



“Environmental Innovation in the Offshore”

Abstract: Mr. Joe Hood, Akoostix Inc.

Using click-train detection recorded on multiple autonomous acoustic sensors to count odontocetes

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Passive acoustic monitoring (PAM) is often suggested as an effective technology to support environmental impact mitigation for offshore energy activities; however, the ability to reliably and efficiently detect, locate, and count animals using PAM is still in development. One particularly useful application of PAM is species density estimation, which requires an estimate of the number of individuals involved in a detection event. Efforts were previously undertaken to develop a method of directly counting the number of vocalizing animals during acoustic detection events. For toothed whales, discrete clicks are almost indistinguishable between individuals, making it difficult to determine the number of vocalizing animals as this number increases. Furthermore, estimates were sensitive to environmental multipath arrival effects, limiting the application of the PAM density estimation method. With support from Encana Corp., the owner and operator of the Deep Panuke natural gas project on Nova Scotia’s offshore, this study refines and demonstrates a technique for fusing data from multiple closely spaced sensors to more accurately count vocalizing animals. Guardbuoy sensors were deployed on the Canadian Scotian Shelf and acoustic recordings including sperm whale and dolphin clicks were made. Encana Corp. support enabled further data collection and implementation of a feature-based multipath arrival discrimination technique, allowing for more accurate counts of vocalizing individuals. This presentation will include a description of the density estimation method, the OERA-funded trial and the approach used to mitigate multipath arrival effects.