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STUDY OF CHANGES IN THE HYDROCHEMICAL REGIME OF DRINKING WATER SOURCE - GEGHAROT RIVER, ARMENIA

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Changes in freshwater resources availability, quality, stream flow and in river ecosystems are the major expected impacts of anthropogenic pressure and climate change in watersheds. Freshwater reduction deteriorates water supply and increases water demand. Thus, a long-term study of the quality and quantity of freshwater sources is urgently required, as well as identification and prediction of expected hydrochemical changes are needed. In current work, the determination of changes in concentrations of over 22 metals in the source of the Gegharot River was done for 2007-2016. The Gegharot River is main drinking water source of the relatively large villages (about 1700-3000 person) of Aragats Mountain region in Armenia. The runoffs of snow-melt water at 2200 m down top of the mountain are the parts of Gegharot River's streams system and they flow through the manganin and iron ores.

The anthropogenic and climate change impacts on the river water quality were studied and estimated. It was shown, that in the result of the changes of climate conditions, natural acid springs were started to mix with the Gegharot source, which leads the decrease in pH value until 3-4, as well as 10-100 increase in concentrations of Mn, Fe, Ni and other metals in water during one-two months in summer and autumn. Due to the deterioration of environmental flow in mid-flow of the river, as a result of small HPPs operation, the hydrochemical changes in the Gegharot source was observed longer and more frequently. Thus, the Gegharot drinking water source is being violated by the anthropogenic impact and is strongly required to be protected.

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