



Social structure and temporal variations in individual associations of Blainville's beaked whales (*Mesoplodon densirostris*) in El Hierro (Canary Islands)

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Blainville's beaked whales are known to form harems (Claridge 2005) but basic life history data are still lacking or scarce for this and all the 13 species of the genus *Mesoplodon* (fam. Ziphiidae). Here we present results from a long term (2003-2010) photoID database, analyzing individual associations to provide a photoID insight on social structure and life history parameters of Blainville's beaked whales.

CETABASE.INFO Catalogue

El Hierro (Canary Islands) holds a resident population of Blainville's beaked whales (Blainville's hereon) that has been studied since 2003 (Aguilar Soto 2006). PhotoID data were gathered every year but in 2006, although with inter-seasonal and inter-annual differences in research effort. A total of 2000 encounters with Blainville's groups rendered 11000 photographs of medium and high quality. Marks in the body were used for individual recognition. A photographic and analytical catalogue is available online (www.cetabase.info)

Whales were classified following the revisions of Mead (1989), Claridge (2005) and Aguilar Soto (2006) as adult males, adult females (observed repetitively with associated young), juveniles, calves and indeterminates (no gender can be determined).

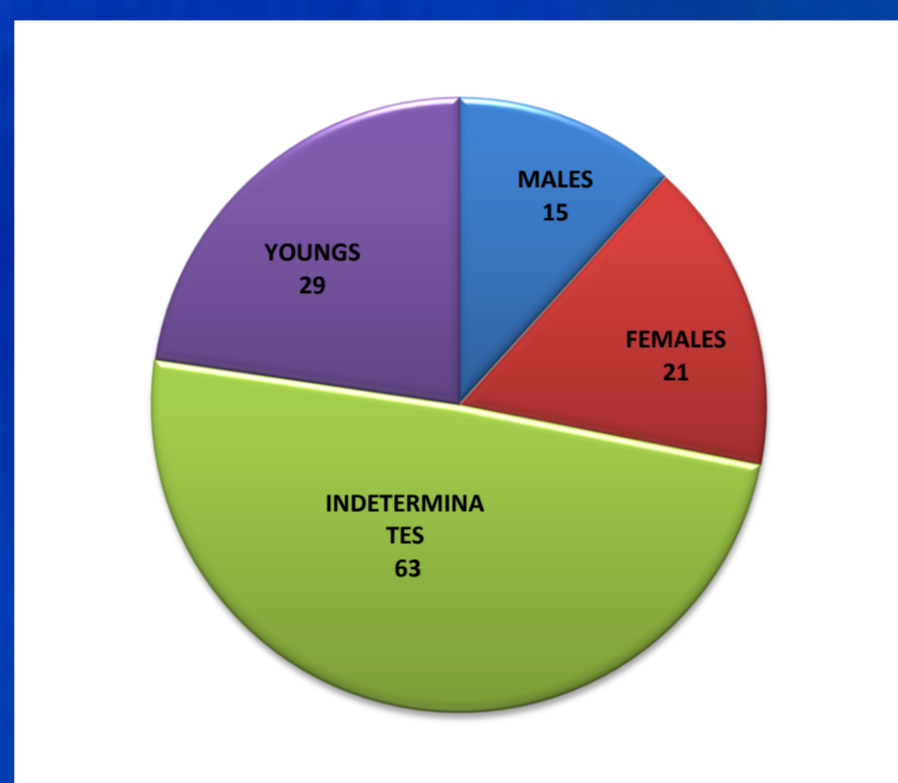
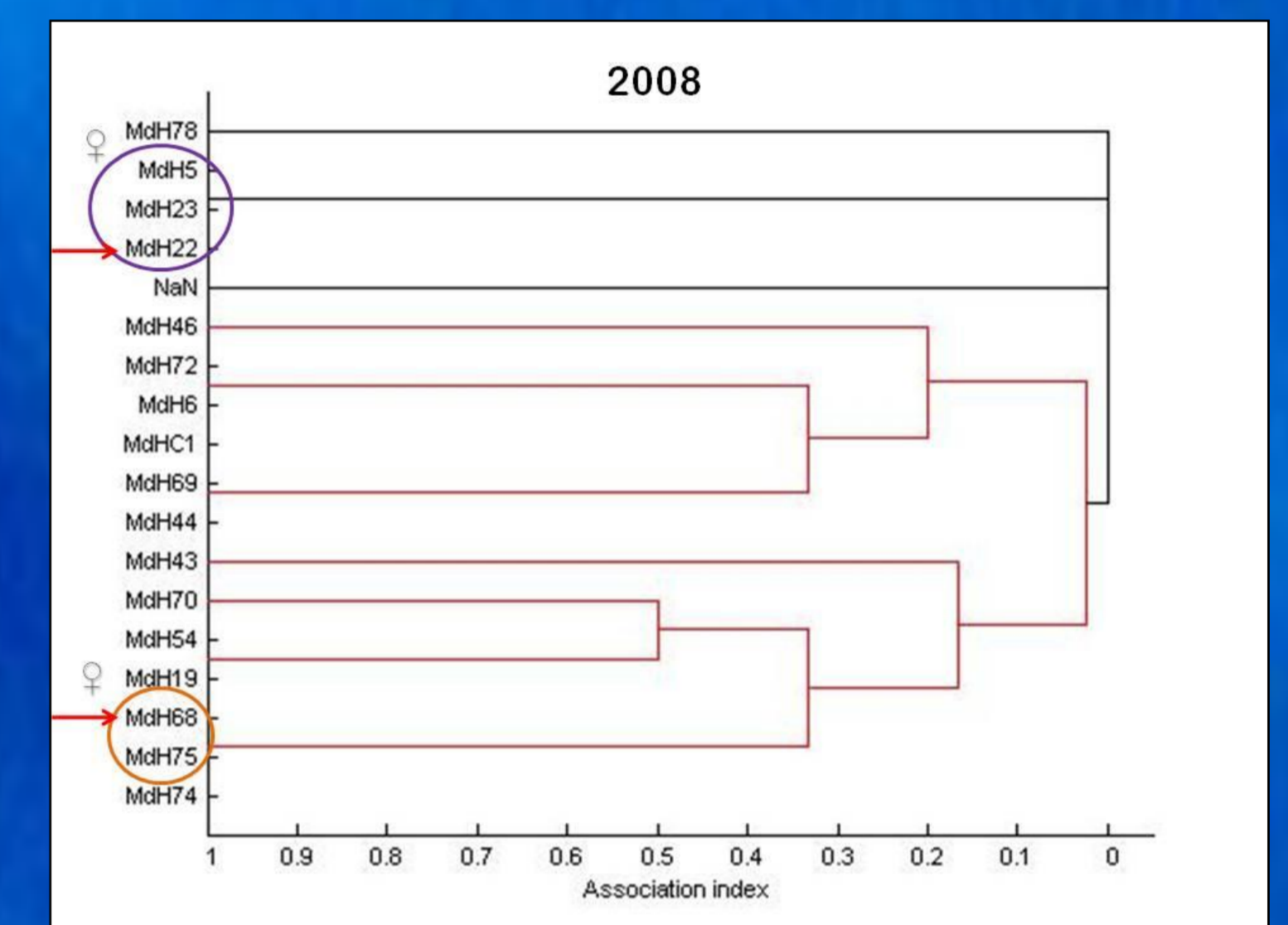
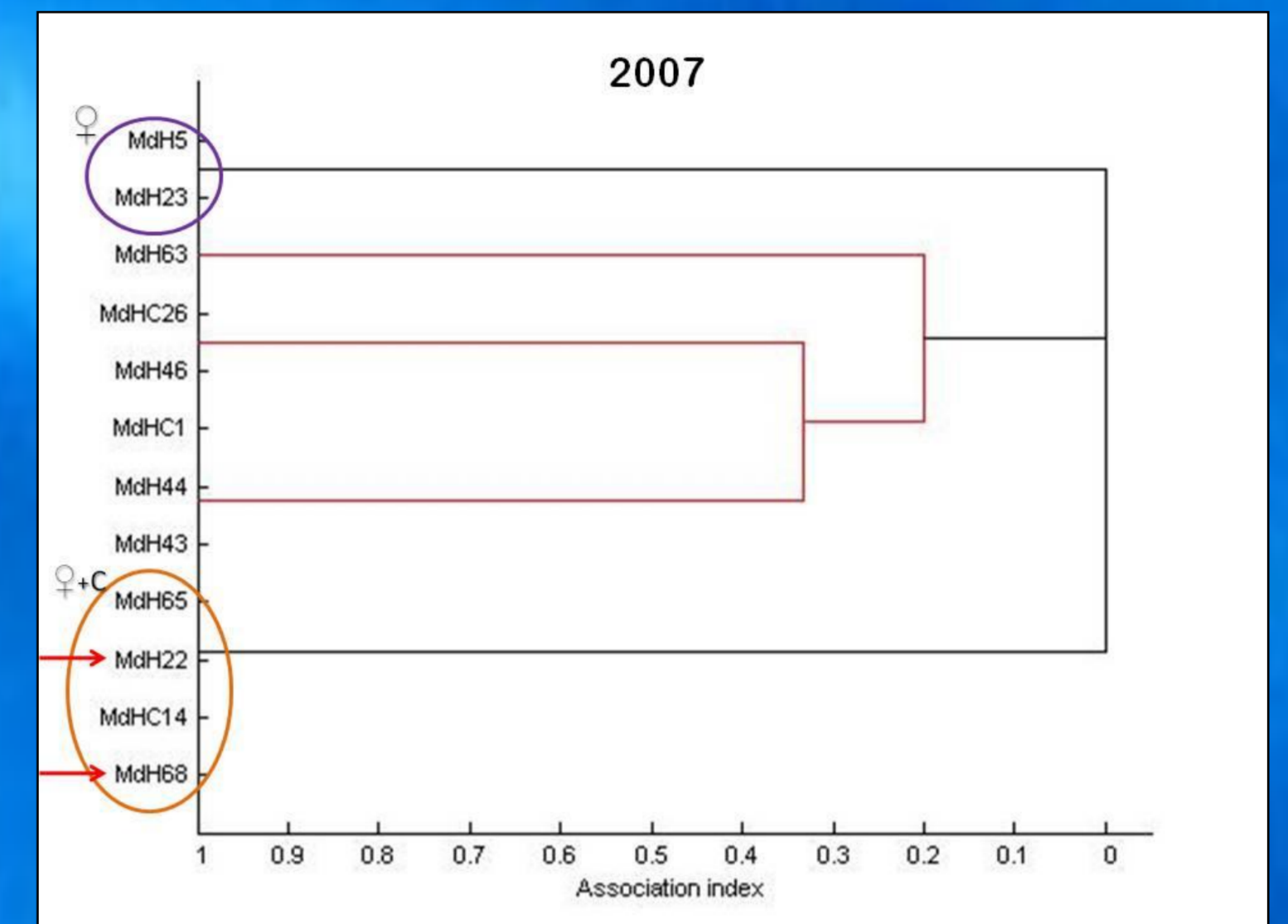


