



Figure S1. Bottom turn and cutback maneuvers. A) Surfer drops into a typical wave. B) Bottom turn maneuver. Note speed gain compared to A), and how surfer has rolled board onto “back” side. C) Transition to cutback. Speed drops (compared to C) as surfer pitches board and climbs wave face. D) Cutback maneuver, or top turn, which is the focus of the present study. Note large amount of spray generated, and how board is now rolled onto “front” side. E) Schematic representation of surfer’s trajectory depicted in A-D), with explanation of roll, pitch and yaw orientations.