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Fluid Flow Through Lytechinus Variegatus Sea Urchin Larvae

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FLUID FLOW THROUGH LYTECHINUS VARIEGATUS SEA URCHIN LARVAE

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Sea urchins (Echinodermata: Echinoidea) produce developmental stages called larvae that feed and develop within the water column prior to becoming a bottom-dwelling juvenile. We evaluated the ability of larvae of the sea urchin Lytechinus variegatus to assimilate dissolved organic material (DOM) from seawater using fluorescence microscopy. In particle-free seawater, the larval digestive system readily absorbed macromolecules (a protein and a polysaccharide, 1mg/mL). With continued exposure, the label was detected within the body cavity suggesting that these molecules were distributed from the digestive system to other areas. To assess the effect of DOM on rates of particle capture, larvae were exposed to polystyrene beads (26,046/mL, 3μm diameter) in the presence or absence of DOM (the protein bovine serum albumin (BSA)). Rates of particle capture by larvae were affected by the presence of BSA, but the larvae of different ages responded differently. Younger larvae captured more beads in the absence of BSA while older larvae captured more beads in the presence of BSA.