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The hydrodynamics of two species of copepods: temperate and subtropical *Euchaeta* D.R. WEBSTER, Georgia Tech, K.B. CATTON, Colorado State Univ., J. YEN, Georgia Tech — Different species of the copepod genera *Euchaeta* live in polar, temperate, and subtropical ocean environments. *Euchaeta elongata* is a species found in temperate waters and is roughly double the size of the subtropical species *Euchaeta rimana*. The kinematic viscosity of the ocean water in the temperate latitude (8 deg C) is roughly 50% greater than that of subtropical environments (23 deg C). We hypothesize that these species have adapted to the local fluid environment to create flow disturbances that facilitates optimal prey capture and predator avoidance. Particle Image Velocimetry (PIV) was used to quantify the flow surrounding each copepod species during cruising and escaping behaviors. Seven to nine replicates for each species were collected for free swimming specimens during both cruise and escape behavior. The average Reynolds number of both species was found to be on the order of 10 for cruising behavior and 1000 for escapes. During cruising, the spatial extent of the region of flow disturbance, defined by a threshold of the maximum principle rate of deformation, was not significantly different between species. In contrast, the spatial extent of the region of flow disturbance during escapes was larger for *E. elongata*. Further, the viscous dissipation rate was similar for the species during cruising, whereas *E. elongata* had a significantly greater viscous dissipation rate during escape behavior.

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