

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	Mahi Mankeshwar
Project title	Title: Cetacean diversity, abundance and space use in the waters of Andaman islands, India.
RSG reference	23447-1
Reporting period	Nov 17 – Nov 18
Amount of grant	£4974
Your email address	Mahi.mankeshwar@gmail.com
Date of this report	1/2/2019

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
To provide a representation of species diversity present in the area.				The area of study has been recognised as an Important Marine Mammal Area by the IUCN-MMPTF. Offshore explorations around Andaman and Nicobars are likely to reveal a wider diversity including deep sea cetaceans such as beaked whales.
To understand population size and space-use patterns.				We need more effort and replicates to estimate population size. Current sample size is limited. Encounter rates/km can be provided.
To continue and strengthen the monitoring program with island stakeholders.				We continue to receive sighting and stranding information from our network. We have initiated dialogue with key policymakers and stakeholders that utilise cetacean rich habitats and are in the process of starting a consultative group for marine mammal conservation in the islands.

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

The work was carried out between January and November 2018, to understand seasonal differences, and was dependent fully on the Rufford Foundation and since we wanted to carry out enough replicates in at least one area, we had to re-plan the boat-based transects and fit it within the Rufford budget. This resulted in doing fewer of the North Andaman ferry-based transects and also fewer replicates in our core study area.

Another difficulty we faced was the substantial hikes in inter-island travel tariffs and fuel prices on the islands.

Given these difficulties we focused our efforts largely in the South Andaman area both for the ferry and dedicated vessel surveys so as to generate a robust set of data from the area.

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

1. The study helped recognise that the region is a critical cetacean habitat supporting at least 15 different species.
2. Critical habitats where future efforts will be targeted were recognised on the basis of cetacean diversity, important bathymetric features supporting a diverse assemblage and overlapping areas of species presence with high anthropogenic pressures.
3. Significant progress was made towards bridging the knowledge gap amongst the key stakeholder groups regarding the uniqueness of the area in harbouring a diverse cetacean assemblage.

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

The local community has been an integral part of the work since its commencement in 2016. During the Rufford funding cycle, contacts with participants of the monitoring network were refreshed through follow-ups in the South Andaman region. Apart from the four communities that were previously involved (fishermen, sport fishers, inter-island ferry crew and staff of dive shops), this year we also initiated dialogues with the island-based administrative departments. Through meetings, follow-ups and presentations, and have provided relevant information to government departments and decision makers and described to them the importance of the region as a critical habitat for cetaceans.

We also regularly interact with the ground level staff of the Forest Department (Forest Guards and District Forest Officers) in different parts of South Andamans regarding marine mammal stranding responses and are working towards building a more streamlined stranding response network.

5. Are there any plans to continue this work?

Yes, my long-term goals include carrying out doctorate research here based on the work carried out since 2016, and to design a long term research and conservation action programme for the Andaman and Nicobar Islands.

The work in the Andaman and Nicobar Islands was primarily undertaken with the goal of understanding cetacean presence and their trends. Data collected over the last 2 years has shown that the area is an important cetacean habitat and is helping harbour a varied cetacean assemblage from baleen whales to deep-diving animals like the dwarf sperm whale. The area is unique in its bathymetry and is influenced seasonally by the changing monsoon periods. Both these factors influence the presence of these species in the region.

At the same time, the islands are being developed as a key tourism industry in India with newer islands and sea habitats being made open to the public to cope with

mounting tourist populations. Given the strategic importance of the islands, the Indian Navy too has been steadily making its presence felt in the waters.

Considering these factors there is a need to continue the efforts to gain a comprehensive understanding of both the underlying ecology and the vulnerability of these populations to growing anthropogenic pressures. In the immediate future we will attempt to explore a larger portion of the islands using vessel-based surveys in order to get a truer representation of the cetacean community and patterns of space use for the archipelago

We also plan to continue our interactions with the stakeholder groups by establishing formal networks and forming consultative groups to further the dialogue and to make sure all developmental activities planned for the islands are executed considering the presence of these species in the waters and with minimal impact on their habitats.

