

# **RE-PBR: A Reliable Energy-Efficient Pressure-Based Routing Protocol for UWSNs**

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Recently, Underwater Wireless Sensor Networks (UWSNs) has witnessed significant attention from both academia and industries in research and development due to the growing number of applications for commercial, scientific, environmental and military purposes including pollution monitoring, tactical surveillance, tsunami warnings, and offshore exploration. Efficient communication among sensors in UWSNs is a challenging task due to the harsh environment and peculiar characteristics of UWSNs. Therefore, routing protocol design is one of the fundamental research themes in UWSNs for efficient communication among sensors and sink. In this context, this paper proposes a Location-Free Reliable and Energy Efficient Pressure-Based Routing (RE-PBR) Protocol for UWSNs. RE-PBR utilizes link quality, depth and residual energy information to balance energy consumption and reliable data delivery. In particular, link quality is estimated using triangle metric method. The performance of the proposed protocol is compared with the state-of-the-art techniques: DBR and EEDBR. The comprehensive performance evaluation attests the benefits of RE-PBR as compared to the state-of-the-art techniques in terms of energy consumption and packet delivery ratio.

Khasawneh, Ahmad M., Abualigah, Laith, Al Shinwan, Mohammad, (2019), International Journal of Science and Applied Information Technology