

The Rufford Small Grants Foundation

Final Report

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

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	JOSÉ F. ZAMORANO - ABRAMSON
Project title	Killer Whale (<i>Orcinus orca</i>) interactions with human activities in Chilean Patagonia: Integrating local knowledge and community participation in order to support a marine conservation program in the area.
RSG reference	01.11.07
Reporting period	March 2007 November 2009
Amount of grant	£4,925.00
Your email address	jfabramson@gmail.com
Date of this report	11th December 2009

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
Killer whales sighting network			X	This sighting network is running quite well so, in this respect, we consider the first step of this objective fully achieved. Nevertheless, taking into account the large coastline of Patagonian fiords and the country, in total, and the how long in British Columbia took to have an idea of killer whales ecology and to establish a solid sighting network (almost 10 years), we are just in the beginning of the initiative.
Catalogue of Chilean killer whales			X	Details on point 3.c
Publications			X	We have in preparation two papers, see point 3.a Albeit they are not yet published given the time and effort needed to the collect the data we already have, we consider the objective fully accomplished.
Website			X	We have almost completed the website, Spanish and English version. It includes, besides information about the project, more general and scientific information about the biology and conservation of killer whales in Chilean waters, in particular, and worldwide. Besides, we reserve a place where general public can contribute publishing their pictures and videos in the C.O.C. sighting form on the website www.orcadelfindelmundo.org
Documentary film		X		One of the products we want to offer is a documentary film that will cover all the steps, difficulties, achievements, etc., of the project, from the very beginning. In June 2008, accompanied by the documentary filmmaker Fernando López-Mirones, we reached Punta Dungeness in the Magellan Strait. We conducted and filmed interviews with navy authorities, ship captains, fishermen and local people, and compiled certain photographs taken by the interviewees.

				<p>The documentary will include images, taken by the scientific researcher, José Zamorano, during his field work, of Pale's dolphins, Chilean dolphins, blue whales, humpback whales, bottlenose dolphins, South American and fur sea lions colonies among other wildlife, as well and natural landscapes of the Patagonian fiords in the quest of killer whales.</p> <p>All this material, besides been part of the documentary, will be soon available on line in the project website.</p>
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

To find the killer whales, our main source of information was the people from local communities, especially fishermen, but the information provided by them was inaccurate. There are a very few reliable sightings of killer whales from the general public informers and real direct sightings during navigation were very scarce. We have concluded, from the scientific data collected, that the presence of killer whales in the fiords is scarce and with the data available it is difficult to predict any pattern of seasonality or spatial location. So far, and after a huge effort we got no single killer whale direct sighting in the locations and seasons that were informed by the fishermen and the local community to be the ones more likely to be visited by the killer whales. Their presence in the fiords is still unpredictable. More data and hours of fieldwork would be required to find the spatial and seasonal pattern of distribution of killer whales in the Chilean fiords.

A huge effort is needed to get few data and sightings. Navigating through the Patagonian fiords is very hard enterprise, due to the long distance that must be covered (even to get from one shelter bay to the other), the extreme weather conditions and the difficulty of map navigation through hundreds of widespread islands. Many times this navigation was dangerous because of strong winds, big waves and cold rain. So, this initiative needs permanently a huge effort and resources to be run and also needs a lot and efficient co-ordination and communication between the members of the sighting network and a good strategy to keep them motivated. Given all these handicaps, and keeping our main goal in priority, the study of killer whales in the Patagonian fiords, we decided to adopt a more pragmatic and efficient strategy: instead to be only focused in the presence and distribution of killer whales, that it's presence is so scarce and sporadic, we extend this project to all marine mammals that inhabit killer whales ecosystem.

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

a) Firsts scientific publications on Chilean killer whales. We are preparing two scientific papers about the presence of killer whales in Chile, both pioneers in their respective study area.

The first one, *Killer whale (Orcinus orca) occurrence and distribution in the Strait of Magellan* (in preparation), presents data on killer whale records collected from 2001 to 2009 in the Strait of Magellan and we expect it will be published in 2010. This paper, besides being the first systematic work on killer whales sighting in Chile and gathering all information available so far, constitutes the

first attempt to join the work of different Chilean marine mammal's scientists. This constitutes a special opportunity for this and future research and conservation marine mammal's studies in which important Chilean scientific researchers can collaborate. Among the scientific researchers that are getting involved we find Jorge Gibbons, from Universidad de Magallanes, Juan Capella, from Fundación Yubarta, Carlos Olavarría, from CEQUA (Centro de Estudios Cuaternarios) and Francisco Vidri, from Centro Ballena Azul. This publication will constitute the first scientific publication and first catalogue of killer whales of Chile, based on a collection of the killer whales sightings of qualified observers (scientific researchers) in the Strait of Magellan Chile.

