

ROCK CREEK FEASIBILITY STUDY^{AFS}

Bruce Anderson
Land & Water Consulting
P.O. Box 8254, Missoula, MT 59807
bruce.anderson@landandwater.net

Rock Creek is a “Blue Ribbon” stream supporting a high value coldwater fishery. A feasibility study was conducted to evaluate restoration strategies for the reach extending 14.5 miles downstream from Skalkaho Road. This study endeavored to undertake a “systems approach” to evaluate channel process on Rock Creek. This approach sought to identify underlying causes of channel instability, and present recommendations to improve equilibrium condition. At first glance, the braided, unconfined reach of Rock Creek appears to be undergoing large-scale changes in channel stability, channel form, bedload transport and deposition, and riparian habitat. Channel morphology has probably adjusted to some degree

to land use, although data to support this assumption were lacking. Despite substantial agency and landowner experience, channel dynamics are not completely understood and no consensus exists in interpretation of cause/effect and natural versus altered channel conditions. Channel cross-section data were collected with survey grade GPS, and included geo-referenced field data (pebble counts, Rosgen classification, substrate scoring, riparian condition, etc). Hydraulic analysis was performed using HEC-RAS. Braided conditions were related in part to land use, with inherent geological factors being the predominant driving influence. Imposed sediment load from upstream reaches did not appear to account for braided conditions. Further, rather than being a net depositional or aggrading zone, the braided reach appeared to be a net producer of sediment. Restoration activities aimed at conversion of the braided reach to a single-thread morphology is not necessarily consistent with the geological setting, and requires tradeoffs in terms of fish habitat and recreational use.