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Experimental Study of Spanwise Wake Compression of a Trapezoidal Pitching Panel[1] JUSTIN KING, ZACHARY BERGER, MELISSA GREEN, Syracuse University — Stereoscopic particle image velocimetry was used to characterize the highly three-dimensional flow created by a rigid, trapezoidal pitching panel used to model an idealized fish caudal fin. Previous work has demonstrated that spanwise compression of the wake occurs until the wake ultimately breaks down as it convects in the streamwise direction. However, quantitative verification of the spanwise velocity relevant to the structure of this compression was not evaluated in the prior work. Experiments were conducted over a range of Strouhal numbers from 0.17 to 0.56 at three locations along the spanwise extent of the wake. Ongoing stereo PIV measurements confirm spanwise flow in the wake toward the midspan, which agrees with the previously-observed linear spanwise compression as the wake moved downstream.

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