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Natural and anthropogenic changes of the Vistula outlet to the sea

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ABSTRACT

The Vistula (Wisła) is the largest Polish river, which flows from the south to north through the whole Poland. Its source is in the south in the mountains and the mouth in the north at the Baltic Sea. The Vistula catchment includes 54% of Polish territory. The river was always a very important economic, cultural and even defensive axis of the country. The whole course of the river was changing through the time, but most important changes appeared within its estuary area in the XIX century. These were natural and anthropogenic changes, which resulted mainly from severe ice jam floods, very complicated hydraulic course of the Vistula over its estuary area and severe hydro-meteorological conditions. They caused high social and economic losses. The engineering solution to solve this problem was in the form of an artificial Direct Channel (Przekop) to the sea. This well designed and realized engineering solution serves well till the present time. Development of Direct Channel had to be accompanied by efficient ice-breaking and additional hydraulic structures. The paper presents the description of the Vistula river and its catchment, its estuary area called Żuławy, floods in the XIX century in this area, and finally design and execution of Direct Channel together with other engineering structures. The paper ends with conclusions concerning the past, present and the future.