**An examination of fish and macroinvertebrate succession patterns after restoration of a novel stream system**

Patrick Vrablik, Michael B. Flinn

Murray State University

Hatchery Creek is a restored stream in Jamestown, KY that drains from Wolf Creek National Fish Hatchery. The previous degraded channel of Hatchery Creek caused large sediment plumes in the Lower Cumberland River and was restored to decrease sediment loss and provide the opportunity for a self-sustaining trout population. We predicted that the increased amount of habitat would increase taxa richness and decrease abundance and biomass. Fish and macroinvertebrates were sampled throughout the year using backpack electrofishing gear for fish, and surber, multi-habitat, and kicknet samples were used to quantify macroinvertebrate density, diversity, and biotic index. Before restoration, taxa richness was 6-8 fish species, dominated by rainbow, brown, and brook trout. The macroinvertebrate community included 8-13 taxa, dominated by low scoring and very-tolerant taxa. Macroinvertebrate density and biomass were over 100,000 ind/m2 and 10 g/m2 respectively in the pre-restored channel. Macroinvertebrate taxa richness increased to 17 taxa, with appearance of new EPT taxa, while fish diversity decreased to 5 taxa. Macroinvertebrate density and biomass in the restored channel have decreased to roughly 1/3th and 1/5th pre-restoration levels respectively. Collector-gatherers remain the dominant functional feeding group in the restored channel, but collector-filterers now make up 33% of overall FFG composition compared to 18% in the unrestored stream. The patterns of fish and macroinvertebrate community recovery suggest new habitat does not result in increased biodiversity within the first year. Further, patterns show that source pools of biodiversity may influence recovery, and that monitoring recovery requires longer time periods.