

AN INVESTIGATION OF THE ORIGIN OF
GLACIATED AND UNGLACIATED UNDERFIT RIVERS
IN ILLINOIS

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ABSTRACT

Underfit rivers have generally been hypothesized to be the products of pluvial climates. An alternative hypothesis attributing underfitness in selected streams originating on either side of the Wisconsinan glacial boundary in Illinois is tested. Two sets of streams are compared according to "degrees of underfitness" as indicated by 1) the number and type of meander scars in their present valleys, 2) their present gaged discharges, 3) their paleo-discharges as calculated from the radii of their paleo-meander scars. Analysis indicates much higher paleo-to-present discharge ratios for streams flowing from glaciated areas than for those originating in unglaciated regions. It is concluded that a pluvial climate is largely responsible for the underfitness of streams derived beyond the margin of the Wisconsinan ice sheet, but that the much greater degree of underfitness indicated for streams flowing from the glaciated area is the result of glacial meltwater.