

## The Rufford Foundation

### Final Report

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Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to [jane@rufford.org](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	Ana Maria Garcia Cegarra
<b>Project title</b>	From Whales To Humans: An Integrated Evaluation Of The Conservation Role Of The Whale-Watching Industry In The Northern Coast Of Peru
<b>RSG reference</b>	15903-1
<b>Reporting period</b>	February 2015-December 2016
<b>Amount of grant</b>	£4989
<b>Your email address</b>	anamaria.garcia@uantof.cl
<b>Date of this report</b>	December 2016

**1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Evaluate the relationship between the whale watch experience and the whale watcher's awareness of problems and their consequences in order to foster support to marine conservation				This objective was achieved by conducting a study that evaluated the degree of knowledge and conservation awareness of marine mammals in northern Peru. For this, before and after whale watching tour questionnaires were conducted. Results show that whale watching when interpretation is provided on board can be an alternative tool for environmental education and may enhance behavioural intentions to act in favour of marine conservation.
Enhance conservation awareness within the emergent commercial whale watching industry in northern Peru				Three workshops were performed in three villages (Los Organos, el Ñuro and Punta Sal) in order to provide the tools needed for a best practice of whale watching tours and a well management of environmental interpretation on board.
Provide the industry incentive to maintain responsible whale watching protocols and a high standard of interpretation				Questionnaires results indicate which are the points to highlight for a well performance of the whale watching activity in northern Peru. Results were published in the conferences below: 21 <sup>st</sup> Biennial Conference on the Biology of Marine Mammals, December 2015, San Francisco CA. V Congreso de Ciencias del Mar del Perú, November 2016, Lambayeque, Peru. XI Congreso de la Sociedad Latinoamericana de Especialistas en

				<p>Mamíferos Acuáticos.</p> <p>A scientific paper was send to the journal Aquatic Conservation: Marine and Freshwater Ecosystems on 4<sup>th</sup> November 2016. Currently status is "Under Review"</p> <p>Results about were informed to whale watching companies during the 2016 season.</p>
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**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

Overall this project was performed without major difficulties. However, I suffered a severe back injury that took me away from working during 6 months, just during humpback whale breeding season of 2015. So I could not take data during that period. I reported to Rufford about my injury and a time delay was approved for this project.

**3. Briefly describe the three most important outcomes of your project.**

1. Our results reveal an overall lack of knowledge concerning the presence of cetacean species in Peruvian waters and therefore threats to marine biodiversity and cetacean conservation status were unknown for most of Peruvian people that took whale watching excursions. Before whale watching experience it was more important for whale watchers to keep a safe distance of the whale than be as close to the whale as possible. After whale watching trip whale watchers learned that whales are cetaceans and are more willing to change their behaviour with respect to cetacean conservation and marine environment protection. When whale watchers are on board seeing the whales "in situ" they realise the consequence of whale watching boats disturbing whales. For example, they were concerned about the time and the number of boats watching the same whale, the speed of the boat when approaching whales and that the motor noise could affect whale behaviour. The study suggests that whale watching platforms when implemented with adequate interpreters may serve as an alternative source of environmental education and raise conservation awareness.

2. Preliminary data from a study that evaluated the effect of whale watching boats on humpback whales behaviour in the northern coast of Peru show an increased speed when boats encounter humpback whale groups with calves present and without calves present although the increasing whale speed was not significant. Analysis of mean blow interval, mean dive time and direction index will

be performance in order to assess whether boat presence induces any change of these parameters.

3. Three different workshops were performed in Los Organos, el Ñuro y Punta Sal villages. Tour operators were informed about the results showing that on board interpretation is important for whale watchers and the activity must be performed under regulations of number of boats and time with the same whale, approach speed to whales or mother and calf groups' vulnerability during boat presence.

**4. Briefly describe the involvement of local communities and how they have benefited from the project (if relevant).**

This project was in conjunction with the main whale watching company "Pacifico Adventures" in Los Organos village (northern Peru). During the entire performance of this project information regarding results obtained were informed to captains and crew of the boats operating in this whale watching company. At the beginning of this project in August 2014 around five whale-watching boats were operating in Los Organos to see humpback whales during breeding season (July-October). However, during the development of the project the number of boats have been increasing and by 2016 breeding season 16 boats were operating in El Ñuro village (7 km away from Los Organos), 11 boats from Los Organos village and one from Mancora village. All of them are distributed in an area of around 7 km along the coast. At this moment there is no whale watching legislation in Peru, this project gave the early steps towards a proper regulation.

Due to the concern of the implementation of more whale watching boats, three workshops about whale watching good practices were performed in El Ñuro, Los Organos and Punta Sal during 2016 season. In these workshops local fishermen and whale watching captains were invited to participate and recommendations regarding on board interpretation and expectancies of whale watchers were provided in order to accomplish with international regulations. In addition, information about whale ecology and biology were provided to fishermen who offers whale watching trips to tourists in order they could ask the questions of tourists regarding the animals watched. After workshops, participants asked for more information and they were willing to receive more talks regarding biology and ecology of cetaceans and other marine fauna. More education to local fishermen, which starts to work as whale watching tour operators, should be provided in the upcoming seasons.

