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**Wingtip Devices for Marine Hydrokinetic Turbines** IVAYLO NEDYALKOV, JESSE SHULL, IAN GAGNON, JOHN BRINDLEY, MARTIN WOSNIK, University of New Hampshire — Wingtip devices have become widely used in aircraft and wind turbine applications. There are only a few examples of their usage on Marine Hydrokinetic Turbines (MHK), which have only recently been developed to utility scale. Novel wingtip devices were designed for use specifically in marine applications, to reduce wingtip vortex induced drag and with the additional considerations for suppressing tip vortex cavitation and avoiding significant bio-fouling. A reference foil, a generic wingtip, and new wingtip designs were studied numerically using OpenFOAM, and some of the wingtips (including the reference foil and the generic wingtip) were studied experimentally in the University of New Hampshire High-Speed Water Tunnel. The experimental test bed was designed specifically for this study and can accommodate various wingtips which extend to the center of the tunnel. Lift and drag were measured for different angles of attack and cavitation inception was studied. Additionally, pressure was recorded at 4 locations on each tip. The pressure ports were also used for mass injection studies.

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