INTERNATIONAL WHALING COMMISSION

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

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

Assessing stock identity and movements of Antarctic and pygmy blue whales in the northern Mozambique Channel / southwest Indian Ocean

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.

Acoustic monitoring from 2017 to 2020 indicates the sympatric occurrence of Antarctic blue whales (*Baleanoptera musculus intermedia*) and Southwest Indian Ocean pygmy blue whales (*B. m. brevicauda*) off the northwest of Madagascar, ranging within 50-100km of the coast. Antarctic blue whales appear to use the area as breeding habitat during the Austral winter. Pygmy blue whales appear to utilize it as a migratory corridor. The proposed work involves a 20-day expedition during the period when both sub-species are present.

- Passive acoustics will be used to locate singing blue whales;
- Collected photo-IDs will be contributed to the Southern Hemisphere Blue Whale Catalogue;
- Biopsies and eDNA will be collected to identify sub-species and contribute to global assessments of blue whale population structure;
- Satellite tags will be deployed to provide new data on movement patterns and migratory destinations.

These data will inform IWC blue whale assessments, providing invaluable information on poorly sample populations.

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 subcommittee – this proposal is directly relevant to the ongoing assessments of Southern Hemisphere blue whales, both Antarctic and pygmy subspecies, by providing the first photographs and biopsies for Antarctic blue whale on low latitude Indian Ocean, and adding substantially to the small sample for SWIO pygmy blue whales, and providing the first satellite telemetry data for these populations in the SWIO.

4 . TYPE OF PROJECT (PLEASE TICK)

Research project	X
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.

Background

Southern Hemisphere blue whales comprise four subspecies; in the Southern Indian Ocean this includes Antarctic blue whales (*Balaenoptera musculus intermedia*) and "pygmy" blue whales (*B. m. brevicauda*). Populations are distinguished by stereotyped song-types; multiple song-types have been recorded in sympatry at several sites in the Indian Ocean, with varying temporal distributions (1-6).

Antarctic blue whales (ABW) are distributed around Antarctica during the austral summer, and migrate to poorly documented regions in lower latitudes during winter, as indicated by passive acoustic monitoring (PAM). Industrial whaling reduced ABW to <1% of pre-whaling abundance and they remain Critically Endangered (2, 4, 7, 8). Pygmy blue whales (PBW) are principally distributed in tropical to temperate latitudes north of 54°S (2). In the Southwest Indian Ocean (SWIO), a PBW population is defined by the SWIO song-type, heard from the Madagascar Plateau to the central Indian Ocean (1, 9). There is a likely summer feeding region on the Madagascar Plateau, for which estimated abundance was 424-474 (10). Large numbers caught in winter near the Seychelles (11) and recent spring sightings off Kenya (12) suggest a potential breeding area, with a migratory corridor west of Madagascar (5).

Recently, Cerchio et al. (5, 13) reported the presence of blue whales off northwest Madagascar, including sightings and extensive acoustic records (Figure S1). Data from a 28-month (December 2016-March 2019) PAM effort revealed eight distinct populations of five baleen whale species, including ABW and PBW (5; Figure S2). ABW song was present throughout the austral winter (Figure S3), suggesting a previously unrecognized breeding aggregation. SWIO PBW song was present bi-modally, with peaks of singing activity in autumn and spring (Figure S3), suggesting a migratory corridor between summer feeding and winter breeding habitats south and north of Madagascar, respectively. Sound propagation modelling off Nosy Be indicated that the detection range for ABW song, assuming a source level of 189dB re 1µPa in a 24-29Hz band, was likely <100km (Figure S4), and some detections were likely <10km (for example Figure S2). This is 1/3 the distance from Madagascar to Mayotte, where blue whales have been encountered (14). These data indicate sympatric populations of the two subspecies close to a developed coastal region, and thus accessible to research vessels; given the primarily oceanic nature of blue whales, this represents a rare opportunity for directed study.

Relevance to IWC SC Priorities

IWC, 2020, 8.2.1 Non-Antarctic Southern Hemisphere blue whales, item 8.2.1.4 Southwest Indian Ocean Blue Whales

…The Committee … **encourages** submission of photos from the southwest Indian Ocean region to the SHBWC … The Committee also **reiterates** its strong encouragement for the collection and analysis of available tissue samples for the analysis of genetic population structure in this region to assist with characterising these populations.

