

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	Megan Gabriela Chevis
Project title	Baseline Monitoring of Elasmobranchs in Panama Using Fisheries-Dependent and Independent Methods
RSG reference	19184-1
Reporting period	11 April 2016 – 26 March 2017
Amount of grant	£4985
Your email address	megan@maralliance.org
Date of this report	27 March 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
Establish a baseline for shark and ray populations and diversity on the Caribbean coast of Panama				We established a baseline for marine megafauna populations at two locations (Colón and Bocas del Toro) using Baited Remote Underwater Videos and Underwater Visual Census
Understand the importance of sharks and rays in the Panamanian dive industry				We have completed surveys with dive shops in four provinces of Panama on both the Pacific and Caribbean coasts.
Characterize shark fishing on the Caribbean coast of Panama				Fisher surveys were completed in the Colón and Bocas del Toro provinces, providing fisheries-dependent data on shark diversity and distribution. In the future we plan to continue surveying fishers in more remote provinces to establish a more complete picture of shark populations in relation to fisheries.
Determine the presence of critically endangered sawfish in the Panamanian Caribbean				We completed fisher surveys in the Colón and Bocas del Toro provinces as well as a third site on the Pacific side of Panama, which provided significant data on the distribution of historical and current sawfish populations. We plan to continue conducting surveys at additional sites, specifically in the more remote parts of Panama.

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

The field work portion of the project started later than originally planned due to delays in the receipt of research permits. Although the permits were quickly granted once applied for, protocols for applying for permits had changed due to changes in governmental departments.

This was the first time this type of field work was conducted in these sites, and consequently we learned a lot about the habitats and water conditions during

monitoring requiring much flexibility and adaptation to unanticipated and occasionally less than optimal sea conditions.

Due to low visibility and heterogeneous bottom habitat in our first field site (Colón) we were unable to perform underwater visual censuses. We used the time that we had allotted for snorkelling transects to instead set additional baited remote underwater video (BRUV) stations in effect expanding the scope of the monitoring at that site. In Site 2, Bocas del Toro, although we luckily didn't experience many large swells, the currents in some of the outer sites were strong requiring modifications to our BRUV structures to prevent them from getting swept away. Unfortunately the rope was stolen from one BRUV while it was recording. Luckily, the thieves didn't notice the camera and we still managed to get some good shark footage at that site!

While we were able to visit the Guna Yala province and meet with fishers to discuss our work and the possibility of working with them more in the future, restrictions from the Guna government did not allow us to conduct formal fisher surveys. As we continue to establish a relationship with the communities within the autonomous indigenous province, we hope to learn more about their megafauna populations and their importance to local communities.

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

Through this project we completed the first fisheries-independent assessment of marine megafauna in Panama, which has given us many insights into differences in abundance and diversity at two key study sites on the Caribbean coast. Sites were chosen primarily for the presence of large coral reef habitat and their importance to the diving and fishing industries. Overall we set Baited Remoted Underwater Videos at 80 locations and swam over 60 km in snorkelling transects.

Six local artisanal fishers and two university students were trained in standardised monitoring methods and gained a greater understanding of the marine ecosystems with which they interact and on which they depend.

We presented and shared the results of our baseline monitoring with over 60 fishers, captains, four guides, students, government officials, and other community members in the sites where we worked, raising awareness for sharks and rays in Panama, their importance in the marine ecosystem, and insights into current megafauna populations.

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

Local community members were involved in various aspects of this project. Through fisher and diver surveys, locals were able to express their concerns and perceptions of the current status of their marine resources and the problems that they face with managing these resources, information that can be taken into account when establishing future management plans.

Local fishers were also a crucial part of the field team for our baseline monitoring work. Besides receiving training in data collection and monitoring techniques, field work provided them an alternative source of income from fishing and provided an opportunity for them to view their marine resources from a different perspective.

Following field work, we created a final report of the work conducted this past year that was shared with government officials in the Ministry of Environment and the Fisheries Department. We also conducted presentations at the two sites where we conducted field work in order to share with community members the details of the project, why we are conducting monitoring, what we found from the baseline monitoring, and our plans for future monitoring.

