

## Final Evaluation Report

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Your Details	
<b>Full Name</b>	Pedro Henrique Cipresso Pereira
<b>Project Title</b>	Coral reef conservation in the largest Brazilian Marine Protected Area (MPA – Costa dos Corais): research, education and community-based actions.
<b>Application ID</b>	28915-C
<b>Date of this Report</b>	30.07.2023

**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
Coral reef conservation in the largest Brazilian Marine Protected Area (MPA - Costa dos Corais): research, education, and community-based actions				The project successfully implemented research, education, and community-based actions for coral reef conservation in the Costa dos Corais MPA. It engaged stakeholders, conducted workshops, and disseminated materials on zoning regulations and conservation aspects. The project's efforts contributed to increased awareness and empowerment of local communities in conservation initiatives within the MPA.
Assess the temporal trends in the distribution and abundance of species in the Costa dos Corais Environmental Protection Area (APACC) over a period of 5 years to analyze the resilience of the coral reef ecosystem and provide valuable information for its management and conservation.				The project partially achieved its objective by evaluating the temporal dynamics of fish and coral communities in the different zoning areas of APACC over a 5-year period. It analysed the abundance, richness, and biomass of fish and benthic organisms, providing valuable information for the management and conservation of the coral reef ecosystem. However, it did not specifically evaluate the resilience of the ecosystem to external stresses such as climate change.
Evaluate the effectiveness of recent zoning in the MPA and its impact on the recovery of coral communities and fisheries				The project culminated in the review of the Management Plan of the APA Costa dos Corais in order to improve and evaluate the effectiveness of the recent zoning in the AMP and its impact on the recovery of coral and fishing communities.
Test the hypothesis that well-designed priority management areas (no-take zones) within an MPA can help recover endangered parrotfish				The objective of testing the hypothesis was partially achieved. The project identified priority zones for parrotfish conservation within the MPA Costa dos Corais using species distribution models and conservation planning tools. The

species				project found that the priority zones were more effective than non-systematic zones for the protection of two out of the five parrotfish species. However, not all species showed a significant recovery in the priority zones.
Provide baseline data for long-term monitoring of parrotfish species and support the refinement of management zones				The objective of providing baseline data for long-term monitoring of parrotfish species and supporting the refinement of management zones was partially achieved. The project collected field data on parrotfish density and distribution, serving as baseline data for future monitoring.
Conduct workshops for fishing villages and schools to raise awareness of zoning regulations and coral reef conservation aspects				The project successfully conducted workshops for fishing villages and schools, raising awareness of zoning regulations and coral reef conservation aspects. The workshops provided educational materials, reaching approximately 1,000 members of the local community. Reports for donors were also produced.
Collaborate with management agencies in the revision of the Management Plan of the Costa dos Corais APA				The project collaborated with management agencies in the revision of the Management Plan of the Costa dos Corais APA. Workshops and meetings were conducted, involving participants with extensive knowledge of the area, including researchers and local residents. This collaboration facilitated the integration and coordination of planning and regulations, establishing the uses and norms to be followed in the protected area.

Conduct stakeholder engagement activities in Maragogi and São Miguel dos Milagres, AL				The project conducted stakeholder engagement activities in Maragogi and São Miguel dos Milagres, AL. Four meetings were held in 2022 and stands promoting the project were set up in various locations. Workshops were conducted in the first semester of 2022, engaging stakeholders in discussions and awareness-building. The project also utilised social media platforms such as Instagram and Facebook for project promotion.
Monitor and evaluate the effectiveness of the zoning areas on a monthly basis				The project successfully monitored and evaluated the effectiveness of the zoning areas on a monthly basis during the summer period.
Conduct fieldwork data analysis and interviews with locals to assess fisheries recovery in zoning areas				The project successfully conducted data analysis of fieldwork data and interviews with locals to assess fisheries recovery in zoning areas.
Empower locals on zoning regulations and conservation aspects				The project successfully empowered locals on zoning regulations and conservation aspects through the production of materials, selection of sites and community members, and conducting empowerment sections.

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

**a).** One of the most important outcomes of the project is the contribution to the revision of the management plan of the APACC (Marine Protect Area Costa of Corais - Northeastern Brazil). The project actively participated in all stages of the plan's revision, aiming to improve the management strategies and conservation efforts for the area. This contribution can be seen in the revised management plan document, PM\_APACC\_2021.pdf, available on the website of the Brazilian Institute of Environment and Renewable Natural Resources (ICMBio).

**b).** Another significant outcome is the publication of an article on the effectiveness of management zones for recovering parrotfish species in the prestigious scientific journal *Nature*. This publication, achieved through the collaborative efforts of objectives 1 and 2, highlights the positive impact of implementing management zones and their contribution to the recovery of parrotfish populations. The article showcases the project's scientific findings and provides important insights for coral reef conservation and management strategies.

