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Utilizing Environmental DNA to Assess Fish Community Composition of the West Run Watershed, Monongalia County, WV

Identification of species composition is one of initial steps to undertaking the assessment of overall ecosystem biodiversity and health. An accurate and efficient evaluation method for obtaining the means for identification can be difficult to pinpoint, and traditional invasive methods (i.e., electroshocking, nets or traps), can potentially inflict injury, and can have low detection rates. Through the collection of environmental DNA (eDNA), a variety of organisms can be detected noninvasively. For the present study we analyzed community composition of freshwater streams from the West Run Watershed (Monongalia County, WV). We employed, eDNA filtration capturing methods in the field with chloroform-isomyl alcohol extractions in the laboratory. Small fragments 12s and 16s mitochondrial RNA regions were amplified and sequenced using conventional PCR (cPCR) methods in conjunction with next generation sequencing (NGS) technologies in order to assess headwater stream community composition.