The use of satellite data for monitoring temperature conditions in the waters of the main spawning and habitat of Arctic cod (the Barents sea) to forecast its annual catch.

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Abstract

The paper presents the results using current data of the temperature monitoring in the waters of the main spawning (the area adjacent to the Lofoten Islands) and fishery of the Northeast Arctic cod in the Barents sea with the aim of forecasting its possible catch. Comparative analysis was made on the materials covering the period from 1998 to 2016. The temperature data in areas of the main spawning season (March-April) and habitat (May-October) for cod in the Barents sea were obtained from the analysis of daily infrared information received from satellites of the NOAA series. Data about catches of cod for the same years was taken from ICES reports. Comparative analysis of these indicators revealed the following relationship between them. So, the correlation between the mean values of SST in spawning area and annual cod's catches amounted to R=0.68, that allows to use the current data of SST in this area as a prognostic indicator of possible annual catch of cod on 8 months before. For all that shown preservation of the seasonal trends of SST between the main spawning area (March-April) and habitat for fishing cod in the Barents sea (May-October). So, the correlation amounted to R=0,61. Also, comparative analysis of the average data of SST in the Barents sea (May-July) and future sum total of cod's catches over the period 1998-2016 confirmed reliable degree of correlation: R=0.67, which gives the possibility to use, and these indicators of SST for forecasting of the future annual catch of cod on 4-5 months before. Thus, satellite monitoring of SST in the waters of the main spawning and habitat of Arctic cod provides additional information resource to forecast its future annual catches.

Keywords: satellite monitoring, sea surface temperature (SST), the Northeast Arctic cod, main spawning and habitat waters, forecasting, possible cod's catch.