Brook Trout Habitat Use in the Upper Shavers Fork of the Cheat River, West Virginia

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Abstract: We quantified brook trout (*Salvelinus fontinalis)* microhabitat use in a central Appalachian watershed, the upper Shavers Fork of the Cheat River during spring/summer 2001 with telemetry. Our objectives were to: 1) quantify non-random microhabitat use by brook trout in the Shavers Fork main stem and Rocky Run (a major tributary), 2) quantify the effects of increasing water temperature on microhabitat use, and 3) construct habitat suitability curves for four important microhabitat variables. Trout used a subset of available habitats in both the main stem and Rocky Run. Specifically trout tended to occupy deeper, higher velocity microhabitats than expected by chance alone. Trout also tended to remain close to cover and in close proximity to extremely high velocity microhabitats. During periods of warm water temperature, trout habitat use within the Shavers Fork mainstem was further constrained by access to coldwater sources near tributary mouths and along lateral groundwater seeps. Our results are consistent with previous research showing that trout select microhabitats on the basis of multiple interacting factors with temperature becoming an overriding factor above certain thresholds. Habitat suitability curves were constructed based on brook trout microhabitat use and will be used to design and monitor the effectiveness of future habitat restoration efforts in the watershed.

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