

Abstract Submitted  
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**Progress toward 3D wake structure measurements of aquatic animals using SCUVA**<sup>1</sup> JOHN DABIRI, KAKANI KATIJA, California Institute of Technology — Recent developments in multi-camera DPIV techniques now enable measurement of three-dimensional wake structure in aquatic animals. The present goal is to integrate those techniques with a self-contained underwater velocimetry apparatus (SCUVA), in order to facilitate in situ measurements of 3D wake structure by SCUBA divers in the field. SCUVA presents an additional constraint in that the flow imaging must be accomplished by a single camera viewing the flow from a single direction. We present progress toward the incorporation of 3D wake measurement techniques into a single-camera platform. The approach relies on the image defocusing concept and calculation of Lagrangian coherent structures directly from fluid particle trajectories. The results may benefit laboratory methods as well as the field techniques that are the present focus.

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