

TRANSFORMATION OF MACROZOOBENTHOS COMMUNITIES IN THE LOWER REACHES OF THE ANGARA RIVER AFTER REGULATION

A.V. Andrianova

*Institute of computational modeling of the Siberian Branch of the Russian Academy of Sciences, Krasnoyarsk, Russia
andrav@icm.krasn.ru*

Abstract. The Angara River is one of the largest rivers in Siberia, overregulated by large reservoirs. Reservoir operation entails a change in the habitat for the river biota, as a result of which organisms with high environmental adaptability and resistance to pollution take the leading positions. Only if there is a detailed knowledge of the Angara aquatic life in modern conditions, it will be possible to carry out scheduled activities for the reconstruction of aquatic fauna and fisheries in connection with hydraulic engineering. Nowadays, there is a significant gap in hydrobiological studies of the unregulated lower section of the Angara. The work objective is to identify changes in the bottom fauna of the lower Angara section after the regulation of the Boguchanskaya HPP. In 2015, Boguchanskaya HPP reached the design production level. Samples of zoobenthos were collected in 2015 and 2022. Benthic fauna was studied in the lower reaches of the Angara River at a site of 436 km below the Boguchanskaya HPP dam on both river banks at depths up to 1,5 m. The collection and office analysis of the material were carried out according to generally accepted methodological recommendations. Zoobenthos biotopes are represented by pebble-sandy soil with varying degrees of siltation and macrophytes. The benthic fauna was gammarid-chironomid in nature. In 2022, compared with 2015, an increase in species composition was revealed due to chironomids; on the contrary, the number of species of mayflies and caddis flies decreased. The structural organization of communities changed: there was an increase in the proportion of chironomids and a decrease in the proportion of mayflies, caddis flies and mollusks. The number of chironomids increased by 4 times, and amphipods doubled. The number of caddis flies decreased by about 5 times, mollusks – by 3 times, and mayflies – by 12 times. At the same time, the total number of benthic fauna increased slightly – only by 1.5 times. Currently, the number of benthic fauna is 2,9 thous ind/m², biomass is 14,6 g/m². The general trend of the revealed changes is aimed at increasing the number of tolerant benthos (chironomids and amphipods) and reducing indicator taxa sensitive to pollution (mayflies, stoneflies, caddis flies and mollusks). The reason for the transformation of bottom communities is the cascade regulation of the river. The Boguchanskiy reservoir, which closes the cascade, is the recipient of gradually accumulating changes and has a direct impact on the hydrochemical and hydrobiological regime below the Angara riverbed.

Keywords: the Angara River, Boguchanskaya HPP, zoobenthos, regulation, structural organization, amphipods, chironomids

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