

Final Evaluation Report

Your Details	
Full Name	Natasha Dominique Marosi
Project Title	The Structure and Function of Social Interactions in an Artificial Bull Shark Aggregation
Application ID	35197-1
Date of this Report	May 13, 2024

1. 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 bull shark family tree	Y			Genetic analysis completed by Diversity Arrays Canberra, Australia.
Determine level of inbreeding in bull shark population	Y			Genetic analysis completed by Diversity Arrays Canberra, Australia.
Run co-analysis with bull shark pup samples from rivers to determine critical riverine areas		Y		Genetic co-analysis is being re-run as samples from outside the country (South Pacific) were run and included in analysis which should not have been

2. Describe the three most important outcomes of your project.

- a) Production of the relatedness matrix and kinship sociograms.
- b) Identifying the familial relationships within the visiting population of bull sharks to the Shark Reef Marine Reserve.
- c) Using data and observations to educate Fisheries and to begin riverine patrols to enforce gill net ban in rivers and estuaries

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

The first set of difficulties that arose encompassed equipment difficulties: the speargun and extractor tips failed. I needed to source a replacement pneumatic speargun from outside the country - with Covid shipping delays it took quite some time. I then needed to source new biopsy probe tips. I got these from South Africa - they were designed to use on great white sharks. When I received the biopsy probe tips, the bases were not cut to the specifications I provided and did not fit, so I needed to source an engineer locally to thread the bases.

The next set of difficulties lay with Mother Nature, you can only collect a biopsy from a shark if they are present. With so many sharks with different site fidelities and home ranges it was a waiting game, nothing I could do!

4. Describe the involvement of local communities and how they have benefitted from the project.

Since the inception of my research, I have been working with the Ministry of Fisheries Inshore Compliance Management Division in order to implement conservation measures to protect bull sharks in Fiji. The research that I have carried forth I have used to advise our colleagues and partners to run awareness campaigns with local villagers on the importance of sharks and rays in our coastal areas and riverine systems. In November 2022, I was able to get the first ever riverine patrols running to enforce the existing ban on gill nets (Fisheries Act Cap 158) , the next year in 2023 we were able to get the patrols expanded to additional riverine and estuarine areas.

5. Are there any plans to continue this work?

Yes, this parturition season we will be heading out to catch and tag pups and collect samples for DNA analysis.

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

This work is currently the base of the 2nd chapter of my PhD and I am currently working on the manuscript presently. It will be submitted for publication later this year.

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

I am already in the process of putting together proposals for ISRA (Important Shark And Ray Areas) designation, and these will consist of areas critical to the reproductive and movement aspects of the life history processes of bull sharks.

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

I did post on Social media and tag and mention The Rufford Foundation. The Rufford Foundation will be mentioned in the scientific publication on this research.

9. Provide a full list of all the members of your team and their role in the project.

Myself: lead researcher, collection of tissue samples

Aceni, Joeli, Koroi: boat captains

Junior, Keni, Mala, Silio: bin men (depositing bait in front of me for sharks to come close)

10. Any other comments?

I would like to thank the Board for believing in me and supporting my project and my research. It has been a difficult road dealing with the obstacles the pandemic has imposed. I am so grateful for the financial support given by The Rufford Foundation that has allowed me to pursue this path. I look forward to sharing my results formally through the forthcoming scientific publications. I will continue to conduct research and work to create conservation initiatives and management regulations to preserve and protect elasmobranchs in Fiji.