

Fine sediment distribution and benthic habitat alteration by small diversion dams on Rocky Mountain streams

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Abstract. Flow alteration by water diversion is ubiquitous across the Rocky Mountain West. This project examines the effect of flow variation on fine sediment distribution and alteration of channel hydraulics, through a detailed field analysis of reaches above and below diversion dams on 13 mountain streams throughout north-central Colorado and southern Wyoming. Sites were selected according to strict criteria including no upstream flow alteration, similar stream character upstream and downstream of diversion, and no potential of metal, nutrient or other chemical water quality impairment. Discussion will include comparison of various techniques to measure fine sediment and the types of alteration prevalent among our study sites. Results indicate that diversion dams lead to additional fine sediment accumulation in fast flowing regions and also increase the spatial extent of slow flowing patches. Additionally an analysis of stream and basin characteristics that could lead to fine sediment susceptibility will be presented.

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