

## The Rufford Small Grants Foundation

### Final Report

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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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	Inez Campbell
<b>Project title</b>	The effect of shipping noise at the Panama Canal on the distribution of cetaceans in Panamanian waters.
<b>RSG reference</b>	26.04.09
<b>Reporting period</b>	End of Fieldwork season. (Fieldwork period: February 2010-March 2011)
<b>Amount of grant</b>	£6,000
<b>Your email address</b>	<a href="mailto:lc77@st-andrews.ac.uk">lc77@st-andrews.ac.uk</a>
<b>Date of this report</b>	March 21 <sup>st</sup> , 2011

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

Fieldwork Objective	Not achieved	Partially achieved	Fully achieved	Comments
Conduct three boat outings per week		X		We were not able to go out to sea every week, and the real frequency would sometimes be of only two outings per week. This inconvenience was mainly due to: a) Boat problems b) Weather and sea state unsafe conditions c) Illness or lack of availability of assistants
Deployment and retrieval of Stationary Hydrophone at planned sites		X		We were able to deploy the stationary hydrophone at most of the designated sites and retrieval was mostly successful. 17 sites were covered where the hydrophone would be deployed to record in a 24hr cycle from 3 to up to 7 days. I say Partially Achieved because I wanted to cover more sites in my initial plan. This was not possible because the sites presented dangers to the equipment when checked during recognition visits to the sites. Nevertheless, I have around 10,000 audio files of 2.5 minutes each, and I have been advised it is enough data.
Recordings made with C55-FR2, boat based hydrophone			X	265 recorded files of approximately 30 minutes of audio data saved in each file. This is an easy and convenient equipment to use at any of the sites.
Collection of audio data for presence and absence of dolphins			X	Regardless that I wanted to cover more places with the stationary hydrophone, I have enough data to begin analysis and extract conclusions. The data collected will be useful to answer the questions upon which my thesis is based.
Collection of audio data for Ocean Noise analysis			X	Due to the fact that I was obtaining a good amount and a good quality of audio files, it was considered that the data was good also to extract ocean noise information, which has not been documented for this area. This was decided halfway into the fieldwork season, but did not affect any costs since the same files will be used for this purpose.
Interaction with fishermen communities			X	We were able to survey three different fishermen communities regarding their sightings of dolphins and other cetaceans in my area of study and two more.

**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

The difficulties that I found during the fieldwork experience were as follow:

a) Boat issues: It was a second-hand boat and it presented several mechanical difficulties mostly at the beginning of the season. Problems had to do with electronics, engine failure and purchasing of new parts. Also, there was a delay due to the replacement of the propellers and waiting for this order to arrive. The trailer required maintenance, we also had hydraulic system problems, and repair of the roof.

b) Personal illness: During the course of the fieldwork year I fell ill in approximately three or four occasions that forced me to remain in land, including a knee and wrist injury, but nothing too serious.

c) Severe bad weather conditions: This was not a constant problem every month, but during the months of November and December there were severe weather alerts and it was advised that small vessels should not go out to sea.

d) Lack of availability of assistants: It is imperative that I would go out at least with one more person onboard. My usual assistant would encounter difficulties to go out with me most of the time, due to family emergencies.

In conclusion, the difficulties mainly had to do with my objective of going out to sea as many times as I had planned in the beginning. There were no major difficulties or issues with scientific equipment.

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

1. I believe that more than enough amount of data files were collected, in order to obtain the main objective of the study, which is to establish presence or absence of dolphins, and analysis of ocean noise. Physical parameters were successfully collected at each site and this information is essential for the use of variables to create a Predictive Model of cetacean distribution, as it is one of my main PhD thesis objectives.

2. The data provided through surveys to fishermen communities will be used to support the analysis of distribution of dolphins in the area

3. The use of this acoustic equipment was a new learning experience and it has been rewarding to feel I can now offer this expertise in the future. To my knowledge there are no Panamanian marine mammal experts using this technology in my country, or other studies carried on with these techniques.

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

We conducted surveys of fishermen communities on a regular basis for a certain amount of time. The survey gave them an opportunity to talk about their fisheries but the main question was in

regard to what type of dolphin or other cetacean they would encounter in the areas. They usually feel happy when their work as fishermen may be a contribution to science.

