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Ice Jam Modelling of the Lower Red River

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ABSTRACT

The lower reach of the Red River between Winnipeg and Lake Winnipeg is very prone to ice jam flooding. The one- dimensional ice jam model RIVICE was implemented for this reach to better understand the processes leading to such events and to provide a tool to evaluate strategies for ice jam mitigation. The most downstream portion of this river stretch flows through a delta and marsh system which poses challenges in modelling ice jams in such an area of low-lying topography and river banks. Solutions to overcome these challenges are discussed in this paper and results of one such solution using water abstractions from the main channel are also presented. Abstractions are inserted in the model to represent under-ice leakage from the main channel to side channel storage and diversions (up to 65% in the Red River delta) and spillage into the delta floodplain.

KEYWORDS

Ice Jam Modeling; Netley Creek; Letley-Libau Marsh; Red River Delta; RIVICE

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