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**Vortical Structures on Low Aspect Ratio Finite Wings at Low Reynolds numbers**[1] SHELBY HAYOSTEK, MICHAEL AMITAY, Rensselaer Polytechnic Institute — The three-dimensional flowfields over finite span wings and in their wake were explored experimentally in a low-speed, closed-return, open test section water tunnel using flow visualization and stereoscopic particle image velocimetry. The wings had a NACA 0015 profile and were suspended in the tunnel allowing for the wings to generate tip vortices on either end. Wings with aspect ratios of 1 and 2 were tested at an angle of attack of 22 degrees and chord Reynolds number of 600 and 1000 to understand how the flowfield is affected with alteration of the aspect ratio and/or Reynolds number. At aspect ratio of 1 the tip vortices play a major role in the overall flow field, whereas when the aspect ratio was increased, the flow over the wing is less effected by the tip vortices. In addition, the streamlines close to the surface revealed the presence of two foci close to the wing surface reminiscent of the stall cell phenomenon, supporting previous theoretical finding using stability analysis.

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