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

My fieldwork season collecting data for the purpose of my PhD thesis is now over (unless my supervisor suggests I need an additional set of data). In writing my thesis, I will strongly suggest this type of monitoring should be continued or extended as a long-term study project. This suggestion will be addressed and sent to Panamanian authorities, such as The Panama Canal Authority.

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

I will be returning to the University of St. Andrews in May of this year, where I will start analysis and writing of my thesis, which deadline is January 2013. I have the intention of publishing this work in a recognisable journal related to the topic. A copy will also be sent to the Panamanian Scholarship organisation that funded my living expenses, and I intend to send a copy to the Panama Canal Authorities, as well as a local university that teaches marine courses.

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

The funds from Rufford arrived in August 2009, but I returned to Panama in December 2009. I requested a change in the use of funds at the beginning of October, which consisted in splitting this amount: half for fuel and half for equipment needed for the project. The first purchase of equipment was in October 2009 and the last purchase of fuel for the boat was March 2011.

#### **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
Equipment: C55-FR2 Hydrophone	£1,940	£1,940		As quoted
Garmin GPS map 76Cx	£255	£235	+ £20	Less than quoted
YSI Multi-parameters instrument	£1,274	£ 1,274		As quoted. See note below the chart.
Set of Binoculars	£84	£89	- £6	Extra Shipping charges
Fuel for boat to be used on each fieldwork outing.	£3,000	£809	+2,191	Please consider fuel cost oscillates a lot in these countries throughout the year, but also the engines of my boat did not consume as much as expected.

Boat operator, assistant and towing of boat to the water. (Nevertheless, most of the times I was the driver but required and assistant). See comments...	£12,000	£1,389	+10,611	This item was “mentioned” in the original budget sent during the application process but it was the fuel item that was mainly emphasized. Since the fuel actual expense was greatly less than budgeted I used part of the £3000 towards towing charges and cost for assistant and boat operator when needed. Nevertheless, if Rufford funders are in disagreement with this expenditure I will reimburse this amount without further issues.
Total budget	£18,553	£5735	£12,818	Note below
RSG Total	£6000	£ 5735	£265	

- Exchange rate March 21<sup>st</sup>, 2011: £1 = \$1.6289

\* In order to measure the physical parameters of sea water, an YSI multi-parameter instrument was required (to measure variables such as salinity, temperature, dissolved oxygen, conductivity). Since I budgeted only £3000 for general equipment, this equipment was purchased sacrificing some of my personal living expenses scholarship money. The cost of the equipment in mention was £1,273.71. As you can see, I used less fuel money than budgeted so it is up to Rufford funders if can cover the cost of this equipment with money I didn't use for fuel or if I should return/reimburse the remainder £ 1,538.27 that would be left if I don't use Rufford Grant to cover this equipment. According to the contract all expenses must be for the purpose of meeting the objectives of the project and this equipment was essential.

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

During my fieldwork season I tried to cover as much as possible the different months of the year and in that way cover all the seasons. I also tried to cover different areas, comparing areas with heavier shipping traffic with other areas with less so. If I were to continue a similar study, I would like to deploy hydrophones at both different areas at the same time, in order to have a better comparison and receive a more reliable distribution. Since there is no baseline data for this kind of study I believe it would be important to do a long-term study addressing this issue in order to better understand the abundance of cetaceans near Panama Canal waters. Once the thesis is completely written I will have other conclusions that you will be able to consider as important steps.

## 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?

Not yet, as I have not written my formal thesis, nor publish any part of this study. I will use it in the future when I submit my thesis and emphasize fieldwork was strongly supported by RSGF.

## 11. Any other comments?

If this is my space to speak from the heart, I want to deeply thank the Rufford Foundation. Without your support, there is no way I would have been able to cover all the major expenses that I had to incur during fieldwork. As everyone knows, besides the budgeted amounts, there are always emergencies that will come your way (mainly boat emergencies in my case!). If I had needed to use

my living expenses money for the budgeted fieldwork equipment and fuel, there is no way I would have had money left to cover the “emergencies” that were always present. Thank you very much for making this unique project possible, one that will bring an original and immense contribution to the knowledge of cetaceans in Panamanian waters.