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**Reconciling a long-term photo-id database for blue whales in Chilean Patagonia**

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# Reconciling a long-term photo-id database for blue whales in Chilean Patagonia

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## Introduction

Since the initial discovery of a blue whale feeding and nursing ground in northern Patagonia, Chile (Hucke-Gaete et al. 2003), we devoted early efforts into photo-id, acoustics, and genetics, among others, and later on habitat modelling, abundance estimation, movement ecology (identification of migratory routes and feeding hotspots), as well as addressing relevant conservation issues. During the 17+ years that the monitoring project “Large whale ecology and conservation in Chile” has been running, our team has been able to produce considerable amount of knowledge regarding the Chilean blue whale population.

In 2006 the IWC-SC agreed to initiate an in-depth assessment of Southern Hemisphere blue whales, and in 2008 the Committee endorsed a proposal to establish a central web-based catalogue of blue whale identification photographs, known as the Southern Hemisphere Blue Whale Catalogue (SHBWC).

Due to differential priorities, our research team at Centro Ballena Azul and Universidad Austral de Chile (based in Valdivia, Chile) was not able to devote dedicated time to reconcile the long-term blue whale photo-id work in northern Patagonia and put forward these data to collaborate with international efforts such as the SHBWC. In due consideration that the in-depth assessment is to be finalized over the next few years, our main motivation was to participate in this international effort and consolidate a 12-year blue whale photo-id catalogue obtained by Centro Ballena Azul NGO and Universidad Austral de Chile off northern Patagonia, between 2003 and 2015. Here we report initial details of the progress achieved with the new database to be included in the SHBWC.

## Material and Methods

Dedicated systematic surveys were undertaken in Northern Patagonia region: western and eastern Chiloé Island, the Gulf of Corcovado and the Chonos Archipelago (41°- 44°S). Blue whale photos were taken using DSLR cameras from a rigid-hull inflatable boat (R/V Musculus) and a 17m motorboat (R/V Noctiluca) from 2003-2015. More than 10,000 photos were obtained for photo-identification, together with other metadata when feasible

(geographic position, biopsy samples, satellite tags, among others). Photos were classified following SHBWC Blue Whale Photo Quality Coding Guide criteria (Olson et al. per. comm.) and IWC photo identification catalogue-guidelines (Olson et al. 2016).

## Results

A total of 206 individuals were identified and classified using the SHBWC criteria. Among those, 94 individuals were photo-identified using both flanks, while 111 with only one side. Of these one-side only identified individuals, 61 were left-side and 50 were right-side. A total of 35 individuals were re-sighted within the same season, while 45 were re-sighted from previous years (Table 1). Photo-identified individuals are in process of being uploaded to the SHBWC catalog.

**Table 1:** Summary of blue whale photo-id catalogue from northern Patagonia, Chile (CBA-UACH).

Years	Identified indiv. (right)	Identified indiv. (left)	Resights same year	Resights previous years
2003	2	4	1	-
2004	13	8	3	-
2005	16	12	-	-
2006	17	20	5	1
2007	15	14	1	1
2008	23	23	8	6
2009	16	16	2	7
2010	4	4	1	3
2011	17	18	10	8
2012	4	4	-	4
2013	7	14	-	5
2014	-	1	-	4
2015	10	17	4	6
<b>TOTALS</b>	<b>144</b>	<b>155</b>	<b>35</b>	<b>45</b>
<b>TOTAL IND. IDENTIFIED</b>	<b>206</b>			

## Conclusions

Considering the large dataset, it was only possible to analyze from 2003-2015, as was committed in the IWC funding proposal. Notwithstanding, we aim at continuing analyzing the remaining four years (2016-2019) and upload those photos and data to the SHBWC catalog.

We hope this new dataset becomes useful for further analyzes within the framework of the IWC.

## **References**

Hucke-Gaete, R., L.P. Osman, C.A. Moreno, K.P. Findlay & D.K. Ljungblad (2003). Discovery of a blue whale feeding and nursing ground in southern Chile. *Proc. R. Soc. Lond. Ser. B* 271: S170–S173. DOI: 10.1098/rsbl.2003.0132.

Olson, P.A., Jackson, J.A., Donovan, G. 2016. IWC photo-identification catalogue guidelines. Paper SC/66b/DB01 presented to the IWC Scientific Committee, June 2016. [Available from IWC].