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Signal Structure in Bivalve Excurrent Flow S.K. DELAVAN, D.R. WEBSTER, Georgia Tech — Chemical cues provide information to organisms about potential mates, food, or predators and are subject to hydrodynamic processes as they are transported by the fluid flow. Recent studies show that the characteristics of the chemical release greatly influence the signal structure in a chemical plume. To fully characterize and quantify the nature of a chemical plume (metabolites from the excurrent siphon of a bivalve mollusk) several source characteristics, such as excurrent flux, flow unsteadiness, siphon diameter, and siphon height, must be examined. The resulting signal structure may be used by predators to distinguish unique characteristics of desired prey (for instance, small versus large bivalves). Alternatively, the signal structure may be manipulated by the bivalve to create a hydrodynamic refuge from predation. In the current study we used Laser Doppler Velicometry (LDV) to quantify the temporal pattern of the excurrent velocity of the benthic bivalve clam, *Mercenaria mercenaria*. Time records of excurrent velocity were analyzed to reveal that pumping rates remain within a narrow range for a period of minutes followed by intermittent large decreases in velocity. Preliminary results suggest that clams have a "resting period" in which they retract then re-extend their siphons, possibly to control flux rates or to flush the filter.

Donald Webster
Georgia Tech

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