

## Final Evaluation Report

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Your Details	
<b>Full Name</b>	Nasreen Peer
<b>Project Title</b>	Merging indigenous knowledge with scientific study in Mozambican and South African mangroves
<b>Application ID</b>	29785-1
<b>Date of this Report</b>	2 May 2023

**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
1. We will help communities answer the question of whether or not their conservation measures are effective.				e-DNA and BRUV field work has been conducted by a South African MSc student (Ms Jamila Janna) in 2021. Samples have been collected, results have been analysed and the MSc thesis was submitted in November 2022. Once it has been fully approved, results will be communicated with an updated target of May 2023. The student is in regular contact with the Inhambane Bay community and results will be communicated by her and Mozambican collaborators.
2. We will understand a community-based conservation method which I believe will contribute towards a more successful southern African conservation model compared to current methods which often lead to community-conservation conflict.				A Mozambican PhD student (Ms Juliana Come) is currently working on this as part of her research. She has conducted all her field work in 2021 and 2022. Her results and insights are already informing the research and activities of South African initiatives and are currently being written up in the form of a thesis, two papers (one under review, one in preparation) and a report to the community.
3. We will contribute towards setting a standard for incorporating indigenous knowledge into research. This involves methods, acknowledgement, and co-authorship, and effective, respectful communication between stakeholders, particularly between				Two papers have been written with one already under the second round of review and another in the process of submission. Both of these account for including Indigenous knowledge and community collaborators are co-authors on both of these. An additional paper was written highlighting the shortcomings of South African coastal conservation models. Co-authors include Ms Janna and Dr Peer (Peer et al. 2022, Frontiers in marine Science)

scientists and community members.				
4. We hope to achieve a few postgraduate degrees as there is potential (and interest) from several South African and Mozambican students to work on this project.				Two Honours degrees have been awarded, one MSc was submitted in November 2022, one PhD is undergoing, and the aim is to have it submitted by November 2023, and one more MSc is currently in progress. Unfortunately, two student funding initiatives did not work out. South Africa's main postgraduate funding body (the NRF) is experiencing several budget cuts.
5. Skills development for postgrad researchers as they will be learning eDNA and Baited Remote Underwater Video field, lab and statistical methods. They will also be learning several social science methodologies which is important for research and conservation in developing countries.				Ms Janna has developed skills in the BRUV and e-DNA fields, both in terms of field work, laboratory processing, data processing and statistical analyses. Both she and Ms Come have gained field experience in terms of social methods. Ms Janna's work was presented at two regional conferences in 2022. She plans to use these skills to continue in the field of science communication. With her technical and academic expertise along with her knowledge of Indigenous languages and communication skills as a filmmaker, she will have a wide reach in Southern African countries (including Kenya, Tanzania, South Africa, and Mozambique). Ms Come has also gained experience in statistical analyses of social data and will present her work at a conference in 2023. Mr Taimo, a Mozambican student has received training in field methodology and will receive statistical training as well.

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

- a) Four postgraduate degrees – upskilling postgraduate students is perhaps the most important achievement. All students are South African or Mozambican and two students originate from some of the South African and Mozambican communities with whom we work. To have internationally and academically recognised professionals with both links to the community and expertise in the relevant fields is significant.

- b) Three peer-reviewed published papers – these will highlight the work we've done but also an alternative method for ecological fieldwork in southern Africa. These papers detail an approach that we fully support. This approach is not only scientifically-sound, but also more inclusive of all necessary stakeholders.

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

Lack of student funding remains a challenge. However, the work continued, and we were still able to reach four students in total. Delays regarding the thesis examination process were out of our control although all students have worked hard to make up for these delays.

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

A representative and the president of the Community Council of Fishers in Inhambane is an important part of this project. He has helped to shape research questions, collect samples, guide us through field sites, and will have input on our research papers. Local community members also collaborate through Ocean Revolution, a Mozambican NGO that has changed management in the last couple of years. Under new local management, our community collaborators assist with sample.

**5. Are there any plans to continue this work?**

Yes. Funding was granted to continue this work in a South African context based on the success of the Mozambican chapter. Collaborations with the community will continue in a science communication capacity. Ms Janna is planning to produce a film highlighting the conservation and traditional livelihoods of indigenous communities in Inhambane. We have also connected community collaborators with a filmmaking company which hopes to facilitate dive labs for local Mozambican marine scientists. The community collaborators own and run a dive centre and they will benefit financially from this partnership. They will also benefit by having more of an opportunity to engage with local scientists. The e-DNA monitoring is ongoing with local partners, although we will no longer regularly conduct fieldwork, we continue to maintain contact and communication surrounding science and conservation issues in the bay.

