



Morphology and distribution of pelagic ostracods of the genus *Boroecia* (Ostracoda: Halocyprididae) in the Central Arctic

VLADIMIR G. CHAVTUR^{1,2,3}, DIETMAR A. KEYSER^{4,5}, ALEXANDER G. BASHMANOV¹

¹Zhirmunsky Institute of Marine Biology, Far East Branch, Russian Academy of Sciences, 17 Palchevskogo Street, Vladivostok 690041, Russia

²Far Eastern State University, Vladivostok 690050, Russia

³Far Eastern State Technical Fisheries University, Vladivostok 690087, Russia

⁴Zoological Museum, University of Hamburg, 20146 Hamburg, Germany

⁵Corresponding author. E-mail: keyser@zoologie.uni-hamburg.de

Abstract

Morphologically similar *Boroecia borealis* and *B. maxima* are redescribed from the Central Arctic. Their morphological differences are minor but well defined. Their geographic and vertical distribution is studied based on an extensive body of materials collected by many expeditions in the Arctic Ocean during the period from 1929 to 1993 at the depth range of 0–4000 m. The comparison of the distribution of both species reveals that *B. borealis* prefers waters of subarctic structure in the Atlantic, and it inhabits waters in the relatively warm Atlantic layer in the Arctic. In contrast, *B. maxima* is a good indicator of cool Arctic waters. This species is also present in greater depths of the Northern Atlantic, where polar waters penetrate far towards the south.

Key words: Crustacea, Myodocopida, taxonomy, Arctic Ocean, arctic-boreal species, bioindicator

Introduction

The present study deals with the pelagic ostracod species *Boroecia maxima* and *B. borealis* that are widely distributed in the Northern Atlantic, Norwegian Sea, Greenland Sea, and Central Arctic. *B. maxima* is a typical inhabitant of the Arctic basin and the most common species of pelagic ostracods in the region. The species was originally described at the end of the XIX century (Brady & Norman 1896) from material collected off East Greenland and in cold waters of the North Atlantic. However, the morphology of this species has been studied inadequately. Moreover, this ostracod frequently occurs in hauls together with the morphologically similar boreal-arctic species *B. borealis* described one and half centuries ago (Sars 1866) from the area of the Lofoten Islands. As a result, these species are often confused during identification or even united into one species. Publications on the morphology of *B. maxima* (Brady & Norman 1896; Sars 1900; Müller 1901; Skogsberg 1920; Poulsen 1973) use a limited set of taxonomic features, which are not sufficient for the identification of these pelagic ostracods.

The study of the morphology of *B. maxima* in comparison with that of *B. borealis* needs to be intensified, because under conditions of global warming the former species is an excellent marker of the advection of Arctic water into the Northern Atlantic and the latter is a bioindicator of Subarctic water masses spreading into the Polar basin (Chavtur and Bashmanov 2008).

The present study analyses material that was mostly collected during years when the warming process was not as obvious as it is now; therefore, our results reflect the hydrological conditions of the previous cold period and thus could be of interest for hydrobiological monitoring.

Material and methods

This work is based on an extensive amount of material collected by many expeditions in the Arctic Ocean during