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Effect of Wood Jams on Flow Structure and Local Sediment Transport[1] ELIZABETH FOLLETT, Cardiff Univ of Wales, ISABELLA SCHALKO, HEIDI NEPF, Massachusetts Institute of Technology — Wood jam reintroduction is now considered a key component of river restoration projects, due to ecohydraulic benefits associated with wood presence. The physical attributes and associated impacts on flow structure and sediment transport of wood jams vary depending on relative jam and channel dimensions and bed mobility. Prediction of jam-induced backwater rise and sediment transport is necessary to improve design of restoration projects and model flood hazards. We present recent results demonstrating that an accumulation of wood pieces acts as a porous obstruction, so that flow progressing through the structure experiences frictional losses due to drag on wood pieces in an analogous manner to the drag generated by vegetated canopies. Further, we consider flow diversion and heterogeneity generated by partially spanning jams distributed non-uniformly in depth and for jams formed from increasing numbers of logs, which generate flow diversion in a manner similar to vegetated patches. When jam-induced flow diversion was strong enough to initiate local sediment transport, the jam grew in a self-similar manner, generating a scour hole. However, jams accumulated above immobile beds were restricted by the bed, eventually filling the channel-cross section with increased backwater rise.

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