

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	Nachiket Kelkar
Project title	Baselines of fish habitat use, recruitment and abundance across differentially grazed seagrass meadows and adjacent non-seagrass habitats of the Lakshadweep islands, India
RSG reference	41.08.09
Reporting period	December 2009 to December 2010
Amount of grant	£5970
Your email address	rainmaker.nsk@gmail.com
Date of this report	30 November 2010

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
Turtle and benthic habitat surveys				
Seagrass measurements, experiments				Weather constraints (no studies possible during monsoons, monsoon storms, upheaval and burial caused loss of experimental plots), lack of diving facilities in one island lagoon (Kavaratti)
Seagrass fish surveys				
Reef and other non-seagrass habitat surveys				
Surveys of fishing activity across seagrass lagoons				Low availability of usable manpower, difficulties in commuting between islands
Interview surveys				Additional objective to original study, partially achieved due to reasons as pointed above

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

Sudden maintenance problems and closure, leading to non-availability of diving facilities in Kavaratti was the main problem for the work, as plans had earlier been made to sample seagrasses and reef fishes in Kavaratti in a similar manner as Kadmat and Agatti. This led to the loss of some valuable data. However, we will try to complete this part in the field season starting December 2010.

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

1. Green turtles are important ecosystem modifiers that, at high densities, negatively affect not just seagrass growth rates, production and structure, but also the fish communities dependent on seagrass meadows for recruitment, shelter, juvenile settlement and feeding.
2. Such a negative impact of green turtles on seagrass meadows and lagoon fishes, though temporary, may be highly significant for local fisher communities that depend on the lagoons intensively, for subsistence-level fishing and bait-fishing for tuna.
3. Due to turtle movements across seagrass meadows in different lagoons, conflict between turtles and fishers may be highly dynamic across space and over time.

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

Local communities were involved in the project in the following manner: 1) Interviews were carried out with fishers in order to gauge their perceptions regarding changes in lagoon fish catch, and

perceptions about the causes of change; 2) Discussions with key informants were undertaken across islands to understand their attitudes towards marine turtles, with a specific aim to understand conflict; and 3) Local knowledge about ecology of seagrasses, turtles, fishes and lagoon habitat dynamics was compiled during the course of the study.

Whenever possible, informants, fishers and interested local community members were educated about the research work and the importance of the work on conflict. Opinions were shared regarding how coexistence with green turtles feeding in seagrass meadows may be possible, without being detrimental to conservation of turtles, as they are endangered species. This process is expected to continue over the next few years.

5. Are there any plans to continue this work?

Yes. We plan to continue this work over the next few years (including collaborated work), especially in relation to: 1) monitoring changes in turtle densities in different lagoons; 2) studying associated changes in seagrass meadow characteristics and seagrass fish communities; 3) detailed assessments of environmental / biological / genetic / historical factors that may predict turtle movement and seagrass meadow changes over time; and 4) assess different islands in the Lakshadweep archipelago to identify situations for potential conflict of fishers with congregating green turtles.

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

We plan to share these results via: 1) publication in peer-reviewed international journals; 2) discussions with local village self-governments and fisher groups; and 3) reports that can be shared with policy makers, especially the local administration.

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

The RSG was used over the period specified in the original proposal. An extension has been requested to utilise some remaining funds till March 2011, an extra period of 3 months.

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
Living Expenses	1000	1,252.78	-252.78	Large quantities of supplies carried for the islands (mainly food) accounted for a bulk of the excess expenses.
Field Assistant Salaries	520	562.36	-42.36	As work was across islands, field assistant salaries were not consistent and were subject to weather / work conditions.
Travel	500	767.50	-267.50	Lakshadweep is a fairly difficult area to access and flight seats / fares are often unpredictably high or low. Ship ticket costs also included here, but the bulk of travel for team members had to be by

				flight.
Diving and boat costs	3400	2,567.90	832.1	Diving cheaper and less necessary than expected, diving not possible at some islands. Boat costs higher than expected
Equipment	500	695.16	-195.16	Incurred some extra expenses on computer-related accessories and camera upgrading
Miscellaneous contingent expenses	50	7.13	42.87	
Total	5970	5969.65	0.35	

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

1. Filling gaps in the story: Data from Kavaratti lagoon needs to be collected with enough replication and sampling parallel to ongoing work at Kadmat and Agatti. Enclosure experiments need to be conducted and monitored again to estimate recovery of seagrass following intensive turtle herbivory.
2. Regular monitoring of turtle densities in the lagoons needs to be carried out eventually by community members and resulting effects on seagrass meadows and fishes need to be estimated over time. These observations need to be interpreted in relation to changes in lagoon fish catch, and further, its implications for potential conflict can be tested later, if such a situation may arise.
3. Detailed studies of turtle feeding and movement, including genetics, stable isotope analysis and satellite telemetry could be incorporated in the project as a valuable tool to understand dynamics of turtle herbivory across the Lakshadweep islands.
4. Widening the scale: causes of increased green turtle densities could be linked to various large-scale factors (migration, loss of top predators, ENSO-related bleaching events and seagrass growth) and it can be of importance to investigate these further.

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?

The RSG logo was not used, as no posters/banners were produced as part of the project.

The RSGF funding was acknowledged in: 1) reports provided to the Lakshadweep administration; and 2) peer-reviewed papers submitted to various journals. Information on the structure of the Rufford Grants was also provided to other researchers working in the islands and we recommended that they submit applications for funding to the Rufford Small Grants Program.

11. Any other comments?

We would really like to thank the RSG for being an extremely supportive grant with the management being very understanding and appreciative of intermittent issues, that were dealt with in a flexible and easy manner.