Photo – Identification of Rough-toothed Dolphins (*Steno bredanensis*) off La Gomera (Canary Islands) as a Basis for Long-term Monitoring with new Insights into Social Organisation

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Photo-identification (photo ID) has been established as a powerful tool in cetacean research. However, no study to date has attempted to apply this method to rough-toothed dolphins (*Steno bredanensis*). Off La Gomera (Canary Islands), rough-toothed dolphins are present year round, distributed relatively close to shore and suspected to represent a resident population, thus constituting an excellent target for such a study.

Photo-ID research was conducted from 07 March until 06 June 2003 on board of whale watching vessels of a local operator frequenting the waters south and southwest of the island. 71 trips were made resulting in 94 cetacean sightings, 23 (25%) of rough-toothed dolphins. Total observation time of seven cetacean species was 42h 53min, rough-toothed dolphins were observed 719 min. 1062 photographs of rough-toothed dolphins were taken, 26% of which were suitable for identification. Additionally, 261 photographs from 2000-2002 were made available by the German NGO *M.E.E.R.* as baseline data. Thus, a total of 536 photographs were available to this photo ID study.

Rough-toothed dolphins showed several distinct features suitable for individual identification, such as notch patterns on the fin, global fin shape, pigmentation and distinct scratches. 12 ID categories were defined, and dolphins showing similar features were assigned to one or more of those categories. 63 individual rough-toothed dolphins could be identified from 2000-2003, these were included into the world first electronic ID catalogue of rough-toothed dolphins (also available at www.m-e-e-r.de). 65% of the identified individuals were seen in more than one year, 37% in three or four years, strongly suggesting residency of rough-toothed dolphins off La Gomera. As this species is regarded as an offshore species, inter-island movements are probable and thus the existence of a resident population in the Canary Islands is also possible.

All identified individuals were ranked according to the quality of obtained photographs and according to the recognisability of markings, thus measures of reliability for the re-identification of individuals were created. Changes over time of different types of markings occurred, with colour / pigmentation patterns, global fin shape and notch patterns on the dorsal fin being the most stable ID features, compared to tip appendices and superficial scratches, which were not found to be reliable on the long term.

The formation of tight subgroups is an outstanding behavioural peculiarity of rough-toothed dolphins. Subgroup composition was found to be dynamic, with subgroup sizes of 2-8 animals. The Half Weight Index (HWI) was used to asses non random associations between individuals. HWI values ranged from 0.00 to 0.89 (mean 0.06), indicating the existence of a structured organisation of rough-toothed dolphin groups (and populations). Association patterns also showed that this species not only has strong social bonds between mother and calf / juvenile, but between individuals of different age classes, which may last for at least several years.

This first of its kind study on rough-toothed dolphins showed that the use of whale watching vessels as research platforms is an excellent way to collect photo-ID data on a long-term basis. Although a number of restrictions have to be accepted and results must be dealt with great care, the use of whale watching vessels as a platform of opportunity was proven to shed first light on the social life of a still not well understood species.