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PROJECT PROPOSAL REQUEST

1 . PROPOSAL TITLE

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

Aerial survey of southern right whales contributing to the western population off southern Australia

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.

An aerial survey is proposed to be carried out in 2021, the data from which will contribute to a long-term monitoring program of southern right whales across the south-western Australian region and an associated photo identification time series initiated by John Bannister in 1976. The count data will provide a relative estimate of annual population size and relative trend for the 'western' population and the photo-identification data will contribute to the determination of life history parameters (e.g. calving intervals) and information on the connectivity of the 'western' and 'eastern' Australian populations, with the larger dataset of sightings. The data from this survey will directly contribute to:

- the IWC-SORP funded project comparing population demographics across the main SH wintering grounds.
- Australian Conservation Management Plan for southern right whales (2011-2021)

This is a one-off request to the IWC for funding; no Government funding has been secured for the 2021 aerial survey due to a delay in the roll-out of Australia's National Environment Science Program (NESP), which has supported aerial surveys over the last five years.

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.

The IWC Southern Ocean Research Partnership (IWC-SORP) – has funded the project “Multi-ocean assessment of southern right whale demographic parameters and environmental correlates” (SC/68A/SHWP19, SC/68B/SH/15Rev1) that data from this survey will directly contribute to through the Australian Southern Right Whale Consortium.

4 . TYPE OF PROJECT (PLEASE TICK)

Research project	✓
Modelling	
Workshop/meeting	
Database creation/maintenance	
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.

Following the cessation of whaling of southern right whales, there have been signs of recovery in that part of the population that migrates to the south and south-western Australian coast each year. This has been particularly evident in the population that annually utilizes habitats off Western Australia (WA) and western South Australia (SA) which has been surveyed since 1976. The data from aerial surveys undertaken annually along the south-western coast of Australia (initiated and led by John Bannister) have been used to determine the relative abundance of whales across the area and from these a relative population trend through time. The surveys have also collected life history information, and individual identification photographs of whales aggregating close inshore. The relative abundance estimates and photo-identification data obtained from this aerial survey reflects the largest component of the Australian southern right population (from the 'western' subpopulation); the south-eastern population is comparatively substantially smaller and appears to be recovering at a much slower rate. Data from the 2020 aerial survey (reported in SC/68C/SH18) shows a significant decrease in whales recorded during the aerial survey relative to other years. Smaller numbers of whales were recorded during surveys in 2007 and 2015 with these years identified as anomalous years. The smaller numbers from the 2020 survey suggest this could also been an anomalous year, and may reflect some disruption to the 3-year female breeding cycle. Undertaking a survey in 2021 will not only ensure that the long-term monitoring program continues to build an uninterrupted time series from which the recovery of the population can continue to be tracked, it will also allow an assessment of the time series to distinguish if 2020 was a third anomalous year, or the recovery of the population is slowing.

The data resulting from the aerial survey will contribute to the dataset being used directly by the Southern Right Whale Consortium, a key objective of the IWC Southern Ocean Research Partnership (IWC-SORP) funded project "Multi-ocean assessment of southern right whale demographic parameters and environmental correlates", with the aim to compare population demographics across the main Southern Hemisphere wintering grounds.

This multi-ocean collaborative project utilizes up to 50 years of data from SH wintering grounds to inform both the preparatory work and an assessment for SRW's being undertaken by IWC-SC (currently under consideration by the Southern Hemisphere subcommittee), and key priority areas for IWC-SORP. The regional populations with available long-term photo identification databases to be included in the assessment are: (1) South West Atlantic (Brazil/Argentina); (2) South East Atlantic (South Africa); (3) Australia and (4) New Zealand.

(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.

1. Conduct an aerial survey from the southern Australian coast between Cape Leeuwin (Western Australia) and Ceduna (South Australia) to collect count (relative abundance) and photo-identification data for the 'western' sub-population of Australia's southern right whales,.
2. Through combining the count data with the longer time-series from the region, estimate population trend since 1993 and current population size.
3. Incorporate data collected during the aerial survey into the sightings database of the 'western' sub-population of southern right whales, currently housed at the Australian Antarctic Data Centre.
4. Incorporate individual photo-identification data collected during the aerial survey into the existing Australian Right Whale Photo-identification Catalogue (ARWPIC) to help evaluate potential connectivity between the 'western' and 'eastern' sub-populations.

(C) METHODOLOGICAL APPROACH/WORK PLAN/ADMINISTRATIVE DETAILS

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).

