

INTERIM REPORT ON THE DEVELOPMENT OF A SOUTHERN OCEAN RIGHT WHALE CATALOGUE

Ingrid T. Peters and Peter B. Best

Mammal Research Institute, University of Pretoria,

C/o Iziko South African Museum, PO Box 61, Cape Town, 8000 South Africa

Abstract

The Southern Ocean right whale catalogue aims to be a depository of southern right whale (*Eubalaena australis*) photographs taken south of 40°S. During the contract period, with funding support from the IWC, 206 photographs were catalogued representing 92 individual right whales. The right whales were sighted between 1974 and 2008 in Areas II-V. One individual was re-sighted in Area IV four years after the initial sighting. The development of the catalogue continues as photographs are submitted. An expansion of the scope of the catalogue is foreseen as images from more opportunistic sources such as eco-tourism cruise ships are included.

Introduction

Extensive photo-identification surveys have been undertaken for southern right whales (*Eubalaena australis*) in the coastal waters of South America, southern Africa and Australia for several decades (Payne *et al.*, 1983; Payne, 1986; Bannister, 1990; Best, 1990). However, little is known about the links between these populations and those found at higher latitudes where extensive catches were taken in pelagic whaling, particularly in the 19th century (Best, 2006; Best *et al.*, 1993; Pirzl *et al.*, 2009). In 2010, the International Whaling Commission (IWC) approved funding to establish the Southern Ocean right whale catalogue. The catalogue aims to be a depository of right whale sightings south of 40°S that researchers can use to compare to the coastal catalogues. This interim report summarises the progress to date on the development of the catalogue.

The photographic catalogue

Photographs obtained from various international research organisations and scientific expeditions were compiled in a catalogue using the photo-identification programme BigFish (Pirzl *et al.*, 2007). Images that were not in digital form were scanned in TIFF format and archived. The best photographs depicting the top, left and right side of the head of an animal are put in an individual-specific folder. If images are available depicting callosities not generally captured - e.g. the post blowhole and the front of the bonnet (other) - these will also be added to the folder as well as body images. These photographs were converted to 640x480dpi JPEG format to improve loading time. The photographs were assessed for both quality of the image and distinctiveness of the individual. Individuals were excluded from the matching process if the suite of photographs of an individual were of such poor quality that it was not possible to recognise the distinctive callosity pattern of the whale. The catalogue is constructed in such a way that any available feature (left side head, right side head, front/top of head, pigmentation/scarring, etc.) can be used as a search criterion.

A total of 206 photographs, taken between 1974 and 2008, have been catalogued from various research institutes and individuals including the following:

Institute of Cetacean Research, Tokyo, Japan

Woods Hole Oceanographic Institution/New England Aquarium, USA

Mammal Research Institute, University of Pretoria, South Africa

Table 1. Photographs catalogued during the contract period, by region

Region	No. of whales	No. of photographs					
		Top	Left	Right	Other	Body	Total
Area II	36	27	20	16	5	7	75
Area III	11	9	6	7	4	6	32
Area IV	37	32	21	14	10	3	80
Area V	8	8	3	2	4	2	19
TOTALS	92	76	50	39	23	18	206

Of the 92 animals that were identified, 76 were represented by photographs taken of the top of the heads of the animals depicting both the left and the right side; four individuals, though no images exist of the top of their heads, photographs of both the left and the right sides of their heads were provided. For 12 individuals only images of the left (nine) or right (three) sides of their heads are available. These were added to the catalogue as it is possible to do a search using characteristics from one side of the head only.

Table 2. Aspects of the head used to identify individuals

	Aspect of head photographed				Total
	Top	Left & Right	Left only	Right only	
No. of individuals	76	4	9	3	92

All but one individual were seen on only one occasion. The re-sighting of SO0065A, which was four years after the initial sighting, was in the same region, Area IV. The whales were predominantly encountered in Area II and IV but this may be more a result of sampling distribution than actual whale preference.

Relational database

Any additional data accompanying the photographs has been captured in an associated database. These data will be shared with users of the catalogue as per conditions set by the provider of the photographs following the protocol used by the administrators for the Antarctic Humpback Whale Catalogue (Allen *et al.*, 2010).

Future work

Processing and capturing of images into the catalogue continues. Permission and access has been requested from the IWC for the right whale photographs taken during IDCR/SOWER cruises. Efforts continue to expand the scope of the catalogue by including data collected opportunistically e.g. through the British Antarctic Survey, the Japan/IWC blue whale cruise (1995/96) and Antarctic eco-tourism cruise ships. A trial system will be demonstrated at the proposed right whale workshop in Argentina in September.

Acknowledgements

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PROPOSED BUDGET: SOUTHERN OCEAN RIGHT WHALE CATALOGUE

Investigators

Peter B. Best and Ingrid T. Peters

Mammal Research Institute, University of Pretoria,

C/o Iziko South African Museum, PO Box 61, Cape Town, 8000 South Africa

Budget narrative

Great progress has been made with funding support from the IWC to create a single depository of right whale photographs from the Southern Ocean. The catalogue contains images that were collected over a large geographic area and over three decades. It has great value aiding in filling the gap in our knowledge of distribution and movement of southern right whales.

Funds requested 2011-2012

This proposal seeks £4,000.00 (5 months @ £800 per month) to continue the sourcing and cataloguing of right whale photographs and maintenance of the database.