



## INTERNATIONAL WHALING COMMISSION

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# RESEARCH PROPOSAL REQUEST

### 1. RELEVANT AGENDA ITEM (NO. AND TITLE)

10.12 Arabian Sea humpback whale (SH)

### 2. PROJECT TITLE

Priority research tasks for Arabian Sea humpback whales (ASHW).

### 3. BRIEF DESCRIPTION OF PROJECT AND WHY IT IS NECESSARY TO SUB-COMMITTEE

A consortium of NGO's and researchers with NWIO regional expertise has presented (SC65b) a requirement for funds to support on-going research to further the urgent requirement for conservation of the ASHW. Funding has already been secured for a collaborative technical workshop planned for 2014. Further funding is requested to enable follow-up activities to the workshop and ensure ongoing momentum of the initiative. The proponent, Wildlife Conservation Society (WCS), has a long-standing history of technical support and research for the ASHW programme in Oman and the wider region, and has developed this proposal in recognition of the priority status noted by the IWC SC for further work towards the conservation of ASHW (as reported in SC65a and SC65b). The proposed activities are priorities earlier identified at previous SC meetings and include the following tasks to be delivered over a two year period

#### **Task 1** – Genetic analyses of archived samples

A total of 67 samples have been collected and analyzed from Oman, which show highly significant population differentiation from other SH humpback whale populations. These results have been previously presented to the IWC SC and are currently submitted for publication (Pomilla et al. in review).

Continued analyses of genetic material available from research projects in the region is required in order to continue to investigate population structure and trends.

Year 1:

The last genetic analysis of samples was conducted in 2005. Since this time additional samples have been collected (n≈20-30). Molecular sexing of these samples will provide greater information to inform Photo-ID databases prior to the next season of satellite tagging in Oman (for which it is critical to understand the sex of each individual as part of the protocol in discerning which individuals to target). Evaluation of habitat use by males and females will also be enabled, further supporting the satellite telemetry research.

Year 2:

New techniques and molecular markers have been identified that will enable reworking of archived samples to evaluate genetic diversity and differentiation for this population, as well as to have a more precise estimate how long this population has been isolated. We intend to collect data to match the mtDNA and microsatellite dataset in Pomilla, Amaral et al. (in review), as well as acquire sequence data (e.g. SNPs) from other gene regions. By having the multi-locus genotype profiles for all sampled animals, any new animals that are collected from mortalities or biopsy sampled without a good photo-id can be matched to the existing genetic database for Arabian Sea humpback whales. Furthermore, the complete 'genetic tagging' database for Arabian Sea humpbacks will be compared to the extensive set of genotyped individuals from the southwestern Indian Ocean (n>1500 individuals). This will also build on the recent work of Pomilla, Amaral et al. (in review). Additional results include a better understanding of the historical demography of this population, the mechanisms that led to its low genetic diversity, any direct connections (and distinctiveness) from original SH humpback whale stocks.

**Task 2– Kutch and Saurashtra coasts of Gujarat, India Exploratory Surveys.**

Understanding the spatial and temporal aspects of whale distribution along the coast of Gujarat, India has been identified as a priority. The area is considered as a potential hotspot based on 1966 Soviet whaling data, which indicate that 69% (n=242) of humpback whales captured in the Northern Indian Ocean were taken from this area. This task seeks to initially map broad distribution parameters using participatory interviews and opportunistic vessel based surveys as a preliminary step prior to designing and resourcing more dedicated transect surveys.

Year 1:

The principle investigator for Task 2 has existing project links with cargo vessel captains, fishing communities and the regional coastguard officers at 3 key port areas in the State of Gujarat (Jakhu, Mandvi, and Porbander). These stakeholders are to be engaged through a series of community workshops. Within these sessions participants will initially be introduced to the diversity and identification of marine mammals and their role in the ecosystem.

One day Workshops: One day workshops will be held with the different stakeholder groups. The stakeholder groups shall first be introduced to our study, and any questions regarding the same shall be answered. Thereafter, we shall introduce them to scientific information on diversity and identification of marine mammals in the Arabian Sea. This will be followed by a mapping exercise within the group of marine mammal sightings. Descriptions and subjective information on sightings shall be collected during this session to document interactions between whales and local fisheries, a conservation issue regarded as major threat in other range states (SC/65b/SC06). Finally, a session on how to document future sightings of ASHW will be carried out. The best method will be decided based on a discussion with the interested vessel captains. These parties will be provided with basic digital cameras to document sightings that should enable the team to evaluate quality of information from sightings from these sources. With supply of simple data sheets this is expected to generate additional information through the year when the research team is not onboard and a participatory approach to gain community support for conservation activities.

