Final Evaluation Report

| Your Details | |
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| Full Name | Kaylee Smit |
| Project Title | Piloting a citizen science approach for reef monitoring to improve conservation of coral reefs in South Africa |
| Application ID | 39845-2 |
| Date of this Report | 18 November 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 |
|--|-----------------|-----------------------|-------------------|--|
| Develop protocols and methods for a citizen science reef monitoring initiative | | | x | This was done by engaging with divers and program leaders from other citizen science programs – REEF and RLS. The methods were tested and iteratively improved throughout the project. |
| 2. Increase capacity for coral reef monitoring by training students, scientists and volunteer citizens | | | x | A total of 32 people were trained and conducted fish monitoring surveys. Throughout this project we have established a network of trained and skilled divers that can participate in citizen science reef monitoring |
| Conduct reef surveys at two pilot locations to test methods and identify ways to improve conservation. | | | X | 85 reef surveys were conducted. 39 surveys at Aliwal Shoal MPA and 46 at Sodwana Bay (iSimangaliso Wetland Park MPA) |
| 4. Streamline data and knowledge sharing to improve management and conservation of coral reefs. | | X | | There is still room for improvement here. While we had many discussions about the right or best mechanisms for data sharing and communicating results, this has not yet been fully realised with the data that were collected for this project. This takes much longer than anticipated, and we still have not yet fully overcome the challenges with open access data and data sharing. Nevertheless, key results and findings have and will continue to be shared with key stakeholders – the diving community, general public and MPA managers. |
| 5. Increase awareness and foster ocean | | x | | This was done to some degree. There is more awareness among |

| stewardship to improve | the diving community, but I feel |
|------------------------|----------------------------------|
| conservation of coral | like our reach to other |
| reefs. | stakeholders could be improved. |
| | Ocean stewardship was created |
| | within the network; however, we |
| | still need more awareness and |
| | stewardship within the broader |
| | community and key stakeholder |
| | groups that either live near the |
| | MPAs or use the reef for |
| | recreational, subsistence or |
| | commercial activities. |

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

- a) The establishment of a small network of enthusiastic citizen science divers, that are now capable of collecting fish observation data that can be used to monitor the state of the reefs. There is a sense of community within the network, and there is now a group of trained and capable volunteer divers that can continue to collect valuable information to be used for management and decision-making. There is more coordination and communication among divers, and an established platform for ongoing reef monitoring.
- b) Valuable reef fish data collected from previously un-surveyed areas, that can be used as a baseline assessment. And data collected from other previously surveyed sites that can be used as a comparison, to assess the status and trends of the reef ecosystems. Important fish assemblage data were collected from 11 dive sites, across the two MPA pilot locations. A total of 56 survey dives were conducted, including a combination of training dives and data collection dives. These observations will be important for assessing the status and trends of species and ecosystems, to improve our understanding of the impacts of natural and anthropogenic stressors on the structure and function of these ecosystems, so that we can better manage local pressures or drivers of change. These data will feed into the long-term monitoring program.
- c) A realised potential to expand and advance a citizen science reef monitoring program, which can make an extremely valuable contribution to improved management and conservation, but also through stakeholder and community engagement and the benefits that come from raising awareness, educational initiatives and training programs to build skills and capacity. The capacity building element was particularly important for marine students and early-career researchers who can upgrade their skills and advance their field techniques, which contributes to improved employability and valuable experience.

