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PRELIMINARY ANALYSIS OF STURGEONS SWIMMING CAPACITY ABOVE THE BOTTOM SILL BY NUMERICAL SIMULATION. BALA BRANCH CASE STUDY

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Abstract

The need of hydraulic structures for the improvement of the navigation conditions on the Danube, between Calarasi and Braila (km 375 and km 175), led to the development of studies regarding the environmental impact. The studies were made by correlating the dynamic implementation of hydraulic works with the results of the environmental monitoring, biotic and abiotic factors. The hydraulic works designed to be built-up on the Bala branch, raised issues regarding sturgeons'migration in this area, this study bringing an important contribution in determining their swimming potential against the stream. Based on the valuable data obtained from measurements and monitoring carried out in 2011-2012, around the old bottom sill built in the 90's on the Bala branch, in conjunction with the results of the numerical simulation performed, and taking into account the technical characteristics of the hydraulic works that will be conducted in this area, a preliminary analysis regarding the swimming ability of sturgeons against the water current was performed. Taking into account just the water velocity distribution in different cross sections, it can be concluded that the hydraulic structures implemented on the Bala branch will not affect the sturgeons' migration route.

Key words: bottom sill, numerical simulation, sturgeons, swimming capacity

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