

## Short communication

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# Changes in the composition of the spring zooplankton of Lake Baikal

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**ABSTRACT.** Since the 60s of the past century, researchers from Limnological Institute SB RAS have been regularly sampling zooplankton in a network of stationary stations along the Baikal water areas. In 2009-2018, the samples were collected in late May or early June immediately after the melting of ice during the complex expedition. The total biomass and abundance of zooplankton did not go beyond the interannual fluctuations observed in the 60-90s of the past century. A high abundance of spring rotifers in the Middle and Southern basins was also observed in 2015-2018. In the northern basin, the maximum rotifers indicator for the entire period of 30% of the plankton abundance was recorded only in 2016. The amount and composition of organisms in the surface layer depend on many factors. In our opinion, the depth and temperature characteristics of the water layer play an important role. The change in the heating and mixing of water could have led to observed shifts in the surface plankton composition.

**Keywords:** Baikal, zooplankton, pelagic zone, rotifers, temperature.

## 1. Introduction

Since the 60s of the past century, researchers from Limnological Institute SB RAS have been regularly sampling zooplankton in a network of stationary stations along the Baikal water areas. Such studies revealed patterns of macroscale distribution of zooplankton and trends in its interannual dynamics. Many researchers indicate the influence of global changes on the Baikal plankton (Afanasyeva and Shimaraev, 2006; Hampton et al., 2014; Izmet'seva et al., 2016). Indicators of spring zooplankton have long remained stable. However, the absolute and relative abundance of rotifers in the zooplankton of the Southern and Middle basins in 2014 exceeded the upper limits identified in previous years (Naumova and Zaidykov, 2018).

## 2. Material and methods

In 2009-2018, the samples were collected in late May or early June immediately after the melting of ice during the complex expedition of the research vessels "Akademik V.A. Koptug" and "G.Yu. Vereshchagin". Data were used from three transects located in different basins of the lake. The extreme stations were located three kilometres from the shore. The Juday net was used with a diameter of 37 cm and a mesh size of a filtering cone of 88  $\mu\text{m}$ , from the layers of 0-50 m. Samples were calculated according to "Atlas..." (1995).

## 3. Results and Discussion

The total biomass and abundance of zooplankton did not go beyond the interannual fluctuations observed in the 60-90s of the past century. The total number of zooplankton in 2015-2018 fluctuated synchronously in three basins (Fig.). A high abundance of spring rotifers in the Middle and Southern basins was also observed in 2015-2018. In the northern basin, the maximum indicator of rotifers for the entire period of 30% of the plankton abundance was recorded only in 2016.

The amount and composition of organisms in the surface layer depend on many factors. In our opinion, the depth and temperature characteristics of the water layer play an important role. The change in the heating and mixing of water could lead to observed shifts in the surface plankton composition.

According to our data (Makarov et al., 2019), up to 50% of the biomass of mesozooplankton can be located deeper than 50 m. Therefore, the sampling for scientific and environmental purposes must be carried out at Lake Baikal, taking into account these features.

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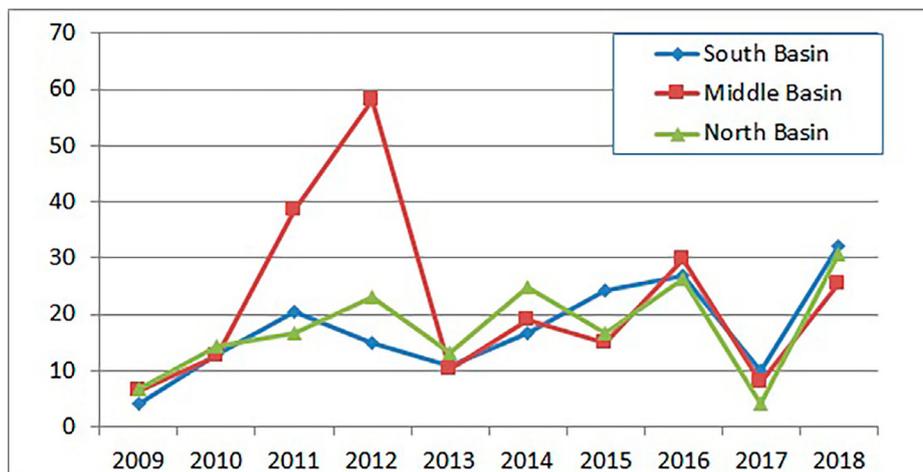


Fig. The abundance (thous. specimens/m<sup>3</sup>) of spring zooplankton in different basins of Lake Baikal (within the layer of 0–50 m)

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