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

- Time management and availability of the team As always, people become too busy and it was difficult to plan dive trips, survey sessions and engagements that could accommodate the entire team. We had to make some compromises, but we still managed to get the majority of the field work completed. Not being able to pay people for their time was also a bit challenging.
- Volunteer divers losing interest and willingness to follow the survey protocols correctly, even after being trained. This results in us investing time and energy into training divers that sometimes becomes wasted. This encouraged us to develop a short questionnaire to identify and include only those are were willing to make the commitment that is required and then also demonstrate the ability to follow the methods and complete the data entry.
- Engaging with key stakeholders, particularly MPA managers who were often not available, and trying to engage with other decision makers/policy makers. We learnt the importance of co-design and trying to include all stakeholders in the development of the project, from the onset.
- Strict permitting regulations to "work" inside MPAs, but more so, trying to figure where and how citizen science fits in the research space and associated requirements for scientific diving or research agreements with the relevant management agencies. We had some meetings with some of the MPA cluster managers and ecologists at both Aliwal Shoal and iSimangaliso Wetland Park (Sodwana Bay), and we have been making good progress with regards to building these professional relationships and understanding the research and management landscape. We have also made headway in trying to bridge the gap between data collectors/providers and knowledge generators and end-users.

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

The local diving community were engaged throughout the project and helped to develop appropriate methods and tools for conducting the fish surveys.

Numerous public engagement initiatives were conducted, including information sessions about the project, the impact and value of the work and the important for and of marine conservation. Some of the events included local communities, especially in the Aliwal Shoal area. However, more effort is required to engage the local communities around the main focus areas, and future dive sites, as the project continues.

We learnt a lot of lessons with regards to engaging the local community which we believe is a valuable outcome for this project. For example, we met people who could possibly help with bridging the gap between science and community, and who could assist us on the ground with conducting community engagement activities – they will provide guidance on specific contacts and

6. Are there any plans to continue this work?

Yes! This was a pilot project, with the intention to continue and build on the groundwork developed from our initial phase of the citizen science program. We

learnt a lot during the project, including important lessons that we can carry forward as we continue to roll out the project and advance the methods, data management and outputs. We had some success with having permanent people based at Sharklife, in Sodwana Bay, that are able to continue coordinating and managing the citizen science program, which overcomes some of the challenges regarding capacity and funding to implement the project. It will help to have additional assistant(s) that can provide further coordination and support at the Aliwal Shoal site too, so this will be something to work towards.

We actually have some of our funds left over (see details in the budget report), and we are hoping that we can get approval from Rufford to continue with the work, and to potentially expand the project into additional areas. We are awaiting feedback on this. The plan would be to use the additional funds to continue to support citizen science dives, to build on the training that we have done already and to develop further the skills and experience of the volunteer divers. Furthermore, we would like to conduct more training. In particular, I want to do another multi-day workshop with the Ocean Stewards marine students and the new intake of interns and students at Sharklife.

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

We plan to have additional presentations and engagements, as we intend to continue with the project. The outputs will also be sent to the MPA management authorities, and we will make all relevant material publicly available. Official reports will be put online, and scientific publications will be published with open-access journals.

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

- Wrap up the final data analyses and send the key findings to the management agencies
- Start planning the scientific publication to be submitted to a national/international peer-reviewed journal
- Maintain the momentum with the diving community and the network of citizen scientists keep the WhatsApp group active and continue to send update emails; try to encourage additional citizen science dives (and consider incentives if possible)
- Have follow up meetings with key stakeholders MPA managers, community groups, dive charters and student bodies. Identify mechanisms of continuation.
- A detailed project evaluation and feedback with the project team

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?

Yes. Multiple project updates were posted on social media throughout the project, and the logo was included on all presentations that were conducted with the diving community and the general public.

Published reports and publications are not yet complete, but the logo and the foundation will also be included and acknowledged in all official written outputs too.

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

Kaylee Smit – project lead

Anthony Bernard – collaborator: conception and scientific advisory Angus Van Wyk – collaborator: Implementation of reef surveys in Sodwana Bay Summer Newton – assistant: support with reef surveys in Durban and Aliwal Shoal Shahir Ramndit – assistant and new project coordinator: Implementation of reef surveys in Sodwana Bay and development of new training materials and project activities with volunteer divers at Sharklife

10. Any other comments?

We are extremely grateful for the support provided by the Rufford Foundation, to allow us to continue with this work and make iterative improvements and advancements to the program. Despite a few challenges, and more work to be done, we believe that it was a successful project with a lot of potential to grow and expand into a more established program that will provide conservation benefits to the MPAs and surrounding communities.