SH - Southern Hemisphere Blue Whale Catalogue 2012

IWC

![INTERNATIONAL WHALING COMMISSION]

PROJECT PROPOSAL REQUEST

1. PROPOSAL TITLE

Please provide the title of the project or the name of the workshop/meeting.

Southern Hemisphere Blue Whale Catalogue 2021

2. BRIEF OVERVIEW OF THE PROPOSAL AND ITS EXPECTED OUTCOME

Give a very brief overview (max 150 words) on your proposal and its expected outcomes. Use bullet point to list outcomes. Be succinct and clear as this may be used to summarise your project for the report.

The Southern Hemisphere Blue Whale Catalogue (SHBWC) is an international collaborative effort to facilitate cross-regional comparison of blue whale photo-identifications catalogues. To date more than 1,700 individual blue whales have been contributed to the SHBWC from researchers groups working on areas off Antarctica, Chile, Peru, Ecuador-Galapagos, Eastern Tropical Pacific, Australia, Timor Leste, New Zealand, Indonesia, Sri Lanka and Madagascar.

The Scientific Committee is currently working on Comprehensive Assessment of non-Antarctic Southern Hemisphere blue whales, with emphasis on Australia and southeast Pacific blue whales. The SHBWC is assisting in matching catalogues in order to deliver regional photo-ID based mark recapture assessments of blue whale abundance. Recently, the Committee is also considering the suitability of Sri Lanka blue whale datasets for potential mark recapture analysis as a high priority.

The SHBWC has become the largest repository of Southern Hemisphere blue whale photo-identifications. This is a long-term initiative with more than 10 years of development and the platform need to be upgraded to newer versions of software language.

The 2021 project will focus on 1) match new photo-IDs received; 2) consolidate Sri Lanka catalogues for future assessments; and 3) photo quality coding of new entries from New Zealand and Chile 3) upgrade the SHBWC software version.

3. RELEVANT IWC SCIENTIFIC COMMITTEE GROUPS OR SUB-GROUPS

List all the IWC Scientific Committee groups or sub-groups that the outcomes of this work would be relevant to and provide a brief (1-2 lines) explanation of how it would contribute more widely to their ongoing programmes of work. Where possible, do not simply list only the sub-committee within which or for which the project proposal was generated.

- **Southern Hemisphere Sub-Committee**: Currently conducting Southern Hemisphere blue whale assessments and the SHBWC provide useful blue whale mark-recapture datasets to assist abundance estimate models.
- **Ad hoc Working Group on Guidelines for Photo-identification Databases**: the SHBWC is currently one of the major photoID catalogues supported by IWC and therefore its work and database management has been a central part to the work of this ad-hoc working group.
- **Standing Working Group on Environmental Concerns**: Data on skin lesions is included and, while not considered part of this 2021 proposal, the catalogue will provide a comprehensive collection of photographs on skin lessions that may be used in the future to conduct visual health assessment for all Southern Hemisphere blue whale populations.

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:

Provide a clear explanation of the background and rationale for the proposal and its relevance to Scientific Committee identified priorities. Clearly identify the most relevant and recent Scientific Committee recommendations.

Collaboration among blue whale researchers and sharing of photo-identification catalogues is critical to better understand population boundaries, conectivity, migratory movements and abundance estimates among others.

The International Whaling Commission has been supporting the project "Southern Hemisphere Blue Whale Catalogue (SHBWC)" as an international collaborative effort to facilitate cross-regional comparisons of individual blue whale photo-identification catalogues and contribute to Southern Hemisphere blue whales assessments (IWC, 2009).

The SHBWC uses specially designed online software that allows for simultaneous upload and comparisons between catalogues from regions off Antarctica, Chile, Peru, Ecuador-Galapagos, Eastern Tropical Pacific, Australia, Timor Leste, New Zealand, Indonesia, Sri Lanka and Madagascar.

The IWC Scientific Committee is currently conducting blue whale assessments on non-Antarctic blue whales and the work of the SHBWC has focused over the past years in comparing photo-IDs from these regions in order to provide useful data to model abundance estimates.

Matching within Australia and southeast Pacific catalogues continue to be a high priority and the Sri Lanka photo-ID catalogue are starting to be considered for assessment purpose. Major comparisons off Australia, New Zealand, Sri Lanka have been completed with data received prior to 2018. Currently major comparisons within ETP and South America are underway. Since then at least 160 new photo-IDs entries have been received specifically for New Zealand and Chile. In addition, valuable data from Sri Lanka has been contributed but still require processing before uploading to the SHBWC is possible.

In addition, the SHBWC is a long-term initiative and the current software was initially written more than ten years ago. The current version used under the SHBWC is Python 2.2 and the newest version of Python is 3.9. Python Software Foundation announced that they will not continue to support Python 2.7 since January 2020. Therefore, the current software version is no longer supported and it will need to be upgraded in order to ensure its long-term performance. Upgrading the software versions will always be required in the long term and should be considered as part of the routinely maintenance of the website.

