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Marine ostracod swimming behavior in the benthic boundary layer under different field flow conditions KELLY SUTHERLAND, JOHN DABIRI, California Institute of Technology, MIMI KOEHL, University of California, Berkeley — Marine organisms swimming in water near the substratum are subjected to boundary layer flow, which is characterized by steep velocity gradients and turbulence. How do small swimming organisms navigate flows at this interface to forage and interact with mates? We recorded in the field the swimming behavior of marine ostracods near complex living substrata exposed to different ambient water flow conditions. Ostracod trajectories and background water flow were recorded simultaneously using a Self-Contained Underwater Velocimetry Apparatus (SCUVA). Particle image velocimetry enabled us to map the instantaneous water velocity fields in which the ostracods were swimming. In slow flows ($U_{rms} \sim 0.3 \text{ cm s}^{-1}$), ostracod swimming tracks were more tortuous, and encounters with bottom-dwelling organisms and with other ostracods were more frequent than in higher velocity wave-driven flows ($U_{rms} \sim 2.8 \text{ cm s}^{-1}$), indicating that foraging and mating activities may be curtailed when ambient water flow is too rapid or variable.

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