

Longitudinal comparisons of digital photography of marine mammals from aircraft and shore

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Rapid progress and affordability of photographic technology with increasing improvements in image resolution have facilitated advancements in efficiency and alternative approaches in data collection for marine mammals. We report these recent improvements by comparing marine mammal photographs taken during 2008–2013 aerial surveys of 16 marine mammal species in the Southern California Bight, shore-based studies of bottlenose dolphins (*Tursiops truncatus*) in Galveston Bay, Texas (2011–2013), and gray whales (*Eschrichtius robustus*) off Sakhalin Island, Russia (2004–2010). Various Canon and Nikon high-definition cameras ranging from 8.2–36.3 MP resolution and 70–1600 mm lenses with image stabilization were used during the studies. Results of these photographic comparisons demonstrate the evolution of digital photography advancements with the successful capture of individuals, as well as detailed information for behavioral ecology studies. For example, (1) individual identification of marine mammal species from aircraft not previously reported (Risso's dolphins (*Grampus griseus*), killer whales (*Orcinus orca*), and blue and fin whales (*Balaenoptera musculus* and *B. physalus*)), (2) shore-based individual identification of bottlenose dolphins up to 400 m and of gray whales up to 2 km from shore, (3) instantaneous differentiation/confirmation of short-beaked vs. long-beaked common dolphins (*Delphinus delphis* and *D. capensis*) from 1,500-ft altitude with a 36 megapixel (MP) camera, (4) reduced proportion of "unidentified" dolphin and whale species, and (5) potential tracking of the behavior, social associations and durations, and relative position within the group of some individually identified delphinids and other species not previously studied in this manner. High-definition digital photography reduces costs and acquisition/processing time from earlier "tried and true" analog photography. This facilitates, advances, and compliments the efficacy of data collection for population and behavioral ecology studies on marine mammals, most recently allowing capture of individual identification images at distances of up to 2 km away.

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California Dolphin Online Catalog

The California Dolphin Online Catalog Research Community

Participants at the 2011 Southern California Marine Mammal Workshop agreed that a priority action item was to produce an open-access, online database and photo-catalog for California coastal bottlenose dolphins. Consequently, several research organizations studying bottlenose dolphins along the California coastline initiated a collaborative effort collectively titled the California Dolphin Online Catalog (CDOC). Herein, we document some of the recent and notable Phase I milestones achieved through CDOC, including: collaborations among the CDOC research community, advancement of the CDOC database, publication of a CDOC-related journal article, creation of CDOC instructional videos, production of a CDOC PDF catalog for dolphins encountered off San Diego, and the presentation of several CDOC posters. Phase II of the CDOC program will work toward bringing the online catalog current through 2014, and incorporating data from all study sites. If the CDOC community can accomplish this task, the CDOC formatted OBIS-SEAMAP data-base would represent a 33-year time series of photo-identification and sighting data on coastal bottlenose dolphins throughout their range. The heuristic and interpretive value of a dataset such as this is tremendous; it provides the requisite information for management and conservation actions but also provides a unique opportunity to address novel research questions by way of range-wide collaborations.

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SOUTHERN CALIFORNIA MARINE MAMMAL WORKSHOP

JANUARY 31 – FEBRUARY 1, 2014

• NEWPORT BEACH, CA •



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PROGRAM CONTENTS:

- WORKSHOP SCHEDULE (p. 1–2)
SPEAKER BIOGRAPHIES (p. 3–12)
LIST OF ATTENDEES (p. 13–18)
ACKNOWLEDGEMENTS (p. 19)

APPENDIX 1: POSTER ABSTRACTS

APPENDIX 2: EVALUATION FORM