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Modeling of ice passage through reservoirs system on the Vistula River

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ABSTRACT

Numerical model was used to assess ice passage through proposed reservoir on the lower Vistula River. Model results were compared with observation on the Vistula River, but because the dam is not constructed yet, the direct comparison was not possible. The study focused on ice movement and accumulation in the reservoir for variety of low flow condition with and without wind effect. Bridge's piers in the upper part of the reservoir were found to be one of the most important parameter affecting ice passage at proposed dam. The other parameter which hampers or may even lead to stopping ice movement is western wind. The study took place within the framework of exclusive analysis for selecting the final location of a new dam which is critical for ensuring permanent safety of the Włocławek dam. Base on performed study Przepust and Siarzewo variants accomplished the required goals to the largest extent at acceptable risk of ice stoppage and accumulation. Icebreakers operation is required during the ice sluicing operation in the new reservoir.