The aerial survey will be undertaken following established protocols developed and used in previous surveys of the south-western Australian region, using a high wing, single engine aircraft (Cessna 172) crewed by a pilot/observer and photographer/observer. The survey will be scheduled to be undertaken during August/September when whale numbers are likely to be at close to the maximum given the known calving period and previous observations of the population. Given the area covered by the survey, the survey will be conducted across a number of days, the total of which depend on flying and sighting conditions; flights are only conducted on 'good' days, when wind speeds are less than 15 knots. The survey area encompasses coastal waters (ca one nautical mile from the coast) between Cape Leeuwin (Western Australia) and Ceduna (South Australia). Each section of coast is generally covered twice, once 'outwards' from C. Leeuwin to Ceduna and once 'inwards' on the return flights. Most animals, particularly cows accompanied by their calves of the year, are easily observed in the relatively clear waters on the south coast and no corrections are made for the detection probability of a sighting ($g(0)$), which is assumed to be 1. The survey is flown at an altitude of 1000 feet, with photographs of individual whales documenting their markings taken at 500 feet. When a whale(s) is observed, a GPS position is recorded, a direct count taken and individuals are circled for photography, with an emphasis on cows with calves. For individual identification, clear aerial photographic images of the head callosity pattern and/or other identifying characteristics of the whales are obtained. The maximum count on either the 'outward' or 'inward' flight on each 'leg' are then used to obtain estimates of both population trend and current population size, which is consistent and comparable to previous years since 1993. A population trend analysis is undertaken using an exponential regression (i.e. a linear regression of the natural log of the count on year) of the maximum count data for 'all animals' and 'cow/calf' pairs

(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.

Researcher J. Smith will utilize his research group website (amru.org.au) and twitter account (@AMRU_Murdoch) as part of his research group to promote and disseminate the results of the 2021 aerial survey. Further outreach will be through Researcher M. Double and N. Kelly through the Australian Antarctic Division media outlet and K. Evans through the Australian Department of Agriculture, Water and the Environment. We will produce any desired outreach documents requested by the IWC-SC.

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)
Planning of 2021 aerial survey	Joshua Smith	06/21	08/21
Undertaking of 2021 aerial survey	Joshua Smith	08/21	08/21
Data analysis	Joshua Smith	08/21	11/21
Report of 2021 aerial survey	Joshua Smith Mike Double Nat Kelly	11/21	02/22

Expected outputs	Completion date (mm/yy)
IWC Scientific Committee report on the 2021 aerial survey	02/22

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
Joshua Smith	Murdoch University, Western Australia	None
Mike Double	Australian Antarctic Division, Tasmania	Yes, works with IWC SH subcommittee co-convenor Elanor Bell at the AAD; is head of the Australian delegation to IWC-SC
Nat Kelly	Australian Antarctic Division, Tasmania	Yes, works with IWC SH subcommittee co-convenor Elanor Bell at the AAD
Karen Evans	CSIRO Oceans and Atmosphere, Tasmania	None

8 TOTAL BUDGET

PROJECT BUDGET

Note: Budget is calculated based on an exchange rate of 1 GBP to AUD = 1.79

Description	Cost per unit	Number of units	Total Cost £GBP	Co-funding
(1) Salaries (by person)	£48 per hour	40 hours	£1,920	
(2) Travel/subsistence (by person or est. total for IPs)		6 days 6 days	£384 £384	
(3) Services (by item)	£358 per/hour	40 hours	£14,320	
(4) Reusable equipment				
(5) Consumables				
(6) Shipping & Customs (by Item)				
(7) Insurance (by item)				
(8) Other				
		TOTAL	£17,008	

Co-funding Memo:

Source	Purpose of Funding	Amount	Secured/Tentative?
	TOTAL		

Total value of project:	£GBP
Funds requested from IWC	£17,008
Co-funding	
TOTAL	£17,008

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).

Count data and sightings information and photographic images are publically available and submitted to the Australian Marine Mammal Centre and Australian Antarctic Data Centre at the Australian Antarctic Division. Photographic images are submitted to the Australasian Right Whale Photo-identification Catalogue (ARWPIC) hosted by the Australian Antarctic Data Centre. The data is archived at the Australian Antarctic Division Archives, Hobart Australia.

10 . PERMITS (PLEASE TICK)

Do you have the necessary permits to carry out the field work and have animal welfare considerations been appropriately considered?	Yes
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:

Murdoch University currently holds an animal ethics permit (O3031/1 – Murdoch University) covering aerial survey activities. State permit applications (to Western Australia and South Australia government departments) for conducting the aerial survey are currently being submitted. These have been issued annually for previous years.

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
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		