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

Conference presentations – Ms Janna attended the South African Marine Science Symposium (June 2022) where she won an award for best student poster and the Western Indian Ocean Marine Science Symposium (October 2022) where she won the award for best student presentation. Dr Peer and Ms Come plan to attend the Mangrove and Macrobenthos Meeting (July 2023).

Peer-reviewed publications - two peer-reviewed papers are being prepared for submission and one paper is currently under a second round of review with the journal Ocean and Coastal Management. These papers will detail our methodology as well as the results outlining answers to objectives 1,2, and 3.

A documentary – Ms Janna is submitting a proposal to produce a short documentary including conservation initiatives and traditional livelihoods of 3 coastal communities in South Africa, Mozambique and Kenya. This project will form a significant part of this documentary as she highlights the potential for community-based management drawing on successful examples.

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

1. To bring the lessons learnt into marine science and management in South Africa. Coastal communities are largely neglected in South African marine science and conservation and a few insights from the Inhambane chapter will be useful to help bridge that gap. We have co-authored a manuscript highlighting this gap and potential for change. It is currently under review.
2. To support students as they move into related but new fields. Although Ms Janna is still writing up, she is already planning to take a huge next step using her scientific and filmmaking skills. She will do this alongside the Inhambane Bay communities and link them with collaborators in Kenya. This is exactly what we hoped to achieve and to see her take charge of this next step is particularly encouraging! Ms Come is still busy with her research and will be supported as she completes her postgraduate journey. She is already taking lead authorship on manuscripts that are currently being prepared.
3. To maintain research and advisory links with the Inhambane Bay collaborators. There is already a new collaboration underway (as mentioned above).

### **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?**

The logo was used in conference presentations by postgraduate students. These include the Rufford's logo and funders will be thanked verbally during oral presentations. Rufford will also be acknowledged in published papers and the relevant student theses.

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

**Dr Nasreen Peer** (South African researcher - Stellenbosch University) – co-ordinated and led this project, co-designed the project, conducted fieldwork, conducted data analyses, supervised postgraduate students, written and revised manuscripts.

**Dr Nelson Miranda** (South African Researcher - Stellenbosch University) - co-designed the project, co-supervised Hons students, conducted fieldwork, conducted data analyses, written and revised manuscripts.

**Ms Juliana Come** (Mozambican researcher - Nelson Mandela University) – provided translation skills, assisted with social research study design, conducted fieldwork, conducted data analyses, written and revised manuscripts, currently working towards her PhD.

**Mr Luciano Nhamussua** (Mozambican community leader - CCP Inhambane) – Co-designed the study, co-ordinated meetings, events and conservation patrols, conducted fieldwork, acted as a guide, translator, and collaborator for the overall Inhambane Bay mangrove Study and maintained permission from communities to continue work in the area. He has input on manuscripts.

**Mr Antonio Sacramento de Cabral** (Mozambican conservation collaborator – Ocean Revolution). Mr Cabral took over leadership of Ocean Revolution in 2020 and under his leadership it has become a completely locally run operation. He has had input into research design, assists with field work logistics and data collection, and has provided input to manuscripts.

**Mr Horacio Madivadua** (Mozambican conservation collaborator – Ocean Revolution) – assisted with study design, conducted fieldwork, provides input to manuscripts.

**Mr Jonas Chambo** (Mozambican researcher – Ocean Revolution) – Mr Chambo was one of the potential Mozambican postgrads. He is from the Inhambane Bay community and was hoping to pursue an MSc. However, funding was not available. Nevertheless, he has since joined Ocean Revolution and assisted with this project by conducting fieldwork. He will also be invited to contribute to and co-author the 3<sup>rd</sup> manuscript.

**Dr Daniel Zacarias** (Mozambican Researcher - University Eduardo Mondlane) – Maintained permits to work in the area from the relevant government institution, provided insight and translators for interviews, provided academic input and input to manuscripts.

**Dr Bernadette Snow** (South African researcher - Nelson Mandela University) – provided input to the social research study design, co-supervised Ms Come.

**Dr Celia Macamo** (Mozambican researcher - University Eduardo Mondlane) – conducted fieldwork, revised manuscripts.

**Prof. Sophie vonder Heyden** (South African researcher – Stellenbosch University) – assisted with eDNA project design, assisted with data analyses, co-supervised Ms Janna.

**10. Any other comments?**

We are extremely grateful for the funding. This has been an insightful project and is being carried forward in many different directions.