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Oceanographic Drivers of Cuvier's (*Ziphius cavirostris*) and Sowerby's (*Mesoplodon bidens*) Beaked Whales Acoustic Occurrence along the Irish Shelf Edge

Cuvier's and Sowerby's beaked whales occur year-round in western Irish waters, yet remain some of the most poorly understood cetaceans in the area. Considering the importance of the area for anthropogenic activities and the sensitivity of beaked whales to noise, understanding their ecology is essential to minimise potential overlaps. To this end, fixed bottom-mounted autonomous acoustic recorders were deployed at 10 stations over four recording periods spanning from May 2015 to November 2016. Acoustic data were collected over 1934 cumulative days, for a total of 7942 h of recordings. To model the probability of presence of Cuvier's and Sowerby's beaked whales in the area as a function of oceanographic predictors, we used Generalised Additive Models, fitted with Generalised Estimating Equations to deal with temporal autocorrelation. To reflect prey availability, oceanographic variables acting as proxies of primary productivity and prey aggregation processes such as upwelling events and thermal fronts were selected. Our results demonstrated that oceanographic variables significantly contributed to the occurrence of Cuvier's and Sowerby's beaked whales (p-values between <0.001 and <0.05). The species showed similar preferences, with the exception of sdSST. The inclusion of a parameter accounting for the recorders location confirmed the existence of a latitudinal partitioning for those species in the area. This study provides a point of comparison for future research and represents an important step towards a better understanding of those elusive species.