IWC, 2020, item 8.2.1.6 Progress Towards Comprehensive Assessment

… The Committee **agrees**: (1) that development of the Southern Hemisphere Blue Whale Catalogue continue, with a priority focus on: … (v) review and compilation of photo-ID data from Madagascar within the SHBWC.

IWC 2020, 8.2.2 Antarctic blue whales, item 8.2.2.2 Wintering Grounds

.. the Committee **strongly encourages** further research to identify and characterise … lower-latitude wintering grounds … including:

(1) vessel surveys off northwest Madagascar to collect photo-ID and genetic samples from the whales wintering in these waters (acoustic data suggest this is feasible) for comparison with similar datasets available from Antarctic Area III …;

(3) efforts to collect and analyse eDNA samples.

(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.

Goals and Objectives

The proposed work will be led by the African Aquatic Conservation Fund (AACF), and conducted as a component of the Quieter Western Indian Ocean Project (QWIO). QWIO is a diverse multi-partner project led by the Wildlife Conservation Society (WCS) and funded by the French Global Environment Fund (FFEM). QWIO's broad intent is to identify overlaps between marine species, underwater anthropogenic noise and shipping, and to identify mitigation strategies for reducing identified threats. QWIO is in the final phase of development, with funding currently approved.

Blue whales are among the focal species for the QWIO project, and the northern Mozambique Channel is one of the focal regions; AACF will lead passive acoustic monitoring and the blue whale survey components of QWIO work in this region (in partnership with WCS and others). The French Office for Biodiversity (OFB, which manages the Mayotte Marine Park) is a QWIO project partner and have agreed to co-fund a project to tag 10 blue whales focusing on the waters of Mayotte and NW Madagascar. This funding is significant, but additional sources are required to ensure the program can proceed.

During the blue whale survey component, we will conduct a multi-disciplinary research expedition with a primary goal of locating and collecting data on individual ABWs and SWIO PBWs. The specific objectives include:

1. Conduct a research survey running transects between Mayotte and the northwest coast of Madagascar during June 2022, the month of overlapping peak occurrence for ABW and SWIO PBW.

2. Use passive acoustic monitoring (PAM) to detect and locate singing blue whales from the vessel, and indicate sub-species. Once encountered, a small boat will be launched to conduct work.

3. Photographically identify individuals to assess numbers of whales encountered and potential recaptures during the expedition.

4. Collect skin biopsies and eDNA samples for population genetic analyses, and to distinguish definitively the sub-species of sampled individuals.

5. Deploy 10 Argos satellite tags to determine local and migratory movements of individual whales, and assess movement behaviour to distinguish between migratory corridors and breeding habitat.

Anticipated Outcomes

The short-term outcomes from this project will be multiple documents shared with decision-making bodies at both regional and international scales, and collection of multiple data sets of value:

a. Results will be shared with: decision-making bodies at local and regional government levels, to inform policy development and management for protection of sensitive species and critical habitat; national and international technical bodies (e.g., IWC) and at international scientific meetings and symposia; the scientific community through publication in peer-reviewed journals such as Marine Ecology Progress Series, Endangered Species Research, and/or Marine Mammal Science.

b. Individual identification photographs will be contributed to the Southern Hemisphere Blue Whale Catalogue moderated by the IWC.

c. Biopsies and eDNA samples will be provided to NOAA Southwest Fisheries Science Center for an ongoing assessment of the global population structure of blue whales.

(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 expedition will launch from Mayotte or Nosy Be, aboard the 28m schooner Antsiva, a cost-effective research vessel based in the region. The expedition will last 20 days, with the expectation to range the 300kms from Mayotte to the coast of Madagascar in search of blue whales.

A towed hydrophone array will be used to monitor for blue whales and other cetacean vocalizations during the cruise. The array was designed specifically to detect low frequency (LF) baleen whale signals while towing from a quiet sailing vessel, and was proofed off Madagascar, detecting LF humpback whale vocalizations (15). Detected song-types will indicate whether the singer is an ABW or PBW, and beam-forming between hydrophones with a large aperture for LF signals will be used to determine bearing toward the singer. The ship will approach the areas where whales were detected and they will be visually located.

