

A comparative analysis of mother-calf bottlenose dolphin home ranges in Welsh Waters

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Home range is an important ecological aspect of an animal population, and is a leading factor to consider when implementing conservation and management efforts. Home ranges of females with and without calves derived from the bottlenose dolphin population occupying Welsh waters were estimated and compared. The results highlight the importance of Cardigan Bay Special Area of Conservation (SAC) as a calving ground. However, this SAC does not encompass the full geographical range of mothers and calves in Welsh waters. Our analyses include at least two more significant areas – northern Cardigan Bay including Pen Lllŷn a'r Sarnau SAC, and around the Isle of Anglesey, North Wales. Data were collected during standardised line-transect and *ad-libitum* boat-based surveys from 2007 to 2012. Photo ID sightings data from 21 known females with at least ten re-sightings and at least five sightings with calves, were used for analysis. Mean overall home range areas were calculated by the Minimum Convex Polygon method (MCP) and estimating 'Utilization Distribution' (UD) using the kernel estimator (95% and 50% UD). No significant differences were observed in calf sightings, corrected for effort, between the three areas (Cardigan Bay SAC, Pen Lllŷn SAC and Anglesey) strengthening the hypothesis that various locations within Welsh waters are serving as calving grounds. MCP's and UD analyses show no significant differences in home ranges of females with or without calves suggesting that females do not change their home range location or size while travelling with calves. However, spatial coverage was not identical in all years and therefore may present some bias. Calving grounds are vitally important for cetaceans and should play an important role in conservation management plans. Although some calving areas in the present study are within designated SAC's, others, mainly around the Isle of Anglesey, have little protection.