**c).** Additionally, the project is producing a temporal trends article specific to the APACC. This publication, titled "Temporal Trends on Coral Reef Biodiversity," addresses objectives 1 and 2 of the project. It presents temporal data on the

biodiversity of coral reefs in the APACC area, shedding light on the dynamics and changes occurring over time. This article contributes valuable information to the scientific understanding of coral reef ecosystems and provides a foundation for evidence-based conservation initiatives. This paper is now in preparation for publication to be submitted to a high-level impact journal such as *Coral Reefs and Scientific Reports – Nature*.

Furthermore, the project has undertaken the establishment of a participatory monitoring program called "Reef Rangers." The participatory monitoring programme involves engaging local communities and stakeholders in collecting data and monitoring reef health. This approach fosters community participation, raises awareness, and promotes sustainable reef management practices. This strong collection with several fishermen, divers, and local communities along all the MPA is probably one of the most important and outstanding results of our Rufford project and will support all the subsequently project and conservation strategies that we plan for the near future.

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

During the project, unforeseen difficulties arose, primarily due to the impact of the COVID-19 pandemic and adverse weather conditions. These challenges affected the project's timeline and fieldwork activities. Here's a breakdown of the difficulties faced, and the actions taken to tackle them:

**COVID-19 Pandemic:** The implementation of health and safety protocols in Brazil, as a response to the pandemic, created significant limitations for fieldwork activities. As a result, the team was unable to conduct surveys of the coral reef area in 2020 and the first semester of 2021. This led to restricted data collection during that period.

To address this issue, the team adapted their plans by focusing on alternative activities that could be carried out remotely. This included data analysis, literature review, and planning for future fieldwork. By utilising virtual collaboration tools, the team maintained communication and coordinated efforts despite the physical restrictions.

**Adverse Weather Conditions:** Additionally, in the first semester of 2022, heavy rainfall in the northeast region of Brazil further disrupted the fieldwork activities. Therefore, the fieldwork had to be temporarily halted in March and was only resumed in October.

To overcome this challenge, the team adjusted their fieldwork schedule, taking advantage of the available time when weather conditions were more favorable. They prioritised efficient data collection during the periods when fieldwork was feasible. Flexibility and adaptability were key in ensuring that the project could progress despite the weather-related setbacks.

Despite these unforeseen difficulties, the project team remained resilient and proactive in finding alternative approaches and adapting their plans accordingly.

By navigating through the challenges posed by the pandemic and adverse weather conditions, they were able to make progress in the project and continue working towards its objectives.

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

The project has actively engaged with local communities, specifically fishermen, divers and local tourism guides, and their involvement has been beneficial in multiple ways.

Interest and Active Participation: The fishermen have shown significant interest in the project's activities and have actively participated in various aspects related to the preservation of the environment. Their enthusiasm and willingness to contribute demonstrate a strong sense of ownership and concern for the well-being of their local ecosystems.

Sharing Traditional Knowledge: The local fishermen have shared their valuable knowledge of diving points and the surrounding marine environment. This exchange of knowledge has enhanced the project's understanding of the area and enriched the scientific research being conducted. It also acknowledges and respects the expertise that local communities possess, strengthening the collaboration between scientists and community members.

Satisfaction and Interest in Results: The presentation of project results to the local community has been met with satisfaction and interest. The positive response indicates that the outcomes of the research resonate with the community's concerns and priorities. The presentation of results has fostered a sense of ownership, as the community can see the tangible benefits of the project and their involvement.

Reinforcing the Importance of Community Involvement: The project's engagement with the local community has reinforced the significance of sharing scientific knowledge with community members. By involving the community in conservation efforts, it emphasises that they are essential stakeholders in the success of environmental preservation. The community's livelihoods often depend on the sustainable management of natural resources, further emphasising the need for collaboration and support.

Overall, the project has created a positive experience by fostering collective interest and reinforcing the importance of sharing science with the local community. Recognizing the community's deep connection to and reliance on the environment, involving them in the project not only benefits their livelihoods but also contributes to the success of environmental preservation efforts.

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

Yes, there are plans to continue this work. While some results have already been achieved, further sampling efforts and studies are necessary to assess various

aspects. These include determining the size of the reef area, identifying the presence of other species, and understanding the local community's utilisation of the reefs for activities such as fishing and tourism. Additionally, the presence of two invasive species (lionfish and sun-coral) in the MPA surroundings has been considered a strong threat for reef biodiversity at the study area. At the moment we are developing conservation projects aiming to establish direction of this species and also to promote conservation strategies to reduce the impacts associated with support from local community stakeholders.

The ongoing project has been instrumental in generating valuable ecological information about the reefs. Moreover, it has opened possibilities for extrapolating the methodology to other significant points within the MPA Costa dos Corais. By employing diverse approaches across different ecological groups and incorporating both field and laboratory analyses, this research can provide crucial tools for enhancing knowledge and improving the management of these reefs.

Continuing this work will contribute to a more comprehensive understanding of the reef ecosystem, enabling better informed decision-making and conservation efforts. By expanding the scope of the project and conducting additional investigations, the project can make a significant impact on reef conservation and sustainable management practices.

