



Water chemistry and plankton composition in the mixing zone of the Selenga River with Lake Baikal

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Seasonal and inter-annual variations of chemical components, bacterio- and phytoplankton and autotrophic picoplankton (APP) were studied in the distributaries of the Selenga River, Selenga shallow waters (Selenga shoal) and Lake Baikal for 2003-2013. Major variations in the chemical composition of river waters were recorded at a distance of 1–3 km off the mouths of the Selenga River distributaries (mixing zone). The total quantity of major ions and plankton composition and abundance served as indicators to distinguish between river and lake waters. Phytoplankton concentration was high in the mixing zone and caused the reduction of nutrients in this area. Changes in species composition of phytoplankton, APP, dominant groups of bacterioplankton were observed in the Selenga shoal. River phytoplankton prevailed near the mouths of distributaries, in the mixing zone these were replaced by lake species, and at a distance of 7 km offshore phytoplankton composition was typical of Lake Baikal. Organotrophic microorganisms dominated in the Selenga River water. In the mixing zone, all bacterial groups were represented in equal proportions. Oligotrophic and psychrotolerant bacteria prevailed in Lake Baikal. As the distance from the river delta increased, phycocyanin-rich picocyanobacteria were replaced by phycoerythrin-rich picocyanobacteria and the contribution of picoplankton biomass to total phytoplankton biomass was raised. Near the mouth of distributaries, APP biomass was 5 times lower than the phytoplankton biomass whilst at a distance of 7 km it was 2 times higher than typical values for Baikal phytoplankton.