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

- Matching new photo-IDs uploaded since last matching round for New Zealand (+60) with the New Zealand photo-ID catalogues.
- Matching new photo-IDs expected for Chile (+70 IDs from Eutropia and CCC 2016-2018) with the Chilean catalogues to be included on the ongoing matching process.
- Reconciliate and upload catalogue collection of blue whales off Sri Lanka from 1983-1984 and 2010-2015 contributed by Biosphere Foundation (BF).
- Matching newly contributed photo-IDs from BF off Sri Lanka (estimated aprox. 20-30 IDs) with regional catalogues.
- Quality code new photographs of individual blue whales contributed from Chile, New Zealand and Sri Lanka (+300 left and right)
- Upgrade SHBWC software to newer Python version.

Specify the methods to be applied (novel methods require more explanation than standard ones) and the broad workplan – the detailed timetable appears under Item 5 below.

In the case of workshops and meetings, include the broad work plan including any pre-requisites for the workshop/meeting to take place (apart from funding, e.g. completed analyses, papers etc.) and administrative details (e.g. location, dates, number of participants).

Reconciliation of Sri Lanka catalogues:
An expereinced matcher will have to review and conduct internal consolidation of data from Sri Lanka, obtained between 1983-1984 and 2010-2015 that have been provided by Biosphere Foundation. Data and photos still need to be processed before being uploaded to the SHBWC.

Uploading of photographs:
Contributors to the catalogue that have been granted a user ID are responsible to directly upload their photos to their catalogues. Only the best left, right and fluke photos for each whaleID with its associated data should be uploaded. Additional photographs that will complement the whaleID are also welcome. Data from BF will be uploaded directly by the Curator of the catalogue after it has been reconciled. Eutropia and CCC have committed to upload their photographs during 2020 so they can be available for the ongoing matching process with regional catalogues.

Matching process:
Individual blue whales are identifiable from unique patterns of mottling on both sides of the body near the dorsal fin (Sears *et al.*, 1990) and in some cases, permanent scars can be used to identify or confirm individuals.

At least two experienced matchers are appointed to be responsible for all comparisons. Multiple matchers, as long as experienced, have the advantage of the work being conducted by someone if others have commitments.

Photo quality-coding:
The photo-identification expert (or small team of experts, trained together) will code all of the newly contributed +300 photographs of blue whales from Chile, New Zealand and Sri Lanka. A reference guide to photo quality based on lighting, focus, and angle to the whale was developed (Olson et al. 2018) will be used. Coding identification photos for quality is a standard methodological approach in the use of photo-identification data prior to analysis (e.g. Calambokidis et al., 2008; Friday et al., 2000; Mizroch and Harkness, 2003). Photo quality codes will be entered directly into the SHBWC software which will allow for the extraction of the highest quality data for use in analysis.

Software upgraded:

Curator of the catalogue will directly work with IT people to upgrade software, ensure its proper performance and integrate any IWC requirements. IT personnel needs to be skilled on the Python and Django languages used for SHBWC software as well as the Github repositories used for IWC server processes. This is key for the use of SHBWC as a resource into the future.

The software has been specially designed to facilitate cross-matching process among multiple catalogues. Over the years the SHBWC has been improved and several tools developed to assist the different requests from Scientific Committee. To date, the software includes more than 30 different modules that allow multiple users, catalogues matching tools, filtering tools, reporting tools, photo- and data- management tools, etc. and also a few static webpages, forum, etc. All the code of the software will need to be re-written, module by module, by specialist IT to upgrade the language into a newer version. The performance of the software will be continually tested and checked by the curator to ensure that each tool continue to work properly. Weekly meetings between IT and the curator will be conducted to monitor advances, explain/clarify IT people the software structure and functioning, and solve any potential problem with the performance of the software. It is expected that the software upgrade could be completed within 6 to 8 months period.

(D) SUGGESTIONS FOR OUTREACH

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.

Annual progress report on the SHBWC as well as papers reporting results from matching process are presented to the Scientific Committee of the IWC.

Peer reviewed publications and press releases may also be considered when matches are found.

6. TIMETABLE FOR ACTIVITIES AND OUTPUTS

Specify the timetable for project activities and expected out puts 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)
Regional matching process with new contributions from Chile	Barbara Galletti & Paula Olson	09/20	03/21
Regional matching process with new contributions from New Zealand	Paula Olson & Chandra Salgado-Kent	09/20	03/21
Reconciliation of Sri Lanka photo-ID data from Biosphere Foundation and uploading into the SHBWC	Barbara Galletti	09/20	12/20
Regional matching process with new contributions from Sri Lanka	Paula Olson & Chandra Salgado-Kent	01/21	04/21
Photo-quality coding from new entries of Chile, New Zealand and Sri Lanka	Barbara Galletti & Paula Olson	07/20	12/20
Upgrade software version	Barbara Galletti	09/20	04/21
Update User Manual	Barbara Galletti, Paula Olson & Chandra Salgado-Kent	04/21	05/21
SHBWC progress report 2021	Barbara Galletti, Paula Olson & Chandra Salgado-Kent	05/21	05/21

