

Abstract Submitted
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A laboratory investigation of mixing dynamics between biofuels and surface waters¹ XIAOXIANG WANG, ALINE COTEL, University of Michigan — Recently, production and usage of ethanol-blend fuels or biofuels have increased dramatically along with increasing risk of spilling into surface waters. Lack of understanding of the environmental impacts and absence of standard clean-up procedures make it crucial to study the mixing behavior between biofuels and water. Biofuels are represented by a solution of ethanol and glycol. A Plexiglas tank in conjunction with a wave generator is used to simulate the mixing of surface waters and biofuels under different natural conditions. In our previous experiments, two distinct mixing regimes were observed. One regime was driven by turbulence and the other by interfacial instabilities. However, under more realistic situations, without wind driven waves, only the first mixing regime was found. After one minute of rapid turbulent mixing, biofuels and water were fully mixed and no interface was formed. During the mixing process, chemical reactions happened simultaneously and influenced mixing dynamics. Current experiments are investigating the effect of waves on the mixing dynamics.

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