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| Presenter | Sean Crawford, P.E Coastal Resources, Inc. |
| Type | oral presentation |
| Category | Innovative watershed and stream restoration approaches/methods |
| Title | <i>Northwest Branch of the Anacostia River Bank Erosion Assessment</i> |
| Abstract | <p>Estimates of sediment contributed to a portion of the Northwest Branch of the Anacostia River (NW-160) system from bank erosion were calculated using a modified and calibrated Bank Assessment for Non-Point Source Consequences of Sediment (BANCS) model (Rosgen 2006). The model uses two indices to estimate bank erosion, the Bank Erosion Hazard Index (BEHI), and Near-Bank Stress (NBS).</p> <p>Monumented cross sections that were established during the initial assessment were re-surveyed to calibrate BEHI/NBS values to actual erosion rates. The BANCS methodology was performed on each bank at each selected cross-section to determine the combined BEHI/NBS rating, and then paired with the corresponding measured erosion/deposition rates. The measured erosion rates for each bank and averages for each BEHI/NBS rating did not give consistent results. Plotted values resulted in a wide scatter of data points with unacceptable correlation coefficients.</p> <p>In order to determine a total bank erosion rate for the entire site, a calibration procedure was performed. Banks adjacent to a surveyed cross section with the same BEHI/NBS rating as the surveyed section used the actual erosion or deposition rate measured at that bank. The remaining banks used calculated average rates corresponding to the banks BEHI/NBS rating.</p> <p>This BANCS calibrated procedure estimated that an excess of 98 tons/year of bank sediment are delivered to the NW-160 channel and not stored in bank depositional areas. The calibrated approach was compared to available bank erosion rate prediction graphs typically used by stream practitioners. The Colorado and North Carolina relationships agreed well with the calibrated approach estimate for total erosion, however, the typical BANCS model approach does not account for bank deposition or storage. Excluding deposition and storage for the NW-160 site overestimates the amount of sediment delivered to downstream reaches by an order of magnitude.</p> |