

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	Monitoring of Marine Megafauna in the Bocas del Toro Archipelago of Panama
RSG reference	27248-B
Reporting period	April 2019 - February 2020
Amount of grant	10,000 GBP
Your email address	megan@maralliance.org
Date of this report	14 February 2020

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
Continuation of long-term standardised monitoring of marine megafauna				We successfully carried out standardised monitoring at stations across the archipelago using underwater visual census, baited Remote Underwater Videos, and scientific longline
Training and capacity-building of local fishers, captains, and students				Five local fishers and one university student received training and were part of this year's monitoring. We also involved three new volunteers during part of the monitoring. We additionally participated in two workshops with over 70 local indigenous fishers and gave training on sustainable fisheries and the safe capture, handling, and use of invasive lionfish.
Increased awareness of local marine biodiversity, threats, and conservation efforts in local primary and secondary school students, tour guides, managers, divers, and the general public				Through our education and outreach activities held in primary and secondary schools and community meetings we directly reached over 400 individuals, including students/youth, fishers, teachers, and managers.
Assessment of local fish consumption, perceptions, and threats focusing on restaurants				Though our original objective was to focus on local restaurants and their effect on local fisheries and seafood consumption, we learned through interviews and meetings that much of the seafood served in tourist locations is imported from outside of Bocas. Though there is still a need to raise awareness with tourists and locals about responsible seafood consumption, we shifted our activities this year to focus more on the fishing communities that are directly impacted by unsustainable fishing. Through interviews and meetings, we gained a better understanding of the

			current fisheries situation in the archipelago, which will direct our future activities.
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

There are always unforeseen difficulties that arise during fieldwork when working on the sea in unpredictable and sometimes remote areas. Being properly prepared and having team members that knew the region and the sea well ensured that we avoided any dangerous situations. This year we notably had much fewer observations of sharks using BRUVs than in previous years, with both fewer individuals and much less richness of species. Even utilising longlines in multiple sites, depths, and times of day ended in many sets with no capture of animals. Though a lack of captures is also important data and gives us insight into the distribution of animals and the possible effects of local fishing pressure, it was discouraging for our team. Fortunately, this changed as we continued our monitoring into sites further away from human communities. We ended our last days of fieldwork catching multiple juvenile animals in a site that we suspect is being utilised as a nursery site for blacktip sharks. These data will be hugely helpful in our future conservation and research efforts in the area.

This year we also wanted to incorporate more activities to better our understanding of the seafood markets, local fisheries, and consumption of marine species of the area. Through local interviews we learned more about the complexities of local fisheries and food security of the region, notably in the more remote communities that are not able to rely on tourism activities as a source of income. Teaming up with a local NGO that has over a decade of working with indigenous communities in the archipelago, the Darklands Foundation, we were able to reach fishers and their families that we have not previously worked with. We now have a much better understanding of local fisheries and their perceptions of how fish populations have changed, as well as their concerns and needs. We plan to continue working in these communities and others, to ultimately assist with decreasing fishing pressure in these sites while building the skills and capacities of fishers and their families.

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

This past year we increased and strengthened our local alliances with other NGOs, members of the private sector, and government officials that supported our ongoing work, which enabled us to increase our reach to other communities and fishers around the archipelago, and ultimately gave us a much better understanding of the issues surrounding fisheries and food security for the region, which will direct our future work. We successfully completed another year of standardised monitoring with an additional method (scientific longline) that enabled the identification of a potential nursery site for blacktip sharks. This year we also recorded two additional species (the lesser electric ray and a sharpnose shark) that we have not previously observed for the area.

We increased the capacities of five local fishers and captains as well as a local marine biology university student through training and participation in monitoring; we increased understanding and awareness of marine megafauna, marine conservation, and sustainable fisheries for over 400 students, teachers, fishers, government officials, tour guides, and the general public.

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

Each year we aim to increase our involvement with local communities in the Bocas del Toro region. Every year we have trained and included local fishers and captains in our annual monitoring work, providing an increase in skills and knowledge as well as an alternative source of income for these individuals. We also carry out multiple presentations with various groups (youth and adults) to educate and raise awareness about the project and its goals, as well as increase understanding of threatened marine wildlife and habitats.

One issue that we have had for this area is that there are many smaller communities spread across the islands, including indigenous communities in remote sites that can be difficult to reach. This year we were able to begin reaching these communities to hold educational activities and participate in workshops with fishers and women artisans. These activities helped us identify needs of these communities and ways that we can support them in shifting away from unsustainable fishing. We plan to continue working with these communities to not only further involve them in our monitoring work, but also to provide resources in the form of training and exchanges that will give them skills that they can use to secure more sustainable sources of income and protein other than through fishing.

5. Are there any plans to continue this work?

Yes, as one of the aspects of this project is long-term monitoring of marine megafauna, we plan to continue using the same standardised methods annually to assess the populations of sharks, rays, marine turtles, and large piscivorous fish around the archipelago. During each year of monitoring we have continued to gain novel data on species, their distribution, and their critical habitats. Through our most recent monitoring we identified a site with many juvenile sharks. This potential nursery site will need to be studied further to characterise it and how it is used by elasmobranchs and other species. We are already communicating with local authorities about further conservation and protection, as this site is outside of the current Marine Protected Area.

