Abstract Submitted
for the DFD13 Meeting of
The American Physical Society

High Speed Tomographic PIV Measurements of Copepod Sensitivity to a Suction-Feeding Predator Mimic J. YEN, Georgia Tech, D.W. MURPHY, Johns Hopkins University, L. FAN, A. SKIPPER, D.R. WEBSTER, Georgia Tech — Copepods, which sense their fluid environment with long, setae-bearing antennules, often serve as prey to fish. The fluid disturbance created by fish feeding is a combination of a bow wave created by swimming towards the prey with an open mouth and a sudden, high speed flow into the fish's mouth created by suction. The sensitivity and reaction of copepods to the dynamic, high acceleration flow created by a suction feeding fish have not been well explored. In the present study, a suction feeding piscine predator mimic is developed and tested with copepods from a fish-containing (marine) environment (*Calanus finmarchicus*) and with copepods from a fish-less (alpine lake) environment (*Hesperodiaptomus shoshone*). Flow fields created by the impulsive siphon are measured with a high-speed tomographic particle image velocimetry (PIV) system. Escape success and kinematics of the two species are compared. Finally, using volumetric flow measurements, the hydrodynamic signal measured along each copepod's antennules at the time point of escape is compared between species.

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Date submitted: 31 Jul 2013 Electronic form version 1.4