

Abstract Submitted  
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**The Hydrodynamic Origin of Whale Flukeprints** RACHEL LEVY,  
Harvey Mudd College — Whales swimming at a shallow depth leave a signature on the ocean surface known as a whale flukeprint. The print is a large, smooth, oval patch surrounded by a small wake or ridge. Informal observations made by biologists have led to hypotheses that the prints are made either by hydrodynamic structures created by the motion of the fluke, or by surfactants. This study employs experiments with an artificial fluke to determine whether prints can be created by hydrodynamic forces without the presence of surfactant. The effect of swim velocity on the width, length and duration of a flukeprint created by the artificial fluke is discussed. The experimental data indicate that prints can be formed solely by hydrodynamic forces. This conclusion is supported by observations of whales, infrared images of footprints and numerical simulations of vorticity.

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