

## CHALLENGES IN UNDERWATER ACOUSTICS SENSOR NETWORKS

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### ABSTRACT

*The Underwater Acoustic Sensor Networks (UWASN) are a collection of underwater sensors that collect data for uncharted areas of seas and rivers. UWASN is made up of a variety of floating and anchoring sensors, sinks, and vehicles that are dispersed over a study region. The key characteristics of UWASN include node mobility for floating, data gathering and recording capacity, and battery-operated autonomous vehicles. Optical waves, radio waves, electromagnetic waves, and acoustics are all used to communicate amongst underwater equipment. Acoustic communication is the most suitable of them since it can convey digital information over an underwater channel and travel over larger distances. There are two types of communication: single and multiple hop. However, while transferring data from end nodes to sink nodes underwater, we employ multi-hop communication. Limited bandwidth, multipath fading, restricted battery, limited data capacity, and propagation latency are all difficulties for UWASN. As a result, we focused on a variety of difficulties and obstacles in underwater wireless sensor networks for acoustic communications in this study.*

**KEYWORDS:** *Acoustic Waves, Channel Modeling, Path Losses, Networks, Underwater Communication.*

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