

Abstract Submitted  
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**Force measurement in heaving and pitching foils** ENRIQUE PARDO, DEREK NAJDZIN, MEGAN C. LEFTWICH, PHILIPPE M. BARDET, The George Washington University — This study analyzes the efficiency of a cambering hydrofoil built to simulate the movement of flukes on cetaceans. The mechanism is a 10 bar assembly that allows a hydrofoil to move in a cambered pitching and heaving motion similar to that of a dolphin. The mechanism sits on a force-balance with six strain gages that together measure the three forces and three moments experienced by the fin during a cycle of motion. These gages are attached to a traveling mechanism that rest on a water flume. To analyze the efficiency of the hydrofoil we took measurements at various Reynolds and Strouhal numbers. These measurements were done twice were compared to the thrust produced by a rigid (non-cambered) hydrofoil at the same conditions.

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