

Technology Gaps for Monitoring Impacts of Offshore Wind on Birds and Marine Mammals

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As marine renewable energy continues to grow in scope and scale, technologies for monitoring marine wildlife and impacts from marine renewables continue to develop and improve. To best allocate resources to technology development, it is important to understand the gaps in monitoring technology capabilities that need to be filled. Monitoring technologies must collect data that are sufficient to reduce uncertainty, integrate smoothly into infrastructure and operations, ensure efficacy for mitigation and adaptive management, minimize safety and cybersecurity risks, and be practicable and cost effective. We undertook a study funded by the US National Offshore Wind Research and Development Consortium to evaluate technology gaps for monitoring marine mammal and bird impacts from fixed and floating offshore wind. The findings can also be considered in the context of other marine renewables. This study used literature review, development of technology databases, and expert workshops to understand the key technology needs. The study suggests that technology gaps are similar for birds and marine mammals. The main exception is that bird detection technology is more likely to need to be integrated directly into infrastructure. Priorities to advance wildlife monitoring include improved early communication, harmonization of technologies and data collection for monitoring systems on structures, battery/power access improvements, remote data transfer improvements, and advancements in automated collection and analysis of data. This study also indicates that there is a need for remote access mechanisms for data collection, system maintenance, and data transfer to minimize safety risks, as well as to minimize costs and disruption to normal operational activities. These findings will help to support development and adaptation of monitoring technologies for statistically robust data collection and practicable integration of monitoring systems into marine renewables operations and infrastructure.