



Relative importance of carbon sources for macroinvertebrates in a Rocky Mountain stream

McCutchan, James H., William M. Lewis

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ABSTRACT: Estimates of carbon sources, as determined from ratios of stable isotopes, were used in conjunction with estimates of secondary production to determine the relative contribution of algal carbon to macroinvertebrate production across a gradient of elevation in a Rocky Mountain stream (North St. Vrain Creek, Colorado). The relative contribution of algal carbon to macroinvertebrate production was then compared to the relative availability of algal carbon. Although algal production accounted for less than 2-40% of the combined sources of organic matter to North St. Vrain Creek, the relative contribution of algal carbon to annual macroinvertebrate production ranged from approximately 40% at a subalpine site to nearly 80% at a more open site in the foothills. Thus, the proportional contribution of algal carbon to consumer production greatly exceeded the relative availability of algal carbon in North St. Vrain Creek. Despite the disproportionate importance of algal carbon to consumers, most macroinvertebrates in North St. Vrain Creek used some vascular plant carbon.

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