

## **Estimating a stream restoration design discharge**

Tyrel S. West<sup>1</sup>

Department of Civil and Architectural Engineering, University of Wyoming,

**Abstract.** A primary assumption of the natural channel design method for stream restoration is that the bankfull design discharge is the channel forming or dominant discharge. Dominant discharge is defined as the theoretical discharge that if constantly maintained in an alluvial stream over a period of time will produce the same channel geometry that is produced by the long-term hydrograph. The dominant discharge appears typically in three different forms, effective discharge, bankfull discharge, and as a specified return period discharge. The bankfull discharge is the most commonly used form in stream restoration projects. The selection of an appropriate design discharge that best approximates the dominant discharge is critical to the natural channel design methodology and will dictate the success of restoration projects in improving channel stability and water quality. In this paper, we present existing methods of estimating dominant discharge, including methodology, assumptions, limitations, and appropriate applications. The goal of this paper is to offer the stream restoration community a single reference to aid in the selection of an appropriate design discharge for restoration projects.

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<sup>1</sup> Graduate Research Assistant, The University of Wyoming, Department of Civil and Architectural Engineering, 1000 E. University Ave, Department 3295, Laramie, WY 82071, Office: (307)766-3120; Fax: (307)766-2221; Email: [gdwest@uwyo.edu](mailto:gdwest@uwyo.edu)