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

To effectively share the results of this work with others, we have a comprehensive plan that incorporates various channels of communication. Here's an outline of how we intend to disseminate our work:

Scientific Articles: We will focus on producing high-quality scientific articles that capture the essence of my research. These articles will undergo rigorous peer review and once accepted, will be published in reputable journals. By publishing in esteemed journals, we aim to reach a wide audience of researchers and professionals in the relevant field.

Conferences and Seminars: We plan to participate in conferences and seminars related to my area of research. These events provide an opportunity to present my findings, engage in discussions with experts, and network with fellow researchers. Through such interactions, we can share this work with peers and receive valuable feedback.

Field Actions: Depending on the nature of my research, we may conduct fieldwork or experiments. During these activities, I will document and record my findings, capturing both visual and written content. This material can then be used to create reports, presentations, or multimedia content that can be shared with others interested in the field.

Social Media and Online Presence: We recognise the power of social media platforms and online presence in disseminating scientific information. We will leverage these channels to share key findings, updates, and summaries of my work.

By actively engaging with the online community, we can reach a broader audience, including researchers, students, and the general public.

Collaboration with Institutions and Partners: We will collaborate with institutions and partners involved in the research proposal. By aligning with their dissemination plans, we can leverage their networks, resources, and expertise to amplify the reach of my work. This collaboration may involve joint publications, joint presentations, or joint communication efforts to ensure maximum impact.

Television and Media Coverage: In collaboration with relevant institutions and partners, we will explore opportunities for television and media coverage. This can include interviews, documentaries, or news features that highlight the significance of my research and its implications. Such exposure can help disseminate the findings to a broader audience, including those who may not typically engage with scientific literature.

By employing a multifaceted approach that encompasses scientific publications, conferences, field actions, social media, collaboration with institutions, and media coverage, we aim to share the results of my work with a diverse range of stakeholders.

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

Reef Monitoring and Species Survey: Continuing the monitoring efforts and conducting comprehensive surveys of the reef area will provide valuable data on the ecosystem's health and the presence of different species. This step will contribute to a more thorough understanding of the reef's biodiversity and dynamics over time.

Statistical Analysis of Data: After collecting the necessary data, conducting rigorous statistical analysis is crucial. This analysis will help identify patterns, trends, and correlations within the data, providing valuable insights into the ecological processes at play in the reef ecosystem.

Final Generation of Data for the Atlas: Once the data has been analysed and validated, the project can proceed with the final generation of data to be included in the atlas. This step involves compiling the relevant information and preparing it in a format suitable for inclusion in the atlas, ensuring its accessibility and usefulness to a wider audience.

Production of Publicity Materials: To effectively communicate the project's findings and raise awareness among different stakeholders, it is important to produce various publicity materials. This can include banners, scientific articles, and pamphlets that summarise the key results and implications of the research. These materials should be designed to effectively convey the project's outcomes and engage the target audience.

By completing these next steps, the project can advance its objectives of understanding the reef ecosystem, promoting conservation efforts, and disseminating the findings to a broader audience.

**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, we did use the Rufford Foundation logo in materials produced for the project. Additionally, the Foundation received publicity throughout the course of our work.

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

**Pedro Henrique Cipresso Pereira** – Coordination - Responsible for coordinating the project and networking with stakeholders.

**Gislaine Vanessa de Lima** - Biologist and researcher. Responsible for coordinating field activities and reports.

**Atos Gibson** - Intern. Responsible for social media.

**Ananda Prata** - Intern. Responsible for fieldwork with reef rangers and assistance in bibliographic construction.

**Débora Camacho** - Biologist. Responsible for field research.

**Luis Guilherme França** - Intern. Responsible for field research.

**Erandy Gomes** – Researcher. Responsible for graphic design and field research.

**10. Any other comments?**

In conclusion, this final report highlights the significant outcomes achieved by the APACC Coral Reef Conservation Project. Through collaboration with The Rufford Foundation and other partners, we have made substantial progress in our established goals, including the revision of the management plan, publication of notable scientific articles, and active engagement of local communities.

The participation of local communities, particularly the fishermen, has played a crucial role in the project's success. Their collaboration, active interest, and sharing of traditional knowledge have reinforced the importance of environmental preservation and strengthened the bond between science and the community. Furthermore, the satisfaction and interest expressed by the community regarding the presented results underscore the project's relevance in terms of conservation and generating sustainable support for local activities.

As the project moves forward, it is essential to continue strengthening the partnership with local communities, consolidating mutual benefits, and raising awareness about the importance of preserving the APACC coral reefs.

The achieved results thus far are promising and provide a solid foundation for future studies and improvements in management and conservation strategies. Continuous

commitment to result dissemination, involvement of local communities, and collaborations among institutions are paramount for the long-term sustainability and success of this project and similar initiatives.

## Images



**RUFFORD WORKSHOP 2022**



**REEF RANGES**



**TEAM – MONITORAMENTO APACC**



**CORAL REEFS**