SC/68B/RP/10

CMP - Passive Acoustic Monitoring of the Eastern South Pacific Southern Right Whale, a key to improve Conservation Management Plan outputs 2021

IWC

INTERNATIONAL WHALING COMMISSION

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.

Passive Acoustic Monitoring of the Eastern South Pacific Southern Right Whale, a Key to Improve Conservation Management Plan Outputs 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.

Eastern South Pacific southern right whale are considered Critically Endangered by IUCN. In 2012, the IWC adopted a Conservation Management Plan for this population and since 2016 the Scientific Committee has supported the Passive Acoustic Monitoring (PAM) project to facilitate the identification of potential breeding areas along the coast of Chile and Peru. This project seeks to obtain temporal coverage over a complete annual cycle and spatial coverage along its known distribution range. Passive acoustic monitoring is likely the most cost-effective way to investigate the seasonal and temporal distribution of southern right whales along the coast of Chile and Peru. One-year data was successfully collected from southern Chile between 2018-2019, and additional data are currently being collected from central Chile. A southern right whale call automatic detector is being built to assists with data analysis. The 2021 workplan priorities includes: collect one-year of acoustic data at northern Chile and analyze acoustic datasets obtained off southern and central Chile. The information will be crucial to identify aggregation areas and facilitate the implementation of the CMP for this population.

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 sub-committee on Conservation Management Plan reviews information on CMPs and in particular it reviews advances on the Eastern South Pacific southern right whales CMP.

Since 2016, the IWC Scientific Committee has been supporting this project with the aim to facilitate the identification of potential breeding areas along the coast of Chile and Peru (IWC, 2016). This is the first project to use passive acoustic monitoring (PAM) for this population in the entire Eastern South Pacific and has received a wide range of support.

In addition, the passive accoustic recording will be usefull for other sub-committes and sub-groups of the Scientific Committee, such as SH and SM, since it will collect acoustic data over a year from any cetacean species from several locations along the southeast pacific. Acoustic datasets will be available to be used in the future to monitor other species as well.

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.

With less than 50 mature individuals, The Eastern South Pacific (ESP) southern right whale population was classified as Critically Endangered by IUCN in 2008.

In 2012, a Conservation Management Plan (CMP) for this population has been implemented through the International Whaling Commission (IWC) and one of the highest priority actions of the CMP includes the identification of a breeding area.

Since 2016, the IWC Scientific Committee has been supporting the *"Acoustic Monitoring of the Eastern South Pacific population of southern right whales, a key to increase the results of the CMP"* project and over the past years, the Committee has "***commended*** *the scientific work being undertaken and the international co-operation this entails and* ***looks forward*** *to receiving the results of the acoustic studies*".

The PAM project seeks to obtain temporal coverage over a complete annual cycle and spatial coverage along the known distribution range of the southern right whale. After carefully planning, the PAM project has selected initially six location sites along its distribution range and successfully started its implementation in 2018. To date one-year data has been collected from southern Chile and central Chile is currently being monitored. A southern right whale automatic detector is being developed and preliminary acoustic analysis are ongoing.

Collection of one year data in northern Chile (Antofagasta region - third location site) is essential to ensure a more representative overview of southern right whale distribution.

(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.

- Prepare all planning, permits, coordination and logistics for deployment at third location site (northern Chile)
- Complete one-year recording at northern Chile (turnover every 2-3 months)
- Improve and test the southern right whale call detector
- Run the southern right whale call detector to the entire acoustic dataset collected from southern and central Chile

These recordings will provide valuable information about call parameters and patterns for eastern South Pacific southern right whales along its distribution range, which can be used to document spatial and temporal patterns of occurrence as well as possibly generate acoustic-based density estimations.

The information collected will facilitate the identification of an aggregation area where a long-term monitoring program on the species can be implemented and will benefit conservation outcomes of the ESP southern right whale CMP.

(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 steering group of the PAM project has been established in 2017 and since then it has been involved in all related matters to the project such as the selection of the equipment, selection of deployment sites, planning and logistics, coordination of data analysis, reporting to IWC, etc.

Hydrophones are programmed to record continuously from 20Hz to 24KHz and this allow a maximum of 76 days of continuous recording. In order to cover a full 12 months at each site, instrument turnovers take place every 2-3 months.

