

Potentially toxic elements in the surface waters of the Cherek Bezengiysky river basin

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Annotation. Since the purification of drinking water from heavy metals is not carried out presently, the study of the trace element composition of the waters used for these purposes is absolutely necessary. The aim of this work is to study the micro-component composition in surface waters of the Cherek Bezengiysky river basin. Concentrations of 11 metals of hazard classes II - IV (Ag, Al, As, Cd, Cr, Cu, Mn, Mo, Ni, Pb, Zn) were determined. Water samples were taken at the end of June – July during the period of intensive glaciers melting. The content of heavy metals was determined using atomic absorption spectroscopy. The study showed that only two metals – manganese and zinc - are characterized by a natural decrease in concentrations when changing climatic zones from the highlands to the middle mountains. For metals whose concentrations are within Clark values (Ag, Cd, Cr, Cu, Ni, Pb), no regularities in the dynamics of concentrations in surface waters associated with the transition from the high-altitude to the mid-mountain zone were revealed. Higher concentrations of arsenic (up to 2 MPC for drinking water) found in two watercourses are associated with the presence of geochemical anomalies. In general, the surface waters of the Cherek Bezengiysky river basin have the lowest level of natural pollution with potentially toxic elements compared to other rivers of Kabardino-Balkaria.

Key words: geochemical anomalies, trace elements, alpine rivers

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