

Abstract Submitted  
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**Swimming and transport of bacteria in time-periodic flows**<sup>1</sup> REBECCA WINTER, ALISON PATTESON, DAVID GAGNON, PAULO ARRATIA, Univ of Pennsylvania — The transport of bacteria can be highly influenced by external flows in oceans, rivers, and intestinal tracts. This has implications in biological systems for the performance of major biological processes, such as biofilm formation. In this study, we experimentally investigate the aggregation and transport of swimming *Vibrio cholerae* bacteria in time-periodic flows. Bacteria are placed in a well-characterized flow, and bacterial concentrations are recorded for a range of Reynolds numbers (Re) that spans two orders of magnitude, from 0.1 to 10. It is generally found that bacteria deplete from regions of high deformation rate and accumulate near vortices. This phenomenon seems to be dictated by a combination of bacterial activity and background flow vorticity.

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