



135 Station Road, Impington, Cambridge, UK, CB24 9NP;
Tel: +44 1223 233397 - Fax: +44 1223 232876
E-mail: secretariat@iwc.int

PROJECT PROPOSAL REQUEST

1 . PROPOSAL TITLE

Identifying individual blue whales from Madagascar photographs

2 . BRIEF OVERVIEW OF THE PROPOSAL AND ITS EXPECTED OUTCOME

The population structure of blue whales (*Balaenoptera musculus*) in the Indian Ocean is understood primarily from acoustic song types, where five different acoustic populations occur and may overlap geographically in their distribution (Branch et al. 2021). Much remains unknown about these specific populations including movement between regions of the Indian Ocean. It is suspected that blue whales that winter near Madagascar spend the summer in the northwest Indian Ocean (Cerchio et al. 2020). Overall there are few data from the southwest region, including the waters adjacent to Madagascar. Photo-identification data from the area may provide information on residency and/or movement patterns.

Photographs are available from the IWC/SOWER Madagascar survey in 1996 and from Dr. Sal Cerchio who collected photographs opportunistically in 2012. A total of 457 photos representing 12-17 individuals is available.

This project entails extracting all of the individually identifiable blue whales from the photographs, comparing them to one another, and uploading the ID photographs into the Southern Hemisphere Blue Whale Catalogue (SHBWC; Galletti Vernazzani et al. 2021). Once in the collaborative SHBWC, the Madagascar photos can be compared to other blue whale ID photographs from the Indian Ocean per *encouragement* by the Scientific Committee in 2020 (IWC 2020).

Branch, T. A. et al. 2021. Monthly movements and historical catches of pygmy blue whale populations inferred from song detections. Paper SC68C/SH/17 presented to the IWC Scientific Committee.

Cerchio, S., Rasoloarijao, T., Mueller-Brennan, B., Cholewiak, D. 2020. Acoustic monitoring of blue whales (*Balaenoptera musculus*) and fin whales (*Balaenoptera physalus*) in the Mozambique Channel off the northwest coast of Madagascar. Paper SC68B/SH/08 submitted to the IWC Scientific Committee.

Galletti Vernazzani, B., Olson, P.A., Salgado-Kent, C. 2021. Progress report on Southern Hemisphere Blue Whale Catalogue: Period May 2020-March 2021. Paper SC68C/SH22Rev01 presented to the IWC Scientific Committee.

International Whaling Commission. 2020. Report of the Scientific Committee, item 8.2.1.4.

3 . RELEVANT IWC SCIENTIFIC COMMITTEE GROUPS OR SUB-GROUPS

SH – The sub committee on Southern Hemisphere whale stocks is preparing for a Comprehensive Assessment of non-Antarctic Southern Hemisphere blue whales, including whales from the Southwest Indian Ocean/Madagascar region. Results generated from this study will provide photo-ID data relevant for identifying movement patterns or stock identity.

4 . TYPE OF PROJECT (PLEASE TICK)

Research project	X
Modelling	
Workshop/meeting	
Database creation/maintenance	X
Compilation work/editing (e.g. on whalewatching regulations, SOCER, etc.)	
Other (please specify below)	

5. BRIEF DESCRIPTION OF THE PROPOSAL AND ITS CONNECTION WITH SCIENTIFIC COMMITTEE RECOMMENDATIONS (DO NOT EXCEED 1500 WORDS)

(A) BACKGROUND, RATIONALE, AND RELEVANCE TO THE PRIORITIES IDENTIFIED BY THE IWC SCIENTIFIC COMMITTEE:

In 2020 the Committee **encouraged** the submission of photographs from the southwest Indian Ocean region to the Southern Hemisphere Blue Whale Catalogue. Once compiled, the matching of this photo-ID sub-catalogue (from the southwest Indian Ocean/Madagascar) with the sub-catalogue being compiled from the northwest Indian Ocean is considered a priority activity to assess connectivity (IWC 2020).

International Whaling Commission. 2020. Report of the Scientific Committee, item 8.2.1.4.