5. Are there any plans to continue this work?

Absolutely! The fisheries-independent monitoring portion of this project will continue as part of our annual marine megafauna monitoring. This will allow us to record changes in megafauna populations over time and assess the effects of changes in management and enforcement of these sites. We have chosen to focus our continued annual monitoring efforts specifically in Bocas del Toro, with Colón being a site for periodic monitoring, if funding permits.

Due to the standardised nature of the monitoring we will also be able to compare the results with other countries and sites we are monitoring in the Caribbean. As we continue to monitor these sites, results of our work will continue to be shared with the communities in which we work through presentations with fishers and their cooperatives. We have plans to create a scientific educational program for coastal schools that integrates monitoring and a focus on marine megafauna. Similar programs conducted by MarAlliance in Belize, Honduras and Cabo Verde have been highly successful in creating scientifically aware stewards for large marine fauna.

Fisher surveys will also continue to be conducted, but with emphasis on other provinces of Panama in order to provide a holistic overview of the historical and contemporary status of elasmobranchs in Panama.

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

Sharing the results of our work is especially important to us. Besides completing a report of findings that has been shared with Panamanian government officials in the Ministry of Environment and Aquatic Resources Authority, we presented results with community members from multiple sectors: fishers, government officials, tour operators, and other NGOs at our two field sites to discuss our work and what we found. This year we plan to begin our education programme in Panama City, where we will visit schools to talk about sharks and rays in Panama, the work we have done and are doing in Panama, current threats to sharks and rays, and what they can do to care for the marine environment.

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 majority of our work was completed from August – November 2016, with additional meetings with fishers and students, as well as data review and analysis, occurring in December 2016 – March 2017. This represents a slightly later start than what was anticipated due to delays in applying for permits.

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
Transport (to Comarca Guna Yala, Bocas del Toro, Colón, and Azuero for monitoring field work, fisher surveys, and presentations)	941	906	+35	We used less fuel than anticipated and saved on transport costs.
Accommodation (at the 4 field sites)	832	769	+63	We were able to find less expensive accommodation at one of our field sites.
Food and water (during field work and presentation trips)	1435	853	+582	We saved funds by buying in bulk on the mainland and from grocery stores instead of eating at restaurants throughout the field work.
Supplies and BRUV construction	318	854	-536	Because of strong currents in Bocas we had to modify the BRUVs so that we would not lose them! Due to sharks damaging parts of the BRUVs, we also had to replace several bait arms and parts of the BRUVs. These extra costs also included printing costs for the reports and surveys.
Boat rental, captain and fishers costs, fuel, bait (during monitoring field work)	1459	1603	-144	Since we weren't able to do transects in Colón, we increased our BRUV sites (located further away than originally anticipated) and used more boat fuel.
Total	4985	4985	0	

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

While establishing a baseline of marine megafauna using fisheries-independent methods was a crucial step to begin to understand populations at key sites on the Caribbean side of Panama, continuous long-term annual monitoring will provide a more complete picture of these communities and their variability over time, and further assist the local government authorities with the management of these areas. Adding another method, scientific longlines, will also permit us to further analyse shark and ray populations and understand the demographics, growth and movements of these species.

Further surveys with fishers in more remote areas of Panama's Caribbean coast will also enable us to fill in gaps in our knowledge of historical and current shark and ray populations.

All of the data that we have collected will be important tools for implementing changes in the management of these sites in the future. As we continue to collect more data and better understand the megafauna, it will be especially important to continue to communicate our findings locally and nationally to prompt the creation of shark and ray friendly policies and management interventions.

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, The Rufford Foundation logo was included in the final report submitted to government officials of the results of our baseline monitoring, as well as in our presentations given to fishers and students. We also acknowledged RSGF in our Facebook posts that highlighted the work we completed throughout monitoring and in our quarterly newsletter sent out via email. We also created a 'highlights' video showing some of the BRUV footage collected during this project, which acknowledges The Rufford Foundation.

11. Any other comments?

On behalf of the MarAlliance team I would like to sincerely thank The Rufford Foundation for their support this past year. This grant allowed us to jumpstart our work in Panama, the newest location for our organization, and enabled us to collect a wealth of data on marine megafauna that will support the conservation and management of these species. I would especially like to thank the Foundation for enabling me to complete my first conservation project in Panama, a dream that I've had for many years.