Six sites have been initially consider to cover all possible hotspots of this population along its know distribution range. In 2021 we plan to collect data on the third location site located in Peninsula de Mejillones (northern Chile). This dataset is essential to complement the currently collected datasets from southern and central Chile. The area near Antofagasta-Mejillones has also been considered as a possibility of breeding area. The University of Antofagasta and the NGO Centro de Investigación de Fauna Marina y Avistamiento de Cetaceos that work with cetaceans on this area have been approached and will be the local partners to facilitate the deployment and maintenance of the equipment.

Given the amount of acoustic data, manual annotation is not time-efficient. A southern right whale call automatic detector was built in the Low Frequency Detection and Classification System (LFDCS) developed by Dr. Mark Baumgartner at Woods Hole Oceanographic Institution and widely used by researchers and NOAA in the USA. Performance need to be improved by adding more exemplars to the LFDCS call library and by building a humpback whale call detector in the LFDCS call library.

The improved southern right whale / humpback whale detectors will be run to the entire acoustic dataset collected from southern and central Chile. A trained acoustic analyst will review all detections to assess percent of false positive rate and also a trained analyst must review a subset of the acoustic data to assess the percent of false negative rate.

(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.

Anual pogress reports and preliminary results of data analysis will be provided to the Scientific Committee.

Press releases are considered to promote the project and create awareness on the CMP, the Critically Endangered status of this population and the actions taken by the IWC, range states and stakeholders.

Educational lectures to schoolchidren as well as capacity building workshops to local communities where the project is implemented are being conducted to increase awareness and the outreach of the PAM project and the CMP.

Peer reviewed papers will be published as the project generates information on this matters.

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)
Coordinate planning and logistics	Barbara Galletti	09/20	12/21
Obtain necessary permits	Barbara Galletti	10/20	10/20
Deployment and maintenance of acoustic mooring system at Peninsula de Mejillones, Antofagasta, northern Chile	Barbara Galletti and Ivan Perez-Santos	01/21	12/21
Improve and test southern right whale call detector performance	Susannah Buchan	06/20	12/20
Complete data analyzes for the entire acoustic dataset of southern and central Chile	Susannah Buchan	01/21	04/21
Conduct educational and capacity building program	Barbara Galletti	04/21	10/21
Progress report 2021	Steering Group	05/21	05/21

Expected outputs	Completion date (mm/yy)
Analysis of first acoustic records of Critically Endangered southern right whales population at two different location sites	05/21
Preliminary results of between sites comparisons to document spatial and temporal patterns of occurrence as well as possibly generate acoustic-based density estimations	05/21
First publication in peer-reviewed journal	05/21
Collection of one-year acoustic dataset in northern Chile	12/21

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
Barbara Galletti	Centro de Conservacion Cetacea	Project leader, CMP coordinator and member of steering group
Susannah Buchan	COPAS Sur-Austral, Universidad de Concepcion	Acoustic researcher & member of steering group
Ivan Perez-Santos	Centro i-Mar, Universidad de Los Lagos	Oceanographer
Elisa Goya	Instituto del Mar del Peru	CMP sub-coordinator for Peru & member of steering group
Sue Moore	NOAA	Scientific advisor & member of steering group
Robert L. Brownell Jr.	NOAA	Scientific advisor & member of steering group
Danielle Cholewiak	Woods Hole Oceanographic Institute	Scientific advisor & member of steering group

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 in 2021
(1) Salaries (by person)	Project Leader – Logistics and coordination	2,500
	Oceanographer - Maintenance of acoustic mooring system	2,500
	Acoustic researcher - Data analyses and improvement of acoustic detector	3,000
(2) Travel/subsistence (by person or est. total for IPs)	Travel for researchers to location site (eight times)	10,500
(3) Services (by item)		
(4) Reusable equipment	Hard drives	200
(5) Consumables	Acoustic release rings and death weights	1,300
(6) Shipping (by Item)		
(7) Insurance (by item)		
(8) Co-funding		
(9) Other		
Total		**20,000**

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).

Southern right whale calls found under this project will be made available under the IWC data sharing agreement.

10. PERMITS (PLEASE TICK)

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

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		