Upon locating blue whales, a smaller boat will be used for close approaches. Standard procedures will be used to photograph the individually specific pattern of mottling on the flanks, and skin biopsies will be obtained using a small biopsy dart and crossbow. Water samples will be collected in the vicinity of blue whale dive spots, and processed for eDNA sampling using 0.4 µM Cyclopore Polycarbonate membrane filters and preserved in Longmire's buffer (SC was responsible for eDNA sampling during NOAA beaked whale cruises).

Satellite tags will be deployed from the small boat. Tags used will be Wildlife Computers (Redmond, WA, USA) SPOT-303 integrated transdermal tags, deployed using a modified pneumatic tagging device (16-19). We will attempt to deploy 10 tags, with the goal of equal proportions on Antarctic and pygmy blue whales, or as encounters allow. Tags will be duty cycled to maximize performance within a six-month period and provide data for a complete 12 months. A behavioural switching state-space model will be applied to resultant data, to improve estimates of locations, while simultaneously classifying movement behaviour into 'transiting' vs. 'localized'. Spatial distribution of behavioural states will be evaluated to distinguish between areas through which whales are migrating, vs. used for possible breeding or feeding.

(D) SUGGESTION S FO R 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.

AACF and WCS work closely with local partner the Institute of Fisheries and Marine Science (IHSM) of the University of Toliara, the premier oceanographic institute in Madagascar. As part of MoU's with IHSM, national students and biologists participate in field research under active collaborations and student mentorships. AACF team member Tahina Rasoloarijao is pursuing a DEA (MSc degree) from IHSM under the mentorship of the PI, and previous students have moved on to academic and conservation positions in Madagascar. We will seek a new Malagasy student from IHSM to participate and train in field research methods for the proposed study. In addition, a PhD student from the region will be recruited to take part in the project, funded through QWIO; the PhD student will be co-advised by S. Cerchio while enrolled in Curtin University, Mauritius. In addition to these training and capacity building components, AACF will work with IHSM to disseminate reports and information generated by the project to Malagasy governmental authorities and Ministries.

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)
Preparation for survey, acquisition and testing of equipment, protocol development	Cerchio and Collins	02/22	05/22
Submission of research permit and CITES export permit applications	Cerchio and Rasoloarijao	02/22	05/22
Research survey on r/v/ Antsiva	Cerchio, Collins and Rasoloarijao	06/22	07/22
Processing of photographic data	Cerchio, Collins and Rasoloarijao	07/22	09/22
Tracking of tagged blue whales	Cerchio and Collins	07/22	Up to 06/23
Processing of satellite telemetry tracks (dependent on duration of satellite tag transmissions)	Cerchio and Collins	01/23 – 06/23	07/23 – 11/23

Expected outputs	Completion date (mm/yy)
Interim Report on field survey	09/22
Delivery of biopsy samples and eDNA samples	08/22
Delivery of photo-IDs to Southern Hemisphere Blue Whale Catalogue	10/22
Final Report (dependent on duration of satellite tag transmissions)	07/23 – 12/23

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
Salvatore Cerchio (Project PI)	African Aquatic Conservation Fund	None
Tim Collins (QWIO PI)	Wildlife Conservation Society	None
Tahina Rasoloarijao	African Aquatic Conservation Fund; Institut Halieutique et des Sciences Marines (IHSM), Université de Toliara	None

