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**Do swimming animals mix the ocean?<sup>1</sup>**

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Perhaps. The oceans are teeming with billions of swimming organisms, from bacteria to blue whales. Current research efforts in biological oceanography typically focus on the impact of the marine environment on the organisms within. We ask the opposite question: can organisms in the ocean, especially those that migrate vertically every day and regionally every year, change the physical structure of the water column? The answer has potentially important implications for ecological models at local scale and climate modeling at global scales. This talk will introduce the still-controversial prospect of biogenic ocean mixing, beginning with evidence from measurements in the field. More recent laboratory-scale experiments, in which we create controlled vertical migrations of plankton aggregations using laser signaling, provide initial clues toward a mechanism to achieve efficient mixing at scales larger than the individual organisms. These results are compared and contrasted with theoretical models, and they highlight promising avenues for future research in this area.

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