

CONTEXT, CONTEXT, CONTEXT: DIAGNOSTIC APPROACH TO CHANNEL ASSESSMENT^{AFS}

David R. Montgomery
Dept. of Earth & Space Sciences
University of Washington
Box 351310, Seattle, WA 98195-1310

Channel assessment procedures are often based on quantitative or qualitative ranking criteria that are scored to evaluate the “stability” or “condition” of a channel. Because of the often overwhelming importance of context in interpreting and evaluating - and therefore assessing – channel conditions, I argue that a diagnostic procedure, not unlike that followed in medical practice, provides a more logical basis for stream channel assessment and monitoring. In general, a particular indicator or measurement of stream channel condition can mean different things depending upon the local geomorphic context and history of the channel in question. A diagnostic framework assesses reach-level channel conditions as a function of location in the channel network, regional and local biogeomorphic context,

controlling influences such as sediment supply and transport capacity, riparian vegetation, the supply of in-channel flow obstructions, and disturbance history. A similar approach and level of understanding is needed to design effective monitoring programs, as stream type and channel state greatly affect the type and magnitude of channel response to changes in discharge and sediment loads. However, the formulation of specific diagnostic criteria and monitoring protocols must be tailored to specific geographic areas because of the variability in the controls on channel condition within river basins and between regions. The diagnostic approach to channel assessment and monitoring requires a relatively high level of training and experience, but proper application should result in useful interpretation of channel conditions and response potential.