8 TOTAL BUDGET

PROJECT BUDGET								
						Please indicate when funds will be needed		
	Description	**Cost per unit**	**Number of units**	**Total Cost £GBP**		**2022**	**2023 +**	**Co-funding**
(1) Salaries (by person)	Project PI - S.Cerchio	£360 /day	30 days					10,791
	Project co-PI - T.Collins (QWIO PI)	£360 /day	30 days					10,791
	Local student/field staff – 12 months support for 2	£194 /month	24 months	4,656		2,328	2328	
	Regional PhD Student – 4 months working on project	£1,223 /month	4 months					4,892
	Consultant - Tagger	£216 /day	20 days					4,317
(2) Travel/subsistence (by person or est. total for IPs)	International travel to/from Madagascar for 3 people	£1,439 / RT	3 pers	4,317		4,317		
	Domestic Airfare within Madagascar for 3 people	£216 / RT	3 pers	648		648		
	Travel within Madagascar for 2 Malagasy team members	£108 / RT	2 pers	216		216		
	Lodging before/after Vessel surveys - 10 days for 5 people	£22 / day	5 x 10 days	1,100		1,100		
	Per Diem before/after Vessel surveys - 10 days for 5 people	£11 / day	5 x 10 days	550		550		
(3) Services (by item)	Sailing Vessel rental - r/v Antsiva for 20 days	£1,799 / day	20 days					35,980
(4) Reusable equipment	Equipment - Misc field gear, photographic, biopsy and tag deployment							18,777
	Equipment - Towed hydrophone array							14,388
(5) Consumables	Equipment - Satellite tags, 10 implantable SPOT 6	£2,302 / tag	10 tags					23,020
	Supplies for hydrophone array maintenance	£2,158		2,158		2,158		
	Misc Supplies	£360		360		360		
(6) Shipping & Customs (by Item)	Extra baggage - Acoustic Array transport	£144 / bag / OW	2 x 2 OW	576		576		
(7) Insurance (by item)	Liability Insurance for vessel and staff	£2,374	flat rate					2,374
(8) Other	Fuel for Small Boat - for approaching whales	£0.9 / L	400 L	360		360		
	Logistics and permit acquisition	£719	flat rate	719		719		
	Telephone and internet	£14 / week	4 weeks	56		56		
	Misc costs during surveys	£360		360		360		
			TOTAL	16,076		13,748	2,328	126,050

Co-funding Memo:

Secured funding from FFEM/QWIO will be allocated to salary costs and insurance as part of the large QWIO budget. OFB has committed funds specifically for the satellite telemetry study; therefore in the above budget, cost of the vessel rental, satellite tags and tagger salary are covered by OFB funding. IWC funds will be used for all other operating costs for the 20 day survey. In the absence of IWC funding, the length of the survey would be reduced to 12-15 days, and/or tags will be reduced to 6-8 tags; therefore, the contribution of IWC funds will greatly enhance the probability of encountering blue whales, and collection of photo-IDs and biopsies and tagging attempts.

Source	Purpose of Funding	Amount		Secured/Tentative?
FFEM/QWIO	Salaries and Insurance coverage	28,849		Secured
OFB	Vessel rental and satellite tagging costs	64,036		Secured
AACF	In kind use of equipment	33,165		Secured
	TOTAL	**126,050**		

Total value of project:	£GBP
Funds requested from IWC	**16,076**
Co-funding	**126,050**
TOTAL	**142,126**

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).

Individual identification photographs will be contributed to the Southern Hemisphere Blue Whale Catalogue moderated by the IWC.

Biopsies and eDNA samples will be provided to NOAA Southwest Fisheries Science Center for an ongoing assessment of the global population structure of blue whales.

Satellite telemetry data will be available for collaborative studies at regional and global scales upon request.

All data will be made available for use under the multi-partner QWIO project, described in **Goals and Objectives**.

10. . PERMITS (PLEASE TICK)

Do you have the necessary permits to carry out the field work and have animal welfare considerations been appropriately considered?	To be acquired 3 months prior to initiation of project, as in previous years
Do you have the appropriate permits (e.g. CITES) for the import/export of any samples?	To be acquired 3 months prior to initiation of project, as in previous years

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

Literature Cited

[1]McDonald MA, Hildebrand JA, Mesnick SL (2006) Biogeographic characterization of blue whale song worldwide: using song to identify populations. Journal of Cetacean Research and Management, 8, 55–65.

[2]Branch TA, Stafford KM, Palacios DM, et al. (2007) Past and present distribution, densities and movements of blue whales Balaenoptera musculus in the Southern Hemisphere and northern Indian Ocean. Mammal Review 37:116–175.

[3]Stafford, K. M., Chapp, E., Bohnenstiehl, D. R., and Tolstoy, M. (2011). Seasonal detection of three types of 'pygmy' blue whale calls in the Indian Ocean, Marine Mammal Science 27(4), 828–840.

[4]Samaran, F., Stafford, K. M., Branch, R. A., Gedamke, J., Royer, J.-Y., Dziak, R. P., and Guinet, D. (2013). Seasonal and geographic variation of southern blue whale subspecies in the Indian Ocean, PLoS One 8(8), e71561.

