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Aquatic habitat characterization: groundwater versus surface runoff influenced streams.

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Riverine physical habitats and habitat utilization by fish have often been studied independently such that flow variability and its influence on habitat use are not well understood. Varying flows modify habitat composition and connectivity within a stream. This study examined the utilization by brown trout (*Salmo trutta*) and bullhead (*Cottus gobio*) of habitats that vary with flow in terms of size and type, persistence or duration, and frequency of change from one state to another, by comparing groundwater-dominated sites (stable regime) with runoff-dominated (flashy regime) upland, riffle-pool streams. Habitat surveys carried out at two-months intervals showed differences in habitat composition and diversity between the two studied streams. The extent of temporal variability in mesohabitat composition differs between the two types of flow regimes. Habitat suitability curves for brown trout and bullhead have been constructed to predict the potential location of the fish according to flow. Monitoring of the behaviour of fish using tagging and experimental studies have been designed to (i) improve knowledge of habitat characterization and also (ii) enable exploration of hypotheses linking adaptation and environmental variability.