and determination of sex and stages of gonads' maturity (Aschan et al., 1993). Carapace lengths (CL) were measured from the post-orbital notch to the posterior margin of the carapace. Sex of the northern shrimp was determined by the shape of the endopodite of the first pair of pleopods, presence of sternal spines on the first segment of abdomen and the presence of roe (Rasmussen, 1953; McCrary, 1971).

Results

Investigations of the northern shrimp in June 2013 were conducted in two closely located areas in the Novaya Zemlya Trough and western part of the Novaya Zemlya Bank at depths from 230 to 435 m (Fig. 1). Shrimp catches varied from 150 to 2,731 kg average catch was 1,270±0.03 kg. The percentage of the shrimp in catches varied from 14.9% to 99.8% and averaged 73.1%. The most number of hauls – 75 % - were done at depths ranging from 250 to 290 m. This is explained by a high percentage of shrimp in catches taken at these depths, i.e. from 85 to 99%. A large by-catch of the Polar cod (*Boreogadus saida*) and young cod (*Gadus morhua*) were observed in Novaya Zemlya Trough.

A length distribution in shrimp varied from 4.4 to 29.6 mm and the average size was 18.4±1.0 mm. The number of individuals in 1 kg of catch ranged from 160 to 300. A portion of males in catches was around 24%, while females constituted 76% (Fig. 2). Females with a carapace length of 15-23 mm were predominant in the catches. This modal group included 71% of the total numbers of shrimp in the catches. The portion of pre-spawning females was 66%, whereas the post-spawning females constituted around 10%.

References

Ashan M., Berenboim B., Mukhin S. and Sunnana K. Results of Norwegian and Russian investigations of shrimp (*Pandalus borealis*) in the Barents sea and Svalbard Area in 1992. ICES C. M. Doc., No K: 9, 22 p.

McCrary, J. A. Sternal spines as a characteristic for differentiating between females of some Pandalidae. J. Fish. Res. Board Can., 28, 1971, P. 98-100.

Rasmussen, B. On the geographical variation in growth and sexual development of the deep-sea prawn (Pandalus borealis). Norway Fish. Mar.Invest. Rep., 10 (3), 1953, P. 1-160.

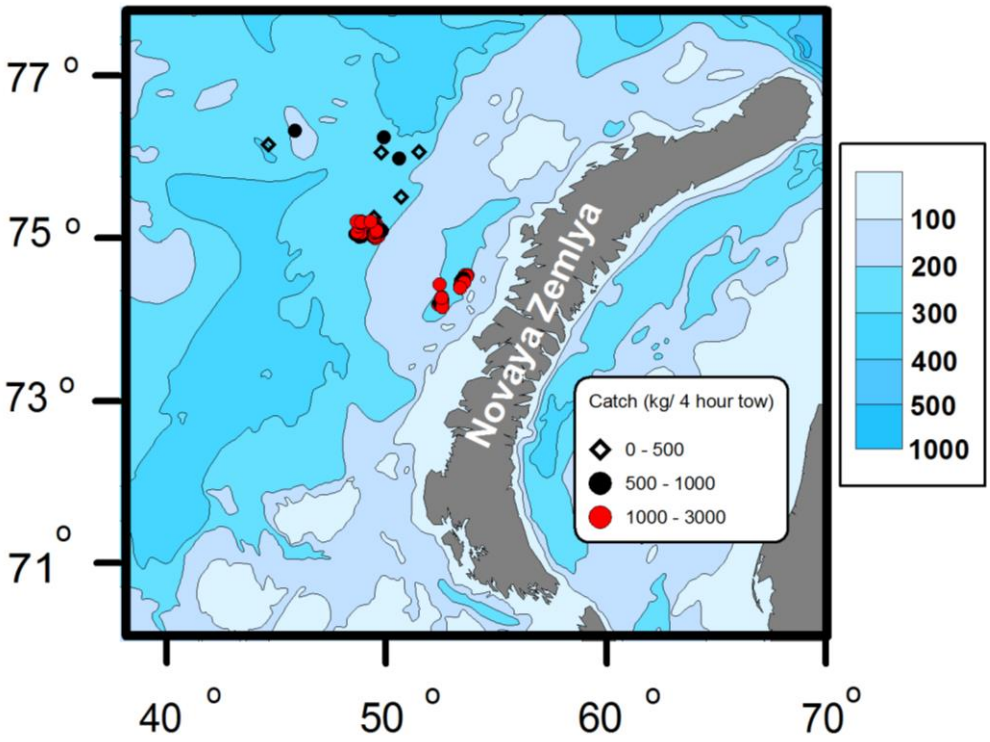

Fig. 1. Distribution of catches of *Pandalus borealis* in June 2013 in the eastern Barents Sea (kg/ 4 hour of tow)

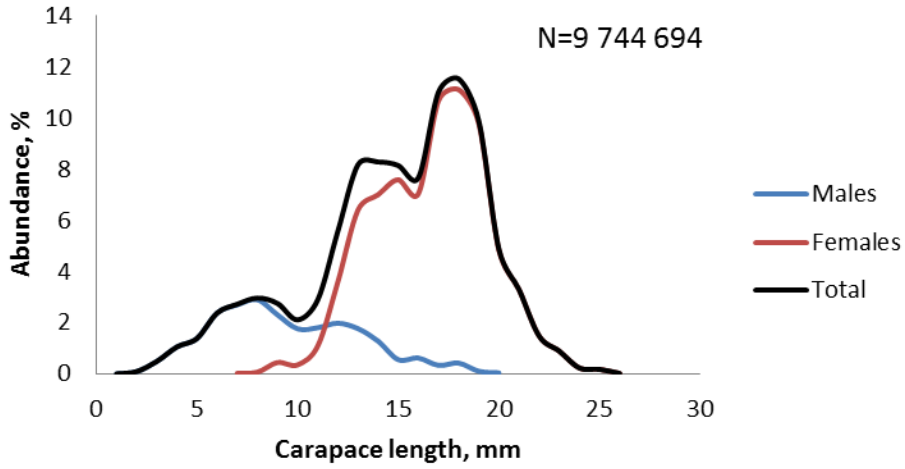

Fig. 2. Length distribution in shrimp in the eastern Barents Sea in June 2013