[5]Cerchio S, Rasoloarijao T, Mueller-Brennan B, Cholewiak D. (2020a). Acoustic monitoring of Blue Whales (*Balaenoptera musculus*) and fin whales (*Balaenoptera physalus*) in the Mozambique Channel off the Northwest Coast of Madagascar. Paper SC/68B/SH/08 presented to IWC Scientific Committee.

[6]Cerchio S, Willson A, Leroy E, Muirhead C, Al Harthi S, Baldwin R, Cholewiak D, Collins T, Minton G, Rasoloarijao T, Rogers T, Sarrouf Willson M. (2020b). A new blue whale song-type described for the Arabian Sea and Western Indian Ocean. Endangered Species Research 43: 495-515.

[7]Branch TA. (2007). Abundance of Antarctic blue whales south of 60S from three complete circumpolar sets of surveys. Journal of Cetacean Research and Management, 9, 253-262.

[8]Cooke, J.G. 2018. *Balaenoptera musculus* ssp. *intermedia*. The IUCN Red List of Threatened Species (2018): e.T41713A50226962. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T41713A50226962.en. Downloaded on 15 April 2021

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[10]Best PB, Rademeyer RA, Burton C, et al. (2003) The abundance of blue whales on the Madagascar Plateau, December 1996. Journal of Cetacean Research and Management, 5: 253–260.

[11]Mikhalev YA (2000) Whaling in the Arabian Sea by the whaling fleets Slava and Sovetskaya Ukraina. In: Yablokov AV, Zemsky VA (eds) Soviet Whaling Data [1949-1979], Center for Russian Environmental Policy, Marine Mammal Council, Moscow, pp. 141-181.Samaran F, Adam

O, Guinet C (2010) Discovery of a mid-latitude sympatric area for two Southern Hemisphere blue whale subspecies. Endangered Species Research 12: 157–165.

[12]Barber R, Sikora I, Nimak-Wood M. (2016). Blue whales Balaenoptera musculus in offshore waters of Kenya. African Journal of Marine Science, 38(2), 279-284.

[13]Cerchio S, Laran S., Andrianarivelo N., Saloma A., Andrianantenaina B., Van Canneyt O., and Rasoloarijao T. (In press). Cetacean Species Diversity in Malagasy Waters. In: Goodman, S. M. (ed.). The new natural history of Madagascar. Princeton: Princeton University Press.

[14]Kiszka, J., Berggren, P., Rosenbaum, H.C., Cerchio, S., Rowat, D., Drouot-Dulau, V., Razafindrakoto, Y., Vely, M. and Guissamulo, A. (2009). Cetaceans in the southwest Indian Ocean: a review of diversity, distribution and conservation issues. paper SC/61/O18 submitted to the IWC Scientific Committee. 13p.

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[16]Heide-Jørgensen MP, Laidre KL, Wiig O, Jensen MV, Dueck L, Maiers LD, Schmidt HC, Hobbs RC (2003) From Greenland to Canada in ten days: track of bowhead whales, Balaena mysticetus, across Baffin Bay. Arctic 56:21-31

[17]Gales NM, Double C, Robinson S, Jenner C, Jenner M, King E, Gedamke J, Paton D, Raymond B (2009) Satellite tracking of southbound East Australian humpback whales (Megaptera novaeangliae): challenging the feast or famine model for migrating whales Pages 1-12 Paper SC/61/SH17 presented at the International Whaling Commission Scientific Committee, Funchal, Madeira Island

[18]Cerchio S, Trudelle L, Zerbini AN, Charrassin JB, Geyer Y, Mayer FX, Andrianarivelo N, Jung JL, Adam O, Rosenbaum HC. (2016). Satellite telemetry of humpback whales off Madagascar reveals long range movements of individuals in the Southwest Indian Ocean during the breeding season. Marine Ecology Progress Series 562, 193-209.

[19]Dulau V, Pinet P, Geyer Y, Fayan J, Mongin P, Cottarel G, Zerbini A, Cerchio S. (2017). Movement behavior of humpback whales during the breeding season: on the road again! Movem. Ecol. 5:11.

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		