

Status of the archival and analysis of blue whale photographs from IWC IDCR/SOWER cruises

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ABSTRACT

Archiving and analysis of blue whale photographs collected during IWC IDCR/SOWER cruises has been undertaken to aid, *inter alia*, in the assessment of Southern Hemisphere blue whales. Over 21,000 identification photographs of blue whales were collected during 18 IWC IDCR/SOWER Antarctic cruises conducted from 1987-1988 to 2006-2007. Photographs were obtained from all six IWC Management Areas and represent 309 individuals. Available film from the 1987-1988 to 2002-2003 cruises has been gathered at SWFSC in combination with the digital images of blue whales collected during the four most recent cruises. The film is being digitized to facilitate archiving, analysis and the creation of a photo-ID catalogue. Photographs from Area IIIW have been cross-referenced to identify re-sighted individuals, locations and re-sighting rates for that region.

KEYWORDS: ANTARCTIC, SOUTHERN OCEAN, PHOTO-ID

INTRODUCTION

During the past two years the Scientific Committee has agreed to initiate an in-depth assessment of Southern Hemisphere blue whales, *Balaenoptera musculus*, (IWC, 2006). In support of this assessment, the archiving and analysis of blue whale identification photographs collected during IDCR/SOWER cruises has been undertaken. Identification photographs of blue whales have been collected during IDCR/SOWER cruises since 1987-1988 but previously had none had been catalogued or analyzed. Funding for this work was allocated to the author at the meeting of the Scientific Committee in 2006. This report summarizes the work in progress and results so far.

MATERIALS, METHODS and RESULTS

Blue whale photographs from the IDCR/SOWER cruises have been assembled together at the Southwest Fisheries Science Center (SWFSC) in order to archive, catalogue and analyze the photographs as a collection. This includes a substantial number of digital images collected during the four most recent SOWER cruises and film from prior cruises. Based on data given in cruise reports and natural marking records, an estimated 21,000 blue whale identification photographs were taken during 18 years of cruises, 1987-1988 through 2006-2007. Photographs were obtained from all six IWC Management Areas. To date, photographs from 12 of the 18 cruises have been compiled at SWFSC represented

by 20,180 photographs (Table 1). Photographs from six years remain outstanding, notably film from the years 2001-2002, 2002-2003 and 2003-2004. (However some digital images have been located from 2002-2003 and 2003-2004.) An estimated minimum number of 309 individual whales were photographed during the 18 cruises (Table 2).

In order to facilitate matching and to archive all photographs electronically, photographs in film format are being digitized. 279 of the available 781 film negatives have been digitized (36%; Table 1).

11,356 photographs have been examined from six years, identifying 142 individual whales (Table 2). Identification photos were selected and identification numbers assigned in preparation for creating a photo-id catalogue.

Area IIIW

The two most recent SOWER cruises, 2005-2006 and 2006-2007, were conducted in Area IIIW. The photographs from these years have been reviewed and intermatched between the years.

During SOWER 2005-2006, 5 whales, out of 45, were re-sighted yielding an 11% re-sighting rate for the cruise. The time interval between re-sightings ranged from 4 to 15 days. The distance between re-sightings ranged from 58 to 134 nmi. 2 whales, out of 38, were re-sighted during SOWER 2006-2007: a 6% re-sighting rate. (Note that 38 represents a subsample for 2006-2007, not all photographs from the cruise have been examined yet.) Both cruises were conducted in Area IIIW. No re-sightings between the years were found. For details on the whales and re-sightings see SC/59/IA9 and Olson (2006).

Other Areas

Photographs from other Areas are being analyzed as they become available after being digitized or otherwise added to the collection. So far 10 whales from 4 years (1991-1992: 1 whale; 2000-2001: 5 whales; 2002-2003: 2 whales and 2003-2004: 2 out of 29 whales) were compared with one another, but no intermatches were found.

The intermatching of blue whale photographs between all years and Areas is currently underway.

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LITERATURE CITED

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Table 1. Number of available photographs of blue whales collected in the Antarctic during IDCR/SOWER cruises, by year. Prior to 2004-2005 all photos were collected on film and are in the process of being digitized.

	1987-1988 Area III	1989-1990 Area I	1990-1991 Area VI	1991-1992 Area V	1992-1993 Area III	1993-1994 Area I	1994-1995 Area III	1995-1996 Area VI	1996-1997 Area II	1997-1998 Area II	1998-1999 Area IV	2000-2001 Areas I & VI	2001-2002 Area V	2002-2003 Area V	2003-2004 Area V	2004-2005 Area III	2005-2006 Area III	2006-2007 Area III	TOTAL
NUMBER OF PHOTOS	n/a	n/a	57	26	164	n/a	66	40	268	n/a	117	43	n/a	40*	425*	260+	3,102	15,572	20,180
FILM FORMAT	n/a	n/a	57	26	164	n/a	66	40	268	n/a	117	43	n/a	*	*	-	-	-	781
DIGITAL FORMAT	-	-	0	6	164	-	66	0	0	-	0	43	-	40*	425*	260+	3,102	15,572	19,678

n/a Photographs from these years have not been received/located.

* Film from 2002-2003 and 2003-2004 has not yet been received; the 40 and 425 images were collected on personal digital cameras.

+ From SM1 only; SM2 photos currently en route to SWFSC.

Table 2. Number of individual blue whales photographed in the Antarctic, by year, as listed in IDCR/SOWER cruise reports and the number of individual blue whales identified, by year, after examining photographs.

	1987-1988 Area III	1989-1990 Area I	1990-1991 Area VI	1991-1992 Area V	1992-1993 Area III	1993-1994 Area I	1994-1995 Area III	1995-1996 Area VI	1996-1997 Area II	1997-1998 Area II	1998-1999 Area IV	2000-2001 Areas I & VI	2001-2002 Area V	2002-2003 Area V	2003-2004 Area V	2004-2005 Area III	2005-2006 Area III	2006-2007 Area III	TOTAL
Estimated no. of whales photographed	3	1	3	2	8	4	8	5	17	8	5	6-8	14	9	27	23	52	114	309-311
No. of whales photo-identified	n/a	n/a	+	1	+	n/a	+	+	+	n/a	+	5	n/a	2*	29	22	45	38+	142+

n/a Photographs from these years have not been received/located.

* Film from 2002-2003 not yet received.

+ Analysis still in progress.