

Abstract Submitted
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Comparison of Turbulence-Copepod Interaction: *Temora longicornis* vs. *Acartia tonsa* N.H. DE JESUS-VILLANUEVA, University of Puerto Rico-Mayaguez, D.L. YOUNG, D.R. WEBSTER, J. YEN, Georgia Tech — The purpose of this study is to examine the behavioral response of the marine copepod *Temora longicornis* to a Burgers' vortex intended to mimic the characteristics of a turbulent vortex that a copepod is likely to encounter in the coastal or near surface zone. Copepod behavioral assays were conducted for two turbulence levels corresponding to mean turbulent dissipation rates of 0.009 (Level 2) and 0.096 (Level 3) cm^2/s^3 . The Burgers' vortex parameters (i.e., circulation and axial strain rate) are specified to match a vortex corresponding to the median viscous dissipation rate for each target turbulence level. The behavioral response of *T. longicornis* compared to *Acartia tonsa* is of particular interest due to differences in swim style (cruiser vs. hop-sinker, respectively) and mechanosensory array morphology (planar vs. 3D, respectively). When exposed to these vortex flow treatments, *T. longicornis* exhibited a minimal behavioral response to the Level 2 vortex, but significantly altered their swimming behavior in the presence of the Level 3 vortex. Specifically, in the Level 3 vortex treatment *T. longicornis* increased relative swim speed, turn frequency, and escape acceleration while decreasing angle of alignment with the vortex axis and escape frequency (relative to stagnant control conditions). Histograms of escape jump location as a function of radius reveals no preferential escape location for *T. longicornis*, which contrasts the preferential escape location of *A. tonsa* in the vortex core.

D.R. Webster
Georgia Tech

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