

Improving Streambank Erosion and Sediment Loading Estimates

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The State of Idaho Department of Environmental Quality commonly use methods outlined in the 1983 NRCS Channel Evaluation Workshop proceedings to inventory and calculate streambank erosion, and subsequently determine sediment loading relative to load capacity. This methodology provides an estimate of streambank stability and erosion through a combination of: 1) directly measuring actively eroding bank geometry (length and slope height) and 2) estimating bank lateral recession rates. The data are then used to calculate gross existing streambank erosion rates and to identify sediment budgets needed to meet background erosion rates and load capacity reductions. Currently, the total Eroding Area (A_E) of a stream segment is typically calculated as the product of the total linear horizontal bank length and the average slope height of actively eroding areas for the entire stream segment inventoried. These calculations are often utilized even though each individual horizontal bank length and corresponding bank slope height are typically measured in the field. Alternatively, we propose an easy-to-incorporate method, which can improve the estimates of total A_E without collecting additional data or changing currently-accepted field methodology. By calculating total A_E as the sum of the individual A_E 's for a stream segment (for example, summing the product of each horizontal eroding bank length and corresponding eroding bank slope height), real-data test cases show that A_E and subsequent sediment loading estimates can be improved by more than 28% over the currently-used method.