Fig.1: Distribución de los individuos según tipo

INDIVIDUAL ASSOCIATIONS



Associations between females aren't permanent. A group composition can change from one year to the next.

LIFE HISTORY IMPLICATIONS



Pic1: Mother (MdH2) and calf (MdHC10) with fetal folds (oct 2004)

Pic2: Same mother and juvenile one year later (oct 2005)

Pic3: Mother (MdH2) and calf (MdHC10) with fetal folds (oct 2004)

Pic4: MdH5 Lluvia and newborn MdHC32 Calima (May, 2010)

Pic5: MdHC1 AcDc

A) Calving Interval

Out of the 21 catalogued females, 6 had at least 2 calves during the study period, from 2003 to 2010. The mode of the inter-calving rate was 3 years.

B) Mother-calf association

Out of the 29 young identified, 5 had a minimum follow up period of 1 year. Out of those, 3 were sighted for the first time as calves and were seen again the year after as juveniles still accompanied by their mother.

C) Recruitment rate per year

The best estimate of abundance for the population of Blainville beaked whales in El Hierro is around 128 whales. In the 8 years of this study 30 young have been observed. These results indicate a low recruitment rate of 3,75 calves per year

D) Sexual maturity

This whale was observed as a juvenile (at least 1 yr old) in 2003. It was observed several times in the following years apart from the mother and in 2010 it was an independent indeterminate that has not reproduced yet:
MINIMUM REPRODUCTIVE AGE 8 YEARS

DISCUSSION

Results show that the inter-calving intervals are high and the recruitment rates are low: each calve seems to require a large energetic investment from the mothers, explaining the fact that males and females of this species are similar size.

Strong associations among whales during yearly periods, followed by whales splitting and associating with other whales, confirm the observations of strong group coordination in whales diving and surfacing together. These results also suggest that females breed with different males and form different harem groups in consecutive calves

ACKNOWLEDGEMENTS

Thanks to all the students that have participated in collecting photoID data during these years and mainly to Cristina Aparicio.
 Funding was provided by ONR and NOPP (US), IFAW and an agreement between the Canary Islands Government and the Spanish Ministries of Environment and of Defence
 N. Aguilar is currently funded by an outgoing Marie Curie fellowship within the 7th EU FP

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