Interview surveys: Individual interviews will be carried out with fisher folk at the four fishing harbors. Interview based mapping techniques will be used to document fisher sightings of ASHW, Sperm whales, and smaller delphinids. Open ended questions will be used to collect information on the the nature of interactions between fisheries and whales.

Opportunistic acoustic surveys: Coastguard and fishing vessels will be used as platforms of opportunity to collect data at sea. Whilst the research team is on board, hydrophone equipment will be used to detect, and increase the chances of locating, whales. The location of all acoustic stations will be documented and a simple scale for indicating presence and amplitude will be used to generate maps of where humpback vocalisations are encountered. Visual encounters will enable potential documentation of tail fluke and dorsal fin images for subsequent photo-identification purposes. Effort and sightings records will also be generated to enable initial mapping of distribution.

During vessel surveys fishermen, cargo vessel captains and coastguard will be introduced and trained in basic sighting recording techniques. Using simple data sheets this is expected to generate additional information throughout the year when the research team is not onboard. This participatory approach will also help to gain community support for conservation activities. Interested parties will be supplied with basic digital camera equipment that will help the research team to evaluate quality of information from these sources.

Year 2:

In the second year engagement with coastguard, fishers and cargo vessel captains will continue to ensure that sightings data is collected from the community based observation programme is collated and reported. It is intended that all other efforts with the same budget amount will be transferred into vessel surveys. Where there is limited detection of humpback whales in the first year efforts to investigate the seasonal and spatial extent of whales will be expanded to include a larger area. In the

case a 'hotspot', vessel based line transect surveys will be initiated in the area in tandem with acoustic detection and search techniques.

#### 4. TIMETABLE

The timetable will apply to year 1 and revised prior to commencement of year 2. Community work and fieldwork is likely to take the same format given the seasonal constraints on vessel based surveys.

	Oct 15	Nov 15	Dec 15	Jan 15	Feb 15	Mar 15	Apr 15	May 15
1. Genetic Work								
Initiaite transfer								
Labroartory Work								
Delivery of Results								
2. Gulf of Kutch Expoloratory Surveys.*								
Community Workshops								
State-level meeting								
Vessel Surveys								
Analysis & Reporting								

\*Note: Workshops need to take place before the end of monsoon in September to guide vessel survey work to begin in October

#### 5. RESEARCHERS' NAME(S)

Task 1. Francine Kershaw, Dr. Rita Amaral and Dr. Howard Rosenbaum

Task 3. Principle Investigator; Dr Dipani Sutaria

## 6. ESTIMATED TOTAL COST (WITH BREAKDOWN AS NEEDED, E.G. SALARY, EQUIPMENT)

### Task 1 – Labroatory Genetics

Year 1 - DNA extraction and Molecular Sexing

Year 2 – Genetic matching, genetic diversity and population differentiation

ITEM	YEAR 1 GBP	YEAR 2 GBP
Re-agents and laboratory time	2500	5000
SubTotal	2500	5000

### Task 2 – Exploratory Surveys

Year 1 - The full suite of community interviews, workshops and oppotunistic vessel surveys.

Year 2 – Workshops will not be held, collection of sightings data and interviews of first year will continue at half effort. Vessel survey effort projected to double contingent on the results from Year 1.

ITEM	YEAR 1 GBP	YEAR 2 GBP
Principle investigator; workshops and interview process.	3000	1500
Field assistant; workshops and interview	560	280
Travel expenses for workshops & Interview	1800	900
Principle Investigator vessel based survey and data processing	3000	6000
Field assistant; vessel surveys	300	600
Principle Investigator; data processing and final reporting	2230	2230

Handheld GPS	56	
Digital cameras for Dhau captains	535	
Acoustic Recording Unit	112	
Batteries and consumables for survey equipment	90	90
Administration supplies and printing	90	90
Food and provisions for fieldwork	300	600
	<b>12,073</b>	<b>12,290</b>

	YEAR 1 GBP	YEAR 2 GBP
<u>TOTAL</u>	<u>14,573</u>	<u>17,290</u>