

The XXXVI International School of Hydraulics, 23-26 May 2017, Jachranka, Poland

## **Numerical modeling of water and ice dynamics for analysis of flow around the Kiezmark bridge piers**

M. SZYDŁOWSKI<sup>1</sup> and T. KOLERSKI<sup>1</sup>

<sup>1</sup>Gdańsk University of Technology  
G. Narutowicza 11/12, 80-233 Gdańsk  
e-mail: tomkoler@pg.gda.pl

### **ABSTRACT**

This paper presents the results of a numerical model study on the effect of ice on the proposed bridge piers in the Vistula River outlet and its effect on flow conditions in the river. The model DynaRICE is used in this study, which is a two-dimensional hydro-ice dynamic numerical model developed for dynamic ice transport and jamming in rivers. To simulate river hydrodynamic in the vicinity of the bridge piers 2-dimensional numerical model basing on finite volume technique was also used. Simulation results indicated notable effect of new structure on water and ice flow pattern. Ice forces on structures were also determined, but the load was not considerable high.