Expected outputs	Completion date (mm/yy)
Increasing photo-identification database	12/20
Reconciliation of Sri Lanka catalogue and uploading into the SHBWC	12/20
Regional matching of new photo-IDs within Chile	04/21
Regional matching of new photo-IDs within New Zealand	04/21
Regional matching of new photo-IDs within Sri Lanka	04/21

| Upgrade software version and update user manual | 5 | 05/21 |
| Preliminary report on progress 2021 | | 05/21 |

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

Please, also specify if the project team has any direct connection (e.g. same research group or institute, collaborator on common project) with people involved or likely to be involved in taking the funding decision (e.g. IWC SC heads of delegations, SC convenors, etc.). Add as many rows as you need to the table below.

Name	Affiliation	Connection with decision
Bárbara Galletti	Centro de Conservación Cetacea	SHBWC curator and regional coordinator
Paula Olson	NOAA	Regional coordinator
Chandra Salgado-Kent	Ocean Blueprints	Regional coordinator
Peter Gill	Blue Whale Study Inc.	Contributor
Chris Burton	Western Whale Research	Contributor
Curt Jenner	Center for Whale Research Western Australia	Contributor
Mike Double	Australian Antarctic Division	Contributor
Luciana Moller	Flinders University	Contributor
Asha de Vos	Sri Lanka Blue whale Project	Contributor
Ken Findlay	Mammal Research Institute Whale Unit, University of Pretoria	Contributor
Gustavo Chiang	Fundación MERI	Contributor
Leigh Torres	Oregon State University, Marine Mammal Institute	Contributor
Maja Nimak-Wood	Gardline	Contributor
Rodrigo Hucke-Gaete	Centro Ballena Azul	Contributor
Maria Jose Perez	Centro de Investigación Eutropia	Contributor
Kimberly Goetz	National Institute of Water and Atmospheric research Ltd	Contributor
Abigail Alling	Biosphere Foundation	Contributor
David Donnelly	Killer Whales Australia	Contributor
Frederick Toro	Phantalassa	Contributor
Upul Liyanage	National Aquatic Resources Research and Development Agency	Contributor
Karen Edyvane	Universidade Nacional Timor Lorosa'e	Contributor
Benjamin Kahn	APEX Environmental PTy	Contributor

8. TOTAL BUDGET

Breakdown into: (1) salaries/wages (include name/position of each individual and breakdown of time and duties i; (2) travel/subsistence expenses (breakdown by person and justification) unless for IPs for workshops where a total estimate based on an average for the total number of IPs is acceptable; (3) services (e.g. aircraft/vessel time, consultancy fees, ARGOS fees, etc.; (4) reusable capital equipment (e.g. reusable equipment such as a hydrophone, cameras, etc. Note that this equipment will have to be registered at the IWC Secretariat and will remain property of the IWC at the end of the project), (5) expendable capital equipment (e.g. consumables, tags, stationery), (6) shipping costs, (7) insurance costs, (8) in kind co-funding (specify whether other funding is available for personnel/name, equipment, venues, etc.). Note that "Overheads" are not admissible. Add as many rows as you need to the table below.

Type	Detailed description	Cost in GB pounds 2021
(1) Salaries (by person)	Matching of new photo-IDs of Chile (aprox. 315hrs)	6.300
	Matching of new photo-IDs of New Zealand (aprox. 22hrs)	500
	Matching of new photo-IDs within Sri Lanka (aprox. 17hrs)	400
	Reconciliation of Sri Lanka dataset and uploading to the SHBWC (aprox. 40hrs)	800
	Photo-quality coding	600
(2) Travel/subsistence (by person or est. total for IPs)		
(3) Services (by item)	Software upgrading (six to eight months, re-write +30 modules and check performance)	9.000
(4) Reusable equipment		
(5) Consumables		
(6) Shipping (by Item)		
(7) Insurance (by item)		
(8) Co-funding		

(9) Other	If Blue Whale Center matching is also included (e.g. ~200 new left and right images), cost of additional matching is £20.336 GBP (1,017 hours of time)	
Total		**17.600**

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).

All data is uploaded to the SHBWC, a repository catalogue that is available to all contributors and can also be used for IWC purposes. When registering to the SHBWC, contributors signed the data sharing agreement that includes the IWC data sharing agreement. Currently the SHBWC is being migrated to an IWC server.

10. PERMITS (PLEASE TICK)

Do you have the necessary permits to carry out the field work and have animal welfare considerations been appropriately considered?	Not applicable
Do you have the appropriate permits (e.g. CITES) for the import/export of any samples?	Not applicable

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

Appendix 2 – 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**
Relevance to Scientific Committee priorities				
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.				
Approach and methodology				
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		