

Abstract Submitted
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Freshwater Copepod Behavior in Turbulent Eddies M. RUSZCZYK, D.R. WEBSTER, J. YEN, Georgia Tech — Previous studies have shown that marine copepod behavior is modulated by turbulence. We seek to expand on this observation by investigating a freshwater species, *Hesperodiaptomus shoshone*, and how it responds to small-scale turbulent vortices. The calanoid copepod *H. shoshone* is a dominant predator in high-altitude alpine lakes, ranging from 2-4 mm in length. The Burgers vortex model was used to simulate dissipative eddies with four levels of turbulent dissipation rates ranging from 0.002-0.25 cm²/s³, mimicking turbulent conditions found in natural habitats. Tomographic PIV was used to quantify the vortex circulation and axial strain rate of the vortices. *H. shoshone* males and females were separately exposed to the four Burgers vortex treatments in a horizontal axis orientation plus a stagnant fluid control treatment. In comparison to the morphologically-similar marine copepod *Calanus finmarchicus*, *H. shoshone* appears minimally responsive to the Burgers vortex. *H. shoshone* swimming speeds remained similar under different turbulence conditions, showed no circular trajectories, and made minimal attempts to escape the vortex. These results were consistent between males and females and suggest *H. shoshone* are not responsive to hydrodynamic cues of the vortex structure. The contrasting behavior will be discussed in the context of the ecology and environmental conditions of the different habitats.

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