The world’s oceans are in constant motion, transporting the sun’s heat from the equator to the poles, bringing marine life fresh supplies of oxygen and nutrients, and sequestering nearly half of our carbon dioxide emissions since the Industrial Revolution. Within this dynamic aquatic milieu exists another type of motion: the perpetual teeming of trillions of swimming animals. Are these organisms simply along for the ride, carried by the prevailing ocean currents and occasionally using their powers of locomotion to explore their surroundings, or could their propulsion influence the physical and biogeochemical structure of the ocean itself?