



The ability to use the results of satellite monitoring of temperature conditions in the main spawning ground of the Northeast Arctic cod to assess the abundance of its generations

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Abstract

The paper presents the results of the assessment of the possible influence of such temperature conditions, as the sea surface temperature (SST) and its anomalies in the Northeast Arctic cod's (*Gadus morhua*) main spawning grounds in the Norwegian Sea (area adjacent to the Lofoten Islands), on the formation of its generations' productivity at age 3+. Data about the temperature during the main cod spawning (March-April) were obtained from the analysis of daily output of infrared satellite imagery from weather satellites of the NOAA series. The results of a comparative analysis between the number of cod generations at age 3+ in 2001-2015 (ICES data) and the actual temperature conditions that were observed in the previous period in its main spawning grounds in 1998-2012 are present. It was revealed that in these years rich and average (close in numbers to rich) generations of cod at age 3+ appeared when anomalies of SST in the area adjacent to the Lofoten Islands ranged from $-0.1 \div 0^{\circ}\text{C}$ to $+1,3 \div +1,4^{\circ}\text{C}$ during cod's spawning period. Average (close in number to poor) and poor generation of cod at age 3+ appeared at lower and higher values of SST's anomalies. Thus, satellite monitoring of anomalies in SST in the Northeast Arctic cod's main spawning grounds provides additional prognostic information resource when evaluating the number of future estimate of future cod's generation at age 3+.

Keywords: the Northeast Arctic cod, main spawning ground, satellite monitoring, sea surface temperature (SST), forecasting, the abundance of new cod generations at age 3+.