

Abstract Submitted
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The Hydrodynamic Wake of Two Species of Swimming Krill D.R.

WEBSTER, K.B. CATTON, J. YEN, Georgia Institute of Technology — Krill are often found in unorganized swarms or coordinated schools depending on the species. To test if group organization is related to the hydrodynamic wake produced by swimming krill we quantified the flow structure in the wake of *Euphausia superba*, a schooling Antarctic krill, and *Euphausia pacifica*, a swarming Pacific krill. In this study, we used infrared Particle Image Velocimetry (PIV) to analyze the structure of the hydrodynamic disturbance of free-swimming individual specimens. The downward directed jet produced by *E. pacifica* has a lower maximum velocity (3.4 +/- 1.1 cm/s vs. 6.2 +/- 1.3 cm/s), has a steeper wake angle (59 +/- 20 degrees vs. 48 +/- 14 degrees), and decays faster (0.3 s vs. 0.6 s) than the jet of *E. superba*, which suggests that the wake is less persistent for signaling in the smaller krill species (*E. pacifica*). Time record analysis reveals that the wake flow is very weak beyond 0.5 body length for *E. pacifica* and beyond 1 body length for *E. superba*. Since *E. superba* separation distances within a school range from 1 to 3 body lengths (from previous data), it appears that *E. superba* may not be using solely the hydrodynamic signal to facilitate schooling.

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