We also plan to build upon the education, outreach and capacity-building activities that we have already begun in Bocas del Toro in order to increase our reach and help with positive behaviour change in favour of threatened marine wildlife. Future work will focus on incorporating and training new fishers from more remote fishing communities, participating in more meetings and workshops in their communities to better understand local issues concerning fisheries and food security, as well as identify ways to decrease fishing pressure. These activities will be in collaboration with

local partners and as part of several goals identified by the Bocas del Toro Hope Spot coalition, a newly formed group of local marine conservation organisations and individuals that aim to conserve and restore the marine resources of the archipelago.

Through meetings with fishers, we have identified interest in training in areas such as the hunting and processing of invasive lionfish, the use of alternative materials to make jewellery, and in terrestrial farming, all of which would provide alternative sources of income (notably for women of the communities) and shift pressure away from fishing.

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

In the past year we have shared results of this project through two project briefs and an informational action-focused brochure (the two most recent attached); a video of wildlife highlights seen on BRUVs shared through social media; an annual report shared with project partners; a poster presented at the First Latin American Conference on Sharks, Rays, and Chimeras in Playa del Carmen, Mexico; through three articles published in the local newspaper The Bocas Breeze; and through MarAlliance newsletters, blog posts, and social media. In January 2020, project leader Megan Chevis presented this project at a Rufford Conference held in Bocas del Toro. In March 2020 Megan will also present data collected from this project on marine turtles at the annual International Sea Turtle Symposium in Cartagena, Colombia. Furthermore, the results of the monitoring of marine megafauna in Bocas del Toro are currently being drafted into a manuscript for peer-reviewed publication later in 2020.

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

This grant was used from April 2019 - January 2020, mostly as we had anticipated prior, though we started our activities slightly later than expected.

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
Boat rental, captains and fisher hire	4707	4642	-65	We were able to save some costs for boat captains/boat rental by sharing expenses with project partners
Communications and safety	235	230	-5	
Printing	941	990	+49	The cost of printing posters changed from our original quote

Local transport	946	969	+23	
Field supplies and equipment	270	233	-37	We were able to reuse equipment from previous years few modifications and fixes needed
Boat fuel	1333	1243	-90	We were able to share fuel costs with project partners
Food	588	583	-5	
Lodging	627	750	+123	Lack of accommodation options during high season meant changes in housing. We hope to share housing costs with local partners in the future to reduce this expense.
Bait	353	323	-30	We were able to catch some of our own bait instead of buy
Totals	10000	9965	-35	The leftover funds will support further printing of educational materials currently being developed by local partners in Bocas.

Exchange rate was 1GBP = 1.245USD

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

Though the collection of scientific data through monitoring is a critical step in understanding the status of and threats to local fish populations (and being able to assess changes over time) and will continue to be an important component of this project, in order to restore and conserve threatened wildlife in the area there must be emphasis put on supporting, understanding, and assisting local human populations to move away from fishing (especially with damaging gear types) to relieve pressure on fish populations. In the last year this has become more evident and has guided our activities and project objectives. As mentioned by fishers during discussions held, there is high interest in exchanges with fishers from other regions, training and capacity development in the hunting and processing of invasive lionfish as well as the use of their spines/fins in creating artisanal jewellery as well as more involvement of women from fishing communities (including women fishers, vendors, artisans, family members of fishers).

Future steps will continue to build upon this aspect, incorporating other organisations that have strong ties and more experience with small fishing communities as well as local and national authorities in order to move towards alternatives to fishing and to shift current fisheries to more sustainable methods. We also plan to collaborate with local partners to develop visual materials (large posters and displays for the backs of boat seats) that will educate visitors and locals on 'Best Practices' for conserving and protecting the marine fauna and habitats of Bocas.

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?

Yes, the Rufford logo was used in printed project briefs distributed at meetings and online; on the scientific poster presented at the conference in Mexico; in the MarAlliance annual report; and in all PowerPoint presentations and videos shown at meetings, schools, and conferences.

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

Megan Chevis was the project leader. She handled most of the logistics and preparation of monitoring and education activities, carried out school, community, and fisher presentations, lead and helped train other team members in monitoring methods as well as participated in data collection, analysed the scientific data, managed the budget of the project, and handled communications among all team members.

Carlos Pittersen was the lead captain of the team and helped organize and coordinate boats and fishers, drove our main vessel throughout monitoring, and coordinated fuel, bait, and transport during monitoring. He also participated in workshops with fishers.

Mervyn Archibald was one of our fisher team members and helped collect data during monitoring as well as with training in less experienced team members.

Melanie Hernandez was a Marine Biology student from the University of Panama. She participated in monitoring and helped with data collection and input, equipment maintenance and organization, and photography.

Piter Georgett was another fisher team member who participated in monitoring and received additional training in new methods.

Manuel Pittersen was a fisher team member who participated in monitoring and received additional training in new methods.

Hilmar Salazar is a MarAlliance fisher associate from Belize that participated in an exchange and workshop with fishers in Bocas. He provided important insight and knowledge from his own experiences with fisheries in Belize. He also participated in monitoring and lead training for all team members in scientific longline and the safe handling of sharks.

Dr. Rachel T. Graham is the Executive Director of MarAlliance. She has helped with overall project direction and design. She also provided practical training during monitoring- notably with the safe handling and tagging of sharks- and helped with documenting the project activities through photos and videos.

12. Any other comments?

Our team is grateful to the Foundation for their continued support of this project since its beginning.