Streamflow, Sediment and Organic Matter

Watershed studies reveal effectiveness of BMPs at reducing delivery of sediment to streams

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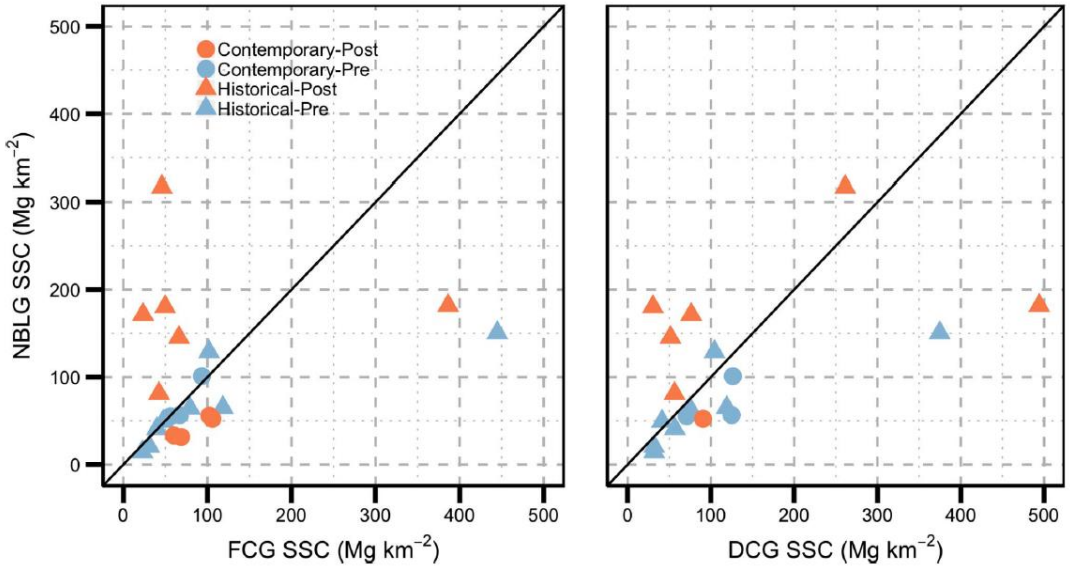
Best Management Practices, or BMPs have been developed and implemented throughout the Pacific Northwest to reduce the effects of forest operations, such as road building, timber yarding, machine trail development, and slash disposal, on erosion and fine sediment supply to stream channels. However, many questions remain about BMP effectiveness at mitigating nonpoint source pollution to protect water quality and aquatic ecosystem health. We compared findings from multiple paired watershed studies from H.J. Andrews, Alsea, and Trask watersheds to evaluate the effects of contemporary harvesting practices on suspended sediment concentrations and yields and to examine the legacy effects of historical harvesting on suspended sediment concentrations. Our results show that contemporary BMPs have decreased suspended sediment concentrations relative to historical practices. We also found that catchment characteristics, such as lithology and physiography, were a dominant control on the high variability in the suspended sediment observed in harvested and unharvested catchments.



A comparison of suspended sediment yield from the harvested watershed (Needle Branch, NBLG) relative to the unharvested reference watersheds (Flynn Creek, FC; Deer Creek, DCG) from both the historical and contemporary Alsea Watershed Study (from Hatten et al. 2018).