



Assessment of Long-Term Channel Stability, Lower Truckee River: Evaluating Stream Restoration

Products	A technical note and report will detail how the lower Truckee River has responded to disturbances and flow events of different magnitudes over the past 65 years. The report will also document the rectification procedure, how the change assessment was conducted, and other results of this study. All of the data and results of this study will be made publicly available in order to ensure maximum benefit to future restoration activities along the lower Truckee River.
Benefits	The study will provide river restoration planners a long-term and broad spatial view on how the lower Truckee River has responded to a variety of disturbances and flow events of varying magnitudes through time. This analysis will provide critical baseline information and a broader spatial and temporal scale within which future restoration projects can be planned.
Issue	Multiple river habitat restoration projects are being planned for the lower Truckee River in western Nevada. However, a comprehensive view of how this system has evolved and changed through time in response to human disturbances and hydrologic events does not yet exist. A detailed change assessment using georectified imagery and surficial geologic maps will fill a critical gap in knowledge and provide a long-term context for these ongoing and future restoration efforts. In particular, this study will identify the locations and measure rates of channel migration and widening, in response to floods and other disturbances, while assessing other changes to the floodplain-channel system that in sum will provide the contextual background into which restoration activities can be placed and projects evaluated. This information is important for understanding how the river may respond in the future to further disturbances and to restoration efforts.
Description	The goal of this work unit is to document long-term channel and floodplain changes to the lower Truckee River (Vista to Pyramid Lake) and relate these changes to disturbances and the hydrology of the system. This study will use georectified imagery from 1938 to the present in an ArcGIS database to perform a quantitative change assessment. For the period prior to 1938, recently published surficial geologic maps will be incorporated into the database to help delineate the longer-term history of this system and relate it to lake-level fluctuations at Pyramid Lake, which serves as base level. The construction and analysis of this digital database will provide important baseline information and an overall context for present and future river restoration efforts. Additionally, historical photographs of the lower Truckee River from 1868 will be used to further characterize the historic condition of the river and the changes that have occurred. It is imperative that individual restoration projects are planned, constructed, and evaluated in a broader spatial and temporal context than the particular reach where activities will be focused. This study will provide that broader context and provide quantitative data on past rates of change against which future changes in restored reaches can be compared.

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