

SC/68A/RP/01

SH - Modelling/Computing (Kelly) Exploration of survey methods and designs to return a new abundance estimate of west Australian (BSD) humpbacks



INTERNATIONAL
WHALING COMMISSION

PROJECT PROPOSAL REQUEST

1. PROPOSAL TITLE

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

Exploration of survey methods and designs to return a new abundance estimate of west Australian (BSD) humpback whales

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.

This project will:

- Review the existing survey data/methodology for west Australia humpbacks and identify strengths and weaknesses to help development of a new survey design;
- Explore existing 'feasibility studies', viz. duFresne et al. (2014), particularly to derive updated estimates of availability bias
- Formulate a new survey design plan for future surveys for west Australian humpbacks, including new technologies, such as long-range unmanned aerial vehicles.

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.

SH, IA (and more generally to methodology for visual/line transect distance sampling)

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)

<p>(A) BACKGROUND, RATIONALE, AND RELEVANCE TO THE PRIORITIES IDENTIFIED BY THE IWC SCIENTIFIC COMMITTEE:</p> <p><i>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.</i></p> <p>The Comprehensive Assessment of Southern Hemisphere humpback whales was concluded in 2015. However assessment of one stock (BSD, west Australia) could not be completed due to uncertainty over the absolute abundance of this stock. Abundance estimates described by Hedley et al. (2011) appear robust (particularly 2008), but include only surfacing animals, and do not correct for animals that dive out of view (i.e., are not corrected for availability bias). The available abundance data for west Australia (BSD) presented two challenges: (1) there were few data to inform a correction for surface availability; and (2) there was a potential inconsistency between observer protocols and the Distance- based approach employed to estimate abundance. See IWC (2016) for a detailed discussion of these issues. In 2017, the sub-committee agreed that there was no strong case to further re-analyse past survey data for BSD because of the absence of success despite the efforts of two experienced modellers. Rather efforts should focus on designing and implementing a new 'survey' of the population (perhaps using new approaches, as provided by drones for example).</p> <p>In 2017, the SH sub-committee (IWC 2018):</p> <p>(1) encouraged the development of a new survey off Western Australia for the purpose of producing a new abundance estimate, although it remains unclear if this is feasible either financially or logistically.</p> <p>(2) recommended an assessment of the feasibility of a new 'survey' be carried out, noting that detailed consideration of past survey feasibility analyses (notably following duFresne et al., 2014), are necessary before any new fieldwork could be considered.</p> <p>duFresne, S., A. Hodgson, J. Smith, L. Bennett, D. Burns, D. MacKenzie, and V. Steptoe. 2014. Final report: Breeding stock 'D' humpback whale pilot surveys - methods and location. Prepared for AMMC. 67pp. Hedley, S. L., J. L. Bannister, and R. A. Dunlop. 2011. Abundance estimates of Southern Hemisphere breeding stock 'D' humpback whales from aerial and land-based surveys off Shark Bay, Western Australia. <i>Journal of Cetacean Research and Management (Special Issue)</i> 3:209-222. IWC. 2016. Annex H: Report of the Sub-Committee on Other Southern Hemisphere Whale Stocks. <i>Journal of Cetacean Research and Management (Supplement)</i> 17 IWC. 2018. Annex H: Report of the Sub-Committee on Other Southern Hemisphere Whale Stocks. <i>Journal of Cetacean Research and Management (Supplement)</i> 19</p>
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(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.

This project will:

- Review the existing survey data/methodology for west Australia humpbacks and identify strengths and weaknesses to help development of a new survey design;
- Explore existing 'feasibility studies', viz. duFresne et al. (2014), particularly to derive updated estimates of availability bias
- Formulate a new survey design plan for future surveys for west Australian humpbacks, including new technologies, such as long-range unmanned aerial vehicles.

(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).

A desktop review/study of existing reports/papers/publications, and re-analysis of existing survey data.

(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.

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)
Review the existing survey data/methodology for west Australia humpbacks	KELLY	07/19	SC/68b
Explore existing 'feasibility studies', viz. duFresne et al. (2014), particularly to derive updated estimates of availability bias	KELLY	07/19	SC/68b
Formulate a new survey design plan for future surveys for west Australian humpbacks	KELLY	07/19	SC/68b

Expected outputs	Completion date (mm/yy)
Report delivered to the SC in 2020	SC/68b
Potential for JCRM publication	?

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
Natalie Kelly	Australian Antarctic Division	Project lead

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
(1) Salaries (by person)	Dr Kelly requires 5 weeks of time to complete the proposed work. The Australian Antarctic Division hourly rate is \$61.50 AUD/hour; including overhead costs of 18%, this is \$72.60 AUD/hour. Five weeks of work at 37.5 hours/week is 187.5 hours, costing \$13,615 AUD. In GBP this value as of 16/05/19 (xe.com) is £7,347. AAD has agreed to match Dr Kelly's time at 45% of her costs, enabling this project to be completed with co-investment of £4000 GBP	4000
(2) Travel/subsistence (by person or est. total for IPs)		
(3) Services (by item)		
(4) Reusable equipment		
(5) Consumables		
(6) Shipping (by item)		
(7) Insurance (by item)		
(8) Co-funding		
(9) Other		
Total		4000

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).

The Australian Marine Mammal Centre holds data collected by duFresne et al. (2014); this data is basically available upon request.

10. PERMITS (PLEASE TICK)

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

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		