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Snail feeding at the air-water interface DAISUKE TAKAGI, SOYOUN JOO, ROBERT COWIE, University of Hawaii at Manoa, SUNGYON LEE, University of Minnesota, SUNGHWAN JUNG, Cornell University — Apple snails exhibit an intriguing feeding behavior at the air-water interface: they deform the foot to set up a funnel-like structure with surface waves traveling radially inwards. We report quantitative measurements of the resultant flow generated on and around the snails. Our observations reveal that distant food particles floating on the interface are effectively drawn in and collected at the center of the funnel. We develop a mathematical model based on lubrication theory to explore plausible physical mechanisms driving the entire system. The snails efficient feeding strategy offers a great source of inspiration for engineering devices designed to drive and control particles along any interface.

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