The second scientific paper, *Fishermen and Marine mammals relationship with emphasis on killer whales; a psycho-sociological perspective* (in preparation), has a more psychological/sociological focus. It shows the results from over 40 in-depth interviews with Chilean artisanal fishermen and analyses, from a sociological and psychological point of view, the relationship between fishermen and marine mammals, in general, and killer whales, in particular, their interactions, and the human perception of these animals. We expect the paper to be published in 2010 in human/animal nature relationship specialised scientific journals.

b) Orcas sighting network. Local authorities, researchers, fishermen and people from the local communities are collaborating in the project contacting us in case of any killer whale sighting. From this network we have collected so far over 1500 photos from researchers and over 60 photographs and 7 videos from general public.

This project is promoting for the first time that scientists and local authorities and the general public are aware of the presence and the importance of research and conservation of killer whales in Chile. Now authorities and the general public are starting to be aware and concerned about the presence and importance of this species in Chilean waters (now they are aware that are people studying and taking care of this specie).

c) First Chilean Orcas catalogue. We begin to develop the C.O.C. or Catalogue of Orcas in Chile, a photographic collection of the killer whales seen in Chilean waters. The develop of the COC, that counts with the contribution of scientists, naval authorities and the general public, has the main goal of studying the patterns of killer whales movements throughout Chilean waters. So far we have collected 1500 photos from scientific researchers and over 60 photographs and 7 videos from people from the local community. Besides, the C.O.C has allowed us to join with specialised marine mammal scientists to elaborate the first Chilean killer whale catalogue. To start, the first "official" catalogue of this initiative is the Strait of Magellan catalogue, which has 33 photo-identified individuals, including five calves.

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

From June-July 2008 and September-November 2008 we travelled along 3000 km of the Chilean coastline interviewing Chilean artisanal fishermen with main goals in mind: (1) finding out where the killer whales are more likely sighted; and (2) exploring fishermen-marine mammal relationships and interactions. We conducted over 40 in-depth interviews, in the following localities: *Northern Coast*: Antofagasta, Mejillones, Punta de Choros, Caleta Chañaral de Aceituno; *Central Coast*: Quintay, Maitencillo; *Southern Coast*: Puerto Montt, Chilóe, Hornopirén, Hualaihué, Puerto Aysén, Puerto Chacabuco, Puerto Cisnes and Puerto Puyuhuapi. Preliminary results from these interviews

identified four hotspots of orca sightings by the fishermen: Mejillones, Hornopirén, Hualaihué, Puerto Cisnes and Puerto Puyuhuapi. These places were chosen for intensive fieldwork, to verify the “stories” about killer whales, and to collect any kind of data, videos or other materials.

These interviews allowed us to establish close contact with the different “realities” that fishermen have in relation to their interaction with marine mammals in general and with killer whales in particular. This information constitutes important material to work with and based on the information collected, we could detect some needs and problems, some of them derived from a lack of knowledge about marine mammals. In order to help in this respect we are planning some formative courses for local communities. Another important implication has to do with the development of whale watching tourism. Many fishermen are trying to change the fishing activity to tourist activities. A lack of information and resources is the special problem they have to cope with. A lot of them urge us to bring them some help and support in this activity.

We contacted different local authorities (naval, fishermen, teachers) in order to get their collaboration in: (1) contacting/ calling us in case the killer whales were seen; and (2) collecting any kind of data they could give us about the sightings. Under the slogan “Have you seen an orca?” local people was invited to collaborate with our project by publishing their photos and videos via our sighting form on the web site of the project, and via email to info@orcadelfindelmundo.org, stating their names, date and location of the sighting.

Teachers from local rural/fishermen communities were shown to be very motivated for future marine mammal conservation and education activities at school. We are planning in collaboration with them courses and outdoor activities with children with the objective to contribute in its environmental education and give them the opportunity to see closely the marine wildlife that cohabit with them.

