Introduction

Freshwater mussels are ecosystem engineers that occur as multi-species aggregations (mussel beds) that are patchily distributed in streams. Mussels alter physical habitat structure, act as nutrient capacitors, and their filter feeding can alter seston concentrations and composition in the water overlying them. We hypothesized that freshwater mussels, by altering food resource availability, would influence the abundance of different macroinvertebrate functional feeding groups.

Methods

To test this hypothesis, we performed a field experiment in a small river in southeastern Oklahoma, the Kiamichi River. We used 50, 0.25m2 enclosures which were buried 20 cm deep in the sediment. Treatments were mussels (2 species combined, Actinonaias ligamentina and Amblema plicata; n=20), sham mussels (shells filled with sand; n = 20), and a sediment only control (n=10).

Macroinvertebrates were collected after 12 weeks, identified, and measured.

Results

Preliminary results show decreased relative abundance of grazing mayflies (Heptageniidae) and increased abundance of predatory caddisflies (Polycentropidae Polycentropus spp.) in treatments with live mussels compared to controls, but few differences between treatments with live mussels compared to sham shells. These results indicate that the biogenic structure provided by mussels might facilitate predators.

Discussion