

The Rufford Foundation Final Report

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.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Daniel Gustavo von S. V. Venturini
Project title	Underwater Behaviours of Humpback Whales
RSG reference	19806-1
Reporting period	June 2016 – June 2017
Amount of grant	£ 3358
Your email address	danielgsvv@gmail.com
Date of this report	20 th June 2017

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
Test a novel methodology to assess underwater behaviours of whales.				The designed approach proved to be cost-effective and efficient in collecting behavioural and ecological data of cetaceans from the underwater perspective.
Description of novel underwater responses to biopsy shots and modelling the factors responsible for more intense reactions.				We managed to generate statistically significant models to explain the different reactions to the biopsy procedure. However, one more season of data collection will increase our sample size and make the analysis more robust.
Use of any further information obtained with the underwater approach that could be used to expand and amplify the data sampled during field works.				Relevant data regarding underwater identification of individuals (for both whales and dolphins) and brand new insights into the ecological importance of the interaction between humpback whales and associated fishes were achieved through the proposed method.

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

The bigger challenge we faced was the water transparency. The windy weather during the months of fieldwork stirred the water column, and sampling underwater images in turbid waters was a hard task. However, as we were obtaining good results with the methodology, the monitoring routes were adapted to cover deeper areas, where water transparency was usually cleaner and yielded better images.

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

1. Development of an efficient methodology to sample underwater images that are relevant for scientific research. For its simplicity and low cost, the proposed approach is worth being adopted by researchers that conduct systematic monitoring activities with cetaceans, in order to gain an observational window into the underwater world of these animals, and thus expand data collection – especially related to individual identification.

2. Description of the underwater reactions of humpback whales to biopsy shots, and understanding the factors related to the sampling procedure that influences the most on their responses.
3. Proposal for a broad discussion upon the importance of the interaction between humpback whales and associated reef fishes, based on recorded occurrences that allowed fish species identification and ecological inferences.

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

In the small town of Caravelas, the departure point for the Abrolhos Archipelago, local people barely know about the thousands of whales that spend winter months just off the coast. I instantly realized the power of images to sensitise the public, and we used this feature to arouse interest in people by showing them the underwater records during public meetings. The images were also used during environmental activities conducted by the Humpback Whale Institute for children at local schools.

Two local people, in particular, were involved and essential for the success of the project: the carpenter Ronaldo Alves, who built and improved the customised structure with us, and the captain of our research vessel, Bernardo Cerqueira, who helped with the underwater setup of the structure and eventual maintenance.

5. Are there any plans to continue this work?

Yes. The developed methodology was used for one whale season already, in 2016. Now we decided to sample one more season, from July to October 2017, in order to expand our results and make the statistical analyses more robust. By the end of the current year, we plan to submit for publication at least two scientific papers showing our findings, and disclose a short documentary about the project.

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

The results will be exposed to the scientific community through published articles in scientific journals. Moreover, we are filming a short documentary showing our methodology and relevant results for conservation that will be made publicly available for enthusiasts of cetacean research. Our findings so far were exhibited in two international conferences, and when the project is concluded we will present our study in a couple more scientific meetings.

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

The Rufford Foundation grant was used during the 5 months of fieldwork, throughout the humpback whales breeding season. It was exactly the same period as planned, although the equipment will be used for another sampling season this year.

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
3 GoPro Hero4	1264	1143	120	Found a good deal for buying 3
2 Red Dive Filter	38	79	-41	Underestimated the price.
2 Magenta Dive Filter	76	0	76	Found it unnecessary
3 MicroSD cards 32gb	92	23	69	Cheaper but bad quality (had to be replaced)
2 Coaxial Wi-Fi Cables	228	519	-291	100% custom taxes
Double battery charger	46	30	14	-
Dual GoPro Case	143	0	143	Found it unnecessary
2 BacPac GoPro kit	14	0	14	Borrowed from a colleague
2 Return Tickets MG-BA	116	84	31	-
150 days lodging	479	479	0	-
150 days of daily costs	862	958	-96	-
Camera Structure	0	160	-160	Unexpected adaptations
GoPro Dive Housing	0	36	-36	Necessary to fit the cables
Anti-fog Inserts	0	8	-8	Unexpected need
3 new SD cards	0	86	-86	First ones failed
Bank transfer fee	0	42	-42	International transfers
Total	3358	3647	-293	Exchange rate: BR\$ 1 = £ 5.219 This experience will definitely lead to more accuracy in future budgets!

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

For the present project, the next step is to sample one more season and gather the results to spread our findings.

For future research, I consider going further into non-invasive sampling methods for cetaceans. During this study, I realised that the most disturbing stage of the biopsy sampling procedure is not the shot itself, but the vessel harassment. Whales become evasive as we approximate, and long pursuits of up to 1 hour are required to reach a minimum distance for the biopsy shot. It forces a shift in the whale's energy and time resources from reproductive or resting activities to swimming away from a noisy vessel. I am now planning to develop a system of remote biopsy shots through an adapted unmanned aerial vehicle (drone), in order to minimize this disturbance.

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. I used the Rufford Foundation logo in two international conferences where I presented my project orally. First, in the 'XI Congress of the Latin American Society of Specialists in Aquatic Mammals', in Valparaiso – Chile, and secondly in the 'II International Meeting for Research and Conservation of *Tursiops* spp of the South Atlantic', in Rio Grande – Brazil. I am also developing a couple scientific documentaries to spread the results of my project and share the excitement of working with cetacean conservation, hence the RF logo will be exhibited in those too.

11. Any other comments?

The Rufford Small Grant was essential for the success of my master's project, and great concrete results in terms of conservation will emerge when it is completed. The outcome is being so interesting that we decided to extend our timeline to two sampling seasons instead of only one, especially because the most important stage, which was building the structure for the methodology, is already done. I am really excited for the coming season as an associate researcher with the Humpback Whale Institute and the further results. It has all been rather relevant for my academic and professional career, thus I sincerely thank for your confidence!