5. Are there any plans to continue this work?

Yes. We will continue developing the main objectives of the project: (1) extending and empowering the Chilean killer whale sighting network; (2) continuing with the catalogue; and (3) developing the courses for local community and children we planned as mentioned before. We will search for funding opportunities to navigate on the killer whale hotspots for research purpose. We are also planning to develop different campaigns on public awareness and environmental education activities related to marine mammal conservation. In 2010 we plan to publish the two papers previously mentioned and other scientific notes and conservation news in the public media derived from the project. Also we will continue filming with the aim to develop a documentary of the project.

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

- a) Scientific articles in collaboration with other scientists.
- b) Articles in newspapers.
- c) Website and blog.
- d) Documentary film.

7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?

RSG was used in the first period of the study between January and November 2008, and it was only used in the southern area of the project, on Patagonian fiords. It was of great help because it was the first significant grant received to begin with this initiative, allowing us to travel in the first year of our research to the main regions in southern Patagonia, and also help us to ask for other funding opportunities, such as the grant for marine mammal conservation received from AECID (Agencia Española de Cooperación Internacional) in 2007 and 2008. After almost 2 years from the beginning of the project we realised that we underestimated the schedule compared with the actual length of the project and the long time and huge effort (long distance and difficult navigation) that is needed to collect valuable data, not only on Patagonian fiords, but in all Chilean coastline, due the scarcity and insufficient knowledge we have about the species and the extremely difficult killer whale sightings.

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
TRAVEL	£925	£1175	£250	We took another flight to Santiago-Coyhaique to cover the area of Puyuhuapi fiords.
RESEARCH SITES SUSBSISTENCE	£2,750	£7,750	£5,000	Fuel was £500 each month, a total of £2,500 for 5 month period and boat rent was £650, a total of £3,250 for 5 month period. We covered the difference with the funding given by the AECID grant.
COMPUTING COSTS	£200	£200	£0	
MATERIALS & SUPPLIES FOR DATA COLLECTION	£250	£400	£150	During fieldwork the hydrophone and the digital recorder consumed a lot of batteries, more than we expected.
WEB DESIGN & HOSTING	£400	£400	£0	
Total	£4,925	£10,175	£5,400	The main problem in the budget was that we underestimated navigation and fieldwork costs through the fiords. The fuel that was required to cover the long distance and the price that fishermen rent their boat and services were higher than expected at the beginning of the project.

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

- I. Select a small range of coastline areas from the vast Chilean coastline, especially on the Patagonian fiords, so we can focus the resources and the effort efficiently during fieldwork and environmental campaigns.
- II. Maintaining the project species target on killer whales, extend the project to the other species of marine mammals that cohabit with killer whales. These other species, besides being easier to find, so we can take advantage of our resources while searching for killer whales, have the same conservation importance and ecologic and cultural value as the killer whale.
- III. Continue collecting information on killer whale sightings but focusing more on information and data taken by qualified observers, so the main areas to invest effort and resources (time and money) for killer whale possible sightings could be determined in a more reliable way.
- IV. Develop and run an environmental education campaign based on marine mammal conservation that will be run in fishermen's villages, for fishermen and their children and for local community and general public.

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

Yes. So far:

- a) Killer whale sighting sheet form.
- b) Website www.orcadelfindelmundo.org
- c) Calendar 2008.
- d) Web site of GECAH (Grupo de Estudio del Comportamiento Animal y Humano), Universidad Complutense de Madrid. Spain.
- e) The postulations 2007 and 2008 to AECID (Agencia de Cooperación Internacional Española) research conservation grants.

In preparation:

- a) Two scientific publications

11. Any other comments?

After almost two years since the beginning of the project, it is clear that this is a long-term project, and that we will need 10 years minimum to have a preliminary model of killer whale ecology in Chile. We consider that it will take the same period to develop a killer whale full sighting network that can be working in such a way that allows us to reach and find killer whales efficiently in the isolated Patagonian fiords and in the rest of the long and wild Chilean coastline. This initiative will permanently need a huge effort and resources to be run. We consider this effort worthwhile due to the ecological importance of cetaceans in general and killer whales in particular. We find extremely valuable, as well, the interest, motivation and participation that local community (fishermen, their families, local authorities and local tourism operators) showed about this project and for killer whales and marine mammal conservation.