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

We have been informing the locals and administrative heads of departments through follow-ups and brief report submissions. We are also working on a manuscript for sharing the results from the study with the larger scientific audience.

In November 2018, the IUCN-MMPATF held a consultation meeting with six administrative departments and tourism operators to whom I presented the results of this work.

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

We sampled across the three planned sampling periods i.e. between January-March 2018; April-June 2018 and September-November 2018. Hence, our actual length of the project was the same as the anticipated field season i.e. from January 2018 to November 2018.

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 - Exchange rate used 1GBP= 84.95 INR

Item	Budgeted Amount	Actual Amount	Difference	Comments
Island-Mainland Travel (2 round trips + one way tp Port Blair)	287	332	+45	
Field Station Rental	419	419		

Living expenses of researchers	717	717		
Fuel for boat and maintenance	1675	1440	-235	
Boatmen salaries	954	714	-240	The difference was used towards covering the ferry transect fare.
Inter-island travel	48	41	-7	
Ferry Transect fare for three observers	115	605	+490	The prices of ferry tickets hiked and ranged between £1-10 depending on the ferry service available.
Living expenses on other islands	100	179	+79	During one set of ferry transect there was a halt of one or two nights depending on the schedule of the returning ferry, hence the actual amount for three members was more than anticipated.
Material for awareness programs and stationary	72	72		4 pingers (£5.26) were also designed to be tested on near shore seine nets that are frequently damaged by bottlenose dolphins in certain areas.
Daily commute+ commute during surveys days	300	312	+12	The amount for the range finder £ 119 and £100 from the head 'fuel for boat and maintenance' was transferred to this head and the budgeted amount was revised to accommodate £4.7 rickshaw trips to carry fuel from the field base to the jetty.
Binoculars*2	287	142	-144	Only one pair was purchased and the rangefinder was not used during the study.
Total	4974	4974		

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

1. Continuation of vessel-based surveys through stratified sampling effort to understand space-use patterns and variability in the community structure across seasons. Giving priority to offshore habitats, areas with unique bathymetric features and high traffic zones.
2. Continuation of the stakeholder involvement and through monitoring, outreach and capacity building.

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

The Rufford logo was used in all reports, forms and presentations made during the funding cycle.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Dr. Dipani Sutaria - She has been an advisor for my work in the Andamans since 2016 and has provided invaluable inputs at every step of the study. Some of the equipment used during the project was also contributed by her.

Sagar Rajpurkar, Akshata Karnik, Evan Nazareth and Aashi Parikh - They were the team members who primarily assisted towards data collection during vessel-based surveys, maintaining data-sheets and field based activities.

Sanjit Mondal - Captain of our dedicated survey vessel, *MV Pratima*.

12. Any other comments?

The results from the study have contributed to the South Andaman region being designated as the first Important Marine Mammal Area (IMMA) of India by the IUCN Taskforce.

Below are the links to a report and a news item based on the 7-day visit of members of the taskforce to Andaman Islands in November 2018 to implement the new IMMA.

<https://www.marinemammalhabitat.org/implementing-immas-in-the-andamans-india/>

<https://www.marinemammalhabitat.org/download/working-to-implement-conservation-actions-in-important-marine-mammal-areas-immas-of-the-andaman-islands-india/>



Left: Systematic sampling aboard MV Pratima. ©Adreeja Chatterjee. Right: Observing from aboard an inter-island ferry. ©M. Mankeshwar.



Left: Fraser's dolphins (*Lagenodelphis hosei*) recorded for the first time from the area. ©Akshata Karnik. Right: Log-like appearance of a Dwarf-sperm whale (*Kogia sima*). ©M. Mankeshwar.



A False-killer whale (*Pseudorca crassidens*). ©M. Mankeshwar