

Final Evaluation Report

Your Details	
Full Name	Sharon Rose Tabugo
Project Title	A Preamble to Seahorses and Pipefishes in Mindanao: Assessment and Awareness
Application ID	26920-1
Grant Amount	£5000
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Date of this Report	December 14, 2019

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
DNA barcoding and diversity assessment;				DNA extraction and amplification were done from samples, but this is still ongoing; PCR products are still being outsourced for sequencing. The barcoding part is still an ongoing process. However, microhabitat documentation was fully accomplished.
Fractal analysis of populations as indicators of vulnerability;				Fractal analysis was performed for samples from Iligan bay, Panguil bay and samples from Surigao City which was also included in the analysis. Surigao samples was published and Iligan bay, Panguil bay samples are still being organised for publication.
Construction of photographic guide for community awareness and information drive;				First draft of the photographic guide was accomplished and was used during the community awareness and information drive.
Community outreach and awareness discussions				Community discussions and forum was done. The community were very much aware regarding the vulnerability status of the seahorses and they are also helping protect the said resources.

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

The most difficult part of the project was on the pre-implementation portion particularly the acquisition of the gratuitous permit (GP) for seahorses. For the pipefishes it was fine however, for the seahorses since they are listed under IUCN as vulnerable for the majority of the species, the permits have to be centralised and need to be process in Bureau of Fisheries and Aquatic Resources (BFAR) Manila. The regional office just endorsed the proposal. It was a tedious process executing a Memorandum of Agreement (MOA) with the National Government waiting for the Secretary of the Department of Agriculture (DA) to sign the documents since, BFAR is under DA. Processing all the legalities ate a lot of time and energy. However, the experience was fulfilling, especially when the GP was released. For the informed prior consents, for the respective localities identified as sampling areas with regard to Municipal Environment and Natural Resource Office (MENRO) and Mayor of LGUs was relatively easy because they are very much open to conservation research and

obtaining permits was a breeze. The sampling portion of the project was an adventure and worthwhile. It provided interaction with the community.

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

First, DNA barcoding was done for accurate species identification and diversity assessment. This served as a good basis for species awareness. Knowledge on diversity and status of organism helped facilitate management strategies for the species.

Second, fractal analysis helped look into morphometric complexity patterns of different species of seahorses based on images. It is hypothesised that fractals are far from the equilibrium state and thus associated with chaos. Hence, high fractal dimensions may have implications to vulnerability of species. The result shows that species of seahorses in the area are vulnerable to habitat destruction. This method helped in monitoring populations. Moreover, most importantly, the construction of species checklist, morphological guide and conduct of informal lectures and focus group discussions (FGDs) truly raised public awareness and empowered local capacity for conservation and sustainable management. It even motivated the community to become effective stewards of the marine ecosystem since seahorses served as the flagship species of the marine environment.

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

Informal lectures and focus group discussions (FGDs) were conducted in Bacolod, Lanao del Norte and it truly raised public awareness and empowered local capacity for conservation and sustainable management. It even motivated the community to become effective stewards of the marine ecosystem since seahorses served as the flagship species of the marine environment. The best part was the interaction of the community where they begin to share experiences about the species and the matter of conservation as well. It was a two-way learning process for people like me from the academe and ordinary fisher folks from the community. It provided an avenue of enriching experience. Communities now become the local stewards and 'bearers of change.' They echo it to neighboring communities and to the younger generation as well.

5. Are there any plans to continue this work?

It had been worthwhile, and I am eternally thankful for such an opportunity, if given a chance to continue as an seahorse ambassador it is always good to be a 'driver of change,' in a small way.

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

Part of the output of the project was community awareness through information drive. We are sharing output of the work through information, education and communication (IEC) materials to be given to local stakeholders/communities, LGU, NGO and academe. Also, publishing results in ISI- indexed journals.

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

The grant was implemented for 1 year. Time flew so quickly, and it had been worthwhile. However, there is still much work to do and more in mind to do. There are parts that are still ongoing for the project, but results will soon be available especially the DNA barcoding.

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
DNA Extraction Kits (Marine organisms)	307	154	-153	
Ethanol (sample preservation)	57	52	-5	
PCR Amplification/ MiniPCR/ PCR kits	368	509	+141	
DNA visualization/Gel electrophoresis/ Agarose/PCR product Amplification	148	364	+216	
PCR product sequencing	706	888	+182	
Laptop	284	786	+502	
Printer	138	126	-12	
Mini dry bath incubator (for DNA extraction)	230	222	-8	Amount for GPS was used to purchase a Mini dry bath incubator for DNA extraction since Camera comes with a GPS system;
Underwater camera with hard case	284	371	+87	
Dive computer	284	296	+12	
Dive equipment	766	766		
Travel expenses (Local transport, boat rentals, food, accommodation, fuel)	1303	1500	+197	
Bond papers	15	17	+2	
Photo papers	40	40		

Glass containers	28	28		
Laminating film	42	42		
TOTAL:	5000	6161	+1161	

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

I feel that informing the community about conservation is an immense challenge and a daunting task. I think the next crucial step will be local capacity building especially, addressing the younger generation of the community. Bringing science to ordinary people especially in the field will be worthwhile. It will make them appreciate more about the DNA, life in general and make them more aware about their roles to play. I've been looking into establishing mobile labs and how to bring them to the coastal communities. In order to deepen appreciation about what science can do and how it can complement with local knowledge to create conservation and sustainability plans. If given a next opportunity, I have more plans to work on seahorses and pipefishes in the area and have local capacity building in mind. This is one way to equip the future generation.

10. 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?

Informal lectures and focus group discussions (FGDs) were conducted in Bacolod, Lanao del Norte and it truly raised public awareness and empowered local capacity for conservation and sustainable management. In fact, a back to back training-workshop on mangrove forest and seahorse conservation was done last March 25-26, 2019, attended by key persons from the community such as fisher folks, fish wardens, MENRO officer and army volunteers. It was designed to foster awareness in conservation, sustainability and take action to become stewards of change. In activities, we showcased the logo of Rufford Foundation as we rally for conservation. The draft for the guide to common seahorses and pipefishes in Mindanao, Philippines also contain the Rufford Foundation logo.







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

My team comprised of myself a biologist, a member of the Society for Conservation Biology (SCB), a PADI advanced open water diver, an seahorse ambassador, having trained for seahorse survey methods under seahorse project by Zoological Society of London (ZSL) and trained for molecular work. Another colleague, Dr. Janece Jean Manubag, licensed PADI diver and a mangrove and seahorse enthusiast, was my survey buddy. My research assistants: Ms. Earth Khent Callo (Morphological characterization), Grazzette Anne Dablo (Morphological characterization), Rose Chinly Mae Ortega (molecular work) and Chinee Padasas (molecular work). Stakeholders' engagement was done together with Dr. Janece Jean Manubag (Biologist), Dr. Darwin Manubag (Sociologist), community volunteers, and troops (unit assigned in the area) headed by Major Noel Ian Rico, of the 52nd Mechanized Infantry 'Masaligan,' Company, 5th Mechanized Infantry 'Kaagapay,' Batallion, Armor Division, Philippine Army and from the LGU, Mr. Archer Zamora (MENRO), Bacolod, Lanao del Norte and Adelino Rico, Municipal Agriculture Officer (MAO), Kauswagan, Lanao del Norte and Mr. Margarito D. Bete (MENRO), Tubod, Lanao del Norte.

12. Any other comments?

I am eternally thankful to the Rufford Foundation for such golden opportunity. Being a catalyst of change is what I always dreamed of and this opportunity took me steps closer to my dream of which I am always grateful.