(B) SPECIFIC OBJECTIVES OR TOR AND DELIVERABLES/OUTCOMES:

Provide the specific objectives and the expected deliverables. In the case of workshops and meetings, include the Terms of Reference (ToR) and expected outcomes

Objectives:

- (1) Identify individual blue whales from 457 photographs taken during the IWC Madagascar blue whale survey and those taken opportunistically in 2012
- (2) Compare photographs of newly identified individuals from the collection to one another
- (3) Upload identification photos to the Southern Hemisphere Blue Whale Catalogue
- (4) Prepare data summary

Deliverables:

- (1) Uploaded identification photographs to the SHBWC
- (2) Summarized results for inclusion in annual report of the SHBWC to the Scientific Committee in 2022

(C) METHODOLOGICAL APPROACH/WORK PLAN/ADMINISTRATIVE DETAILS

Blue whale photographs will be examined for unique natural markings and identified as individuals based on methods outlined in Sears *et al.* (1990) and Gendron and Ugalde de la Cruz (2012). Identification photos will be selected for each whale and an identification number assigned. Identification photographs will be compared within and between years.

Ultimately this is a collaborative effort between the applicant (Paula Olson), Dr. Sal Cerchio, and members of the internationally collaborative Southern Hemisphere Blue Whale Catalogue.

Gendron, D. and Ugalde de la Cruz, A. 2012. A new classification method to simplify blue whale photo-identification technique. *J. Cetacean Res. Manage.* 12: 79-84.

Sears, R., Williamson, J.M, Wenzel, F.W., Bérubé, M., Gendron, D. and Jones, P. 1990. Photographic identification of the blue whale (*Balaenoptera musculus*) in the Gulf of St. Lawrence, Canada. *Rep. Int. Whal. Commn.*, (Special Issue) 12: 335-342.

(D) SUGGESTIONS FOR OUTREACH
<i>Please, note that successful proponents will be requested to produce ad hoc material that will be used by the IWC Secretariat for dissemination and outreach.</i>

6 . TIMETABLE FOR ACTIVITIES AND OUTPUTS

Specify the timetable for project activities and expected outputs separately. For projects with multiple distinct elements please indicate interim goals and timeframes. Add as many rows as you need to the tables below. If publications are an expected output please note whether you will submit the manuscript to the IWC's Journal of Cetacean Research and Management.

Activity to be undertaken	Key person(s)	Start(mm/yy)	Finish (mm/yy)
Photo analyzation/ID extraction, comparison of ID photos, compiling sighting history data, uploading to Southern Hemisphere Blue Whale Catalogue, preparation of summary for SC report	Paula Olson	09/21	10/21

Expected outputs	Completion date (mm/yy)
Photographs uploaded to the Southern Hemisphere Blue Whale Catalogue (SHBWC)	10/21
Results included in annual report of the SHBWC submitted to the IWC Scientific Committee meeting 69A	05/22

7 . RESEARCHERS' (OR STEERING GROUP) NAME(S) AND AFFILIATION

Name	Affiliation	Connection with decision
Paula Olson	SWFSC/NOAA/USA	SC Convenor

8 TOTAL BUDGET

PROJECT BUDGET						Co-funding
	Description	Cost per unit	Number of units	Total Cost £GBP		
(1) Salaries (by person)	Photo analyzation/ID extraction, comparison of ID photos, compiling sighting history data, uploading to Southern Hemisphere Blue Whale Catalogue, preparation of summary for SC report	GBP 33.5	12	400		0
(2) Travel/subsistence (by person or est. total for IPs)						
(3) Services (by item)						
(4) Reusable equipment						
(5) Consumables						
(6) Shipping & Customs (by item)						
(7) Insurance (by item)						
(8) Other	Contribution of the use of all necessary computers and software needed to undertake the work.	N/A		N/A		0
TOTAL						

Co-funding Memo:

Source	Purpose of Funding	Amount	Secured/Tentative?
	TOTAL		

Total value of project:	£GBP 400
Funds requested from IWC	400
Co-funding	0
TOTAL	400

9 . DATA ARCHIVING/SHARING

Please state your plans for data archiving and sharing. Note that data collected primarily under IWC grants are considered publicly available after an agreed period of time for publication of papers, usually about two years. The work of the IWC depends on the voluntary contribution of data to the various databases and catalogues IWC supports. Please consult the Secretariat (secretariat@iwc.int).

Not applicable

10 . PERMITS (PLEASE TICK)

Do you have the necessary permits to carry out the field work and have animal welfare considerations been appropriately considered?	N/A
Do you have the appropriate permits (e.g. CITES) for the import/export of any samples?	N/A

If 'Yes' please provide further details and enclose copies where appropriate:

DRAFT SCORING SHEET

If a project presents multiple primary objectives which are achieved using sub-projects, a sheet should be used to evaluate each single sub-project. Note that not all criteria are equally applicable depending on the nature of the project (e.g. field work versus workshops).

