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Paleoenvironmental Changes in Southern Primorye in the Middle and Late Holocene revealed on the Basis of Ostracod Analysis

E.I. SCHORNIKOV

Institute of Marine Biology, Far East Branch, Russian Academy of Sciences, Vladivostok 690041 Russia

For the first time on the Russian western coast of the Sea of Japan (Peter of the Great Bay) fossil ostracods have been studied on materials of two strippings and two cores in the sea coastal Holocene mouth zone sediments of Artemovka and Shkotovka Rivers. Species composition changes of ostracod fauna within climatic optimum (6410± 50 years ago) and late Holocene have been reconstructed for this region. A total of 37 ostracod species have been found in those sediments. By biogeographical characteristics only 2 from 23 species known of recent fauna can be referred to the widespread boreal species, penetrating in cold waters up to the Bering Sea; 6 species are low boreal which distribution northwards is limited by waters warmed in summer minimum up to +10⁰C. 14 species (61%) belong to a group of warm water subtropical low boreal species, while *Sinocytherdea* sp. 2. is a tropical subtropical species, which is not found in recent fauna of the Sea of Japan.

At present *Sinocytherdea* sp. 2. inhabits only littoral and brackish waters of the East China and Yellow Seas. In addition to it three more brackish water species - *Spinileberis pulchra* Chen, 1982, *Spinileberis furuyaensis* Ishizaki et Kato, 1976 and *Ishizakiella miurensis* (Hanai, 1957) - can be referred to Holocene optimum indicators in Shkotovo core sediments. Now they occur only as solitary relict populations in some mostly warmed areas (i.e. refugium), while in the south these species are widely distributed in the East China and Yellow Seas.

In general middle Holocene ostracod fauna of the core studied is typical for a climate much warmer than at present. This age corresponds to the late Atlantic period called as the global climatic optimum of Holocene, when the warmest climate through the whole Quaternary history was observed in the Northern Hemisphere. Peak of this warming (the warmest period) was recorded in the sediments ranging from 490 to 380 sm. It is noteworthy that a number of abundant now low boreal species of the bay are lacking in this fauna, since they seem to have moved there most recently. These species include, for example, *Ishizakiella supralittoralis* Schornikov, 1974, inhabiting supralittoral zone of Shkotovka River estuary, and *Howeina* sp. 5., which is the most abundant in silt sediments of the upper part of Ussurisky Bay. Appearance of *Cytheromorpha claviformis* Hirschmann, 1909 in sediments from 463 to 460 cm seems to show the beginning of climate cooling, which is recorded on the boundary of atlantic and subboreal zones (4.7-4.2 thousand years ago).