## **5. Are there any plans to continue this work?**

Yes, after the data gathering completion in 2016 season, results will be informed to whale watching companies and local fishermen for a better performance of the activity in 2017 season in northern Peru.

Since the obtaining of the total station I got the chance of evaluate another issue concerning the conservation of cetaceans in northern Chile.

Mejillones bay (northern Chile) supports a high marine traffic due to the existence of seven ports implemented in the last 13 years for the transport of minerals from the mining industry. Large cargo vessels, industrial fishing, semi-industrial and artisanal fishing boats speed or navigation routes are no regulated by maritime authorities. There is no legislation regarding the route that large cargo vessels must follow into the bay, and despite of the speed must not exceed the 10 knots (Captaincy data) there is no inspection or control about the speed accomplishment. In addition, Mejillones bay is characteristic for the cetacean presence and two boats offer tours to watch dolphins and whale's species and other marine fauna along the year.

The aim of this project is to characterise the routes of marine traffic in Mejillones bay and the distribution of cetaceans, especially fin whales into the bay in order to assess any potential collision risk. Results will be provided to maritime authorities about the accomplishment of speed regulations and efforts will be derived to create a route of large cargo vessel traffic into the bay.

We started to track with the total station the presence of cetaceans and marine traffic in Mejillones bay since March 2016, and preliminary results were published in the XI Congreso de la Sociedad Latinoamericana de Especialistas en Mamíferos Acuáticos (SOLAMAC, 2016) in Valparaiso, Chile.

We aim to complete a full year of data from the land-based station and publish the results obtained in a scientific journal.

We will apply for Rufford second funds.

## **6. How do you plan to share the results of your work with others?**

In addition to the information already provided in several international conferences and workshops to local fishermen and whale watching companies. Results regarding whale watching boat effects on humpback whales behaviour will be provided in a workshop planed for next humpback whale watching season 2017 (August, 2017).

Results from maritime traffic and cetacean presence in Mejillones bay (Chile) will be provided to maritime authorities once the project has finished. Currently authorities are informed about the development of the project and are available to help in the creation of a maritime traffic rout into the bay. Results of this project will be published in a scientific journal and in international conferences.

**7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?**

Rufford grant was obtained for 1 year: February 2015 – February 2016. However due to my health injury (from July 2015 to December 2015) the project was delayed for 1 year as humpback whale watching season in northern Peru runs from July until October every year.

Cetacean distribution and marine traffic characterisation in Mejillones bay (northern Chile) started in March 2016 and will finished in March 2017.

Same methodology of land-based surveys is applied in both projects.

**8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.**

Item	Budgeted Amount	Actual Amount	Difference	Comments
Total station Nikon NPL-322	3410	3281.3	128.7	I bought a total station which could register time of all tracks and it was cheaper than the one I considered in the first budget
Binoculars	157	177.5	- 20.5	I bought 10x50 Nikon binoculars more expensive than those considered in first budget
Camera Canon Reflex + zoom 300	470	592	- 122	I bought reflex Canon photo camera and zoom more expensive due to the objective that I needed to photograph

				whales from the top of the cliff
Flight	325	295	30	Flight was cheaper than the price estimated in first budget
Field Expenses Peru 3 months	300	675	- 375	Field expenses in Peru were more expensive than those estimated in first budget due to the transport with the equipment from house to the top of the cliff in moto-taxi transport. It was not considered in first budget.
<b>Office supplies prints, paper, pencils</b>	65	<b>65</b>	0	
<b>2 Caps</b>	32	<b>30</b>	2	Price was cheaper than the estimated in first budget
<b>Projector</b>	150	<b>0</b>		I could not buy the projector, it was provided from local town council for talks and workshops
<b>Bus ticket Lima- Piura</b>	80	<b>80</b>	0	
<b>Total</b>	4989	<b>5201.8</b>		

Local exchange rate used: 1 Great Britain Pound = 845.074 Chilean Pesos

### 9. Looking ahead, what do you feel are the important next steps?

- To analyse statistically effect of whale watching boat presence on humpback whale groups behaviour in northern Peru.
- To inform the results obtained to local fishermen and whale watching operators in order to establish a better performance of the activity.
- To establish contact with Peruvian authorities in order to implement whale watching legislation in Peru.
- To continue with land-based survey in Mejillones bay (northern Chile) increasing the searching effort in terms of sightings in the survey area.
- To report cetacean distribution, vessel speed and navigation routs results to Chilean maritime traffic authorities in order to implement regulations of marine traffic in Mejillones bay.

**10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?**

Yes, the Rufford Foundation logo was published in both oral and poster presentations and it was also mentioned in the acknowledgements of the conferences:

- CONCIMAR Peru, November 2016.
- SOLAMAC Valparaiso (Chile), December 2016.
- Biennial Conference on the Biology of Marine Mammals San Francisco (USA), December 2015.
- The Rufford Meeting, Lima (Peru), January 2016.

Rufford Foundation logo and acknowledgements were also published during workshops to local fishermen and whale-watching operators in northern Peru.

A scientific paper is in draft and Rufford Small Grant is mentioned in acknowledgments.

**11. Any other comments?**

I am grateful to RSG to support my research and provide me the materials necessaries to regulate whale watching activity and marine traffic in northern Peru and northern Chile.