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Department of Marine Sciences
Presents a Seminar by

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Estuarine and nearshore larval retention enhanced by sinking in turbulence and depth-keeping in internal waves

Estuarine and coastal ocean currents typically vary with depth. Behaviors that affect larval depth can, therefore, have important implications for transport and retention in these habitats. Here I will discuss two examples of such larval behaviors: 1) depth-keeping in internal waves, and 2) sinking in estuarine turbulence. In the first case, a swarm of robotic larval mimics, the Mini-Autonomous Underwater Explorers, was deployed in shallow waters off Southern California and programmed to mimic larval depth-keeping behavior. During one deployment, an internal wave propagated through the swarm and transported the larval mimics 30-70 m towards shore in 15-20 minutes. Further investigation of many internal wave events revealed that depth-keeping would generally promote onshore transport and retention, compared to being passive. In the second case, virtual snail larvae with realistic behaviors, such as sinking in turbulence, were advected in a numerical model of Delaware Bay. Compared to being passive, sinking in turbulence not only enhanced retention in the bay, but it also promoted larval growth, increased larval residence time in desirable adult habitats, and resulted in higher settlement. Both examples demonstrate that specific behaviors can help larvae reach distinct nearshore habitats.

Host: Cesar Rocha
Time & Date: 11:00 am, Friday, March 5, 2021

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