Developing a protocol for monitoring offshore and coastal bat movement in Atlantic Canada

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Acoustic recording units (ARUs) detect bat echolocation calls and are an effective tool used for passive acoustic monitoring that can produce estimates of bat activity in various locations. Sightings and recordings of migratory tree bats, such as the Eastern red bat, Silver-haired bat, and Hoary bat have been documented throughout the Atlantic Ocean in the fall, suggesting that these species use coastal and offshore environments during their fall migration. Unlike terrestrial surveys, acoustic monitoring at sea is subject to unique conditions and accessibility challenges that study design must account for to ensure successful data collection. Establishing a set of standards for acoustic bat monitoring at sea is a priority. With offshore wind energy development anticipated, such knowledge gaps pose challenges for managing the risk to bat species that utilize coastal and offshore habitat. This study aims to provide organizations and researchers with the knowledge to design an effective offshore bat monitoring study in Atlantic Canada using current best practices. Additionally, it details a sample data collection protocol and includes recommendations for subsequent data management and analyses for executing bat monitoring studies in marine environments. A preliminary discussion outlines a standardized method for assessing bat species diversity, habitat features and use, and activity patterns associated with seasonality, peak activity times, and weather conditions using ARUs. The study objectives support bat conservation efforts by developing management practices and can guide policy decisions that are relevant to inform planning and mitigation strategies as Canada strives to meet international renewable energy targets.

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