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Shell selection of hermit crabs is influenced by fluid drag BARBARA CASILLAS, RENE LEDESMA, GUILLERMINA ALCARAZ, ROBERTO ZENIT, Universidad Nacional Autonoma de Mexico — The flow around gastropod shells used by hermit crabs (Calcinus californiensis) was visualized experimentally. These crabs choose their shells according to many factors; we found that the choice of shell (shape and weight) is directly related to the drag caused over them by the exposure to wave action. Tests were conducted in a wind tunnel to investigate flow differences for shells of various shapes. A particle image velocimetry (PIV) system was used to visualize the flow field. The images above show the flow field around two types of shells (Thais speciosa and Nerita scabircosta) for Reynolds numbers of $O(10^5)$. Using a control volume analysis, the drag coefficient was inferred. Several shell geometries, orientations and mean flow velocities were tested. In this talk, the flow and drag force will be shown for the different arrangements. A discussion of the relation between drag and shape will be presented.

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