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Abstrak

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The stable pools formed by spur dikes can be a significant factor for improving aquatic habitat in unstable degraded streams. Prediction of the volume and geometry of the scour hole associated with a spur dike yields information that is valuable for assessing the potential benefit to the aquatic habitat. Volumes of the scour hole in the vicinity of model spur dikes were measured in a laboratory flume under clear-water overtopping flows. Spur dike length, flow depth and shear velocity ratio were varied in the experiments and found to significantly influence the volume of the scour hole. For overtopping flows, the ratio of the flow depth to the spur dike height was found to be an important control on the geometry of the resulting scour hole. At higher flow depth to spur dike height ratios, the location of the maximum depth of scour changed from the upstream point of the dike toward the channel bank and caused a secondary scour zone to form downstream of the spur dike. A preliminary technique is proposed to predict the volume of scour for spur dikes perpendicular to the bank.