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Reclamation's consequences estimating methodology (RCEM) uses a flooding intensity parameter to aid in the selection of fatality rates. The product of depth and velocity (DV) can be obtained from hydraulic modeling results. One dimensional (1D) hydraulic modeling can be used to produce dam failure inundation data and maps, but the 1D modeling output data does not provide information on lateral variation of DV as distance increases from the river channel. This can be an issue, especially for broad floodplains. Both velocity and depth will vary away from the river channel in locations where population at risk may be situated.

Depending on calculation methods, DV derived from 1D modeling of broad flood plains, can both over-or under-estimate the intensity of flooding at populated areas. The use of two dimensional (2D) hydraulic modeling for dam failure inundation analysis, allows for the calculation of laterally varying depth and velocities within the inundated area.

Differences in DV estimates are illustrated through the example of the 1976 failure of Teton Dam. A hydraulic re-creation was completed, based on discharge information, high water marks and aerial imagery. This information is very similar to what would be obtained from a 1D hydraulic model. DV values obtained from a recent 2D hydraulic model of this flood event are compared to the hydraulic re-creation. The results of this comparison serve to illustrate the limitations of 1D dam failure inundation modeling when compared to 2D, the broader range of information which can be obtained from a 2D model, and the corresponding increase in confidence in the selection of fatality rates and the estimation of dam failure life loss for risk analysis.