G.D. Kolbasova[1], O.P. Konovalova[1], D.D. Vasyukov[2], E.A. Kuzmicheva[2], N.Y. Neretin[1], A.E. Zhadan[1], K.N. Kosobokova[3] and T.V. Neretina[1]

[1]Pertsov White Sea Biological Station, Lomonosov Moscow State University, Moscow, Russia

[2]Severtsov Institute of Ecology and Evolution, Russian Academy of Science, Moscow, Russia

[3]Shirshov Institute of Oceanology, Russian Academy of Science, Moscow, Russia

Two sympatric species of Cyanea (Scyphozoa) from Arctic seas distinguished by the molecular methods

Key words: Scyphozoa, Cyanea, Arctic megaloplankton, genetic analyzis, sympatric species

Cyanea capillata (von Linnaeus1758) is one of the most conspicuous representatives of Arctic megaloplankton. Over the last 100 years it was believed that this species inhabits all Arctic seas. However, recently another species of the same genus, *Cyanea tzetlinii* Kolbasova and Neretina 2014 sp. nov., from the White Sea has been described based on the morphological and molecular features. Taking into account the young geological age of the White Sea and a substantial genetic divergence between *C. tzetlinii* and *C. capillata*, we suggest that *C. tzetlinii* did originate elsewhere but not in the White Sea. We hypothesize that *C. tzetlinii* may also inhabit other Arctic seas which may explain its penetration into the White Sea. To check this hypothesis we analyzed genetic diversity of *Cyanea* from the Barents, White, Kara, Laptev, and Bering Seas. The molecular analyses of the mitochondrial (CO1 and 16S RNA) and nuclear (ITS and 18S RNA) loci showed that *C. tzetlinii* occurs in the White, Kara and Bering seas. No genetic differences were found between *C. tzetlinii* from the White and Bering seas, and only low differences were found between them and the Kara Sea *C. tzetlinii* specimens. *C. capillata* was found in the Barents, White and Kara seas. Genetic analysis of the same sequences showed marked genetic variability within this species and the presence of at least three phylogeographical patterns of *C. capillata* in these three seas. The zoogeographical and ecological aspects of co-occurrence of these two closely related species in the Arctic are discussed.