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Variations in coastal minke whale occurrence with respect to food availability in northeast Scottish waters

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The Moray Firth is a summer feeding ground for the northern minke whale (*Balaenoptera acutorostrata*). Between 2001 and 2007, we studied the summer occurrence of minke whales in the southern outer Moray Firth and examined how the use of this area varied both within and between years. Intra-annually, the occurrence of whales showed a typical increase from May to July and a subsequent decrease from July to September, representing an inshore-offshore movement. This behaviour may be in synchrony with the larval metamorphosis period of the lesser sandeel (*Ammodytes marinus*) prey, targeted by minkes in this region. While this pattern was consistent between years, the number of whales using the area varied greatly between years. The mean daily sighting rates were 0.1 whales per hour in 2001, 0.03 in 2002, 0.17 in 2003, 0 in 2004, 0.33 in 2005, 0.28 in 2006, 0.11 in 2007. There were also variations in observed feeding behaviours and spatial use of the study area, which was interpreted as a consequence of inter-annual variation between hatch-date distributions of sandeel. This inter-annual variation in occurrence is also found in data collected from other areas of the North Sea, and is the inverse of changes seen in western Scotland. This suggests that minke whales shift opportunistically between prey species and summer feeding grounds, according to prey availability. Therefore, our study of minke whale occurrence and behaviour in the coastal Moray Firth may help provide information on the driving forces behind wider scale changes in minke whale occurrence in Scottish waters that are important to understand for conservation purposes.