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**BACTERIONEUSTON ABUNDANCE
AND PHYSICOCHEMICAL PROPERTIES
OF THE SURFACE MICROLAYER OF LAKE BAIKAL**

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The aquatic surface microlayer is located at the atmosphere–hydrosphere boundary and occupies 70% of Earth's surface, covering all water bodies. The depth of the surface microlayer is about 50 μm . A special microbial community called neuston is formed there. The total bacterial abundance in the surface microlayer (SML) and underlying waters (UW) of Lake Baikal was studied using epifluorescence microscopy. Physicochemical features of the surface microlayer of Lake Baikal were revealed for the first time. The SML was sampled throughout Lake Baikal in May–June of 2013 to 2016 and in August of 2013, 2015 and 2016. SML samples were taken from a boat, mainly during calm weather, using Garrett's metal mesh screen (a diameter of 26.5 cm). The average values of total bacterial abundance in the SML varied through years within a range of $(0.93\text{--}1.49)\times 10^6$ cells/mL in May–June and $(1.73\text{--}2.24)\times 10^6$ cells/mL in August; in the UW, at a depth about 15–20 cm, there were $(0.79\text{--}0.89)\times 10^6$ cells/mL in May–June and $(1.15\text{--}1.4)\times 10^6$ cells/mL in August. Significant differences and a direct relationship between the total bacterial abundance in the surface microlayer and underlying waters of Lake Baikal in the summer period have been shown. Differences between the chemical composition of the surface microlayer and the subsurface water layer in all studied seasons were revealed. The surface microlayer was enriched with PO_4^{3-} , total organic carbon and suspended particulate matter as compared with the underlying waters. A direct relationship was found between the numbers of bacteria in the surface microlayer and the suspended particulate matter concentration.

Key words: surface microlayer, neuston, total bacterial abundance, Lake Baikal.

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