IWC SCIENTIFIC COMMITTEE PROPOSALS FOR FUNDING - REVIEW CRITERIA - TEST			
TITLE OF THE PROJECT/sub-projects:			
PRINCIPAL INVESTIGATOR:			
Key criteria	Explanation of scoring	Score	Supporting Remarks
<i>Relevance to Scientific Committee priorities</i>			
1	How well aligned are the scientific outcomes of the project/activity with the current SC priority areas?	1 - Not aligned/poorly aligned (e.g. too vague or generic reference to general SC priorities) 2 - Reasonably aligned (e.g. some aspects may be vague or links are not clear) 3 - Well aligned (e.g. outcomes clearly deliver in the most part on priority areas, may also address longer term or potential future issues). 4 - Closely aligned (e.g. of interest for multiple sub-groups or delivers on specific SC high priority topics/recommendations in the immediate or short term).	
2	To what extent will the outcomes of the project/activity contribute to improvements in the conservation and management of cetaceans?	1 - Not at all 2 - Poorly 3 - Reasonably or over the longer term 4 - Well or over the medium term 5 - Excellently or to almost immediate effect	
Note: if in each of the two above key criteria under this section the project does not score singularly at least 2 points, do not proceed in further evaluation. Of course, proposals within a sub-group would only be developed if in their estimation scores were of 4 or above.			
<i>Approach and methodology</i>			
3	What degree of scientific merit/value is there in carrying out the work?	1 - Not demonstrated or of low scientific value 2 - Useful/basic scientific value 3 - Very good scientific value 4 - Excellent/innovative scientific value	
4	Is the proposed methodology scientifically sound and feasible in terms of field and analytical methods?	1 - Feasibility unrealistic & poor methodology or not properly addressed 2 - Feasibility & methodology acceptable but would benefit from some substantial amendments	

		3 - Feasibility & methodology good, some small changes beneficial 4 - Feasibility & methodology excellent or a highly promising innovative approach to an important question facing the Committee		
5	What is the likelihood of success based on the proposed overall approach and methodology?	1 – No chance of success 2 - Low chance of success/better approaches available 3 - Medium chance of success/some changes to the approach necessary 4 - High chance of success/little or no changes to the approach necessary		
5a	Are objectives of the research likely to be achieved within the proposed time-frame?	1 – No or unlikely 2 – Partially or potentially ambitious 3 - Yes with some minor suggestions 4 – Yes		
5b	Are any proposed intermediary targets timely and achievable?	1 – No or unlikely 2 – Partially 3 - Probably 4 - Yes		
5c	Is the proposed time-frame/work necessary (e.g. can the project produce results in a shorter time period)?	1 – No or unlikely 2 – Partially 3 - Probably 4 - Yes		
5d	Is the sample size adequate to achieve the stated objectives?	1 – Not demonstrated/not properly addressed 2 – No or unlikely (too low/too high) 3 – Probably (additional analysis needed) 4 - Yes		
6	Is the project likely to affect adversely the population(s) involved?	1 - Not properly addressed/ unknown 2 - Yes severely 3 – Possibly at a low level 4 - No		
6a	IF YES , are analyses provided on simulations of the effects using different time-frames for the project if applicable?	1 – No 2 – Partially 3 - Yes		
Note: if in each of the above key criteria under this section the project does not score singularly at least 2 points, do not proceed in further evaluation. Of course, proposals within a sub-group would only be developed if in their estimation scores were of 3 or above.				
Project team and Project management				

7	To what extent does the team have the relevant expertise, experience, and balance?	1 – Poor or not demonstrated 2 – Sufficient 3 - Very good 4 - Excellent		
8	Contingency plan: To what extent have potential problems/risks been considered and appropriate mitigation proposed?	1 – Poor or not demonstrated 2 – Sufficient but could be improved 3 - Fully or requiring only minor suggestions or not applicable		
Value for Money				
10	Does the project represent good value for money?	1 – No or significant amendments would be needed 2 – Yes but with some minor amendments 3 – Yes		
11	Have sufficient links been made to the wider research community/other organisations/capacity building.	1 – No 2 – Some but significant amendments needed 3 – Yes but with some minor additions 4 – Yes or not applicable		