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Patterns in Clam Excurrent Siphon Velocity According to External Environmental Cues D.R. WEBSTER, S.K. DELAVAN, Georgia Tech — This study attempts to determine the patterns and/or randomness of the excurrent velocity of actively feeding clams, *Mercenaria mercenaria*. We hypothesize that clams alter their feeding current velocity patterns or randomness according to external cues in the environment such as hydrodynamic characteristics, density of the clam patch, and presence of predators in the upstream flow. A PIV system measured vector fields for two-dimensional planes that bisect the clam excurrent siphons, and time records were extracted at the siphon exit position. Fractal and lacunarity analysis of the jet velocity time records revealed that clams alter their jet excurrent velocity unsteadiness according to the horizontal crossflow velocity. The results also reveal that the effect of clam patch density on the feeding activity was dependent on the size of the organism. This size/density dependent relationship suggests that predation by blue crabs dominates the system since larger clams are no longer susceptible to blue crab predation, whereas clams of all sizes are susceptible to whelk predation. Finally, clams increase the randomness of their excurrent jet velocity values when predator cues are located in the upstream flume flow. This suggests that the presence of predators elicits clam behavior that promotes the mixing and dilution of their chemical metabolites.

D. R. Webster
Georgia Tech

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