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Peter J Curry* (peter.j.curry@navy.mil), 177 Brady St, Daniel Island, SC 29492, and **Laura C Tolliver**, **Scott C Batson** and **Grant C Eastland**. *On Underwater Communication with Spiral Acoustic Waves*. Preliminary report.

Spiral acoustic waves have been introduced recently as a wave that transmits orbital angular momentum which may contain encoded information. In 2011, this form of wave was used to build an underwater navigation beacon by using the phase of a received signal. Our research seeks to investigate the application of spiral acoustic waves in an underwater communication system. Specifically, there are two primary components to our research: the physics-based modeling behind a proof-of-concept that these waves are capable of supporting underwater communication links, and the encoding of transmission waveforms. In this talk we will introduce spiral acoustic waves through mathematical models of various transducer configurations, and then present a preliminary analysis of these models. Finally, we will identify current challenges and discuss directions for future work. (Received February 05, 2018)