



Poster S33

Preliminary photo-identification analysis of minke whales on the east coast of Scotland

Nina Baumgartner^(1,2), Kevin P. Robinson⁽¹⁾ & Graham J. Pierce⁽²⁾

(1) Cetacean Research & Rescue Unit (CRRU), PO Box 11307, Banff AB45 3WB, Scotland, UK. (2) School of Biological Sciences (Zoology), University of Aberdeen, Tillydrone Avenue, Aberdeen AB24 2TZ, Scotland, UK.



Introduction: Whether conducting behavioural research or establishing population parameters, photo-identification is generally regarded as the most effective non-invasive methodology available to researchers for gathering information about cetacean societies in the wild. In the Inner Hebrides, on the west coast of Scotland, researchers have been using this technique for minke whales (*Balaenoptera acutorostrata*) since the mid-1990's, but, until comparatively recently, little attention has been focused on the minke whale community on the neighbouring east coast. Since 2001, however, progressive studies by the CRRU in the outer Moray Firth (57° 41'N, 3° 15'W) (figure 1) have examined the spatial distribution and habitat use of these animals (Robinson et al. 2007) and have highlighted the importance of this northeast location as a favourable summer feeding ground (Robinson & Tetley 2007). These and ongoing focal studies by the team have facilitated the *in situ* photography of a number of individually-recognisable whales in this location, and in the following study a preliminary analysis of the type, quality and prevalence of markings recorded from animals are presented.

Methods: Between 2001 and 2006 inclusive, "marked" whales were opportunistically photographed during systematic boat surveys. Images were entered into a relational database and categorised according to the nature and form of their identifying features. A computer-assisted matching software (FinEx and FinMatch™, developed by CWI, Amsterdam) was subsequently used to identify animals from scanned images and to remove any potential false positive or negative errors from the manual matching process.

Results

- A total of 32 "marked" individuals were identified from opportunistic photographs taken from 305 encounters.
- 4 categories of markings were resolved from the processed images, whales with: (i) large, obvious nicks in the dorsal fin margin (33%); (ii) small or subtle nicks in the dorsal margin (28%); (iii) scarring on the back, lateral surfaces and/or head (25%); and (iv) peculiar or unusual dorsal fin shapes (13%) (figure 2).
- 41% of the animals photo-identified in the study area were recaptured on at least one or more occasions, and 19% were recaptured during at least 2 or more different survey years.
- The recapturability of individuals exhibiting features other than dorsal edge markings (DEMs) was low (approx. 2%) and apparently short-term, although unusual fin shapes and scarring (e.g. major scratches, lesions and parasite scars) were found to be useful supplements for the re-identification of whales with subtle DEMs.
- Very few of the juvenile or sub-adult animals encountered in this study displayed DEMs, and none of the juveniles which were identified from body scars alone were recaptured in any additional survey year.

Discussion

The compilation of a photo-archive for recognisable minke whales in northeast Scotland provides a first step towards a more integrated east-west coast approach to minke studies in Scottish waters. In addition to providing a greater understanding of the distribution, site fidelity and behaviour of individual minke whales in the Moray Firth, comparisons of existing records from both coasts could be useful in the interpretation of current distributional shifts, intra-population dynamics and the underlying behavioural ecology of these small rorqual whales in our inshore, coastal habitats. As in 2006, the CRRU aims to apply a more concerted effort to photo-identification studies of these animals over the following years.

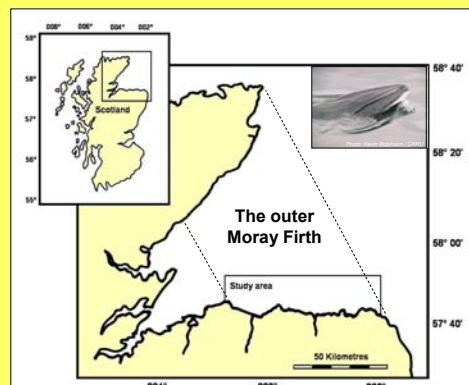


Fig. 1. Showing the position of the Moray Firth in northeast Scotland and the location of the 880 km² study area along the southern coastline of the outer Moray Firth.

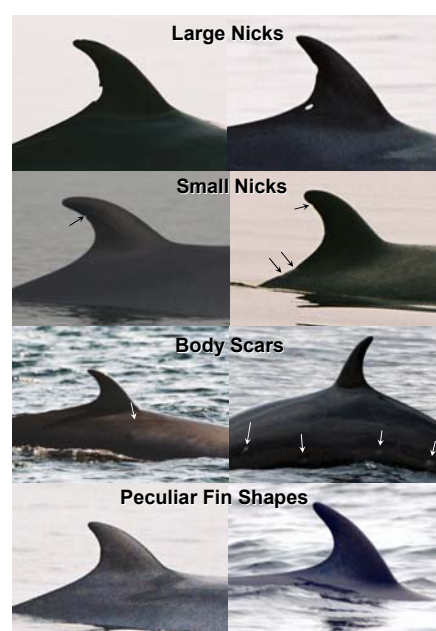


Fig. 2. Photographs illustrating the principal features used in the identification of individual minke whales in the Moray Firth. Photos K. Robinson & N. Baumgartner.

References

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